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ABSTRACT

This report presents the findings from an evaluation of the classroom processes of the twelve Planned Variation sponsors. Three basic issues were addressed: (1) To what degree are the programs really different and providing distinct treatments? (2) To what extent are the educational goals of each program actually implemented? and (3) Is there a relationship between implementation and child outcome as measured by cognitive and achievement tests? After a brief overview of Project Head Start and descriptions of each sponsor model, the method of the evaluation study is discussed. Data collection was based on a battery of tests administered in the early fall and late spring of the 1970-'71 academic year, and observation of classroom processes twice during that same year. The observation instruments and lists of tests used are appended to the document. The procedures of analysis for the study (computer and statistical) are also discussed. It is concluded that (1) although several loose clusters of sponsors were identified, there were more similarities than differences, (2) consistency between sponsor objectives and sponsor frequencies on the variables selected to reflect these objectives was quite high for all sponsors, but consistency on these same process variables across sites was quite low, and (3) the relationship between implementation and test results remains unclear. (DP)

Final Report

CLASSROOM OBSERVATION STUDY OF IMPLEMENTATION IN HEAD START PLANNED VARIATION, 1970-1971

Prepared for:

OFFICE OF CHILD DEVELOPMENT
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
WASHINGTON, D.C. 20024

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Final Report *August 10, 1973*

CLASSROOM OBSERVATION STUDY OF IMPLEMENTATION IN HEAD START PLANNED VARIATION, 1970-1971

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I. INTRODUCTION

The Head Start* preschool child development program was established in 1965 as an educational and social services intervention program intended to enrich the early environment of children of low-income families--a disproportionate number of whom had an ethnic minority background.

As one of several programs established to wage the War on Poverty, Head Start (HS) was viewed as a way to increase the likelihood that succeeding generations of children would not be harnessed to a life of poverty. It was felt that providing socioeconomically disadvantaged young children with appropriate preschool experiences would equalize their chance of school and life success with that of their more fortunate peers. The goals were to provide the children with preschool experiences as well as social and health services that would prepare them for the school world and the intellectual tasks required of them. The classroom programs were established at the local level and reflected community goals; ongoing federal help and guidance were given but without prescribed content and methods.

Later, several investigators who had developed preschool programs--based on varying educational and developmental philosophies and using different methods targeted to socioeconomically disadvantaged children--were invited to extend their programs into Head Start Centers in communities in which they already sponsored† Follow Through classrooms. In order to determine the relative effectiveness of some of these apparently distinct programs, the federal government contracted* with the Stanford Research Institute to conduct a study of eight (which later increased to 12) of these "planned variation" programs. This report presents the findings from an evaluation of the classroom processes of the Planned Variation sponsors. The report is concerned with assessing: (1) the degree to which the programs are indeed different--that is, were they distinct treatments? (2) the extent to which the educational goals were implemented; and (3) whether there is a relationship between implementation and child outcome as measured by cognitive and achievement tests. This chapter presents a summary of the background that led to the establishment of the HS program and the HS Planned Variation experiment, as well as a brief introduction to the methodology of SRI's classroom observation study.

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*The statutory authority for Operation Head Start was the Economic Opportunity Act of 1964, PL 88-452.

†"Sponsors" are developers of preschool programs, called "models", for use in Head Start. The relationship is intellectual or pedagogical rather than financial. A "sponsored" classroom is one in which a "model" is being used. A "non-sponsored" classroom is one participating in Head Start or Follow Through without the influence of a sponsor's model. Initially, eight sponsors were involved, but this number was increased to 12 in 1970-71.

Background

The establishment of Operation Head Start resulted rather directly from President Kennedy's panel on mental retardation that recommended, in 1963, an intervention program to prevent mild mental retardation. Since the majority of the mentally retarded exhibit no known or demonstrable physical cause, and since approximately 75 percent of these individuals are found among the socioeconomically disadvantaged segment of the society, the panel felt that an appropriate early childhood program might prevent such retardation.[*] Subsequently, a panel of experts prepared a detailed report proposing a child development program for the nation's 5.8 million socioeconomically disadvantaged children under six years of age. Thus Operation Head Start was included in the Economic Opportunity Act of 1964 and become operational in 1965.

Theoretical Bases for Head Start

Although several disparate events and circumstances led to the HS program, the one of immediate relevance to this report was the evidence accumulating from biological and behavioral research into the plasticity of developing organisms and the importance of the early years in a child's development. Earlier it had been thought that intelligence was biologically fixed and that its development was a matter of maturation, largely unaffected by life circumstance; but new evidence from animal and human studies challenged this view. These studies documented the ill effects of stimulus deprivation in early life on normal growth and mental development. Furthermore, sociological treatises referred to a "culture of poverty" and "cultural deprivation" as operative among the disadvantaged groups. These research findings--together with the early preschool intervention studies, the syntheses of psychological evidence, and developments in preschool education--led to the expectation that early educational programs, such as HS, could compensate for these presumed deprivations. Historically, the studies of sensory deprivation go back a long time.

Over a hundred years ago, Sechenov[1*], the famous Russian physiologist, emphasized the critical role of sensory stimulation in all behavior. Sensory activity, he maintained, was essential to the preservation of life itself.[2] In the U.S., highly controlled experiments[†] with non-human subjects since 1945 have demonstrated a direct, basically linear, relationship between the variety and complexity of early environmental stimulation and later task performance and adaptive social behavior. The ill effects of the absence of appropriate early stimulation were noted in human studies as well.[16-21] Thus, based on the early assumption that children were deprived of varied and complex stimulation and thereby not developing to their optimal capacity, Head Start was expected to provide a stimulus-rich environment that would compensate for the early in-home deprivation.

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*References are listed at the end of this text.

[†]See, for examples, these studies: with rats, References 3,4,5; with dogs and cats, References 6,7,8,9,10; with sub-human primates, References 11,12,13, 14, and 15.

Additional early studies supported the preschool intervention hypotheses. The 1939 Skeels and Dye study,[19] and its follow-up 21 years later,[20] provided dramatic evidence of the effect of environment on human competence. Other studies included Dawe's demonstration[21] of the effect of specific language training and enriched experiences on intelligence as measured by the Stanford-Binet; Kirk's five-year study[22] of 81 mentally retarded preschool children who were tutored in programs specifically tailored to their individually diagnosed mental capacities; and Strodtbeck's study[23] of five groups of mentally retarded or orphaned black boys, who were placed in either permissive nursery school programs or more structured ones, with the latter found to be more effective than the former.

Lending strong support to the concept that human intelligence is not fixed but depends on the interaction between genetic potential and life circumstance were three influential treatises written by Hebb,[24] Hunt[25] and Bloom.[26] Hebb's The Organization of Behavior[24] advanced the theory that there are two distinct stages of learning: first, the quality and extent of a person's earliest and continuing perceptual experiences will determine how much is stored in his neurological bank; and second, the quality of his learning will depend for efficiency and the level of function on the richness in both quantity and quality of what is stored in that bank. Hebb's theory appears to agree with the stimulus deprivation findings. Hunt, in his Intelligence and Experience,[25] inferred from the considerable evidence from animal and human studies that the development of intelligence is dependent upon the interaction between genetic potential and the quality and nature of experience. Bloom's monograph,[26] Stability and Change in Human Characteristics, presented the conclusion that the rate of intellectual development is greatest in the early years and reaches relative stability by age 12, and that it is most easily modified during the period of its most active growth.

The studies mentioned earlier and the stated theoretical constructs may have influenced several investigators independently to develop preschool intervention programs for socioeconomically disadvantaged children. These included the Gray and Klaus[27] program for black children in Tennessee; Deutsch's New York City preschool and early elementary school program;[28] and Weikart's program[29] in Michigan for black children diagnosed as mentally retarded due to "cultural deprivation." These and other investigators provided early evidence that carefully designed programs with language and cognitive components have an impact on the learning capacity of these children.

The more recent research and evaluation studies have been valuable in revealing the inadequacy of some of the earlier assumptions. Clearly, economically disadvantaged children are neither culturally nor stimulatively deprived per se. However, they may have nutritional deficits and unattended health problems; they may live in an environment with an inappropriate stimulus level (too much noise, activity, and so on, and too high expectations); they often have cultural backgrounds different from the mainstream culture on which the school system is premised; and, most important in terms of HS goals, they may lack the specific types of adult-child interactions and experiences that would prepare them for success in school and later adulthood in a highly organized, industrial, literate society. Head Start programs were formulated to provide comprehensive social and health services to the children and their families as well as an enriched preschool curriculum in the expectation that the effort would ameliorate such conditions where they existed.

However, the results from an early evaluation of the initial Head Start summer program[30] were immediately sobering: The findings indicated that whatever gains the children had made in the first summer of Head Start were not maintained at the end of kindergarten. These findings supported the opinion of some child development specialists that a summer program was too short to compensate for the inadequacies in the children's background and perhaps occurred too late in their lives. In addition, there was the question of whether the traditional public school kindergarten and early grade programs were sufficiently appropriate to the needs of these children to maintain or accelerate their school progress. The result was the establishment of: (1) full year programs for HS children; (2) Parent-Child Centers for children under three years of age and their parents; and (3) the Follow Through program that maintains an enriched program in kindergarten through the third grade.

As the original rationale of the program was modified and became more sophisticated, Head Start evaluations no longer attempted to determine the effectiveness of a short-term impact that was presumed to make disadvantaged children equal at school entrance to middle-class, mainstream children on all performance measures and thus, presumably equal in educational opportunity and "life chances." Instead, Head Start research and evaluation has become a multi-focused search for ways to maximize short- and long-term impacts on different criteria of child growth and development. These include the Parent and Child Center studies to determine the effects of working with children even younger than Head Start children and their families; the Follow Through experiment to determine the effects of a coherent program of continuous intervention throughout the primary grades after a Head Start experience; and studies of the effectiveness of Health Start, Home Start, and other early childhood programs.

More recent evaluations,[31,32] which re-examined the original Coleman et al., study,[33] have tended to challenge the assumption that equalized access to books, more experienced teachers, well-equipped science laboratories, and so on, result in equalized student achievement. The Jencks study also challenged the assumption that equal educational attainment leads to equal (middle/upper class) socioeconomic status. These several assessments continue to point to the socioeconomic status of the family as the critical factor in a child's school and life success. However, these evaluations rely on factors that are quite distant from the actual activities in the classroom. The classroom observation study was implemented as part of a "planned variation" experiment to determine whether the classroom process, as defined by a specific curriculum, makes an impact on child outcome. The planned variation experiment, in other words, was mounted to determine whether the several types of preschool programs were indeed distinct treatments, and to explore their relative effectiveness.

Head Start Planned Variation Study

When it became clear that sheer stimulus enrichment or early intervention was not a unitary treatment variable and that the mechanisms involved in such general enrichment are poorly understood, the Head Start and Follow Through Planned Variation experiments were initiated. Head Start Planned Variation(PV) was conceived as an evaluation of "the impact of various well-defined educational environments and learning situations on the Head Start child."[34] It was perceived

as an experiment in which classroom curricula, or models, were seen as treatments to be implemented in several sites, with each site being a replication of the treatment. The SRI Classroom Observation Instrument is one of the principal methodological tools used to examine whether implementation or replication has occurred. Once existence of the planned treatments were established, the effects of each model on child outcome could be tested and compared with those of other models and with non-sponsored Head Start.

The core of the planned variation study is the original eight--increased in 1970-71 to 12--pre-developed preschool programs, selected because they appeared to provide distinct curricula based on divergent psychological and developmental theories. These programs are referred to as "models", and their original developers are called "sponsors." In 1969-70, the eight sponsors had programs located at 15 sites; in the second year of the project, 1970-71, the sponsors had been increased to 12, with programs at 37 sites (see Table 1). Two of the 12 models, the Enabler and Florida models, do not have a developed classroom curriculum. The Enabler model (five sites) provides an early childhood education expert who visits a given site regularly and helps the community develop its curriculum and program in terms of its own goals for the children. The Florida model (four sites) is primarily a home intervention model; since it is based on the view that the parent is the primary educator of the child, trained parent educators teach a parent (usually the mother) to educate the child and aid the parent in providing an educationally enriched home environment.

The aim was to locate these sponsored Head Start programs in communities that already had a sponsored Follow Through program in the local elementary schools so as to take advantage of the longitudinal aspect of the Follow Through evaluation. These Head Start sites adopted the model already being implemented in the Follow Through classrooms. Fourteen non-sponsored Head Start programs, located either in the same site as the sponsored Head Start programs or in nearby communities, were selected as comparison programs for the study. (A site is a Head Start center or group of such centers generally found in the same location and administered by one agency.) All the planned variation classrooms in a site use the same model. The sponsor is responsible for only those classrooms that are using his model. There were no non-Head Start comparison classrooms in the study; all classrooms were Head Start or Head Start Planned Variation.

The staff of a model classroom is expected to teach according to the sponsor's description. This has meant that most of the adult staff had to either learn new or to modify their own teaching techniques, ways of relating to children, and ways of organizing the classroom.

Description of Sponsor Models

Brief descriptions of the various sponsors' models are presented below.

Far West Laboratory (FW)

The principal aim of the Far West Laboratory model is to develop within the child a positive self-image and the ability to search out solutions to his own problems. The program is based on the autotelic discovery approach, i.e., learning activities are structured to be self-rewarding and to help the child learn

Table 1

HEAD START PLANNED VARIATION SITES: 1969-1971

Sponsor	1969-70	1970-71
Far West Laboratory (FW)	Duluth, Minnesota	Duluth, Minnesota Fresno, California Tacoma, Washington Salt Lake City, Utah Buffalo, New York
University of Arizona (UA)	LaFayette, Georgia Lakewood, New Jersey	LaFayette, Georgia Lakewood, New Jersey Lincoln, Nebraska
Bank Street College of Education (BC)	Tuskegee, Alabama Wilmington, Delaware	Tuskegee, Alabama Wilmington, Delaware Boulder, Colorado Elmira, New York
University of Oregon (UO)	Tupelo, Mississippi East St. Louis, Illinois	Tupelo, Mississippi East St. Louis, Illinois East Las Vegas, New Mexico
University of Kansas (UK)	Oraibi, Arizona Portageville, Missouri	Oraibi, Arizona Portageville, Missouri Mounds, Illinois
High/Scope (H/S)	Ft. Walton Beach, Florida Central Ozarks, Missouri	Ft. Walton Beach, Florida Central Ozarks, Missouri Greeley, Colorado Seattle, Washington
University of Florida (UF)	Jacksonville, Florida Chattanooga, Tennessee	Jacksonville, Florida Chattanooga, Tennessee Jonesboro, Arkansas Houston, Texas
Education Development Center (EDC)	Washington, D.C. Johnston County, North Carolina	Washington, D.C. Paterson, New Jersey Johnston County, N.C.
University of Pittsburgh (UP)	---	Lock Haven, Pennsylvania
Responsive Environment Comparison (REC)	---	Kansas City, Missouri
New York University (NYU)	---	St. Thomas, Virgin Islands
Enabler Models	---	Billings, Montana Colorado Springs, Colorado Bellows Falls, Vermont Newburgh, New York Puerto Rico

skills, concepts, and attitudes that will enable him to apply his knowledge in new situations. The environmental structure is intended to respond to the child's own needs and interests. Adults in the classroom provide feedback and guidance; they are responsive but not directive.

University of Arizona (UA)

The curriculum of the Tuscon Early Education Model (TEEM) emphasizes four general areas of development; language competence; an intellectual base (basic learning skills of attending, recalling, evaluating alternatives); a motivational base (task persistence, expectation of success); and societal skills (reading, writing, math, and social skills). The classroom structure in the TEEM program consists of small group activities, organized around a variety of interest centers and behavioral settings where interaction on a one-to-one basis is provided with frequent opportunities for attending to the individual needs of each child. Support of each child's contribution, attention, and affection are used as social reinforcers, and learning materials are chosen for their reinforcing value.

Bank Street College of Education (BC)

The Bank Street model aims at developing active participation in each child and self-directedness in his learning. Teaching is diagnostic, with individualized follow-up in a classroom environment allowing for a great variety of experiences and independent investigation. Language, math, arts, and crafts are incorporated and integrated into a curriculum which emphasizes the home, school, and community. The learning environment is constantly restructured to adapt it to the individual needs and interests of the children. The Bank Street model focuses on tasks that satisfy each child's individual goals and promote his cognitive and affective development.

University of Oregon (UO)

The Englemann-Becker model is a highly structured, academic program based on the premise that, with proper instruction and consistent reinforcement, any child can acquire the skills necessary to bring him up to the achievement level of his middle-class peers. Using programmed materials, adults in the classroom work closely with small groups of children in a format of question-group response-feedback to teach concepts and skills in reading, arithmetic, and language.

The University of Kansas (UK)

The University of Kansas behavior analysis approach aims at teaching children needed skills by means of systematic reinforcement procedures, and emphasizes individualized instruction through the use of programmed materials. Teachers and trained parents operate in the classroom as behavior modifiers.

High/Scope (H/S)

The High/Scope Head Start model is a cognitively oriented preschool program derived from the theories of Piaget. The child's level of performance is determined and materials are then presented in sequential fashion, from the

simple to the complex, from the concrete to the abstract. Development of language and of a good self-concept are important program goals. Learning objectives are stated as behavioral goals, that describe the expected behavior resulting from a learning activity.

The University of Florida (UF)

The University of Florida model is not a classroom model; that is, it prescribes neither curriculum nor teaching methodology. The primary focus is parent education. Parent-educators are trained by the teacher to work in the classrooms and they also enter homes to educate other parents to participate directly in the education of their children. Learning tasks are developed that are expected to allow home and school to work as instructional partners.

Education Development Center (EDC)

The EDC Head Start model is derived from the British Infant School approach to preschool education. It provides a learning environment in which class activities arise from the needs and interests of the children, not from a prescribed curriculum. The teacher serves as a catalytic agent, guiding the children and structuring the learning environment.

The University of Pittsburgh (UP)

The University of Pittsburgh model is an individualized education program. The most important component is an individual progress plan in which each child works through the finely graded steps of the curriculum according to his own learning style and rate. The curriculum aims at teaching skills and concepts basic to many subject areas, such as basic perceptual motor orientation, language concepts and logical processes, memory, and problem-solving skills. Learning objectives are arranged in a sequence according to the order in which children learn these skills and concepts. For each objective in this sequence, there is a brief diagnostic test for use by the teacher in assessing a child's progress so as to design an individualized instructional program.

Responsive Environment Corporation (REC)

The REC program utilizes specially designed materials and educational technology in a curriculum which emphasizes individualized, independent work. Observation of the child guides the teacher in selection and organization of materials and activities. The environment is carefully balanced between structured and non-structured activities. Language development, understanding and incorporating basic concepts, and enhancement of abstract reasoning ability are emphasized in the curriculum.

New York University (NYU)

The NYU curriculum focuses on both the cognitive and affective growth of children. The program emphasizes concept formation, perception, language, self-image and social-emotional growth. Small group instruction, ongoing teacher assessment; and classroom management techniques are utilized to effect individualized instruction.

The Enablers (EB)

In the beginning, OCD assigned an early childhood education specialist as a consultant to each community participating in Planned Variations. These consultants worked closely with local HS staff to expedite successful integration of the sponsored models into the ongoing HS program; this was to ensure the "integrity" of the regular HS program. In 1970-71, the role of these expert consultants was developed into a model in its own right. The Enabler modeler's role was to provide ongoing technical assistance to each staff and HS community so as to help them formulate and achieve their goals.

Assumptions Underlying Planned Variation

Of critical importance to an understanding of the PV study rationale and approach is a knowledge of the important assumptions inherent in the original conception of the experiment. These assumptions have been clarified through several studies conducted at the Huron Institute.[35,36] The PV design was based on the assumption that the models are well-defined in terms of operational requirements for classroom behavior and that the model is, indeed, the most important determinant of behavior in the classroom.

It was also assumed that the models could be replicated in different sites and that, as a result, classroom teaching essentially would be identical in all of a specific model's classrooms in the various sites. Full implementation, then, might be defined as site-to-site replicability of a model in all of a sponsor's sites. Further, it was expected that the staff in a center would readily adapt to, and properly interpret, the sponsor's model. Full implementation was expected to occur in all models during the last two years of the experiment. The possibility that there may be incomplete implementation of some models, or even a failure to implement models, was apparently never really considered by the planners of the study.

These early assumptions now appear to be somewhat naive. There is much evidence to contradict the assumption that the models, or treatments, were well defined or that teachers necessarily instructed in accordance with the sponsor's directions. Experienced teachers were sometimes required to radically change long standing classroom practices so as to comply with sponsor expectations. It is also questionable whether the model is indeed the primary input into the classroom behavior. Finally, the replication of sponsor's models from site to site is no longer assumed, or even expected in some cases, since some adaptation is necessary to make the system work. As a result the level of implementation is being investigated, as well as the outcome effects of the sponsor's models.

SRI Classroom Observation Study

In Winter 1972-73, SRI was requested to attempt a more detailed analysis of PV sponsor implementation as measured by the SRI Classroom Observation Instrument.

The questions raised were:

(1) Do the model classrooms really differ from one another and from non-sponsored Head Start classrooms? Are there really 12 different models?

(2) Many people claim that the reason Head Start programs never showed striking effects on children's test performances was that these programs were never implemented: Can this be the explanation of the modest effects?

The three most troublesome concepts in these questions are "differences," "implementation," and "striking effects." To approach the questions posed above, it is necessary to define the concepts on which they are based. For the first question, one must discover which differences are of interest. Certainly sponsors differ in the statements of intent displayed on the preceding pages. There may not be 12 entirely different child development theories on which the models were based, but no two sponsors extract the same methodological implications from the theories even when they hold some theories in common, as do the University of Oregon and the University of Kansas, or as do Far West, Bank Street and EDC.

The sponsors also are known to differ in actual methods of implementing programs at the sites. It is known from informal contacts that some sponsors refrain from imposing a particular teacher-pupil interaction style on anyone, whereas others rigidly prescribe and monitor teachers' interaction styles. Nevertheless, all sponsors in the group would appear to be, and might be declared, "alike" if investigation revealed that all sponsors had:

(1) Sponsor representative or local program coordinator on site

(2) Training sessions for the on-site program coordinators

(3) Training sessions for teachers.

Obviously, to be different in the present study means to differ in terms of those classroom process variables defined on the SRI classroom observation instrument.

The defining conditions for program "implementation" are also stated entirely in terms of the SRI classroom observation procedures.* While the categories of behavior to be recorded on the Classroom Observation Instrument (COI) were created, with the help of most sponsors, to capture important element in their programs, it cannot be claimed that all the models are described definitively by the COI. In fact, it is clear that some models are better served than other in this respect. Sponsors who can describe their intended classroom

*Implementation could be defined without requiring the sponsors to give an explicit statement of their intentions and without measuring the attainment of these intentions by observation devices based on their statements. "Well implemented" and "poorly implemented" could be left to the sponsor's judgment and rating scales could be used by the sponsor to measure it.

programs in terms of observable behaviors which are relatively easy to translate into operationally defined categories can expect to show better "degree of implementation" on the COI than sponsors who use more global or theory-oriented descriptions of classroom programs that are difficult to observe reliably.

The relationship between showing differences among sponsors on the COI and showing "degree of implementation" of each sponsor is also quite complicated. If one observes reliable differences among sponsors on the COI, one might say also that the planned variations exist; i.e., variations have been implemented. On the other hand, when two sponsors differ from one another on several COI variables (on which we would have expected them to be the same), it may mean that neither model is well implemented in terms of its own aims or one is better implemented on some variables and the other is better implemented on others, or that one of the sponsors is poorly implemented. Several definitions of "implementation" are explored in the report. In addition, an attempt is made to get at a less relativistic definition of "well implemented" than is obtained when one sponsor is compared with another. This attempt is based on the differences on COI variables between the sponsored models and the non-sponsored Head Start classrooms.

Finally, whether the effects found in past evaluations of Head Start are "striking" or less than expected is a matter of judgment. It is possible that in the present study, where the comparison group is not children without a pre-school program but children with another, albeit un-sponsored, child development program, even differential effects on test performance that were barely detectable by current statistical means would be "striking" when contrasted with other recent findings. If differential effects are found, it would be extremely difficult to attribute some effects to differences in level of implementation and some effects to differences in the nature of the models. And if there are no differential effects, such attributions would be impossible. It is possible, however, to inquire whether those classrooms where models were well-implemented (according to one definition) are the same classrooms where children's test performances were high. This method is employed in the present study.

The results will be examined in sequence in terms of the following three questions:

- Were there distinct treatments?
- Were these treatments implemented?
- In what way does degree of implementation relate to outcome measures?

The first question deals with sponsor differentiation. Each sponsor's program will be described in terms of the CO variables that designate the classroom processes and behaviors judged to be most relevant to his specific curriculum. Thus, a list of selected implementation variables is generated for each sponsor. These variable sets are first examined to see how many distinct models are revealed on the basis of stated classroom objectives translated into CO variables. Observed differences among sponsors on all CO variables and factors are also examined.

The second question is concerned with the degree of implementation of these treatments. First, observed mean frequencies on selected implementation variables are compared with sponsor expectations on these variables to measure consistency between stated intentions and classroom events. A second indicator of implementation, site-to-site consistency on selected implementation variables, is also examined. Fall-to-spring consistency, although not in itself an indicator of the level of implementation, is a corollary question which is also dealt with. In cases of change, it is possible to assess whether the fall or the spring frequencies on selected implementation variables are more consistent with the sponsor's intentions.

The third question deals with the issue of level of implementation as it related to outcome. Well implemented and less well implemented classrooms will be identified for each model, based on the implementation variables identified as relevant to each sponsor's program. The children's test scores for a sponsor's well implemented and less well implemented classrooms will be compared to examine whether a higher degree of implementation is associated with higher test outcomes. If these classrooms differ in terms of test scores, further examination will be undertaken to determine whether it is the model's implementation variables which are related to higher scores. The relation of implementation to outcome is also explored through a series of regression analyses linking classroom processes to child test performance.

II METHOD

This chapter is composed of two major sections. The first section is a brief description of the data collection (more detailed descriptions of the instruments and procedures are included as appendices). The second section describes the analysis techniques by which the critical variables and frequency data were generated, the sponsor differences were examined, the degree of model implementation was assessed, and implementation to outcome was evaluated.

Data Collection

The SRI Classroom Observation study is part of a multifaceted evaluation. As a major facet of the PV evaluation, participating Head Start children were given a battery of tests in the early fall and late spring of 1970-71. In a subset of the tested classrooms, classroom processes were observed twice during that academic year, once in the fall and once in the spring.

The SRI Classroom Observation Instrument (COI) is composed of two major sections: the Observation Summary Form (OSF) and the Classroom Observation Procedure (COP). The OSF provides a daily record of Identification Information, Class Observation Information, Summary of Classroom Environment, Physical Arrangement and Equipment Available. The Classroom Observation Procedure (COP) consists of (1) the Classroom Check List (CCL), (2) the Preamble to the Five-Minute Observation, and (3) the Five-Minute Observation (FMO). One COP is completed about every 15 minutes throughout the Head Start classroom day. The CCL is used to record groupings of adults and children in activities. The Preamble provides information about the specific activity that is the focus of the following FMO, on which is recorded the interactions among children and adults in the classroom. Appendix A describes the Classroom Observation Instrument on which the data were recorded, the procedures used by observers who recorded the data, and the sample of classrooms, teachers, and children on which the data were collected. This appendix also presents changes in procedure from the fall observation period to the spring observation period. Operational definitions of COI code categories are given in Appendix B.

Appendix D describes the outcome measures (tests) that were given to the children. Procedures for administering the tests are described in an earlier report.[37] This report describes only the content of the tests and the scoring procedures so that the reader will be able to determine the ways in which sponsors' classroom processes might be expected to relate to children's performance on these tests.

Analysis Techniques

This section describes those procedures (computer and statistical) whereby the coded information contained in the completed COI protocols was converted to frequency data on variables of interest in the study. Then it describes how the data were analyzed to answer the questions stated in Chapter I. Because

the study was not designed as an experiment with random assignment of subjects to treatments, the data collected in PV classrooms do not strictly satisfy the requirements and assumptions of the statistical techniques employed; however, the data are no more adequately assessed by techniques appropriate to other assumptions. The statistics chosen possess the power and robustness necessary to overcome deficiencies regarding normality and homogeneity of variance.[38,39]

Generation of Variables and Frequency Data

Head Start Tape Creation

As data came in from the field, the observation protocols were sent directly to National Computer Systems (NCS) in Minneapolis for optical scanning. There the forms were "read" and the information was transferred to magnetic tape in binary code according to SRI's tape specification. The tape contained 80-column card images of the observer marks on the protocols and was thus a packed and unsorted direct copy of the forms. When the tape arrived at SRI, it was listed and hand-checked against a five percent random sample of the forms. When quality was assured, a program was written to create a new tape that grouped all observation data by classroom, site, and sponsor. Non-sponsored (NPV) comparison classrooms were grouped separately from sponsored classrooms for each site.

Defining Variables

As was mentioned earlier, the categories on the Classroom Observation Instrument were designed to capture classroom arrangements and elements of events considered educationally significant by one or more of the sponsors. But every category and all possible combinations of categories simply could not be considered as variables, nor could the total number of appearances of each category on the raw data tape be used as a quantitative measure. Only the categories or combinations of categories that were of potential relevance to the models were used to define variables in the evaluation of PV; then a frequency-of-occurrence-per-unit measure was developed. A total of 69 process variables was created; operational definitions of these COI variables appear in Appendix C.

Observation Summary Form Variables--Only three Observation Summary Form (OSF) categories were used. These were combined in a single variable describing one aspect of classroom environment.

To get Variable 6, "Adult/child ratio," the number of teachers and aides on the first day of the two-day observation period is divided by the number of children present, thereby deriving the ratio. The same is done for the second day. The mean of these two ratios then becomes the average adult/child ratio per day. For example, a classroom would have a value of 0.2 on that variable if one teacher and one aide were there both days and ten children were present both days.

Classroom Check List Variables--The definitions of the activity categories on the Classroom Check List (e.g., Activity F--arts, crafts) were taken fairly directly as variable definitions (e.g., Variable 14--arts, crafts). That is, if the "arts / crafts" category was marked on the protocol, the value that

the variable took for that COP was 1; if the arts and crafts activity was not marked, the value the variable assumed was zero. Each activity was either observed during the CCL recording on the COP or it was not. Thus, the unit for CCL variables was the COP and the variable frequency was the number of times the activity occurred divided by the number of COPs recorded.

A few variables were formed by combining activity categories, such as Variable 21, "Wide variety of activities." The values (1 or 0) of each of the activity variables (Variables 9 to 16) were summed. Thus "Wide variety of activities" could take on a value from one (if only one activity category was coded) to eight (if all activity categories had been coded). The COP was still the unit, as it was for all CCL variables.

Five-Minute Observation Variables--Because it records interactions as they occur, the FMO portion of the Classroom Observation Instrument has a rather special nature. The data collected on the FMO are structured as a language, since they are coded in the form of sentences saying "Who did what action to whom and how it was done." The language of the categories has a predefined syntax. That is, there are certain coded sentences that are acceptable and others that are nonsensical. The language is related to English, but in the CO language there are many English sentences that are equivalent even though they have different meanings. For example, the two English sentences below make equivalent coded sentences on the FMO:

English Sentence	CO Sentence			
	WHO	TO WHOM	WHAT	HOW
Classroom aide tells John that his finger painting is beautiful.	A	C	6	-
Another aide tells Johnny's friend that he is a good boy.	A	C	6	-

FMO interaction variables are defined in the sentence format. For example, if we are interested, as in the University of Oregon model, in determining whether using aides to instruct children in small groups has any different effects from using the teacher to instruct children, two separate variables are created: "Aide instructing a small group" (AS4-) and "Teacher instructing small group" (TS4-). If we are only interested in whether an adult (rather than specifically a teacher or aide) is instructing a small group, then the variable would be defined as "Adult instructing small group," e.g.,

WHO	TO WHOM	WHAT	HOW
T A V	S	4	-*

*A hyphen (-) denotes that the definition is unspecified; i.e., any code that appears in that category will be picked up but will not change the intent of the other categories.

If it is of concern how the adult instructed the children, then the definition would not be nonspecific* in the last position but would specify a "How" code, e.g.:

WHO	TO WHOM	WHAT	HOW
T A V	S	4	Sy

For some models, neither the category nor the single sentence captures the essential educational event. For the University of Oregon and University of Kansas models, the event of interest is the nature of the feedback response of the adult to a response given by the child. Thus a variable designed to capture this event must be defined by more than one sentence, e.g., Variable 44, "Adult acknowledgement to child response," is defined as follows:

WHO	TO WHOM	WHAT	HOW
C D 2 S	T A V	3	-
	followed by:		
T A V	C D 2 S L	6	-

Because not all COPs had an equal frame count, FMO frequencies could not be calculated by dividing the total occurrence of FMO variables by the number of COPs completed. Instead, classroom frequencies of FMO variables were calculated by dividing the number of times the variable occurred by the number of frames recorded on each COP completed for that classroom. So as to make the FMO variable frequencies approximately comparable to CCL variable frequencies, the FMO frequency was multiplied by the maximum number of frames per COP (i.e., 60). Thus, if the value of Variable 44, "Adult acknowledgement to child response," is three, this means that, on the average, adult acknowledgement occurs three times per COP (or five minutes)*.

* The FMO portion of the COP consists of 60 frames and should take the observer approximately five minutes to complete; however, at times an observer codes at a slower rate and fewer than 60 frames are completed within the five minutes.

Computing Frequency Distributions

Once the variables were defined, it was possible to create the principal data tape for use in the analysis. From the raw data tape, a new tape was generated which computed, for each classroom, the mean frequency of occurrence and standard deviation of each variable. The principal analysis tape thus contained a frequency distribution on all 69 variables for each classroom, by site and sponsor, identified as either PV or NPV.

The Units of Analysis

Although the sponsors were accepted by, and had a contract with, the entire Head Start project at a site, their basic "instrument" for model implementation was the classroom teacher. Similarly, although this analysis is concerned with sponsor implementation within sites and over sites within sponsors, the basic unit of analysis is the classroom. Thus, while classrooms per se are not compared with one another, the frequency value of a given variable is first determined for each classroom in the sample in the manner described above. When mean variable frequencies are presented by site or by sponsor it is always the mean of the frequencies of that variable in each classroom in the site or under the sponsor's jurisdiction. The standard deviation is always an expression of the variance between the means of the classrooms so grouped.

Selected Sets of Variables--The original 69 variables constitute a fairly exhaustive list. Included are many variables which most sponsors and other educational theorists agree should be positively related to children's performance on academic tests (e.g., Variable 40, "Adult informing child;" Variable 56, "All adult corrective feedback to child"); however, there are some variables which should distinguish one sponsor's model from another's (e.g., Variable 46, "Adult direct request, followed by child response, followed by adult corrective feedback; Variable 80, "Child interacts with machine"), and from non-sponsored Head Start programs (e.g., Variable 6, "Adult/child ratio," Variable 19, "Teacher with large group in any activity"). In this full set of variables some are particularly relevant for answering the main question posed in the report: Were the models well implemented?

The Implementation Variables--Based on the sponsors' stated theories, classroom methodologies and behavioral goals, and the SRI staff's acquaintance with models, a list of variables was selected which would most clearly reveal degree of implementation. For each of 11 sponsors, several variables were selected from the full list which would be expected to occur frequently or infrequently in his ideal model classrooms. Such a list was not created for the Enabling model, since no description of desired classroom processes was available. Although the Florida model is not a classroom model and directs its energies toward the home, a list of CO variables was nevertheless constructed on the basis of our staff's previous knowledge of desired classroom processes in that model.*

*While the sponsor does not directly train teachers to implement certain classroom processes, he does share some educational philosophy and expresses preferences for the way teachers work with children. In addition, the parent educators with whom he works participate in Head Start Center activities and share these theories.

In the set of 28 implementation variables there are approximately ten variables for each sponsor. Each sponsor's list of variables includes those process variables judged by SRI staff to be most descriptive of the model's desired classroom processes and thus potentially most capable of indicating the level of implementation in his classrooms. Not every variable is relevant to every sponsor. Table 2 displays these SRI-selected implementation variables by sponsor. Variables designated "high" are ones on which a sponsor's well implemented classrooms are expected to attain high frequencies; ones marked "low" are predicted to occur infrequently in well implemented classrooms.

Seven Global Variables (Factors)--It is admittedly difficult to conceptualize all of the shades of difference in classroom behavior among sponsors and sites in terms of the 69 individual variables. Factor analysis permits an economical grouping of variables into a smaller, more manipulable set of global variables without loss of an excessive amount of variance accountability. Factor analysis also offers a further advantage in that normalized factor scores can be obtained and graphically displayed for any grouping over which variable frequency can be recorded.

Initially, each of the 69 variables was included in the factor analysis. They were arranged in a correlation matrix and subjected to a principal components analysis. Varimax rotations were performed to yield a set of five factors. Upon examination of the analysis, it was determined that ten of the variables had low communalities and loadings on the factors, and that the total accountable variance was less than 50 percent. The ten variables were dropped from the matrix and the remaining 59 were again subjected to a principal components analysis. Varimax rotations were performed to yield sets of five, six, seven, eight, and nine factors. Of these, the seven-factor rotation represented the best balance between factor interpretability and variance accountability. It accounted for 60 percent of the matrix variance and provided factors that were more interpretable than those from the other rotations. Table 3 names and describes the seven factors and shows the loading of each variable.

Factor Scores

Factor scores for each classroom (classroom is always the unit of analysis) were computed* to be able to use the factors to describe sites and sponsors. A factor score is the weighted combination of scores on all 59 variables for a given classroom. The weights are determined by the factor loadings. The factor scores in this report have the properties of being normally distributed, with a mean of zero and standard deviation of one. Factor scores were computed for 11 sponsors. NYU is not included in the factor analysis because its only observation site was not observed in the spring. Appendix G contains classroom means and standard deviations of factor scores by sponsor, all PV, all NPV and by sites within sponsor for fall and spring observations.

*By the least-squares solution described by Paul Horst.[40]

Table 2

SELECTED IMPLEMENTATION VARIABLES BY SPONSOR

Variable		Expected Frequency
	Far West Laboratory	
10.	Activity B (group time, sharing, rest, story, singing, dancing)	high
24.	Wide variety of activities	high
25.	Independent child activity	high
26.	Adult with one or two children	high
39.	Adult informing child using concrete objects	high
49.	Adult choice request to child	high
52.	Adult praise to child	low
53.	Adult acknowledgement to child	high
58.	Child self-instruction using concrete objects	high
59.	All child self-instruction	high
69.	Child initiates interaction with adult	high
70.	Child initiates interaction with other child	high
81.	All motion	high
	University of Florida	
6.	Adult/child ratio	high
25.	Independent child activity	high
26.	Adult with one or two children	high
39.	Adult informing child using concrete objects	high
58.	Child self-instruction using concrete objects	high
62.	Adult interaction with one or two children	high
63.	Adult interaction with small group	high
	University of Arizona	
10.	Activity B (group time, sharing, rest, story, singing, dancing)	high
24.	Wide variety of activities	high
25.	Independent child activity	high
39.	Adult informing child using concrete objects	high
49.	Adult choice request to child	high
52.	Adult praise to child	low
53.	Adult acknowledgement to child	high
58.	Child self-instruction using concrete objects	high
59.	All child self-instruction	high
62.	Adult interaction with one or two children	high
63.	Adult interaction with small group	high
70.	Child initiates interaction with other child	high
72.	Child cooperates with other children	high
81.	All motion	high
	Educational Development Center	
11.	Activity C (numbers, alphabet, reading, language development)	low
24.	Wide variety of activities	high
25.	Independent child activity	high
26.	Adult with one or two children	high
39.	Adult informing child using concrete objects	high
49.	Adult choice request to child	high
57.	Child self-instruction using symbolic objects	low
58.	Child self-instruction using concrete objects	high
69.	Child initiates interaction with adult	high
70.	Child initiates interaction with other child	high
72.	Child cooperates with other children	high
81.	All motion	high
	Bank Street College of Education	
24.	Wide variety of activities	high
25.	Independent child activity	high
26.	Adult with one or two children	high
39.	Adult informing child using concrete objects	high
49.	Adult choice request to child	high
58.	Child self-instruction using concrete objects	high
62.	Adult interaction with one or two children	high
63.	Adult interaction with small group	high
70.	Child initiates interaction with other child	high
72.	Child cooperates with other children	high
81.	All motion	high
	University of Pittsburgh	
11.	Activity C (numbers, alphabet, reading, language development)	high
20.	Adult with one or two children in academic activities (C and D)	high
26.	Adult with one or two children	high
39.	Adult informing child using symbolic objects	high
62.	Adult interaction with one or two children	high
63.	Adult interaction with small group	low
69.	Child initiates interaction with adult	high
	University of Oregon	
11.	Activity C (numbers, alphabet, reading, language development)	high
21.	Adult with small group in academic activities	high
39.	Adult informing child using symbolic objects	high
46.	Adult direct request followed by child response followed by adult corrective feedback	high
47.	Adult direct request followed by child response followed by adult acknowledgement	high
48.	Adult direct request followed by child response followed by adult praise	high
52.	Adult praise to child	high
53.	Adult acknowledgement to child	high
54.	Adult positive corrective feedback to child	high
63.	Adult interaction with small group	high
70.	Child initiates interaction with other child	low
	Responsive Environment Corporation	
21.	Adult with small group in academic activities	high
25.	Independent child activity	high
38.	Adult informing child using symbolic objects	high
39.	Adult informing child using concrete objects	high
46.	Adult direct request followed by child response followed by adult corrective feedback	high
47.	Adult direct request followed by child response followed by adult acknowledgement	high
48.	Adult direct request followed by child response followed by adult praise	high
57.	Child self-instruction using symbolic objects	high
58.	Child self-instruction using concrete objects	high
63.	Adult interaction with small group	high
	University of Kansas	
6.	Adult/child ratio	high
11.	Activity C (numbers, alphabet, reading, language development)	high
21.	Adult with small group in academic activities	high
38.	Adult informing child using symbolic objects	high
46.	Adult direct request followed by child response followed by adult corrective feedback	high
47.	Adult direct request followed by child response followed by adult acknowledgement	high
48.	Adult direct request followed by child response followed by adult praise	high
52.	Adult praise to child	high
53.	Adult acknowledgement to child	high
54.	Adult positive corrective feedback to child	high
62.	Adult interaction with one or two children	high
	New York University	
13.	Activity E (table games, guessing games, working puzzles)	high
25.	Independent child activity	high
52.	Adult praise to child	high
53.	Adult acknowledgement to child	high
54.	Adult positive corrective feedback to child	high
63.	Adult interaction with small group	high
70.	Child initiates interaction with other child	high
72.	Child cooperates with other children	high
	High/Scope	
10.	Activity B (group time, sharing, rest, story, singing, dancing)	high
11.	Activity C (numbers, alphabet, reading, language development)	low
25.	Independent child activity	high
38.	Adult informing child using symbolic objects	low
39.	Adult informing child using concrete objects	high
49.	Adult choice request to child	high
53.	Adult acknowledgement to child	high
57.	Child self-instruction using symbolic objects	low
58.	Child self-instruction using concrete objects	high
81.	All motion	high

Table 3

SEVEN GLOBAL VARIABLES (FACTORS)

FACTOR 1

Programmed Academic Instruction

Variable No.	Loading	Description
9	-.38	Activity A: lunch
11	.75	Activity C: numbers, reading
21	.83	Adult with small group in academic activity
23	.82	Academic activity
27	.70	Aide participating in academic activity
45	.72	Adult praise to child response
47	.78	Adult request, child response, adult acknowledgment
52	.68	Adult praise to child
63	.53	Adult interaction with small group

The variables with heavy loadings on this factor are nearly identical to the variables loading on a Programmed/Academic factor found in earlier studies of the same group of sponsors[41]. In a classroom with a high score on this factor one should expect to find the adults, both teachers and aides, engaged with children in academic activities with small groups. Adult praise or acknowledgment would characterize the interactions.

FACTOR 2

Individual Children in a Wide Variety of Activities

Variable No.	Loading	Description
6	.24	Adult/child ratio
12	.39	Activity D: natural world
13	.57	Activity E: games, puzzles
14	.65	Activity F: arts, crafts
15	.45	Activity G: blocks, trucks
16	.29	Active play

Table 3 (continued)

FACTOR 2 (continued)

Variable No.	Loading	Description
18	.49	Adult with small group
20	.66	Adult with one or two children in Activity C or D
24	.90	Wide variety of activities
25	.74	Independent child activity
26	.59	Adult with one or two children
28	.80	Groupings of one child
30	.49	Small groups
32	.45	Adults in classroom management without children
40	-.34	Adult informing child
51	.40	Elaborated child response to choice request

The occurrence of a wide variety of activities--such as games, puzzles, arts and crafts, and groupings of one child alone or one or two children with an adult--are most heavily loaded on this factor. A classroom with a high score on this factor would probably most closely correspond with the common conception of an "open" classroom.

FACTOR 3

Adult Feedback to Children

Variable No.	Loading	Description
41	.57	Adult request or command to child
42	.59	Child response to adult request or command
43	.79	Adult corrective feedback to child response
44	.82	Adult acknowledgment to child response
46	.78	Adult request, child response, adult acknowledgment
48	.83	Adult request, child response, adult praise
53	.81	Adult acknowledgment to child
54	.61	Adult positive corrective feedback to child
56	.56	All adult corrective feedback to child

The factor is composed of variables describing sequences of action between adults and children. Variables with high loadings include adult feedback to children.

Table 3 (continued)

FACTOR 4

Positive Choice Request Interaction

Variable No.	Loading	Description
49	.77	Adult choice request
50	.78	Child response to open-ended question
61	-.57	Child self-expression, comments
66	.51	Adult positive behavior
73	.50	Adult to child positive touch
80	-.51	Child interacts with machine

Adult choice requests to children and children's responses load highest on this factor. Variables also loading on this factor involve positive behavior on the part of adults toward children.

FACTOR 5

Negative Behavior

Variable No.	Loading	Description
55	.50	Adult negative corrective feedback
65	.56	Adult negative behavior
67	.78	Child negative behavior
71	.38	Child non-verbal
74	.63	Adult-child negative touch
76	.68	Child gives negative touch
79	.26	Child refuses/rejects adult
81	.42	All motion
83	.85	All negative behavior

All adult and child negative behavior variables load on this factor. The fact that the motion variable loads on this factor probably indicates that moving around the room is associated with children pushing and shoving and with adult negative corrective feedback.

Table 3 (concluded)

FACTOR 6

Positive Behavior

Variable No.	Loading	Description
60	-.47	Child asking question of adults
68	.76	Child positive behavior
69	-.48	Child initiates interaction with adult
70	-.89	Child initiates interaction with child
82	.80	All positive behavior

It is difficult to find a psychological or educational interpretation for the fact that positive behavior loads positively on the factor and child-initiated interactions load negatively. It is possible that the positive affect is observed most often during story and group time when close child-adult interactions are rare.

FACTOR 7

Adult with Large Group

Variable No.	Loading	Description
19	.90	Adult with large groups
31	.90	Large groups
64	.76	Adult interaction with large groups
77	.47	Adult helps child

This factor is self-explanatory. The teacher/child interactions are teacher talking to the whole class and teacher helping individual children.

Analysis of Sponsor Differences

Expected Differences

Before examining any data, the sets of selected implementation variables generated for each sponsor were displayed and sponsors were grouped by similarity of selected variable sets. If, for example, two sponsors have in common most of the variables chosen to reflect classroom processes and behaviors important to the model, they were placed in the same group. The programs of these sponsors would not be expected to differ greatly on these chosen variables. This analysis, then, groups sponsors by their classroom objectives, as expressed in CO variables.

Observed Differences

Analyses of variance and multiple range tests were performed to compare sponsor data on the full variable set and on the factors so as to determine the nature of the observed differences among models, and the number of variables on which each of the models differ significantly from others was examined. From these comparisons, it is possible to address again the question: Are the models really different?

This question is also, to some extent, a question about implementation. That is, it can be argued that if sponsors differ reliably from one another on the 69 variables, then we have a gross indicator that PV has been implemented. That is, PV, as a group of programs different from one another and different from NPV, has been operationalized in the HS centers.

In comparing sponsor process means using the analysis of variance, it should be remembered that a significant F test indicates only that a difference exists. Unless there are only two treatments, the F-test yields little information regarding the nature of the difference. In the present case, a highly significant F states only that the 11 sponsors are not the same on the measure examined. It does not indicate that each sponsor differs from every other or that only one differs from all of the others, or that half of them are essentially the same and differ from the other half which are also essentially alike. To answer these kinds of questions, other a posteriori tests have been developed. One of the most useful in probing the nature of differences in treatment means following a significant overall F is the q-statistic used in a range test. The particular method used with these data is known as the Newman/Keuls procedure.[42] In brief, this technique utilizes a matrix of differences between treatment means to enable a q-test of the difference between all pairs of means. There are several alternative procedures. The Newman/Keuls seems to offer a good balance between power and conservatism; it keeps the level of significance equal to alpha for all ordered pairs of treatment comparisons however many rank steps apart they may be, and using a harmonic mean, n can be used in comparing the unequal sample sizes contained in the present study.

Analysis of Implementation

Two analyses were performed to determine degree of model implementation. These two analyses correspond to two important and related defining conditions for implementation: 1) consistency between stated objectives and observed classroom events, and 2) consistency among a sponsor's sites. In addition, a corollary of implementation, fall-to-spring consistency, is examined.

Consistency Between Program Objectives and Classroom Events

Evaluation of model implementation is done with the selected sets of implementation variables generated to reflect a sponsor's important classroom processes, and child behavior patterns. The full 69-variable set includes many variables which are not relevant to each sponsor. A sponsor's frequency on such variables, high or low, is not pertinent to assessing whether or not the model is being implemented in the classroom. As an example, the frequency per day of Variable 9 (lunch, snack), is not a crucial aspect of any sponsor's educational program. Implementation must be judged on the basis of observed frequencies on program-relevant variables.

The selected implementation variables, then, are ones on which a sponsor's classrooms are expected to be high or low. The range tests mentioned above yield one measure of high and low frequencies. From the sponsor rankings by mean frequencies on each variable, relatively high and relatively low frequencies can be identified.

Another means of identifying a frequency as high or low is to utilize an "absolute" standard. This standard was generated for 24 of the 28 selected implementation variables. Four of the 28 selected implementation variables (Variables 38, 39, 57, 88) are not usable due to unreliable use by observers of the "How codes," Sy (symbolic objects) and O (concrete objects).

Since the PV sponsors' programs are meant to be improvements on the regular or non-sponsored curricula, it seems more appropriate to compare sponsors' classroom events to these classrooms.

Thus the "absolute" standard was derived from the observed spring frequencies of all 54 non-planned variation comparison classrooms. For each of the 24 variables, the frequencies of these 54 classrooms were rank-ordered and divided into quartiles. The frequencies obtained by PV classrooms, sites, or sponsors on each of these variables were compared with the NPV distribution: frequencies falling within the first quartile were then designated as low, and those within the fourth quartile as high.

Using this standard, an implementation score was calculated for each model by determining the quartile rank of its overall spring frequency on each of its selected implementation variables, and then summing these and dividing by the highest possible score for that sponsor. For example, a sponsor who should score high (quartile 4) on five variables has a maximum possible score of 20 (5 x 4). However, his actual score may be 18 (4, 4, 4, 4, 2). Dividing 20 (maximum possible score) into 18 (his actual score) gives an implementation score of 90 percent.

Nine sponsors--FW, UP, BC, UO, UK, H/S, ED, UP and REC--were included in this analysis. The Florida and Enablers models were excluded because they do not stipulate classroom events, so that the COI cannot be used in assessing their program implementation. NYU is also excluded but for a different reason: the NYU site was not observed in the spring of 1971.

Test of Sponsors' Site-to-Site Differences in Frequency of Variable Occurrence and on Factor Scores

An analysis of variance for site effects was performed using the full set of 69 variables. Site mean frequencies on the selected variable sets and factor scores were examined for consistency across sites, within each of the above sponsors with more than one site. This means that UP and REC are not included in this analysis because neither has more than one site.

The second important criterion of a well implemented model is one which is observed to be the same, wherever installation was attempted, on the program's most relevant variables. If there is a significant effect due to site, then the model is not consistent across locations, and is not, by this criterion, well implemented.

Test of Sponsors' Fall-to-Spring Differences in Frequency of Variable Occurrence and of Factor Scores

A t-test was performed for sponsors' fall-to-spring differences on the full variable set. The limited set of variables most important to each model and the factor scores were then examined for the direction of the change, if any, from fall to spring. Although fall-to-spring stability is not an indicator of level of implementation, it can be seen as an important characteristic of a program already satisfactorily implemented. Similarly, the direction of fall-to-spring change, whether there was progression or regression in implementing the curriculum, is interesting in regard to programs in the process of implementation. The same nine sponsors included in the first implementation analysis are included in the fall-to-spring comparison.

Analysis Relating Implementation to Outcomes

Well Implemented Classrooms Compared with Less Well Implemented Classrooms

The first part of this phase of the analysis investigated the relationship between the degree of model implementation and test outcomes. So as to avoid confounding the effects of degree of implementation with the effectiveness of the different models per se, the analysis contrasted classrooms within sponsor. Unfortunately, this meant small sample sizes.

Within each model for which classroom processes can be evaluated for implementation (thus excluding Enablers and Florida) and which had at least two sites with spring CO data (thus excluding UP, NYU and REC), the quartile rank explained above was used to identify "well implemented" and "less well implemented" classrooms.

Each classroom was given an implementation percentage score, computed as explained above for sponsor implementation scores. Classrooms were then rank-ordered within sponsor and a natural break was determined between the three or four classrooms with the highest and the three or four with the lowest implementation scores. The mean change scores on the outcome measures (based on the unadjusted classroom test scores for fall and spring supplied by Huron Institute) of the "high" implementation and "low" implementation groups were then compared by means of a t-test to determine whether the "high" groups differed significantly and whether "high" implementation was associated with greater gains on the tests.

Regression Analyses

The t-tests mentioned above, comparing change scores of well implemented and less well implemented classrooms within sponsor, may be considered as a preliminary analysis in assessing relationships between implementation and outcomes. The t-test scores were not adjusted for the effects of demographic covariables and the effects of the implementation variables themselves on test outcomes were not assessed.

In the second phase of this investigation, several regression analyses were performed relating classroom process variables to test outcomes. The first three analyses did not deal with the relationship between the degree to which a sponsor could implement his program and the test scores obtained by children in his program. They were designed to determine whether those process variables that were used to measure degree of implementation are the same processes that determine differences in test performance. The question was: how much of the variance in test scores is explained by the background characteristics of the children and how much is left to be explained by the implementation variables? In other words, are other classroom process variables able to account for the test scores?

Then, using the regression "MODELS," hypotheses were tested to verify the preliminary findings on the earlier question: do well implemented classrooms have systematically different effects on scores than less well implemented classrooms? Since the regression MODEL includes covariables, the results this time are in terms of adjusted effects rather than simple raw change scores.

The last question addressed is whether the lack of "striking effects" for PV is due to lack of implementation of sponsors' programs.

Huron Institute supplied punched card data containing demographic information from classroom rosters, parent interview data and pre- and post-test outcomes means by classroom. From these data and the COI variables, several multivariate linear models were constructed for regression analysis and hypothesis testing. Each model is described below.

MODEL I - Effect of Demographic Covariables on Test Results--MODEL I is designed to determine the amount of variance in spring test outcomes accounted for by various child and family characteristics, taken from the classroom roster and parent interview, and entrance test scores. Seventeen

such variables, expressed in classroom means, were chosen from the demographic and pre-test data provided by Huron Institute on the basis of relevance (e.g., since only whole test scores are being used, all pre- and post-subscores were omitted) and subjectively judged power in predicting test outcomes. In addition, possible covariables that would adjust the test outcomes for level of implementation were necessarily excluded. This list was later reduced to the nine covariables listed below.

(1) Mean age of children in months

(2) Percent having had previous preschool

(3) Percent English first language

(4) Percent non-white

(5) Mother's education level

(6) Mean total 3D pre-score

(7) Mean total 4A pre-score

(8) Mean total PSI pre-score

(9) Number of valid pre- and post-PSIs.

These nine are the independent variables in MODEL I. They are used in all subsequent MODELs but are referred to as covariables. The dependent variables in all MODELs discussed in this and subsequent chapters of the report are the spring classroom mean scores on the NYU 3-D, NYU 4-A, and PSI.

The hypotheses, in the order tested, are:

(1) The covariables, as a unit, significantly affect the test outcomes, as a unit (one hypothesis and test).

(2) Each covariable, considered separately, affects the test outcome, as a unit (17 hypotheses and tests).

(3) Each covariable considered separately affects each test outcome considered separately (17 x 3 hypotheses and tests).

MODEL II - Effect of Implementation Variables on Test Results--Implicit in the question of whether implementation of programs affects child test performance is the assumption that the criteria for implementation, i.e., the selected implementation variables, are relevant to test outcomes. MODEL I investigates the effects of the 24 selected variables on adjusted test scores. The selected variable list appears in Table 2. The hypotheses tested are listed below; given the effects of the covariables:

(1) The implementation variables as a unit affect test results as a unit (one hypothesis and test).

(2) Each implementation variable considered separately affects the test results considered as a unit (24 hypotheses and tests).

(3) Each implementation variable considered separately affects each test result considered separately (24 x 3 hypotheses and tests).

MODEL III - Effect of Other Process Variables on Test Results--This analysis yields the variance in test outcomes which can be accounted for by nine additional process variables over and above that accounted for by the covariables and the 24 implementation variables. These additional variables were selected on the basis of general educational theory relating them to test outcomes and from results of previous analyses.[41] These nine variables are listed below. (For operational definitions of these and the codes which comprise them, see Appendices B and C.)

- Variable 14: Activity F (arts, crafts, cooking, sewing, pounding)
- Variable 23: Academic activities
- Variable 27: Aides' participation in academic activities
- Variable 50: Child response to adult choice request
- Variable 60: Child asking questions of adults
- Variable 61: Child self-expression, general comments
- Variable 80: Child interacts with machine
- Variable 82: All positive behavior
- Variable 83: All negative behavior

The hypotheses tested in MODEL III are listed below; given the effects of the covariables and the implementation variables:

(1) The additional general interest variables as a unit affect test results as a unit (one hypothesis and test).

(2) Each variable considered separately affects the test results considered as a unit (nine hypotheses and tests).

(3) Each variable considered separately affects each test result considered separately (9 x 3 hypotheses and tests).

MODEL IV - Effect of Global Factors on Test Results--MODEL IV determines the effect of the seven factors, described in Table 3, on adjusted test outcomes. The hypotheses tested are:

(1) The factors as a unit affect test results as a unit (one hypothesis and test).

(2) Each factor considered separately affects the test results considered as a unit (seven hypotheses and tests).

(3) Each factor considered separately affects each test result considered separately (7 x 3 hypotheses and tests).

MODEL V - Effect of Level of Implementation on Test Results--MODEL V is a re-test of the preliminary analysis contrasting well and less well implemented classrooms within sponsors investigating whether the level of implementation is related to outcomes; however, Model V uses adjusted outcome scores; i.e., all covariables are entered into the regression equation. The hypotheses tested were:

(1) The eight contrast variables considered as a unit affect test results as a unit (one hypothesis and test).

(2) The eight contrast variables considered separately affect the test results as a unit (eight hypotheses and tests).

(3) The eight contrast variables considered separately affect the test results considered separately (8 x 3 hypotheses and tests).

MODEL VI - Contrast of PV and NPV Effects on Test Results--This analysis examines the relative effects on adjusted test scores of all sponsored (PV) classrooms and of all non-sponsored classrooms. The hypotheses tested are:

(1) PV classrooms contrast with NPV classrooms in effects on test results as a unit (one hypothesis and test).

(2) PV classrooms contrast with NPV classrooms in effects on test results considered separately (three hypotheses and tests).

Summary of Regression Analyses--The use of sets of variables in the six models described above is summarized in Table 4.

In the analysis of MODELs, the fall and spring classroom scores on the variables and factors were combined. In the analysis of each MODEL, classrooms that were missing data on any of the variables concerned were excluded from the analysis.

Table 4

SUMMARY OF REGRESSION ANALYSES

Model	Dependent Variables (spring test scores)	Demographic entry level covariables	Implementation Variables	General Interest Variables	Factors	High/Low Implementation Contrasts	PV/NPV Contrasts
I	X	X					
II	X	X	X				
III	X	X	X	X			
IV	X	X			X		
V	X	X				X	
VI	X	X					X

The multivariate linear models constructed according to the layout of Table 4 are of the general form:

$$Y = X_1 B_1 + X_2 B_2 + \ldots\ldots X_m B_m + \epsilon$$

For example, in the multivariate regression equation corresponding to MODEL II (effects of implementation variables), m = 2, and the equation is interpreted by referring to the covariables and selected implementation variables. In this model, Y is an n-by-4 matrix of observed values on the four dependent variables (spring test scores) where n = the numbers of classrooms. X_1 is the n-by-17 matrix of observed values of the covariables and X_2 is the n-by-24 matrix of the observed values of the implementation variables. B_1 and B_2 are the corresponding matrices of regression coefficients that are estimated by standard least squares techniques. ϵ is the n-by-4 matrix of residuals.

In those models where contrast "effects" are involved--such as the contrast effects of high versus low implemented classrooms--then the values in the X matrix are dummy variables such that the corresponding B matrix estimates the desired effects.

All computations were performed by the BMD 11V program entitled Multivariate General Linear Hypothesis[43] under the usual assumptions. Whenever the number of dependent and independent variables are both greater than one, the program computes an approximate F statistic which is used in assigning significance levels to results. In other cases, the F statistic is exact. The reader interested in further details on these techniques is referred to Dixon[43] and Rao[44].

III RESULTS

This section describes the results in the following order. The sponsor differences are first analyzed to discover whether the composition of selected sets of variables, chosen to detect model implementation, reveal 11* different models or whether, because many variables are critical to several models, these variables could only be expected to reveal differences between major groups of sponsors.

Next, the actual observed frequencies of occurrence on every one of the 69 variables are entered into the analysis to determine similarities and differences among all sponsors. Scores on the seven factors are examined for consistency with findings on the entire variable set.

Next is an investigation of degree of implementation defined as consistency between sponsor classroom intentions and observed classroom events, and as consistency across sites within sponsor. A characteristic related to successful implementation, fall-to-spring consistency, is also examined.

The relationship between the degree of implementation and child outcomes, as measured by achievement and cognitive tests, is also investigated. A series of regression analyses examines the relationships between the implementation variables, other process variables, and the factor scores and test results. In addition, the effects of PV and NPV on the test outcomes are contrasted.

Analysis of Sponsor Differences

Expected Sponsor Differences

The selected sets of variables described in Chapter II were examined to determine whether there were PV program differences in terms of curriculum dimensions. These individual sets of variables represent classroom processes considered to be the most important descriptors of each sponsor's program. The selected variables (shown in Table 5) were examined to see how many different groups, or clusters, were formed by the 11 sponsors. If two or more sponsors shared all or most classroom process variables (i.e., if high frequencies were expected on the same variables), they were considered essentially the same, at least in terms of their classroom objectives as these are characterized by the COI. That is, they have more major curriculum elements in common than otherwise.

*Enablers is already distingulshed because of its difference on another dimension: It does not claim to be a single model since the "sponsors" are actually several different consultants who work with centers.

Table 5

SPONSOR IMPLEMENTATION VARIABLES LISTS

Low = First quartile
High = Fourth quartile

	Selected Variables	Sponsor										
		FW	UA	BC	UO	UK	HS	UF	ED	UP	REC	NYU
6	Adult/child ratio					high		high				
10	Activity B; including group time	high	high				high					
11	Activity C; math, language				high	high	low		low	high		
13	Activity E; games, puzzles											high
20	Adult with one or two children, academic activities									high		
21	Adult with small group academic activities				high	high					high	
24	Wide variety of activities	high	high	high					high			
25	Independent child activity	high	high	high			high	high	high		high	high
26	Adult with one or two children	high		high				high	high	high		
38	Adult informing, symbols				high	high	low			high	high	
39	Adult informing, objects	high	high	high			high	high	high		high	
46	Adult request, child response, adult corrective feedback				high	high					high	
47	Adult request, child response, adult acknowledge				high	high					high	
48	Adult request, child response, adult praise				high	high					high	
49	Adult choice question	high	high	high			high		high			
52	Adult praise to child	low	low		high	high						high
53	Adult acknowledge to child	high	high		high	high	high					high
54	Adult positive corrective feedback to child				high	high						high
57	Child self-instruction, symbols						low		low		high	
58	Child self-instruction, objects	high	high	high			high	high	high		high	
59	All self-instruction	high	high									
62	Adult interact with one or two children		high	high		high		high		high		
63	Adult interact with small group		high	high	high			high		low	high	high
69	Child initiate with adult	high							high	high		
70	Child initiate with children	high	high	high	low				high			high
71	Child non-verbal											
72	Child cooperating with children		high	high					high			high
81	All motion	high	high	high			high		high			

One expectation was that the programs would fall into three clusters--corresponding roughly to the typology described for Follow Through by Maccoby and Zellner [46] as follows:

(1) Programs oriented toward behavior modification: Performance on intellectual tasks is thought of as a class of behavior subject to the same laws that govern other kinds of behavior. Education is, or should be, a process of reinforcing children for the desired behavior.

(2) Programs oriented toward cognitive growth: Performance on intellectual tasks is thought of as reflecting the level of development of mental structures and operations. Education is, or should be, a process of facilitating the normal stage-wise growth of these processes.

(3) Programs oriented toward self-actualization: Performance on intellectual tasks reflects whether a child has chosen to master the tested-for contents in pursuit of his own goals. Education is, or should be, a process of stimulating the child's intellectual curiosity, providing him with a range of experiences and materials appropriate to his existing skills, so that he can learn to become competent in his own physical and social environment.*

These three clusters, however, did not clearly emerge. Only two loose clusters of sponsors were distinguishable. The most important variables distinguishing these clusters are shown in Table 6.

These clusters are by no means either discrete or mutally exclusive, but are representative of differences in methodological emphases. The models found in Cluster II, for example, must certainly employ concrete objects in the classroom at times; however, they place primary emphasis on the use of symbolic materials, whereas the Cluster I sponsors place greater emphasis on the use of concrete objects.

The models that comprise Cluster I are: FW, UA, BC, HS, UF, ED, NYU, and REC. The models in Cluster II are: UP, UK, and UO. Cluster I is less firmly defined than Cluster II. Although some models in Cluster I, such as FW and ED, would be expected to be at the extremes on the dimensions suggested by these variables, other cognitively-oriented discovery models, such as the Piagetian UA and H/S programs, would perhaps more likely be found toward the middle of the range on the relevant variables.

*The Follow Through sponsors who were also PV sponsors in 1970-71 were classified as follows: first category, U. Oregon, U. Kansas, U. Pittsburgh; second category, NYU, U. Georgia, U. Arizona, High/Scope and perhaps Bank Street; third category, Far West and EDC.[37]

Table 6

VARIABLES SHARED BY SPONSORS WITHIN CLUSTERS

Cluster I*	Cluster II
Models: FW, UA, BC, HS, UF, ED, NYU, REC.	Models: UP, UK, UO
Expected high frequencies on:	Expected high frequencies on:
a) Adults instructing with concrete objects (39) Child self-instruction with concrete objects (58)	a) Adult instructing with symbols (38)
b) Independent child activities (25)	b) Adults with one or two children in academic activities (20) Adults with small group in academic activities (21)
c) Wide variety of activities (24)	c) Academic activities (11)
d) Adult choice question (49)	d) Adult direct questions followed by response, by feedback (46, 47, 48)

*The Enablers model, as explained in Chapter I, cannot be classified for it is whatever a specific community or site wishes it to be.

Thus the 11 models form two patterns. One pattern, represented by Cluster I, emphasizes such variables as children working or playing independently of adults, learning through manipulation of concrete objects, experiencing a wide variety of activities, and adults asking children choice questions to elicit expression of feelings, opinions or preference. The Cluster II pattern describes programs where emphasis is placed on adults instructing children with symbolic materials (e.g., printed numbers, letters or words), adults working directly with the children in academic or preacademic activities (math, language development), and adults asking children direct questions to elicit information.

On this basis alone, however, it cannot be concluded that the 11 PV sponsors represent only two pre-school treatments. Although originally conceived as providing just classroom curricula, it is now evident that a total definition of most models must encompass other treatment elements. The COI, then, can measure only a part of most sponsors' programs, though certainly classroom processes are the most important component in almost all models.

In addition, although the sponsors do not appear widely diversified in terms of the selected implementation variables, more differences may be revealed through actual or observed frequencies on the full set of 69 variables. Sponsors differ in their ability to provide researchers with a complete operational description of an ideal model classroom, making identification of implementation

variables more difficult for some sponsors. With the exception of two models, sponsors apparently were unable to provide specific written descriptions of classroom activities and processes in the first year of the PV experiment, and this remained essentially true even during the third year of the study. Not all the models chosen for inclusion in the PV study were well defined and there is evidence that most models have evolved or been changed somewhat during the experimental period.[36]

The difficulty arises in part from the fact that sponsors differ in their ideas about how to specify various aspects of the model, such as, how teachers should interact with children, and what materials should be used and in what way. Moreover, the sponsors differ about the manner and extent that their methods should be imposed in a site. This can be illustrated by the philosophies of two of the sponsors, EDC and the University of Pittsburgh. EDC uses the advisory approach to program implementation:

> "EDC policy is to work...with individuals who are ready for change, who have a sense of the directions in which they want to move and who need and request advisory help. The advisory team does not attempt to impose specific ideas or methods..."[46]

In contrast, formalized and individualized teacher training programs and on-going sponsor monitoring of classroom implementation are important parts of the University of Pittsburgh model.

Since this report deals with the Planned Variation models solely in terms of classroom processes (as defined by COI variables) the degree to which a sponsor was able to specify his model probably has an effect on the evaluation results. For those sponsors who do not attempt to shape classroom events at the level it is being measured, the evaluation findings may not do justice to their model. However, each sponser has a stated philosophy, and it is appropriate to investigate the actual differences among sponsors.

Observed Sponsor Differences

Variable Differences

The analyses of variance for sponsor effects, performed on the total variable list and displayed in Appendix E, show that sponsors differ significantly, ($p < .05$), on nearly all variables. Of the 69 variables examined, sponsors differed on fall observation data at $p < .001$ on 41 variables; $p < .01$ on eight, and at $p < .05$ on seven. On spring observation data, differences were found at the 0.001 level on 36 variables; at the 0.01 level on 15 variables; and at the 0.05 level on nine.

Regarding these differences, two points should be emphasized. First, the analysis of variance on a variable would show significance even if only one sponsor were different while all others were essentially similar. It is therefore not surprising that a significant difference was found on so many of the variables, and it is for this reason that the multiple range test was also performed so as

to determine exactly which sponsors differed from which others on each variable. Secondly, it was mentioned earlier that distributions of classroom scores on these variables frequently do not satisfy the assumptions of normality and homogeneity of variance basic to parametric tests for differences between means. For some sites and sponsors, the classroom distribution on many variables was J-shaped with the mode at zero. It has been shown[38, 39] that non-normality does not affect the F-test extensively, that the J-distribution yields results remarkably similar to the ideal norm, and even that in cases where both normality and homogeneity assumptions were not satisfied, the alpha error level increased only slightly. Nevertheless, on these tests, alpha levels < 0.01 should be regarded merely as indicative of probable difference and not as strong evidence thereof.

The results of the multiple range tests are displayed in Appendix E. The tables show the rank-order of sponsor means on each variable, and groups of sponsors that do not differ significantly from one another are indicated by underlining. It is from close examination of these results that the reader can obtain the best insight into sponsor differences on classroom behavior variables. It would not be reasonable to attempt to verbally summarize the wealth of information contained in these appendices. To describe, variable by variable, the differences between each sponsor would require volumes. However, the range test information can be summarized in table form.

Table 7 displays a relative measure of the distance from the central rank order of sponsors by mean frequency on each of the 69 variables. A sponsor's distance score on this table differs from his average rank in that the same score is given to a rank position above or below the central rank. For example, on Variable 6, the sponsors ranked as shown below in the fall. The first line gives the actual rank of each sponsor's mean; the third line gives the distance score, i.e., the number of ranks above or below the central rank (whose score is 0). Thus, EDC (ranked 1) and U. Kansas (ranked 11) both score five, that is, five places from the middle.

	Rank:	1	2	3	4	5	6	7	8	9	10	11
Adult/child ratio	Sponsor:	ED,	UO,	FW,	UA,	RE,	HS,	UF,	EB,	UP,	BC,	UK
	Score:	5	4	3	2	1	0	1	2	3	4	5

Table 7 also shows the number of times each sponsor placed four and five ranks away from the central rank. For instance, U. Oregon attained a distance score of five (i.e., ranked at either extreme of the sponsor rank order) on 23 of the 69 variables, more often than any other sponsor.

Also shown in the table is a mean distance score for each sponsor, computed by dividing the sum of its distance scores on each variable by the number of variables (69). The sponsors are then arranged in rank order by this mean for both fall and spring. For example, in the fall, Arizona ranked lowest (mean distance score 2.10, meaning that on the average UA was about two places from the central rank) and U. Oregon highest (mean distance score 3.46).

Table 7a SPRING

SPONSOR SCORES OF RELATIVE HIGH OR LOW RANKS
ON CLASSROOM OBSERVATION VARIABLES

Variable Number	FW	UA	BC	UO	UK	HS	UF	ED	UP	RE	EB
	SPONSORS										
8	4	0	5	5	3	1	4	2	3	1	2
9	2	3	3	5	4	1	5	4	1	2	0
10	2	5	2	5	1	4	0	3	3	1	4
11	0	1	2	5	4	4	5	1	3	2	3
12	4	2	0	2	4	3	5	3	5	1	1
13	3	1	4	5	3	1	0	4	2	5	2
14	3	1	5	4	5	1	2	3	2	0	4
15	3	0	5	1	4	2	3	1	4	5	2
16	2	5	0	3	1	1	4	4	3	2	5
18	4	4	3	2	5	3	1	5	1	2	0
19	3	2	1	5	4	4	3	5	1	0	2
20	4	1	2	3	5	2	4	0	5	3	1
21	0	3	2	4	5	5	3	1	4	2	1
22	1	4	2	2	3	3	0	5	5	4	1
23	0	1	1	5	4	4	5	2	3	2	3
24	3	1	5	2	4	0	5	3	4	2	1
25	0	1	4	4	5	2	3	1	5	2	3
26	3	1	4	5	4	0	2	2	5	1	3
27	1	2	4	4	5	2	5	0	3	3	1
28	1	2	4	3	5	0	4	1	5	3	2
30	4	3	4	2	5	2	1	5	1	3	0
31	3	1	1	5	4	4	2	5	0	2	3
32	1	2	0	3	5	2	4	1	2	4	5
33	2	5	4	3	1	3	1	5	0	4	2
34	5	0	4	5	1	2	1	4	3	3	2
35	3	5	2	4	1	1	2	4	5	0	3
36	3	0	4	1	1	2	5	4	5	2	3
40	2	1	4	[illegible]	3	3	4	0	1	5	1
41	5	1	3	[illegible]	3	0	2	1	1	4	2
42	5	1	3	5	3	2	0	1	1	4	2
43	5	2	1	5	4	3	0	1	4	3	2
44	5	3	4	5	1	0	1	2	2	4	3
45	0	5	3	5	4	1	2	1	3	4	2
46	5	2	1	5	4	4	0	1	3	3	2
47	3	5	4	5	4	1	0	1	2	2	3
48	5	4	3	4	1	1	0	2	2	5	3
49	1	5	2	5	3	2	0	1	4	2	4
50	1	4	2	5	3	2	0	1	5	3	4
51	2	1	1	5	2	0	1	3	5	3	4
52	1	3	5	3	1	1	4	0	5	2	2
53	5	0	3	4	1	1	4	2	3	5	2
54	5	3	0	4	5	3	1	2	1	2	4
55	5	4	4	5	1	0	2	3	3	2	1
56	5	1	1	5	4	3	2	2	4	0	3
59	3	4	1	0	1	2	3	2	5	4	5
60	4	3	5	5	2	1	3	0	1	4	2
61	1	0	4	5	1	2	5	3	2	4	0
62	4	1	2	3	1	5	5	2	3	4	0
63	2	3	1	5	5	0	2	3	1	1	4
64	1	0	4	5	3	5	1	4	2	3	2
65	4	1	3	1	3	5	5	2	2	4	0
66	2	4	1	1	2	1	5	0	5	3	3
67	4	2	5	1	5	1	4	0	3	2	3
68	2	4	5	2	1	3	3	1	0	5	4
69	4	3	2	4	5	5	3	1	1	0	2
70	3	4	1	4	5	2	5	2	1	3	0
71	2	3	0	5	3	1	4	4	2	5	1
72	3	2	1	2	1	5	3	4	0	4	5
73	3	2	4	4	5	1	0	2	5	3	1
74	3	2	2	5	1	4	1	4	3	5	0
75	5	1	3	5	2	4	1	2	3	0	4
76	4	2	5	3	2	1	4	3	5	1	0
77	4	3	0	4	1	3	5	2	5	2	1
78	3	3	4	2	2	0	5	1	4	1	5
79	1	3	4	5	3	2	0	2	1	5	4
80	3	1	0	5	2	2	5	4	1	3	4
81	0	5	2	2	1	4	3	3	1	5	4
82	3	2	5	2	0	2	4	1	1	3	4
83	2	3	5	4	2	0	1	3	5	4	1
Total	194	166	193	261	205	148	182	157	202	206	182
Total 5s	12	8	11	32	15	6	15	6	16	10	5
Total 4s	12	10	19	13	14	8	11	11	8	15	13

	HS	ED	EB	UA	UF	BC	FW	UP	UK	RE	UO
Σ	148	157	162	168	[illegible]	183	194	202	205	206	261
$\bar{X}$	2.14	2.26	2.35	2.43	2.61	2.80	2.81	2.93	2.97	2.99	3.78

Table 7b FALL

Variable Number	FW	UA	BC	UO	UK	HS	UF	ED	UP	RE	EB
	SPONSORS										
8	3	2	4	4	5	0	1	5	3	1	2
9	1	3	2	5	4	4	2	1	3	0	5
10	1	5	3	5	0	2	3	2	4	1	4
11	1	2	0	5	4	5	1	3	2	3	4
12	4	5	3	0	1	3	4	2	5	2	1
13	5	1	0	5	3	3	4	2	1	4	2
14	5	1	3	5	2	2	4	0	1	3	4
15	4	1	5	4	2	5	3	2	1	0	3
16	1	4	4	2	3	2	3	5	1	5	0
18	1	4	5	3	5	1	2	4	2	0	2
19	0	1	5	1	4	4	3	2	2	3	2
20	4	1	3	4	1	3	5	2	5	2	0
21	1	1	4	4	5	5	0	3	2	3	2
22	1	0	4	1	5	2	4	5	2	3	3
23	1	0	1	3	5	5	3	2	4	2	4
24	5	1	4	5	2	2	4	3	1	3	0
25	4	3	2	5	3	2	4	1	0	5	1
26	4	3	3	4	2	1	5	2	5	1	0
27	1	3	3	3	5	4	0	1	2	4	2
28	2	1	4	5	3	2	4	0	5	3	1
30	0	4	3	2	5	1	4	5	1	3	2
31	0	1	3	1	5	4	3	5	2	4	2
32	1	3	4	5	5	0	3	1	4	2	2
33	1	2	4	4	3	1	5	5	0	2	3
34	0	1	3	4	1	4	2	5	5	2	3
35	5	3	3	4	1	0	1	2	3	4	2
36	2	0	1	4	3	2	5	2	1	3	4
40	2	3	1	3	2	1	4	5	4	5	0
41	4	1	5	3	3	1	2	0	2	4	3
42	4	1	5	5	4	1	0	2	2	3	3
43	3	0	5	4	5	3	2	1	2	4	2
44	4	2	5	1	1	4	0	3	3	5	2
45	0	4	5	5	3	2	2	3	4	1	2
46	4	1	5	0	4	3	3	3	2	5	1
47	3	5	4	5	3	2	3	2	4	0	1
48	4	2	3	1	2	4	0	5	3	5	1
49	1	2	3	3	5	4	0	1	2	4	5
50	2	1	4	4	5	5	3	4	1	5	0
51	2	4	1	4	5	3	0	2	1	3	3
52	1	4	5	4	3	2	[illegible]	1	5	3	2
53	4	0	3	2	1	4	1	3	2	5	3
54	1	4	4	5	3	1	3	2	5	1	0
55	2	3	5	0	1	5	2	4	3	4	1
56	2	3	5	4	1	4	3	0	2	1	1
59	4	3	2	3	2	1	0	3	4	5	1
60	1	5	2	4	1	3	2	5	3	0	4
61	3	4	5	5	0	3	1	4	2	1	2
62	3	0	4	1	3	4	5	2	5	1	2
63	2	1	5	5	2	3	1	4	3	4	0
64	2	0	5	3	4	3	4	5	2	1	1
65	4	2	4	3	0	1	5	2	1	5	3
66	3	0	4	5	1	5	3	2	2	1	4
67	5	0	4	3	5	2	2	1	3	1	4
68	5	4	1	5	2	3	1	0	1	3	2
69	1	4	5	5	4	3	2	1	3	0	2
70	0	1	2	4	3	2	4	3	5	1	5
71	2	0	3	5	2	3	4	1	4	5	1
72	1	2	3	3	0	1	4	5	4	5	2
73	3	3	3	2	1	5	4	5	2	0	4
74	5	4	5	0	3	4	1	4	2	2	2
75	5	1	2	4	1	2	3	3	5	4	0
76	3	4	4	3	1	2	2	1	5	0	2
77	3	3	2	2	0	1	5	5	4	4	1
78	0	3	1	4	3	2	4	1	5	2	5
79	3	1	2	5	0	1	2	4	4	3	5
80	4	1	5	5	2	4	3	1	2	0	2
81	5	4	0	2	1	1	5	3	3	4	2
82	4	0	3	5	2	5	1	2	1	3	4
83	4	2	3	1	5	5	1	3	2	2	0
TOTAL	178	145	237	239	186	191	172	186	182	181	157
TOTAL 5s	10	4	21	23	15	9	15	10	13	11	7
TOTAL 4s	16	8	17	18	7	14	9	9	14	2	10

	UA	EB	UF	FW	RE	UP	ED	UK	HS	BC	UO
Σ	145	157	172	178	181	182	186	186	191	237	239
$\bar{X}$	2.10	2.28	2.49	2.59	2.63	2.64	2.70	2.70	2.77	3.43	3.40

These figures do not indicate the actual degree to which a sponsor differed from other sponsors. Although on a given variable two sponsors must necessarily rank on either end (thus achieving the highest distance score, five), there were often no significant differences among the variable means on which the sponsors were ranked. However, it does give a rough measure of the frequency with which a sponsor is near one of the extremes of the sponsor ranking. Sponsors with relatively low mean distance scores, such as Arizona (2.10) and Enablers (2.28) in the fall, tend to occupy median positions in sponsor variable rankings more often than sponsors with higher scores, such as Oregon (3.43) and Bank Street (3.43), in the fall.

Table 8 concentrates on the statistically significant differences between pairs of sponsors. Based on the range tests presented in Appendix E, this table presents matrices for fall and spring, showing for each sponsor pair the number of variables on which they differ significantly (that is, the number of variables on which they were not included in the same underlined group in the range tests, designating no significant difference.)

For example, in the fall matrix in Table 8, FW and UA differ significantly on just four variables out of the entire set of 69 variables. Further down the column, one sees that FW is significantly different from UK on 25 of the 69 COI variables.

This sponsor-by-sponsor comparison on each of the 69 variables reveals definite patterns of differences between sponsors, and the patterns vary only slightly on the fall and spring observations. Results from the spring observations generally replicate those from the fall. The information in Table 8 is further condensed in Table 9. For each sponsor, the table lists the other sponsors with whom he has the fewest significant differences and those with whom he has the most significant differences.

By comparing the two columns in Table 9, sponsor patterns or groupings emerge.

Six sponsors, FW, UA, BC, UF, EDC and EB, are usually found to be "most similar to" each other, and "most different from" the same sponsors--generally UO and UK. Two of these sponsors, EDC and EB, have perfectly reciprocal sets of "most similar" sponsors and identical "most different" sponsor sets. It is interesting that these two sponsors arrange themselves similarly vis-à-vis the others, since the Enabler and EDC models operate on a similar consultant or advisory approach to model implementation.

The second identifiable group includes UO, UP and UK, although this group's consistency is less strong than that of the other two groups due to differences between UO and UK. All three do have common sponsors in both "similar" and "different" columns, but UO and UK do not reciprocate; rather, UK appears in UO's "most different" category.

A third group revealed in this analysis is comprised of H/S and REC. These two models each share similarities and differences with the other two groups as well as reciprocating in their "most similar" list. For instance,

Table 8

SPONSOR DIFFERENCES ON TOTAL VARIABLE LIST
(NUMBER OF VARIABLES ON WHICH SPONSOR DIFFERS FROM EACH OTHER SPONSOR, $p < .05$)

FALL

	FW	UA	BC	UO	UK	HS	UF	ED	UP	RE	EB	RANGE
FW	0	4	4	22	25	13	10	10	13	9	8	4-25
UA	4	0	2	17	13	6	3	5	6	5	2	2-17
BC	4	2	0	18	20	20	7	5	10	9	4	2-20
UO	22	17	18	0	18	19	10	13	10	12	18	10-22
UK	25	13	20	18	0	17	18	18	8	11	15	11-25
HS	18	6	20	19	17	0	9	10	9	7	2	2-19
UF	10	3	7	10	18	9	0	5	10	8	7	3-18
ED	10	5	5	13	18	10	5	0	10	10	4	4-18
UP	13	6	10	10	8	9	10	10	0	7	7	6-13
RE	9	5	9	12	11	7	8	10	7	0	6	5-12
EB	8	2	4	18	15	2	7	4	7	6	0	2-18
TOTAL	123	63	99	157	163	117	87	90	90	84	73	

Rank Ordering:

	UK	UO	FW	HS	BC	UP	ED	UF	RE	EB	UA
Σ	163	157	123	117	99	90	90	87	84	73	63

SPRING

	FW	UA	BC	UO	UK	HS	UF	ED	UP	RE	EB	RANGE
FW	0	4	6	22	26	17	10	10	13	9	8	4-26
UA	4	0	2	17	14	7	2	5	7	5	2	2-17
BC	6	2	0	19	21	21	7	5	12	10	4	2-21
UO	22	17	19	0	18	19	10	14	10	13	13	10-22
UK	26	14	21	18	0	17	18	18	8	11	15	11-26
HS	17	7	21	19	17	0	9	11	9	6	4	4-21
UF	10	2	7	10	18	9	0	4	11	7	6	2-18
ED	10	5	5	14	18	11	4	0	10	10	4	4-18
UP	13	7	12	10	8	9	11	10	0	8	9	7-13
RE	9	5	10	13	11	6	7	10	8	0	6	5-13
EB	8	2	4	13	15	4	6	4	9	6	0	2-15
TOTAL	125	65	107	155	166	120	84	91	97	85	71	

Rank Ordering:

	UK	UO	FW	HS	BC	UP	ED	RE	UF	EB	UA
Σ	166	155	125	120	107	97	91	85	84	71	65

Table 9

SUMMARY OF SPONSOR DIFFERENCES

	Most Similar To*	Most Different From*
Far West Labs	UA 4,4; BC 4,6; ED 10,10	UK 25,26; UO 22,22; HS 18,17
U. Arizona	BC 2,2; EB 2,2; UF 3,2: FW 4,4	UO 17,17; UK 13,14
Bank Street	UA 2,2; EB 4,4; FW 4,4	UK 20,21; HS 20,21; UO 19,20
U. Oregon	UF 10,10; UP 10,10; RE 12,13	FW 22,22; HS 19,19; UK 18,18
U. Kansas	UP 8,8; RE 11,11	FW 25,26; BC 20,21
High/Scope (HS)	EB 2,4; RE 7,6; UA 6,7	BC 20,21; UO 19,19; FW 18,17
U. Florida	UA 2,3; ED 5,4; BC 7,7	UK 18,18
EDC (ED)	EB 4,4; UA 5,5; BC 5,5	UK 18,18; UO 13,14
U. Pittsburgh	UA 6,7; RE 7,8; UK 8,8	FW 13,13
REC	UA 5,5; EB 6,6; HS 7,6	UO 12,13
Enablers (EB)	UA 2,2; BC 4,4; ED 4,4	UO 18,13; UK 15,15

*First numeral indicates number of variables on which they differed in the fall; second numeral indicates number of variables on which they differed in the spring.

H/S's "most different" set includes BC and FW in addition to UO. REC appears in the "most similar" column of all three sponsors in the second group but its "most similar to" sponsor set is made up of UA, EB, as well as H/S.

These three groups roughly correspond to Maccoby and Zellner's three classifications[45] which were generated on the basis of educational philosophies. Group one, a six-sponsor group (FW, UA, BC, UF, EDC and EB) would, for the most part, be congruent with the "self-actualization" classification on the basis of theory. (One exception might be UA, discussed below.) The second group (UO, UK and UP) relates to the "behavior modification" classification. This sponsor group also appears as Cluster II in the preceding analysis of expected sponsor differences. The third group (H/S and REC) might be placed in the "cognitive growth" classification.

A comment regarding the Kansas model is informative regarding the differences within the second group mentioned above. It is apparent from the

fall and spring mean distance scores (Table 7) that Kansas does not routinely occupy extreme positions in the sponsor rankings. That is, it is usually not found at either end of the rank order of sponsors by mean frequencies on the 69 variables. Yet, on any variable where it does place at one or the other end of the rank distribution, its mean frequency on the variable tends to be so very high or low, that it differs significantly from that of every other sponsor in the sample. Thus, as shown in Table 8, UK differs from more sponsors on more variables than any other model, although it frequently occupied central positions on rank distributions of variables.

Another sponsor whose results in this analysis are unique is Arizona. In Table 7 it was seen that Arizona usually placed close to the median in a rank order of the sponsors on the full 69 variable set. In Table 9, Arizona appears in the "most similar" column of eight of the ten other sponsors and does not place in the "most different" set of any sponsor. The explanation of this might lie in an eclectic curriculum, that includes classroom elements also found in a variety of programs.

Factor Differences

Figures 1 through 7 display sponsor factor scores on the seven factors previously described. The first two factors, "Programmed academic instruction" and "Individual children in wide variety of activities," seem to echo both the expected and observed differences found among sponsors in the preceding analyses. The remaining factors, however, seem less valuable in distinguishing sponsor orientations. A brief discussion of each factor follows.

Factor 1: Programmed Academic Instruction--Three models, University of Oregon, University of Kansas and University of Pittsburgh, share the grouping, content and methodology emphasis described by this factor, and the score of each on this factor is more than a full standard deviation above the mean. All other sponsors score negatively on the factor, and three—Bank Street, High Scope, and Enablers—all average 0.5 or more standard deviations below the mean on both fall and spring observations.

Factor 2: Individual Children in Wide Variety of Activities--On this factor composed primarily of CCL activity variables, four sponsors show substantially high scores on both fall and spring observations. The Far West Laboratory, Bank Street, University of Pittsburgh, and Responsive Environment Corporation models apparently place considerable emphasis on the experiential variety or the individualization of activities implicit in this factor. Two further points are noteworthy about UP. First, UP is the only model in the sample scoring substantially above the mean on both Factors 1 and 2; and secondly, there was a distinct shift of emphasis in classroom characteristics as represented by these two factors, during the school year. In the fall, UP was approximately a full standard deviation above the mean on both factors; in the spring, "Programmed academic instruction" dropped to 0.5 standard deviations above the mean while the "Wide variety of activities" score soared nearly three standard deviations above the mean.

Factor 3: Adult Feedback to Children--This factor is composed entirely of adult/child interaction variables, mostly of a sequential nature and

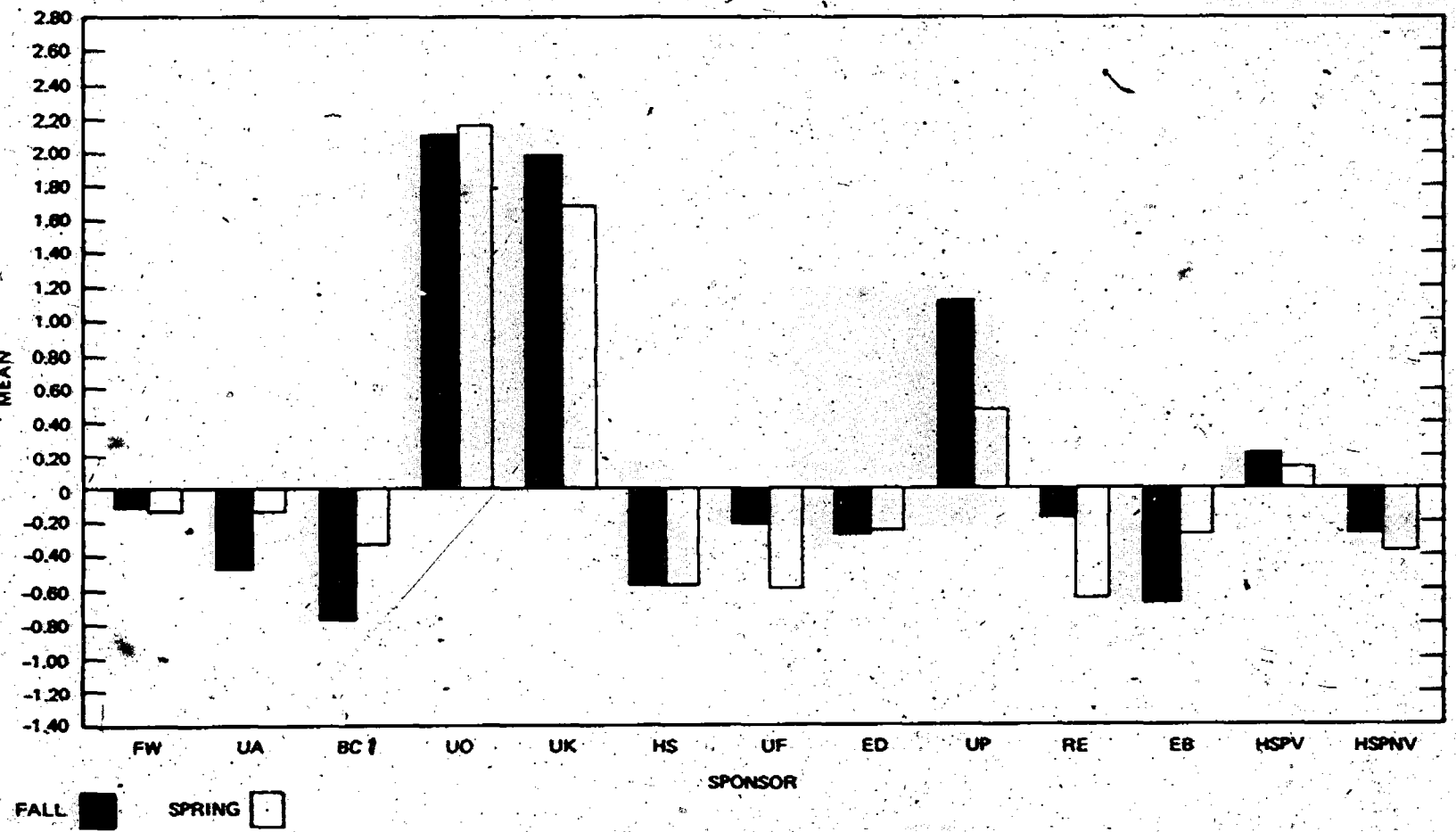

FIGURE 1 COMPARISON BY SPONSORS OF FACTOR 1

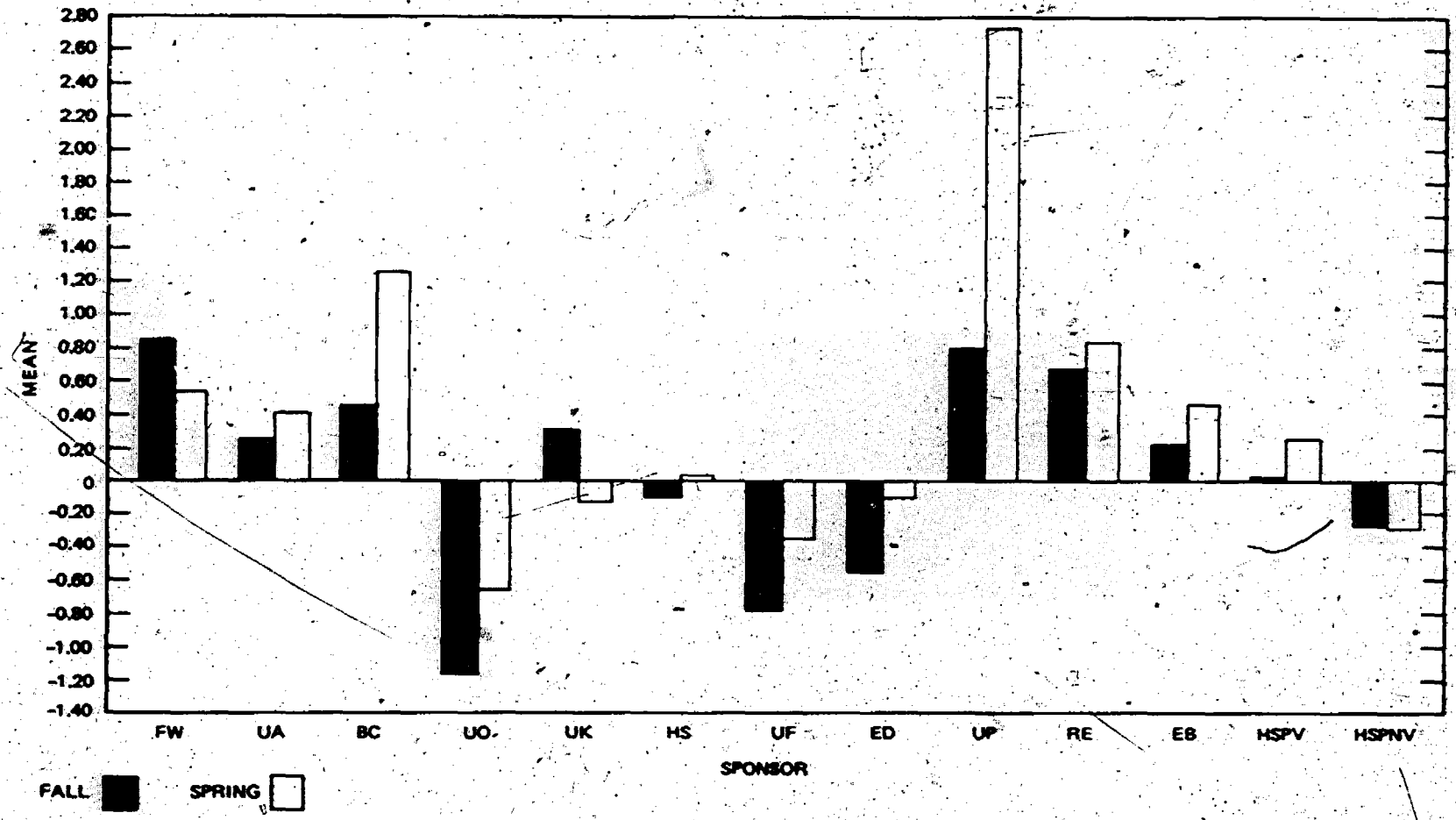

FIGURE 2 COMPARISON BY SPONSORS OF FACTOR 2

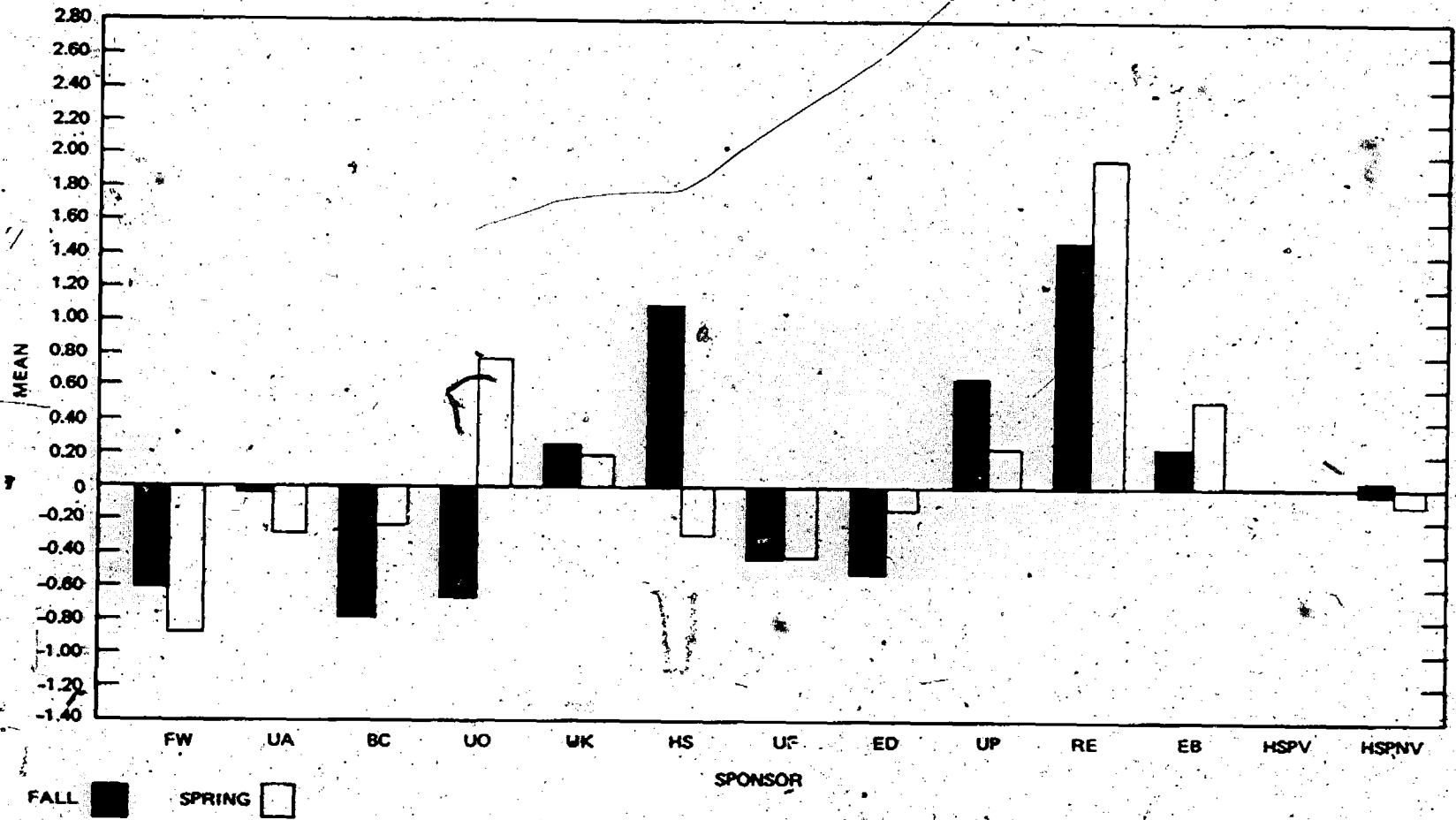

FIGURE 3 COMPARISON BY SPONSORS OF FACTOR 3

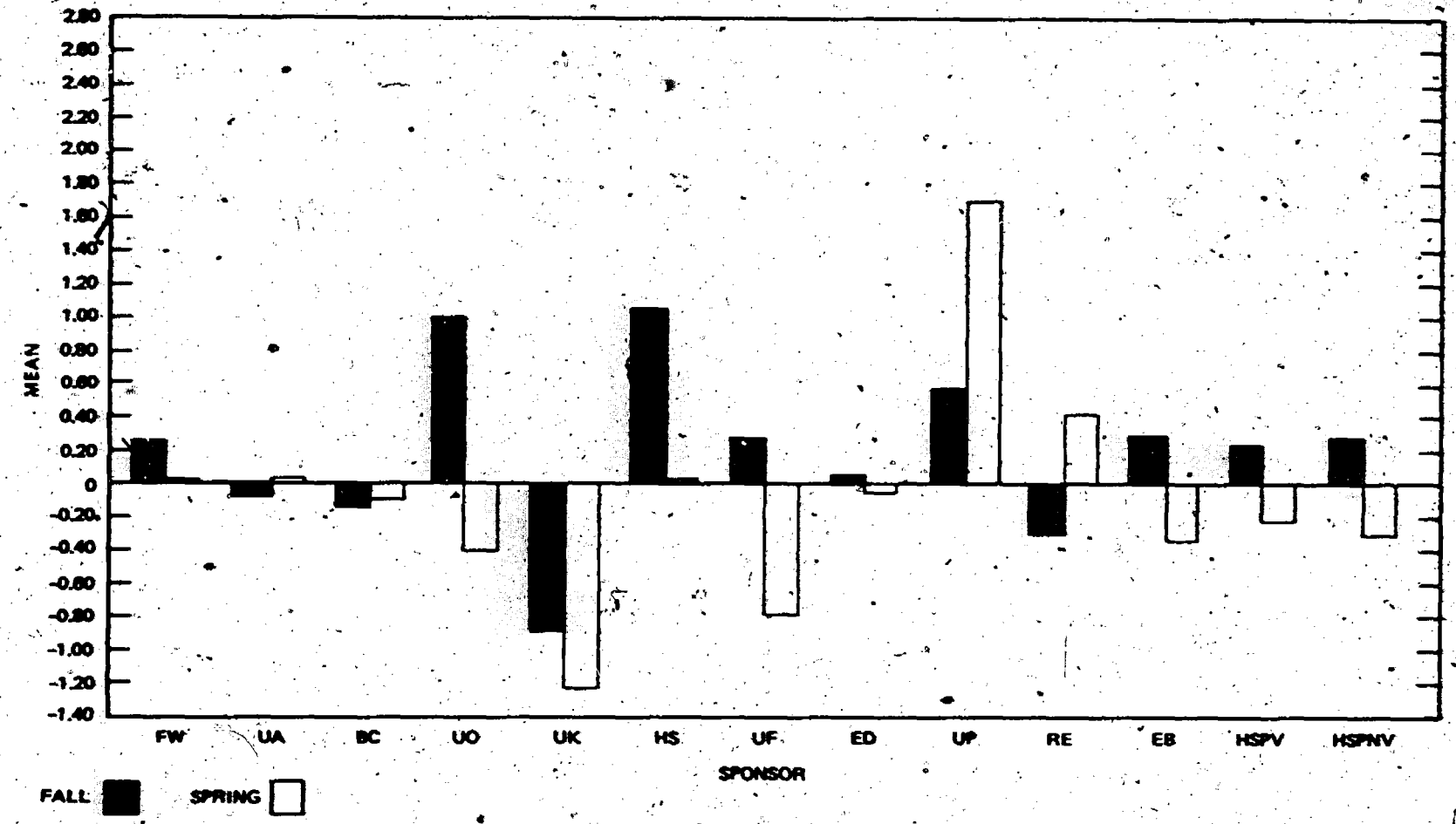

FIGURE 4 COMPARISON BY SPONSORS OF FACTOR 4

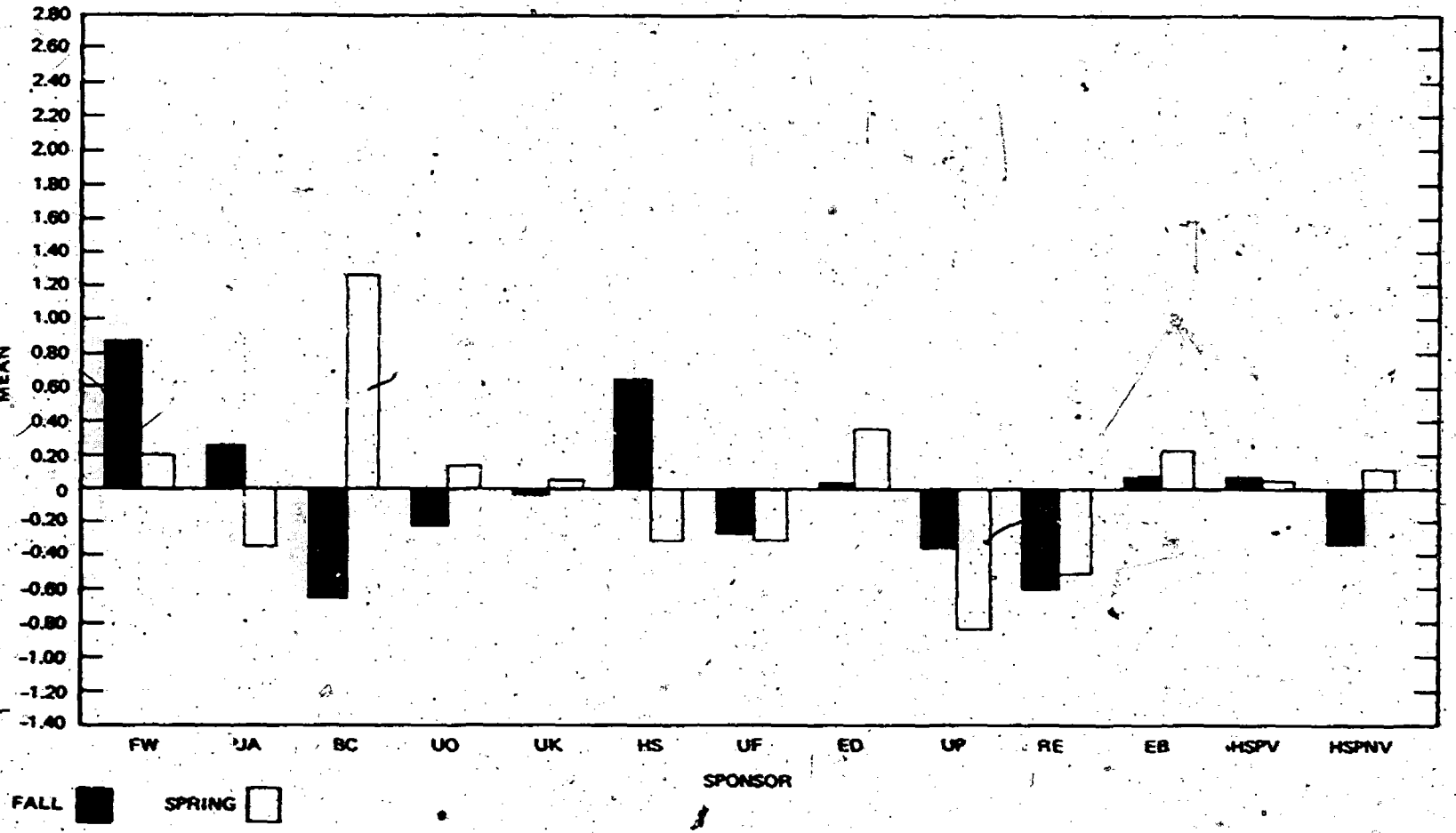

FIGURE 5 COMPARISON BY SPONSORS OF FACTOR 5

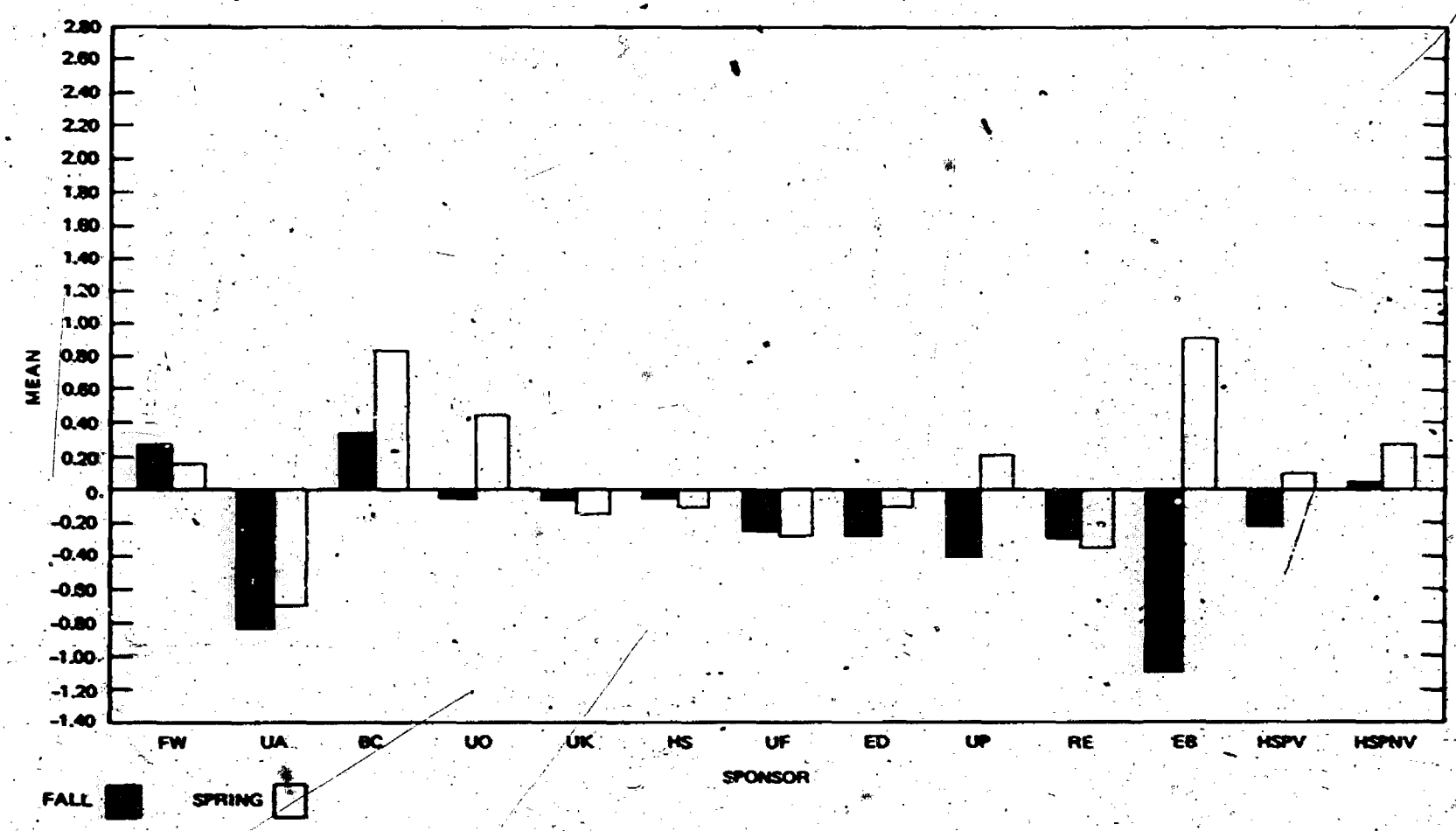

FIGURE 6 COMPARISON BY SPONSORS OF FACTOR 6

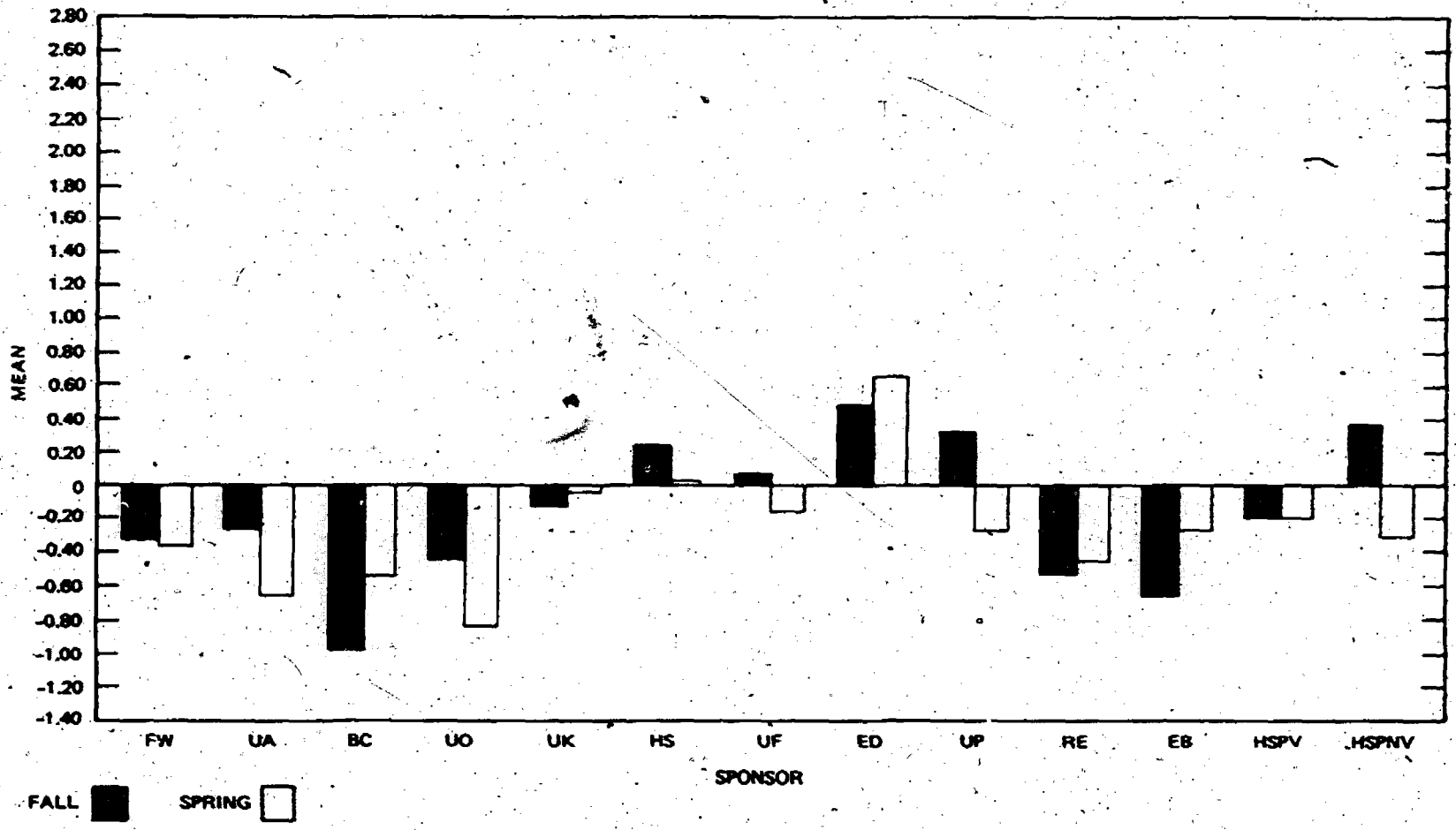

FIGURE 7 COMPARISON BY SPONSORS OF FACTOR 7

involving adult feedback to children. It might be expected that stimulus/response/reinforcement models would dominate the positive scores on this factor but that is not entirely the case. In the fall, UK and UP had moderately positive scores while UO's was negative. In the spring, UO reversed completely, scoring high on the factor, while UK and UP were still positive but closer to the mean. The consistent performers on this factor were REC, scoring 1.5 to 2.0 standard deviations above the mean, and FW, scoring approximately 0.85 standard deviations below the mean in both fall and spring observations.

Factor 4: Positive Choice Request Interaction--Choice requests/questions are distinguished from direct questions by the property of having more than a single acceptable response or reply. This factor seemed very unstable from fall to spring, as several sponsors radically altered their scores during the academic year. In the fall, University of Oregon and High/Scope were each a full standard deviation above the mean; in the spring, they were 0.41 and 0.02, respectively. University of Florida also shifted from 0.30 in the fall to 0.80 in the spring. Two consistent models were UK and UP, obtaining substantial negative and positive scores, respectively, in both fall and spring observations.

Factor 5: Negative Behavior--Nearly all sponsors stayed close to the mean on this variable. Sponsors scoring substantially high in the fall were Far West and High/Scope while in the spring only Bank Street and possibly EDC appear relatively high above the mean. The consistent negative scorer on this factor (negative behavior rarely occurred) was RE.

Factor 6: Positive Behavior--As mentioned earlier, this is a difficult factor to interpret. It is named after its highest loading variables, which describe positive behavior, but a model could also score highly on this variable by having a low frequency of child questioning and interaction initiation since these variables load negatively on the factor. There were no high scores relative to the mean on the fall observations, while two models, University of Arizona and Enablers, scored approximately one standard deviation below the mean. In the spring, Enablers did a turnabout and scored nearly one standard deviation above the mean along with Bank Street.

Factor 7: Adults with Large Group--Positive scores on this factor were dominated by the NPV classrooms, which, it must be remembered, were included in the standardization process, yielding a mean of zero. Of the sponsored models, only EDC in the spring used the grouping arrangements central to this factor to a substantial degree. All other models tended to score slightly negative and/or not widely different from the mean.

Summary - Observed Differences

Although it is of great interest to see how sponsors did in fact differ in classroom events, observed differences among sponsors do not indicate implementation of sponsors' programs. In a gross way, observed differences could be seen as implementation of the entire PV concept, in that the existence of several classroom curricula different from each other and from NPV would imply implementation of a PV program. However, without demonstration that these variations are indeed those which were planned, i.e., that observed differences are

consistent with methodological and theoretical program differences, observed differences in classroom events are not evidence of model implementation. Implementation must be assessed in terms of classroom processes integral to each sponsor's program. All 69 variables are not relevant to each sponsor; indeed, some (e.g., Variable 9--Snack, lunch) may not be salient to any sponsor nor would they be expected to greatly differentiate PV and NPV classrooms. The analyses of implementation, discussed in the following, utilize selected sets of variables, each set generated to represent one sponsor's important classroom processes and behaviors.

Analysis of Implementation

Consistency Between Sponsor Objectives and Classroom Events

As mentioned in the Introduction, there are two interwoven criteria for successful implementation of a model's classroom processes. One criterion is consistency between the sponsor's desired classroom processes and behaviors and the observed classroom processes and behaviors as measured by the COI. This consistency is considered to exist if a sponsor scores high frequencies on important, desired process variables.

The range tests yield, for each COI variable, a rank order and grouping of the models according to observed frequency. From this, an individual sponsor's frequency on a given variable could be designated high or low relative to the other PV models. However, this analysis utilizes a more absolute criterion for designating frequencies on observation variables as "high" or "low".

None of the sponsors can be expected to estimate the optimum occurrence of any given behavior per five-minute period in their classrooms, even of those behaviors most valued in the program. Even with a thorough understanding of the definitions of the interaction categories, and of the procedures observers use in recording their classroom processes, sponsors could not give reasonable estimates of desired frequencies for variables such as "Child response to adult direct request" (Variable 42) or "Adult helps child" (Variable 77). Therefore no truly absolute standard or expectation can be formulated against which to compare observed frequencies.

The standard, then, must be a comparative one. It is reasonable to assume that, since regular or traditional Head Start programs are the programs these sponsors seek to improve upon, a higher frequency on desired program components than most regular HS classrooms and/or a lower frequency on elements a sponsor may wish to de-emphasize would constitute successful implementation. Therefore, a fixed nonrelative standard based on the comparison sample was generated.

The methods used to generate the quartile rank standard were detailed in Chapter II. Table 10 shows, by sponsor, the quartile rank of his mean frequency (over all classrooms) on each of the selected process variables designated as critical to his model. Sponsor expectations on each of these variables are found in Table 5. For instance, the University of Oregon was expected to

Table 10

SPONSOR CLASSROOM OBSERVATION IMPLEMENTATION SCORES

	SELECTED VARIABLES	FW	UA	BC	UO	UK	HS	ED	UP	RHC
6	Adult/child ratio					3				
10	Activity B (group time, sharing, rest, story, singing, dancing)	3	4				3			
11	Activity C (numbers, alphabet, reading, language development)				4	4	2	3	4	
13	Activity E (table games, guessing games, working puzzles)									
20	Adult with one or two children, academic activities								4	
21	Adult with small group, academic activities				4	4				4
24	Wide variety of activities	4	3	4				3		
25	Independent child activity	3	3	4			3	3		3
26	Adult with one or two children	4		4				4	4	
46	Adult direct request followed by child response followed by adult corrective feedback				4	4				4
47	Adult direct request followed by child response followed by adult acknowledgment				4	4				3
48	Adult direct request followed by child response followed by adult praise				4	3				4
49	Adult choice request to a child	3	4	2			3	3		
52	Adult praise to child	3	2		4	4				
53	Adult acknowledgment to child	2	3		4	3	3			
54	Adult positive corrective feedback to child				2	4				
59	All child self-instruction	3	4							
62	Adult interaction with one or two children		3	2		4		3	3	
63	Adult interaction with small group		3	2	4				3	3
69	Child initiates interaction with adult	4						3	3	
70	Child initiates interaction with other child	3	3	2	2			2		
71	Child non-verbal									
72	Child cooperates		2	4				3		
81	All motion	3	4	3			2	4		
	SUM OF VARIABLE SCORES	34	39	27	37	37	17	27	20	21
	MAXIMUM POSSIBLE	44	48	36	40	40	24	36	24	24
	OVERALL IMPLEMENTATION SCORE	77%	81%	75%	92%	92%	71%	75%	83%	88%

achieve a high (i.e., fourth quartile) frequency on Variable 11, "Activity C--math, reading, etc.," and, in fact, its overall mean frequency does fall in the fourth quartile of the quartile rank standard.

Each sponsor's quartile score on critical variables is summed and divided by the highest possible score he could have attained to obtain an overall implementation score expressed as a percentage.

The nine sponsors were ranked by the percentage scores shown in Table 11.

Table 11

OVERALL IMPLEMENTATION SCORES

Rank	Sponsor	Score
1.5	Univ. of Kansas	92%
1.5	Univ. of Oregon	92%
3	REC	88%
4	Univ. of Pittsburgh	83%
5	Univ. of Arizona	81%
6	Far West Lab	77%
7.5	Bank Street	75%
7.5	EDC	75%
9	High/Scope	71%

It is interesting to note that those three sponsors who, in the preceding examinations of sponsor differences, always grouped together (UK, UO, and UP) also have three of the highest implementation scores. This sponsor group was the most clearly indicated in the analysis of expected sponsor differences as well as by observed frequencies on COI variables and factor scores. Both by stated objectives and observed classroom events, these sponsors are set apart.

The reason for this and the higher implementations scores is unclear. It may be due to a higher degree of program specificity (being able to define what goes on in the classrooms) and the fact that their critical methodological components are relatively easily recorded by the COI. These sponsors (UK, UO, and UP) appeared much better implemented than other sponsors, who often are unable to describe behaviorally what should occur in their classrooms. The classroom processes of some of these models are often of a nature that precludes objective encoding such as required in the COI. Desired teacher behaviors may be too inferential or subjective in nature to be coded reliably by observers.

Consistency Across Sites

When the PV experiment was designed, sponsors were seen as offering predefined classroom programs, or treatments, ready to be implemented in several sites. Implementation was naturally assumed to include site-to-site replication of the sponsor's treatment, that is, consistency on critical program characteristics across sites.

Differences between sites within sponsor on the selected sets of variables are discussed below. For each sponsor, a table is included, showing the relevant selected implementation variables, mean site frequencies, an overall mean frequency and the F - or t-statistic (depending on number of sites) and significance level of the variation across its sites.

For example, the first line of Table 12 indicates that on Variable 10 (Activity B--group time, sharing, rest, story, singing, dancing) there were no significant differences among Far West's three sites in the fall, but significant differences among sites were observed in the spring.

Differences among a sponsor's sites in terms of factor scores will also be discussed in this section. (The seven factors are described in Table 3.)

Far West Laboratory

Variables--The three Far West Laboratory sites look significantly different on several variables in Table 12. Perhaps the most important and interesting, however, are Variables 25 (Independent child activity) and 52 (Adult praise to child). Both of these variables are related to integral components of the Far West Laboratory curriculum. The Far West Laboratory program is based on the autotelic discovery approach to early childhood education. Learning activities are designed to be self-rewarding as well as to help develop skills, concepts and attitudes for later application. The classroom activity should be mobile and emphasis is placed on children working independently of adults at these carefully designed learning activities.

Table 12 indicates that, although there was significant site-to-site variation on Variable 25 (Independent child activity) in the fall, it is possible that the sponsor was successful in helping teachers implement this program element more consistently in all sites before spring. However, in the fall, Far West Laboratory attained the second highest mean frequency of the 11 sponsors on this variable, but dropped to sixth place in the spring. Furthermore, Far West's spring overall mean frequency on Variable 25 only falls into the third quartile of the NPV standard. Although there was greater consistency across sites in the spring, the overall frequency of children working or playing without adults is not "high" by definition (i.e., fourth quartile). However, a third quartile ranking on this variable does not indicate failure, since a high level of child independence is probably common to many PV and NPV programs.

The other interesting variable is Variable 52 (Adult praise to children). The autotelic approach is premised on the belief that it is more advantageous to the child for him to be reinforced by his own achievements and to develop a healthy self-concept from this base, rather than to be dependent on external reinforcement, i.e., the teacher's approval. Both fall and spring show considerable variation among the Far West Laboratory sites on Variable 52, with only slightly less in the spring, when two of the site means dropped somewhat. On the fall range tests, Far West Laboratory ranked fifth of the 11 sponsors on Variable 52, that is, had the fifth highest frequency on the adult praise variable; in the spring, Far West Laboratory dropped to seventh place. Although the

Table 12

FAR WEST LABORATORY – VARIABLES SUMMARY

Variable	Fall						Spring					
	Site 4	Site 5	Site 13	Overall Mean	F Ratio	p	Site 4	Site 5	Site 13	Overall Mean	F Ratio	p
10. Activity B (group time, sharing, rest, story, singing, dancing)	.25	.33	.32	.30	.2715	NS	.40	.37	.40	.39	.0545	NS
24. Wide variety of activities	3.01	2.50	2.21	2.57	2.4853	NS	2.47	2.56	2.25	2.44	.7128	NS
25. Independent child activity	2.76	1.43	.75	1.64	10.8681	.01	1.71	.96	1.33	1.36	2.8428	NS
26. Adult with one or two children	.16	.08	.06	.10	1.8724	NS	.14	.04	.10	.09	1.1928	NS
49. Adult choice request to child child	1.40	3.49	1.67	2.18	5.0672	.05	1.34	1.56	.11	1.00	15.1940	.01
52. Adult praise to child	.40	2.36	1.00	1.25	14.2094	.01	.71	1.75	.51	.99	11.3551	.01
53. Adult acknowledgement to child	.81	.80	.57	.73	2.4844	NS	.64	.30	.84	.59	1.8212	NS
69. Child initiates interaction with adult	2.36	5.60	4.55	4.17	4.5525	.05	2.30	.72	9.66	5.56	22.5117	.001
70. Child initiates interaction with other child	3.03	6.04	3.78	4.28	1.5336	NS	3.97	5.49	7.93	5.80	3.8708	.10
81. All motion*							3.05	2.20	.25	1.84	31.3185	.001

*The code which defines this variable did not exist in the fall.

amount of adult praise decreased, Far West's overall mean placed in the third quartile of the NPV standard, that is, Far West classrooms exhibited more adult praise than 50 percent of all regular HS classrooms. It appears that Far West Laboratory may have encountered difficulty, more in one site perhaps than in others, in implementing this element of their program. Possibly teachers with experience in working with young children resist changing their communication patterns in this respect.

Factors--As indicated in Figure 8, the most dramatic site differences in Far West Laboratory occur on Factors 2 (Individual children in a wide variety of activities) and 5 (Negative behavior). Factor 2 seems most relevant to the Far West Laboratory program; it describes, essentially, an open classroom where many activities occur, where children work independently in small numbers or with adults (one or two children or small groups). This seems congruent with the Far West Laboratory curriculum, but the three sites show striking differences in their factor scores in the fall, and Site 13 is still aberrant in the spring. The three sites also show very marked differences on Factor 5 (Negative behavior) fall and spring, although the spring range is somewhat smaller. Site 13 scored much above average in the fall and somewhat below average in the spring. It is possible that this is due to an observer effect, since the observer in the fall was replaced in the spring.

University of Arizona

Variables--The most significant site difference in the University of Arizona program (Table 13) is on Variable 59 (All child self-instruction). The meaningfulness of this finding, however, is mitigated by the fact that there is anecdotal evidence of considerable observer unreliability entering into this variable, due in part to a change in the definition of the relevant codes from fall to spring.

Although adults engage in activities with small groups of children in this model, they are expected to interact with the children individually. Variable 62 (Adult interaction with one or two children) shows a significant site effect in the fall but in the spring Site 16's mean drops and there is no significant difference between the two sites. By the site-to-site consistency standard of implementation, UA progressed on this dimension during the school year 1970-71. Compared with the non-sponsored classrooms scale, UA overall ranks only in the third quartile of the NPV standard on Variable 62. However, it is possible that individual attention is a common enough preschool characteristic that to expect a sponsor to exceed 75 percent of all comparison classrooms is unrealistic.

Factors--The largest difference between the two UA sites on the seven factors is on Factor 7, "Adult with large group" (see Figure 9). The Arizona model expects adults to work with small groups. In the fall, Site 8 had a score of 0.64 and Site 16, -1.19. By the spring, though, Site 8's mean dropped to -0.27, which is more congruent with the model's expectations and more similar to site 16's score.

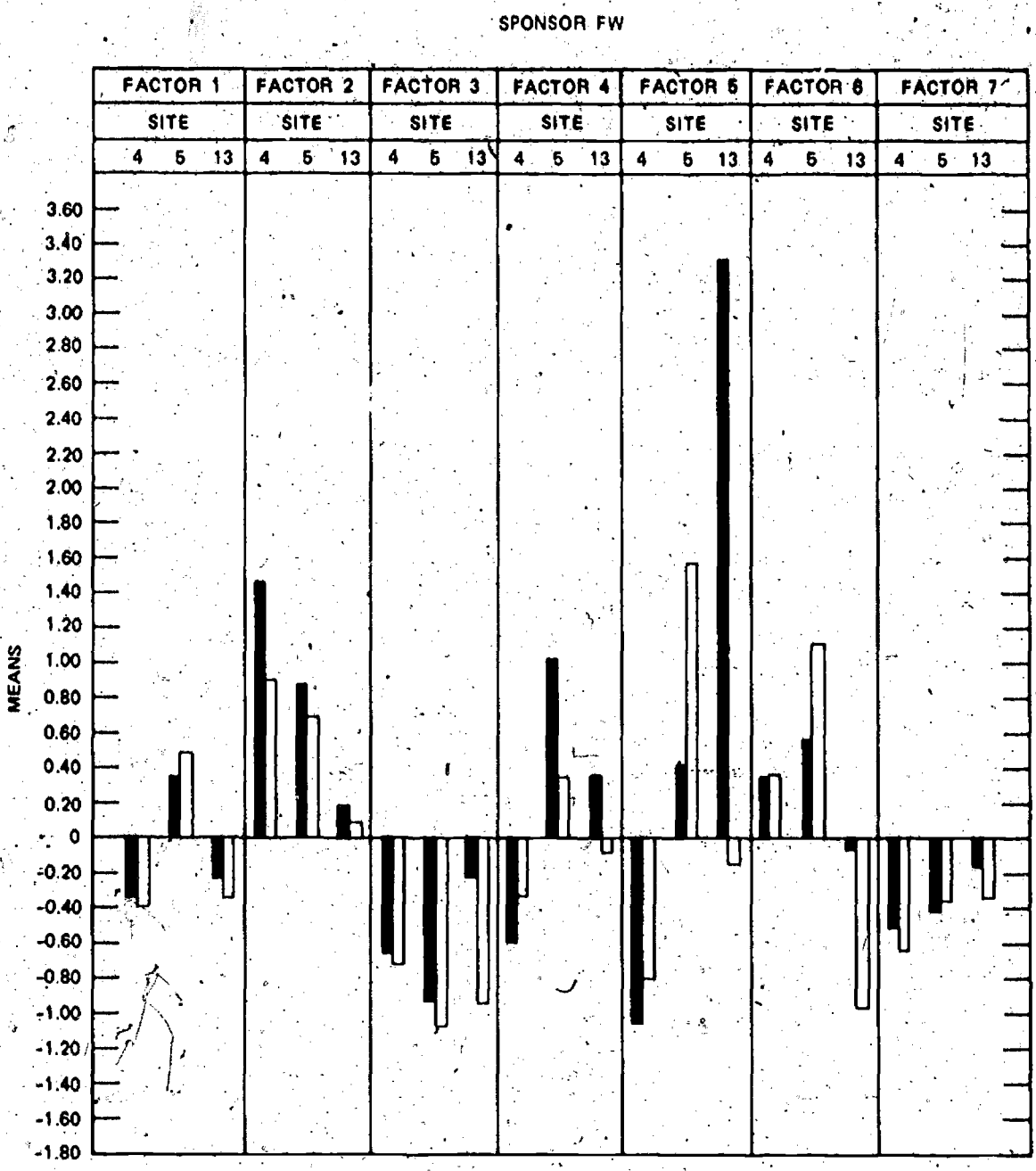

FIGURE 8 . FAR WEST LABORATORY—FACTORS SUMMARY

Table 13

UNIVERSITY OF ARIZONA - VARIABLES SUMMARY

	Variable	Fall Site 8	Fall Site 16	Fall Overall Mean	Fall F Ratio	Fall p	Spring Site 8	Spring Site 16	Spring Overall Mean	Spring F Ratio	Spring p
10	Activity B (group time, sharing, rest, story, singing, dancing)	.42	.39	.40	.0686	NS	.61	.35	.48	11.4403	.05
24	Wide variety of activities	1.88	2.08	1.98	1.3760	NS	1.77	2.06	1.91	2.1573	NS
25	Independent child activity	1.64	1.46	1.55	.2826	NS	1.60	1.20	1.40	1.5885	NS
49	Adult choice request to child	1.99	2.60	2.30	.6986	NS	1.03	3.19	2.11	3.6662	NS
52	Adult praise to child	.69	.50	.59	.5428	NS	.48	.79	.63	.8272	NS
53	Adult acknowledgment to child	1.42	1.06	1.24	1.2360	NS	1.49	.65	1.07	4.9039	.10
59	All child self-instruction	.15	.00	.08	1.5211	NS	.57	.09	.33	19.4017	.01
62	Adult interaction with one or two children	11.99	16.14	14.06	6.652	.05	10.93	12.62	11.77	.5841	NS
63	Adult interaction with small group	1.24	3.47	2.35	2.4086	NS	2.31	2.80	2.56	.3216	NS
70	Child initiates interaction with other child	5.53	4.02	4.78	1.5918	NS	6.29	7.12	6.70	.8250	NS
72	Child cooperates with other children	.06	.00	.03	14.4216	.01	.00	.00	.00	I	-
81	All motion						5.01	4.10	4.56	1.2042	NS

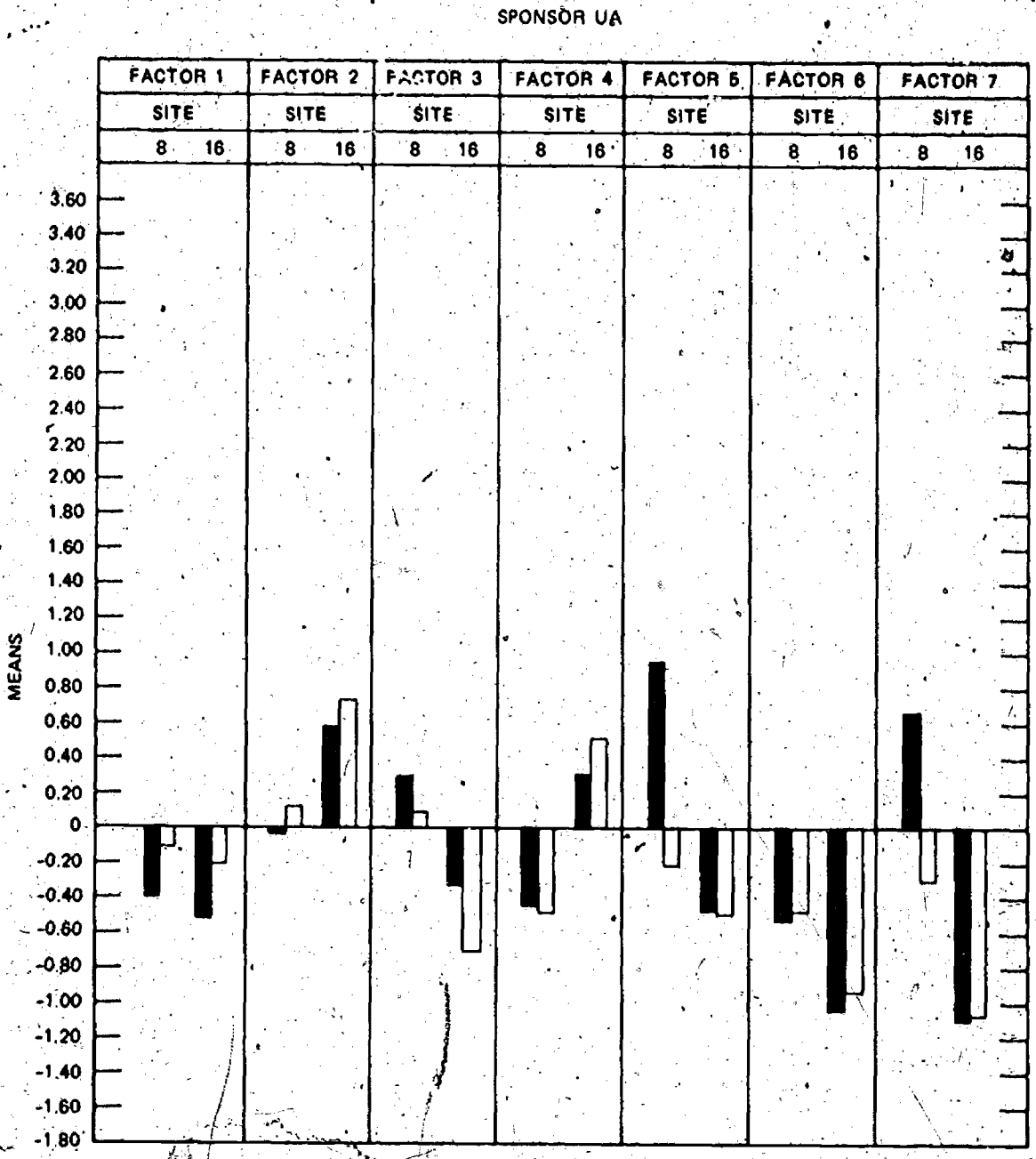

FIGURE 9 UNIVERSITY OF ARIZONA—FACTORS SUMMARY

Factor 5 (Negative behavior) showed a considerable difference between the two sites, with Site 8 at 0.96 and Site 16 at -0.46. A great deal of negative behavior is presumably an undesired classroom trait. By spring, however, the two sites seem closer together and both scored below average.

Bank Street College

Variables--Variables 62 (Adult interaction with one or two children) and 63 (Adult interaction with a small group) are, of the variables in Table 14 with significant site differences, among those most relevant to the Bank Street model. The curriculum is designed to include both group activities and interaction with individual attention. Both these variables (62 and 63) show significant variability between the two sites in the fall, with site variance on Variable 62 remaining significant in the spring, although with a small t-statistic. On both these variables, the rank of Bank Street relative to the other sponsors rose considerably from fall to spring (see range tests, Appendix E). The combination of improved site-to-site consistency, and a relatively higher frequency on Variable 63 in the spring would indicate some better implementation of this desired classroom characteristic. On Variable 62, although the overall mean frequency improved, in the spring, Bank Street still showed significant site-to-site variance.

Variable 70 (Child initiation with other children), another critical variable, shows site differences in both fall and spring. This variable suggests an environment in which children are free to work together without adults. Interaction among children in Bank Street classrooms should be relatively high; that is, it is a desired classroom characteristic. However, Bank Street's spring overall mean ranks in the second quartile of the NPV classroom distribution and the two sites remained dissimilar in this characteristic throughout the year.

It is difficult to know what is a desirable number of child-initiated interactions in a Bank Street program. The upper limit of the second quartile is nearly four occurrences on the average of Variable 70 per COP (five minute observation period).

The highest NPV mean is about ten occurrences of Variable 70 per COP. Perhaps in non-sponsored Head Start classrooms, where few aides are available and children are engaged in play situations during a good part of the day, ten or more occurrences per COP would not be unreasonable to expect. But the Bank Street model would not be expected to exceed such a program on child-to-child interactions, so perhaps four occurrences per COP is reasonable. The only thing that makes this doubtful is that the University of Oregon classrooms, where structured lessons involve teachers and children in small groups, also fall in the second quartile, or between two and four child-to-child interactions per COP.

Factors--On factor scores, Bank Street's two sites seemed closer on all factors in the spring except Factor 6, "Positive behavior" (see Figure 10). In this case, the two sites differ even more in the spring than in the fall. To attain a higher than average (above zero) score, a sponsor would have to have high enough frequencies on "Child positive behavior" (Variable 68) and "All positive behavior" (Variable 82) to offset frequencies on the variables loading

Table 14

BANK STREET - VARIABLES SUMMARY

	Variable	Fall Site 1	Fall Site 12	Fall Overall Mean	Fall F Ratio	Fall p	Spring Site 1	Spring Site 12	Spring Overall Mean	Spring F Ratio	Spring p
10	Activity B (group time, sharing, rest, story, singing, dancing)	.19	.34	.26	2.414	NS	.33	.24	.29	1.476	NS
24	Wide variety of activities	2.10	2.06	2.08	.139	NS	2.85	2.81	2.83	.135	NS
25	Independent child activity	1.59	1.43	1.52	.504	NS	1.80	2.39	2.05	1.283	NS
26	Adult with one or two children	.14	.03	.09	1.98	NS	.13	.24	.18	1.455	NS
49	Adult choice request to child	1.28	.31	.86	9.961	.01	1.21	.10	.73	2.281	NS
62	Adult interaction with one or two children	15.53	1.79	9.64	15.459	.01	18.63	7.06	13.67	5.316	.01
68	Adult interaction with small group	2.89	.78	1.99	3.197	.05	3.26	2.12	2.77	1.2412	NS
70	Child initiates interaction with other child	7.34	1.91	5.01	3.556	.02	4.67	2.67	3.81	4.597	.01
72	Child cooperates with other children	.62	.00	.35	1.526	NS	.10	.00	.06	1.681	NS
81	All motion						3.17	4.82	3.88	2.076	NS

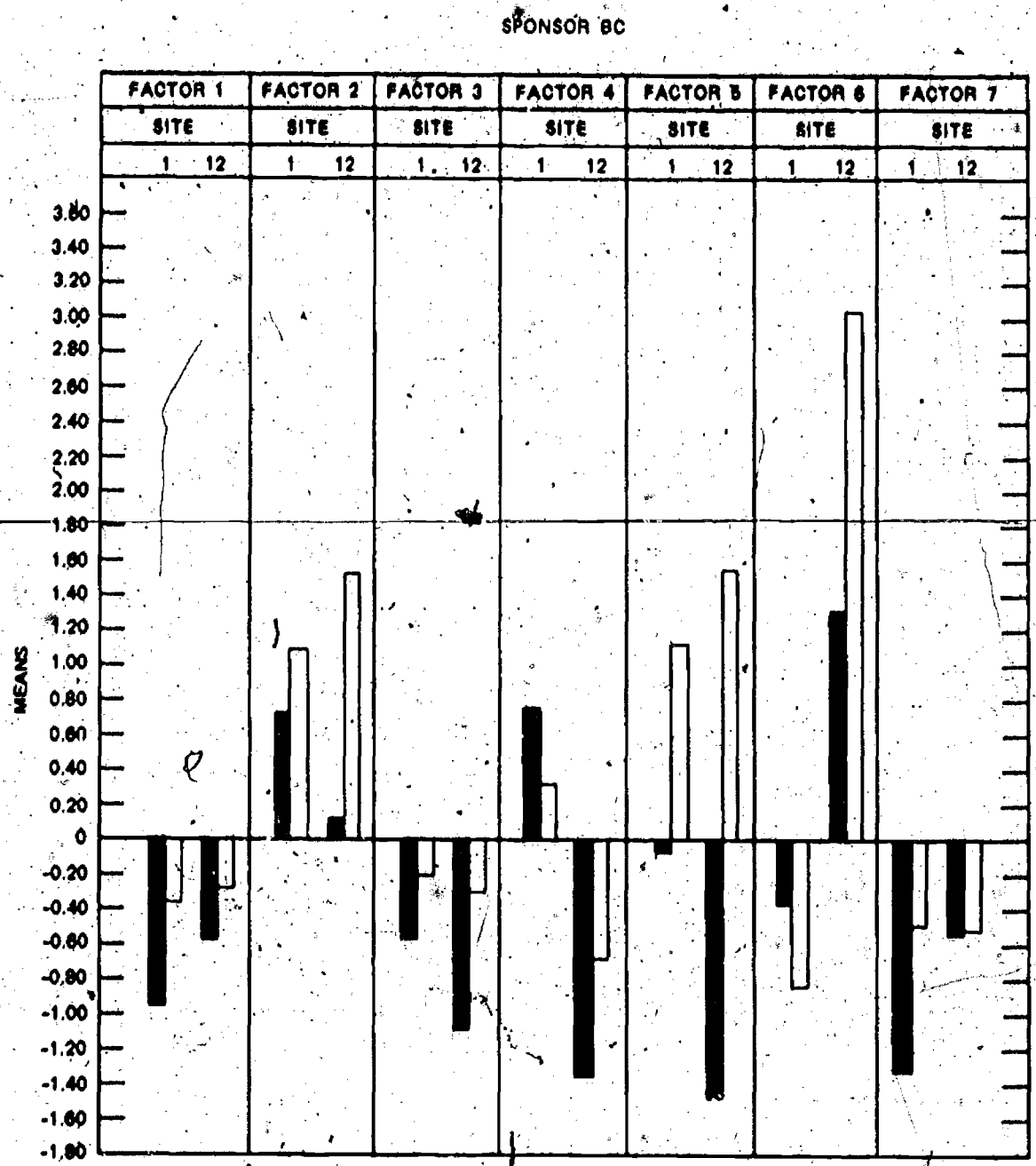

FIGURE 10 BANK STREET—FACTORS SUMMARY

negatively on that factor: Variable 69 (Child asking adults questions), Variable 48 (Child initiates interaction with adult), and Variable 70 (Child initiates interaction with children).

University of Oregon

Variables--The variables listed on Table 15 provide quite a comprehensive picture of the basic structure of learning activities and interactions in the University of Oregon program. Emphasis is placed on the development of basic academic or pre-academic skills (Variable 11) in small groups (Variable 21). The interaction pattern has adults interacting with the whole small group much of the time (Variable 63), asking questions and giving feedback for answers (Variables 46, 47, 48, 52, and 54). Howver, on only one of these critical variables, Variable 46, are the UO sites not significantly different both fall and spring.

Factors--The three UO sites show considerable variation on several of the factors (see Figure 11). However, on Factor 1 (Programmed academic instruction), the one factor most relevant to the model, the three sites not only attain high positive scores but are more consistent than on almost all the other factors. Factor 7 (Adult with large group), shows less site-to-site consistency, but the negative or very low positive scores seem congruent with UO's small group instructional emphasis.

University of Kansas

Variables--None of the variables in Table 16 is free from significant site differences both fall and spring. The variables most crucial to the University of Kansas model, a behavior modification approach based on plentiful and immediate reinforcement (coded, Adult praise), are Variables 48 (Adult direct request followed by child response followed by adult praise) and Variable 52 (Adult praise to child). The UK model also emphasizes small group instruction in which the adult asks questions of individuals and reinforces their correct responses. Thus both these variables seem to tap critical model processes and yet the three sites show significant variation fall and spring, although the differences are somewhat less significant in the spring. The overall means for these desired variables also dropped somewhat, although in the spring UK still ranks in the third and fourth quartiles on Variables 48 and 52, respectively, compared with all NPV classrooms.

Factors--The three UK sites showed somewhat more variation on Factor 1 (Programmed academic instruction), than might be expected for this model (see Figure 12). Again, the differences among sites are more pronounced in the spring. The kinds of interactions and activities which comprise the programmed academic factor are all characteristic of the UK program--such variables as "Activity C (math, reading)," "Adult with small group in academic activities", "Adult praise to child response," and (all) "Adult praise to child,"--weighed highly positive on this factor. Although there was site-to-site inconsistency, UK's high scores on Factor 1 are consistent with program objectives.

Table 15

UNIVERSITY OF OREGON - VARIABLES SUMMARY

	Variable	Fall Site 3	Fall Site 11	Fall Site 14	Fall Overall Mean	Fall F Ratio	Fall p	Spring Site 3*	Spring Site 11	Spring Site 14	Spring Overall Mean	Spring F Ratio	Spring p
11	Activity C (numbers, alphabet, reading, language development)	.33	.55	.66	.50	6.5592	.05	—	.90	.68	.79	8.4388	.001
21	Adult with small group in academic activities	.28	.78	.99	.65	9.1453	.01	--	1.00	1.13	1.07	1.0315	NS
46	Adult direct request followed by child response followed by adult corrective feedback	.23	.04	.38	.20	2.0384	NS	—	1.37	.81	1.09	2.046	NS
47	Adult direct request followed by child response followed by adult acknowledgement	2.46	3.07	2.16	2.60	6.3394	.05	—	1.95	1.39	1.67	.8161	NS
48	Adult direct request followed by child response followed by adult praise	.28	.26	.53	.34	1.6011	NS	—	2.44	.95	1.69	4.3452	.10
52	Adult praise to child	5.32	4.24	3.46	4.42	4.8332	.05	—	2.44	1.89	2.16	.6329	NS
53	Adult acknowledgement to child	1.09	.40	1.01	.82	2.6906	NS	—	3.05	1.15	2.10	6.4855	.05
54	Adult positive corrective feedback to child	.00	.00	1.11	.30	33.808	.001	--	.07	.32	.20	5.7508	.10
63	Adult interaction with small group	7.86	16.64	10.0	11.64	6.1723	.05	--	25.08	9.54	17.31	68.7703	.001
70	Child initiates interaction with other child	11.53	.30	3.40	5.23	5.5706	.05	--	.48	5.08	2.78	50.3306	.001

*Site 3 was not observed in the spring.

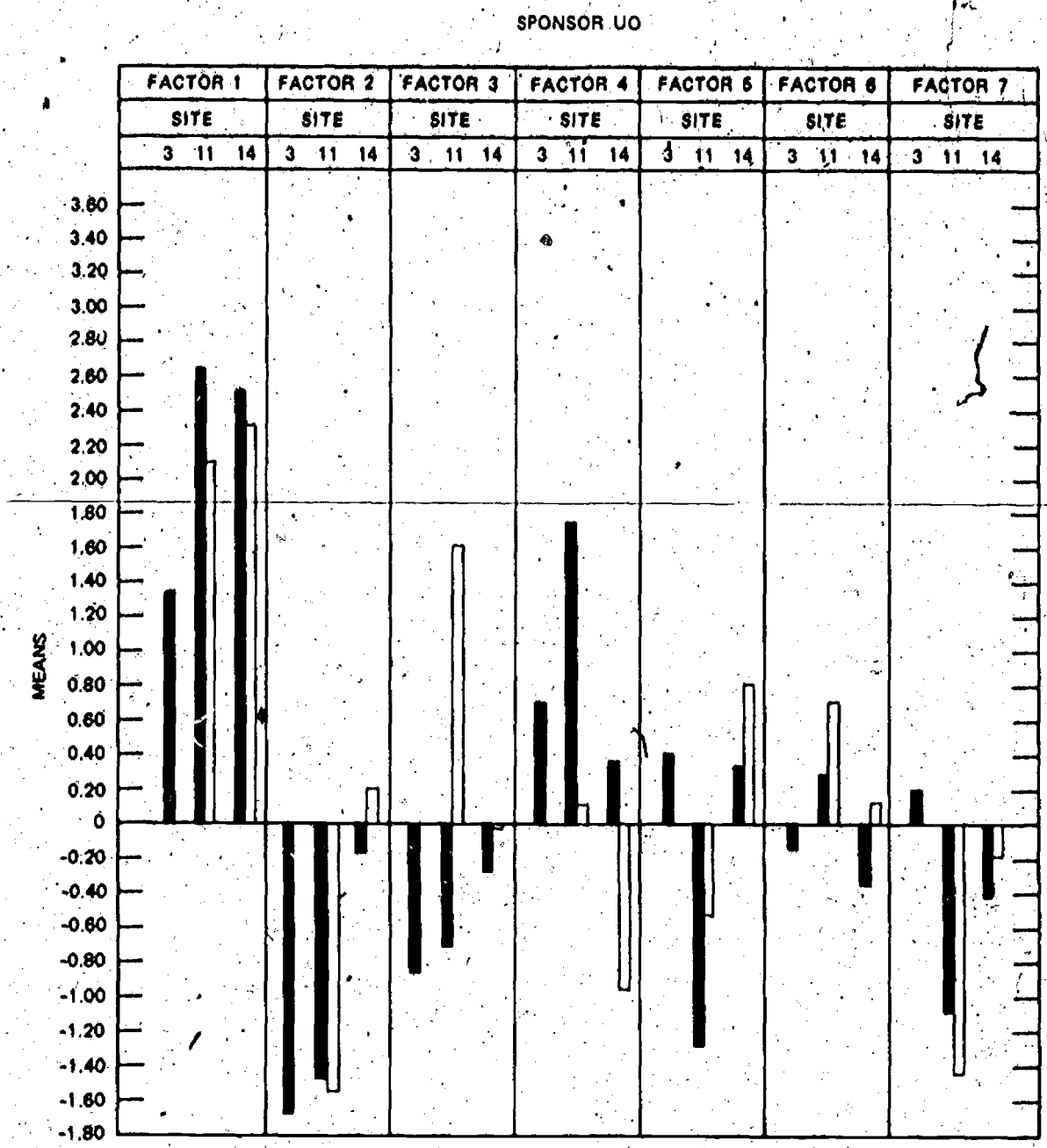

FIGURE 11 UNIVERSITY OF OREGON—FACTORS SUMMARY

Table 16

UNIVERSITY OF KANSAS - VARIABLES SUMMARY

	Variable	Fall Site 2	Fall Site 4	Fall Site 8	Fall Overall Mean	Fall F Ratio	Fall p	Spring Site 2	Spring Site 4	Spring Site 8	Spring Overall Mean	Spring F Ratio	Spring p
6	Adult/child ratio	.22	.31	.30	.27	1.997	NS	.17	.22	.19	.19	.2377	NS
11	Activity C (numbers, alphabet, reading, language development)	.42	.45	.34	.40	1.0078	NS	.44	.39	.25	.36	8.2852	.05
21	Adult with small group in academic activities	1.29	1.25	.78	1.11	2.9677	NS	1.26	1.41	.69	1.12	6.3744	.05
46	Adult direct request followed by child response followed by adult corrective feedback	.48	1.17	.47	.71	13.7883	.01	.40	1.55	.40	.78	20.1588	.001
47	Adult direct request followed by child response followed by adult acknowledgment	1.37	1.64	1.39	1.46	.1729	NS	.66	2.02	.71	1.13	20.5408	.001
48	Adult direct request followed by child response followed by adult praise	.51	1.71	.05	.76	14.5965	.01	.34	1.07	.24	.55	4.9874	.05
52	Adult praise to child	4.45	2.51	2.71	3.22	3.7694	.10	3.24	3.39	1.43	2.69	7.4503	.05
53	Adult acknowledgment to child	1.31	2.64	.18	1.38	8.5086	.01	1.22	1.35	.54	1.03	2.5474	NS
54	Adult positive corrective feedback to child	1.82	1.59	.68	1.36	4.6703	.05	2.03	1.62	.80	1.48	6.2517	.05
62	Adult interaction with one or two children	15.03	20.59	14.18	16.60	8.6595	.01	18.47	19.06	12.30	16.61	21.0842	.01

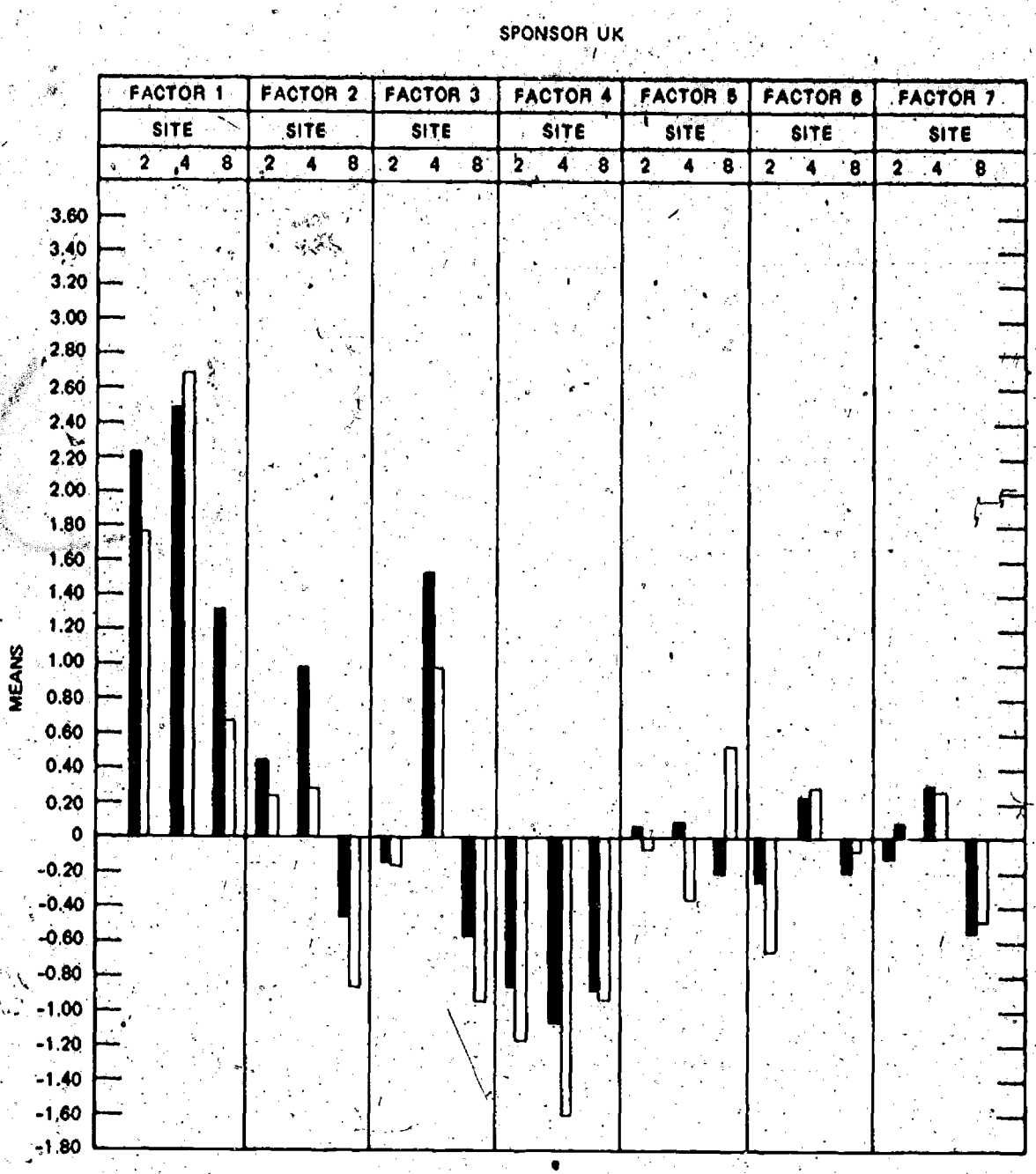

FIGURE 12 UNIVERSITY OF KANSAS—FACTORS SUMMARY

High/Scope

Variables--In all but one instance in Table 17, High/Scope shows significant site differences on each of the selected variables. While this set of variables, unlike those chosen for some sponsors, cannot serve as a picture of the classroom, these variables should reflect important aspects of the High/Scope Head Start classroom. For instance, in each classroom, activity corners or centers are set up, probably including a playhouse or kitchen for dramatic play, a blocks-and-trucks area, an art corner, and a "quiet" corner where table games and puzzles are used. During much of the day all of these are being used, and there should be many other activities during the day as well. Variable 25 (Independent child activity) should reflect this aspect of the program. Although H/S shows a respectable third quartile rank on Variable 25 in the spring, there is a significant site effect.

Factors--Among others, the three High/Scope sites show (Figure 13) considerable variation on Factor 6 (Positive behavior). Factor 6 is not, as mentioned above, a dimension whose other pole is negative behavior. A negative score on Factor 6 means that the frequencies on positive behavior have been offset by higher frequencies on "Child asking adult questions" (Variable 60) and "Child initiates interaction with adult" (69) and with other children (70).

Education Development Center

Variables--Of the variables listed in Table 18, Variables 24 (Wide variety of activities), 25 (Independent child activities), and 81 (All motion) seem most critical to the Education Development Center model. The open classrooms of this model foster a wide choice of learning activities in which children are encouraged to work independently of adults. Children are allowed to move freely about the classroom and adults move among activities giving children individual attention. On Variable 25 (Independent child activities), the three sites ended the year without significant site variance, and EDC's overall spring mean on Variable 25, compared to all NPV classrooms, ranks in the third quartile.

On the other two variables, however, 24 and 81, there are significant site effects both fall and spring, although the NPV quartile rank of the spring mean frequencies on these variables were three and four respectively.

Factors--Factor 2 (Individual children in a wide variety of activities), suggests an open classroom similar to that encouraged by EDC (see Figure 14). The three sites, however, show considerable differences on Factor 2, especially in the fall. Another factor, Factor 7, (Adult with large group), shows striking site differences, due primarily to Site 8, both in the fall and in the spring.

Fall-to-Spring Sponsor Differences

While fall-to-spring consistency is not in itself an indicator of program implementation, it is of interest in conjunction with the two implementation criteria revealed in the previous two analyses, i.e., consistency between desired classroom processes and observed classroom processes, and consistency across a sponsor's sites.

Table 17

HIGH/SCOPE - VARIABLES SUMMARY

Variable	Fall Site 2	Fall Site 6	Fall Site 10	Fall Overall Mean	Fall F Ratio	Fall p	Spring Site 2	Spring Site 6	Spring Site 10	Spring Overall Mean	Spring F Ratio	Spring p
10 Activity B (group time, sharing, rest, story, singing, dancing)	.39	.31	.31	.33	.7896	NS	.32	.61	.41	.45	11.3029	.01
11 Activity C (numbers, alphabet, reading, language development)	.00	.22	.01	.08	35.3022	.001	.00	.29	.05	.11	12.6844	.01
25 Independent child activity	.42	.99	.80	.75	5.8067	.05	.71	1.90	.61	1.07	6.9411	.05
49 Adult choice request to child	5.52	1.10	1.10	2.57	40.2834	.001	2.17	2.32	.76	1.75	15.9144	.01
53 Adult acknowledgment to child	1.47	2.19	4.41	2.69	34.9692	.001	.69	1.67	.88	1.08	7.9935	.05
81 All motion*							.00	1.34	.86	.73	9.6790	.01

*Variable 81, All motion, depends on one code, "motion," which did not exist in the fall.

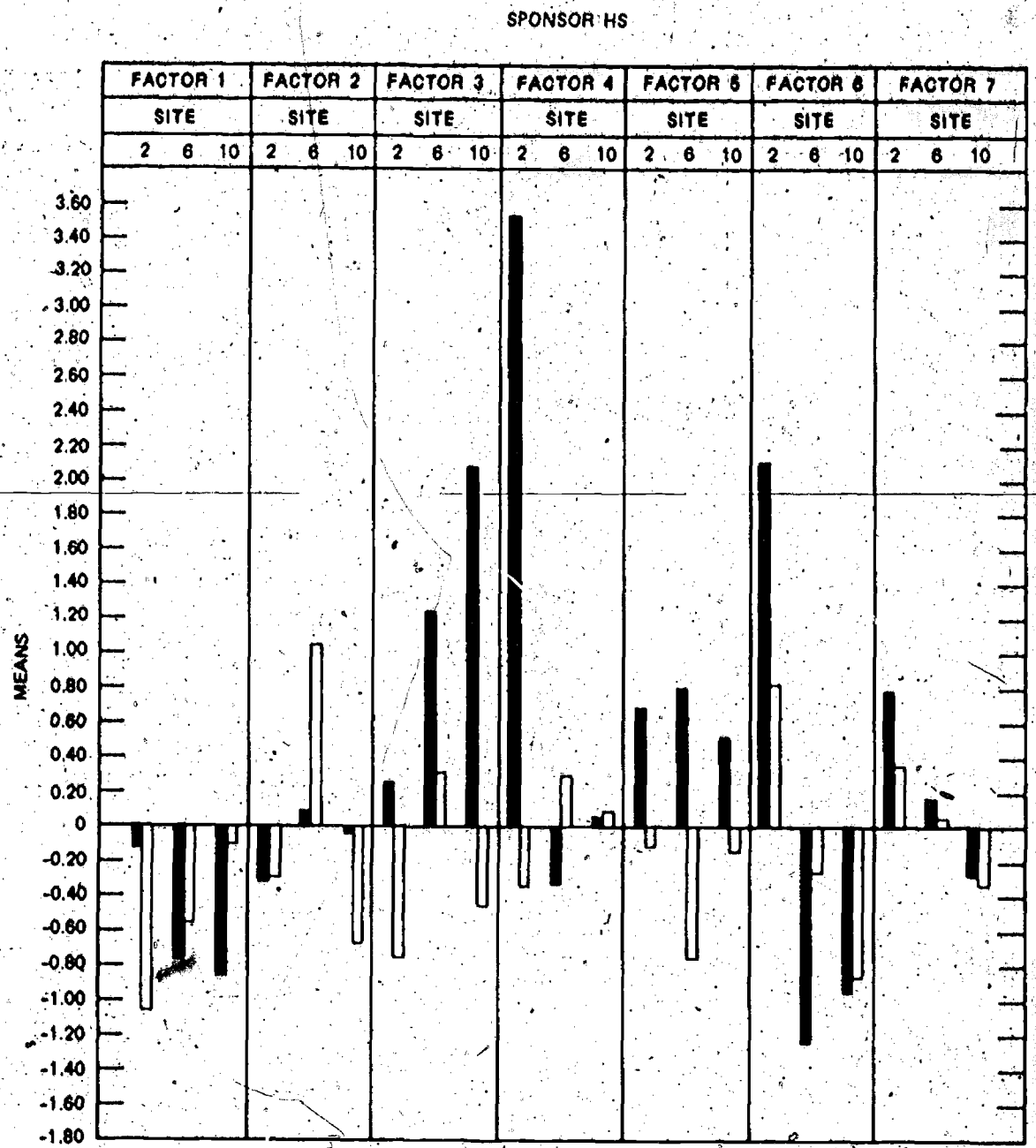

FIGURE 13 HIGH SCOPE—FACTORS SUMMARY

Table 18

EDUCATION DEVELOPMENT CENTER - VARIABLES SUMMARY

	Variable	Fall Site 5	Fall Site 6	Fall Site 8	Fall Overall Mean	Fall F Ratio	Fall p	Spring Site 5	Spring Site 6	Spring Site 8	Spring Overall Mean	Spring F Ratio	Spring p
11	Activity C (numbers, alphabet, reading, language development)	.05	.04	.31	.14	67.5136	.001	.07	.11	.25	.15	2.3956	NS
24	Wide variety of activities	2.41	1.00	2.25	1.65	28.3532	.01	1.49	1.34	2.42	1.75	5.2629	.05
25	Independent child activity	2.4	.50	1.42	1.05	58.1948	.001	1.51	.62	1.39	1.17	1.6124	NS
26	Adult with one or two children	.18	.03	.08	.07	9.8886	.05	.11	.06	.08	.08	.5728	NS
49	Adult choice request to child	2.20	.90	3.02	1.86	19.8949	.01	.65	.74	3.16	1.52	38.8436	.001
69	Child initiates interaction with adult	5.91	3.96	1.29	3.20	12.8752	.05	3.41	6.16	1.95	3.84	15.7769	.01
70	Child initiates interaction with other child	6.14	5.22	3.11	5.04	1.6358	NS	4.86	.69	5.68	3.74	6.176	.05
72	Child cooperates with other children	.00	4.53	.34	2.39	1.0559	NS	.077	.01	.18	.09	2.4383	NS
81	All motion							4.07	7.30	.46	3.95	4.9740	.05

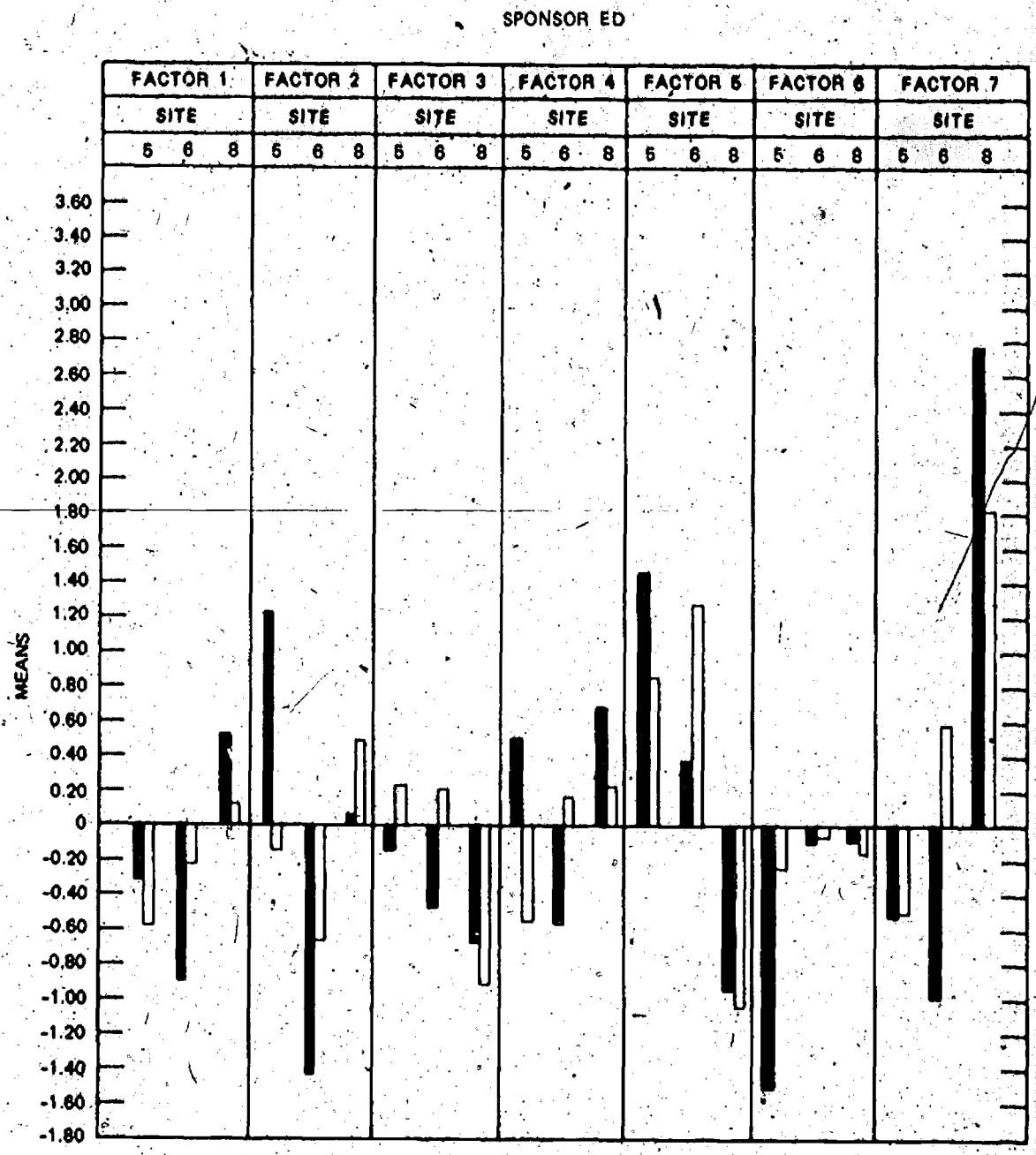

FIGURE 14 EDUCATION DEVELOPMENT CENTER EDC—FACTORS SUMMARY

To be considered implemented, a sponsor must demonstrate that his methodological objectives are indeed realized in the classroom -- that is, that observations of classrooms reveal that teachers in all sites exhibit the model's important classroom behaviors similarly. In addition, program characteristics that are of value are the ability to sustain a high degree of implementation from fall to spring or, having begun the year unimplemented, progression toward the sponsor's goals.

Some degree of shift is to be expected -- more perhaps in some sponsors than in others -- as children and teachers accustom themselves to each other and to the classroom environment. Head Start children are usually experiencing a school situation for the first time and there must be many inevitable adjustments to the demands of a new schedule and a set of new behavior standards.

Barring these adjustments, one would expect a sponsor's program to remain constant in those characteristics most central to his educational design for children. For instance, in many programs adults may find themselves spending less time correcting children's behavior as children learn and adopt the rules of the classroom. Yet the methods of instruction or other crucial elements will probably remain relatively consistent at least in classrooms where teachers are in full and competent compliance with sponsor expectations.

On the other hand, classrooms which begin the year not implementing sponsor intentions but which, in the spring, exhibit a greater consistency with model goals have shown that these teachers have become more proficient in the model. Another possibility to be considered is that, having begun the year -- perhaps fresh from preservice teaching -- by presenting children with a well implemented model, teachers, as the year progresses, revert to previous teaching practices, incorporate new non-sponsor input, or develop their own adaptations for other reasons. So, in the spring observations, it is seen that these classrooms have regressed in terms of implementation.

A summary of fall-to-spring differences on variables and factors follows for each sponsor. Appendix F displays fall-to-spring differences by site within sponsor on the total variable list. The selected sets of implementation variables have been extracted from Appendix F and are reproduced for each sponsor in Table 19 with the results of a t-test for significance of difference between fall and spring. Factor scores for each sponsor were displayed in Figures 8 through 14.

Far West Laboratory

Variables--Only four significant ($p < .05$) changes were discovered between fall and spring observations at three sites over ten variables (30 comparisons). Three of these changes showed a decrease in frequency on desirable variables, while the other represented an increase in the frequency of a desired classroom behavior.

Factors--Fall-to-spring differences are minimal at all sites in this model. In fact, only on Factors 5 and 6 at Sites 5 and 13 are the differences noteworthy. Site 5 shows an increase in negative and positive behavior, while Site 13 shows a dramatic decrease in scores on both these factors. Since the

Table 19

SITE DIFFERENCES WITHIN SPONSOR BETWEEN FALL AND SPRING OBSERVATIONS ON SELECTED VARIABLES

02 Far West

Variable	Site 4				Site 5				Site 13			
	Fall	Spring	t	p	Fall	Spring	t	p	Fall	Spring	t	p
10. Activity B (group time, sharing, rest, story, singing, dancing)	.25	.40	1.10	NS	.33	.37	.63	NS	.32	.41	.66	NS
24. Wide variety of activities	3.01	2.47	1.51	NS	2.00	2.59	.33	NS	2.21	2.25	.12	NS
25. Independent child activity	2.75	1.71	2.65	.05	1.43	.97	.92	NS	.75	1.33	2.14	.10
26. Adult with one or two children	.16	.14	.35	NS	.08	.04	.84	NS	.06	.10	.60	NS
49. Adult choice request to a child	1.40	1.34	.18	NS	3.49	1.56	2.26	.10	1.67	.11	6.72	.01
52. Adult praise to child	.40	.71	1.43	NS	2.36	1.75	1.34	NS	1.00	.51	1.78	NS
53. Adult acknowledgement to child	.81	.64	.77	NS	.80	.30	5.23	.01	.57	.84	.90	NS
59. All child self-instruction	.00	.00	I	—	.24	.21	.19	NS	.15	.00	2.42	.10
69. Child initiates interaction with adult	2.36	2.30	.09	NS	5.60	.72	.71	NS	4.55	9.66	3.94	.01
70. Child initiates interaction with other child	3.03	3.97	.99	NS	6.04	5.49	.34	NS	3.76	7.93	1.96	.10

03 U. Arizona

Variable	Site 8				Site 16			
	Fall	Spring	t	p	Fall	Spring	t	p
10. Activity B (group time, sharing, rest, story, singing, dancing)	.42	.61	3.37	.05	.39	.35	.41	NS
24. Wide variety of activities	1.88	1.77	.09	NS	2.08	2.05	.10	NS
25. Independent child activity	1.64	1.60	.08	NS	1.40	1.20	1.23	NS
49. Adult choice request to a child	1.99	1.03	1.72	NS	2.60	3.13	.48	NS
52. Adult praise to child	.69	.48	.76	NS	.50	.70	.89	NS
53. Adult acknowledgement to child	1.42	1.49	.19	NS	1.06	.65	1.18	NS
59. All child self-instruction	.15	.57	2.58	.05	.00	.00	3.22	.05
62. Adult interaction with one or two children	12.00	10.93	.52	NS	16.14	12.62	1.92	NS
63. Adult interaction with small group	1.24	2.31	1.15	NS	3.47	2.80	.48	NS
70. Child initiates interaction with other child	5.53	6.29	.71	NS	4.02	7.12	2.90	.05
72. Child cooperates	.06	.00	3.80	.01	.00	.00	I	—

Table 19 (Continued)

Variable	05 Bank Street							
	Site 1				Site 12			
	Fall	Spring	t	p	Fall	Spring	t	p
10. Activity B (group time, sharing, rest, story, singing, dancing)	.19	.33	1.73	NS	.34	.24	2.26	.10
24. Wide variety of activities	2.10	2.85	2.16	.10	2.06	2.81	1.76	NS
25. Independent child activity	1.59	1.80	.68	NS	1.43	2.39	1.44	NS
26. Adult with one or two children	.14	.13	.21	NS	.03	.24	1.78	NS
49. Adult choice request to a child	1.28	1.21	.14	NS	.31	.10	2.83	.05
62. Adult interaction with one or two children	15.53	18.63	2.17	.10	1.79	7.06	1.95	NS
63. Adult interaction with small group	2.89	3.26	.45	NS	.78	2.12	1.22	NS
70. Child initiates interaction with other child	7.34	4.67	1.87	NS	1.91	2.67	.85	NS
72. Child cooperates	.62	.10	1.29	NS	.00	.00	I	—

Variable	07 U. Oregon							
	Site 11				Site 14			
	Fall	Spring	t	p	Fall	Spring	t	p
11. Activity C (numbers, alphabet, reading, language development)	.55	.90	3.16	.05	.66	.68	.24	NS
21. Adult with small group, academic activities	.78	1.00	4.52	.01	.99	1.13	.25	NS
46. Adult direct request followed by child response followed by adult corrective feedback	.04	1.37	3.69	.05	.38	.81	1.81	NS
47. Adult direct request followed by child response followed by adult acknowledgement	3.07	1.95	1.87	NS	2.16	1.39	3.14	.05
48. Adult direct request followed by child response followed by adult praise	.26	2.44	3.10	.05	.53	.95	1.31	NS
52. Adult praise to child	4.24	2.44	2.63	.05	3.46	1.89	4.01	.01
53. Adult acknowledgement to child	.40	3.05	3.64	.05	1.01	1.15	.06	NS
54. Adult positive corrective feedback to child	.00	.07	1.00	NS	1.11	.32	3.49	.05
63. Adult interaction with small group	16.64	25.08	4.44	.01	10.00	9.54	.31	NS
70. Child initiates interaction with other child	.30	.48	.64	NS	3.40	5.08	1.65	NS

Table 19 (Continued)

08 U. Kansas

Variable	Site 2 Fall	Site 2 Spring	Site 2 t	Site 2 p	Site 4 Fall	Site 4 Spring	Site 4 t	Site 4 p	Site 8 Fall	Site 8 Spring	Site 8 t	Site 8 p
6. Adult/child ratio	.22	.17	.67	NS	.31	.22	1.32	.10	.30	.19	3.09	.05
11. Activity C (numbers, alphabet, reading, language development)	.43	.44	.12	NS	.45	.39	1.57	NS	.34	.25	2.70	.05
21. Adult with small group, academic activities	1.29	1.27	.06	NS	1.25	1.41	1.12	NS	.78	.69	.66	NS
46. Adult direct request followed by child response followed by adult corrective feedback	.48	.40	.47	NS	1.17	1.55	1.50	NS	.47	.40	.95	NS
47. Adult direct request followed by child response followed by adult acknowledgement	1.37	.66	2.27	.10	1.64	2.02	.71	NS	1.39	.71	2.42	.10
48. Adult direct request followed by child response followed by adult praise	.51	.34	1.76	NS	1.72	1.07	1.25	NS	.05	.24	2.78	.05
52. Adult praise to child	4.45	3.24	2.27	.10	2.51	3.39	.94	NS	2.71	1.43	2.72	.05
53. Adult acknowledgement to child	1.31	1.22	.33	NS	2.64	1.35	1.59	NS	.18	.54	2.55	.05
54. Adult positive corrective feedback to child	1.82	2.03	.41	NS	1.59	1.62	.09	NS	.68	.80	.68	NS
62. Adult interaction with one or two children	15.03	18.47	2.61	.05	20.59	19.06	.85	NS	14.18	12.30	1.72	NS

09 High/Scope

Variable	Site 2 Fall	Site 2 Spring	Site 2 t	Site 2 p	Site 6 Fall	Site 6 Spring	Site 6 t	Site 6 p	Site 10 Fall	Site 10 Spring	Site 10 t	Site 10 p
10. Activity B (group time, sharing, rest, story, singing, dancing)	.39	.32	1.13	NS	.31	.61	3.65	.05	.31	.41	1.67	NS
11. Activity C (numbers, alphabet, reading, language development)	.00	.00	I	—	.22	.29	.88	NS	.01	.05	.99	NS
25. Independent child activity	.42	.71	1.57	NS	.99	1.90	1.96	.10	.80	.61	1.69	NS
49. Adult choice request to a child	5.52	2.17	5.87	.01	1.10	2.32	4.54	.01	1.10	.76	- .73	NS
53. Adult acknowledgement to child	1.47	.69	2.20	.10	2.19	1.67	2.14	.10	4.41	.88	10.23	.01

Table 19 (Continued)

11 Education Development Center

Variable	Site 6 Fall	Site 6 Spring	Site 6 t	Site 6 p	Site 8 Fall	Site 8 Spring	Site 8 t	Site 8 p
11. Activity C (numbers, alphabet, reading, language development)	.04	.11	1.12	NS	.31	.28	1.96	NS
24. Wide variety of activities	1.00	1.34	2.40	.10	2.25	2.43	.66	NS
25. Independent child activity	.50	.62	.67	NS	1.42	1.39	1.01	NS
26. Adult with one or two children	.03	.06	.86	NS	.08	.08	.54	NS
49. Adult choice request to a child	.90	.74	.58	NS	3.02	3.16	1.17	NS
69. Child initiates interaction with adult	3.96	6.16	2.60	.05	1.29	1.95	1.92	NS
70. Child initiates interaction with other child	6.22	.69	12.09	.01	3.11	5.68	.54	NS
72. Child cooperates	.45	.01	1.68	NS	.34	.18	.86	NS

12 U. Pittsburgh

Variable	Fall	Spring	t	p
11. Activity C (Numbers, alphabet, reading, language development)	.25	.36	1.77	NS
20. Adult with one or two children, academic activities	.45	1.44	4.05	.01
26. Adult with one or two children	.28	.32	.50	NS
62. Adult interaction with one or two children	12.44	13.70	4.56	.01
63. Adult interaction with small group	3.57	2.90	1.00	NS
69. Child initiates interaction with adult	2.84	4.53	1.04	.01

Table 19 (Continued)

Variable	20 Responsive Environment Corp. Fall	Spring	t	p
20. Adult with one or two children, academic activities	.25	.37	.55	NS
25. Independent child activity	1.77	1.57	.54	NS
46. Adult direct request followed by child response followed by adult corrective feedback	.72	.70	.10	NS
47. Adult direct request followed by child response followed by adult acknowledgement	.35	.16	1.82	NS
48. Adult direct request followed by child response followed by adult praise	1.82	1.94	.22	NS
63. Adult interaction with small group	2.08	2.12	.06	NS

Far West model allows freedom for a wide range of emotional behavior, any level, or any changes in level, would be in keeping with the model.

University of Arizona

Variables--At two sites over 11 variables (22 comparisons), the classroom frequency of five variables changed significantly between the fall and spring observations. Of these, four changed in the direction of greater consistency with sponsor objectives, and only one reflected a decrease in a desired characteristic.

Factors--Of scores on seven factors measured at two sites, there are only two noteworthy fall-to-spring differences in this model. Site 8 shows a substantial decrease in its score on Factor 4, (Choice request interaction), and on Factor 7, (Adults with large groups). Since the choice request or open-ended question is fairly important to the UA model, it may be inferred that this aspect of the program was less well implemented at the time of the spring observation. The decrease in large group activity may be considered as being in a positive direction.

Bank Street

Variables--At two sites over ten variables (20 comparisons) this model had declined significantly in frequency in the spring on only one desired variable, "Adult child request."

Factors--Several fall-to-spring changes occurred on factor scores at sites within this model. Both Sites 1 and 12 changed dramatically on Factors 2, 5, and 6. Bank Street also permits a wide range of emotional behavior; so changes on Factors 5 and 6 are not critical. However, on Factor 2, (Wide variety of activities), the changes at both sites are substantial increases, and represent better implementation in a model that advocates experiential variety in its classrooms.

University of Oregon

Variables--At two sites over ten variables (20 comparisons), numerous changes were noted in fall-spring variable frequencies within this model. At site 11, the mean frequency of seven variables changed significantly. Six were in the direction of more positive implementation of the sponsor's goals. That is, the frequencies increased on six variables that should occur at high rates and decreased on only one. At Site 14, the frequency of three of the ten desired variables decreased between the fall and spring observations.

Factors--This model shows a high degree of consistency between fall and spring measurements over the seven factors. Only two notable exceptions appear. Site 11 increased its spring score on Factor 3 (Adult feedback to children) by approximately three times the standardized value of its fall score. Since this feedback factor fits the stimulus/response/reinforcement paradigm important to the model, the change may be considered as in the direction of better implementation. Site 14 shows a considerable decrease in its spring score on Factor 4

(Choice request interactions). Since the variables loading heavily on this factor are unimportant to the Oregon model, the change may be regarded as neutral.

University of Kansas

Variables--Considering performance on ten variables at three sites (30 comparisons) within this model, relatively few fall-to-spring changes are noted. Site 2 changed significantly on only one variable, and that was in the positive direction, i.e., an increase in a desirable characteristic. Site 4 shows no significant differences between the two observations. Site 8 differed significantly on half of the criterion variables between the fall and spring observations and three of these represented decreases in desirable characteristics.

Factors--Fall and spring factor scores were obtained for this model at three sites on seven factors. Of the 21 resultant comparisons within the model, only one site recorded a substantial change on one factor: Site 8 shows an increase in "Negative behavior" in the spring. In this model negative behavior by adults should be minimal and, while not actively suppressed in children, it should be extinguished through the process of non-reinforcement. Because of the large variety of variables loading heavily on this factor, the increase may or may not represent a decrease in model implementation at this site. Overall, the consistency of scores between the two measurements is high.

High/Scope

Variables--With the necessary exclusion of variables related to the relative use of symbols and objects in academic activities, the criterion variables set for this model are considerably weakened. The fall-spring comparisons are made on only five variables observed at the three sites within the program (15 comparisons). Four significant differences are noted between variable frequencies on the fall and spring observations; two were in the direction of increased implementation of the models' goals, and two represented decreased frequencies on desired processes.

Factors--Fall and spring scores were obtained for the seven factors at three sites within this model. Several changes are noteworthy between the two observations. On Factor 1, (Programmed academic instruction), Site 2 shows a large decrease in the spring score and Site 10 shows a large increase. Still, scores for all three sites on both observations remain below the mean on this factor, and that is in keeping with the model. On Factor 2, (Wide variety of activities), Site 6 increased its score in the spring while Site 10 decreased. For this model, the increase to a positive score on the factor is probably more in keeping with the intended goals. Two sites show large decreases in scores on Factor 3 in the spring. Since the response-feedback paradigm is not central to this model, the changes may be regarded as neutral. Changes noted on Factors 4 and 5 are likewise unimportant to this sponsor's goals, and in fact it may be that variables important to this model fail to load on any single factor but spread themselves lightly across all factors. Factor scores seem particularly inappropriate to measurement of implementation of the High/Scope program.

Education Development Center

Variables--Considering eight criterion variables measured at two sites within this model on the fall and spring observations, only two significant changes resulted from the 16 comparisons. One is, however, a change of such magnitude that it bears closer examination. Variable 20 (Child initiating an interaction with another child), dropped from an approximate rate of 6.2 times per COP on the fall observation to 0.7 times per COP on the spring observation in one site. Such a change becomes reasonable only when considered in light of the fact that Variable 69, (Child initiating interactions with adults), showed a corresponding fall-to-spring increase at the same site. Although it is desirable in the model that both behaviors occur at a high rate, it may not be possible for both to occur at the same time. It is likely that at the time of the spring observations, classrooms at that site were engaged in activities that involved adult/child interplay to a far greater degree than child/child interplay. Both are in keeping with the flexible nature of EDC classrooms.

Factors--Fall and spring factor scores were obtained at three sites within this model, and the differences among sites are noticeably greater than any fall-spring changes within sites. On Factor 2, (Wide variety of activities), Site 5 decreased greatly in its spring score while Site 6 increased, but still remained below the standardized mean. Since, of the seven factors, this is the one most descriptive of the EDC program, these scores are somewhat inconsistent with sponsor goals. On Factor 4, (Choice request interaction), Site 5 decreased noticeably in its spring score while Site 6 increased. Changes on Factors 5, 6, and 7 are not considered relevant to implementation of this sponsor's program.

University of Pittsburgh

Variables--Only one site was observed for this model. Of six variables considered important to the model, fall-to-spring differences were recorded on three, each representing an increase in the frequency of a desired characteristic.

Factors--Scores on two factors are substantially different between the fall and spring observations. On Factor 2, (Wide variety of activities), UP increased from 0.8 (already high) to 2.74, and on Factor 4, (Choice request interaction), from -0.36 to 1.7. Variables indicating individualized instruction load heavily on Factor 2, so an increased score on this factor is indicative of progression toward implementation.

Responsive Environment Corporation

Variables--Fall and spring observations were made at only one site within this model. Over the six criterion variables, no significant differences in frequency were noted in the fall/spring comparison.

Factors--No noteworthy changes occurred on any factor scores at the single site observed in this model.

Relation of Implementation to Test Outcome

Contrast of the Effects of Well Implemented and Less Well Implemented Classrooms

One of the questions raised in the introduction is the apparent lack of "striking" effects of preschool programs. One suggested reason for this is that failure to fully implement programs mitigates their outcome effects. In order to clarify this, the analysis investigated the relationship between the level of implementation and test results; that is, the hypothesis that the higher the level of program implementation, the higher the test scores will be.

This is done by contrasting the test outcomes of well implemented classrooms with those of less well implemented classrooms. To avoid confounding the results with differential model effects on tests, this contrast was conducted within sponsor. The contrast is first made using raw change scores, then retested using adjusted spring scores.

Contrast Using Raw Change Scores

The quartile rank standard derived from the comparison data was used to measure the level of implementation in all PV classrooms on the basis of spring observation data. A percentage implementation score was calculated for each classroom, as described in Chapter II, and classrooms were ranked within sponsor by this percentage score. The classrooms with the highest and lowest implementation scores were then identified for each sponsor. High and low implementation in this case, then, are relative designations (i.e., high and low relative to one another under a single sponsor's auspices). Table 20 shows the number of classrooms in each group for each sponsor, and each group's mean implementation score (expressed as a percentage).

The change scores for these two groups, those with high implementation scores and those with low ones, were contrasted within sponsor. For example, the mean change scores on the four outcome measures of the four Far West classrooms with high implementation was contrasted with the mean change score of the four Far West classrooms with lower implementation scores. Table 21 shows the significance level of these contrasts for each sponsor.

The assumption that better implementation is positively related to higher test scores does not appear to be upheld. Looking at Table 21, it is apparent that the level of implementation, at least as measured here, does not bear much relation to test outcomes. In all but two cases, there is no significant difference between the mean change scores of the highly implemented classrooms and the low implementation classrooms.

The four Bank Street classrooms with "high" implementation scores achieved a significantly higher PSI (Preschool Inventory) change score than the three "low" implementation classrooms. The reason for this is unclear. Although it may be convincingly argued that this is indeed an effect of more

Table 20

"HIGH" AND "LOW" IMPLEMENTATION CLASSROOMS BY SPONSOR

	FW	UA	BC	UO	UK	HS	ED
Total Classrooms*	8	8	7	8	8	12	11
Number Classrooms in High Group	4	5	4	5	3	4	4
Mean Implementation Score, Percent	73	78	83	93	97	77	77
Number Classrooms in Low Group	3	3	3	3	4	4	4
Mean Implementation Score, Percent	65	70	65	87	79	60	61

*With spring observation data and fall and spring test scores available.

Table 21

CHANGE SCORE CONTRASTS:
"HIGH" AND "LOW" IMPLEMENTATION CLASSROOMS BY SPONSOR

	FW	UA	BC	UO	UK	HS	ED
NYU Booklet 3D	NS	NS	NS	NS	NS	NS	NS
NYU Booklet 4A	NS	NS	NS	NS	NS	NS	NS
Pre-school Inventory	NS	NS	<.02*	NS	NS	<.02†	NS
Stanford Binet	‡	NS	NS	‡	*	NS	NS

*Positive relationship: high implementation classrooms achieved higher mean change score on test.

†Negative relationship: low implementation classrooms achieved higher mean change score on test.

‡scores not available for all classrooms.

successful program implementation, since the PSI is, of the four tests, the one most likely to be sensitive to the cognitive growth curricula, this effect is confounded with the possible site effect. The four "highly" implemented classrooms are all in Site 1, and the three "low" implementation classrooms are all in Site 12.

The PSI would seem to be the test most relevant to the Piagetian High/Scope model also. In this case, however, the group of classrooms achieving a significantly higher mean change score on the PSI is the group with lower implementation scores. This may be due, at least in part, to the fact that Site 2, one of the sites contributing half of the "low" implementation classrooms, achieved very large gains in the PSI (see Table 22). The mean change score in Site 2 is 20.38 points; that of the other two H/S sites, 2.07 points and 12.7 points. Pre- and post-scores for Site 2 are both lower than those of the other High/Scope sites.

Table 22

HIGH/SCOPE PSI TEST SCORES

	Mean Pre-test	Mean Post-test	Mean Gain
Site 2	23.72	40.72	20.38
Site 6	40.45	42.53	2.07
Site 10	40.43	53.12	12.70

The "low" implementation group includes two Site 2 and two Site 10 classrooms; the "highly" implemented group, three Site 6 classrooms and one Site 10 classroom.

It may be that, although rated "low" by this estimate of degree of implementation, teachers in this site did utilize the sponsor's program sufficiently to produce great gains in the the cognitive test scores of children who began the year with very low PSI scores. On the other hand, this gain may simply represent the effect an enriched preschool environment, regardless of implementation, can have on children who enter at a very low level.

Contrast Using Adjusted Scores

The same groups of classrooms were contrasted using post-test scores of three outcome measures (NYU 3-D and 4-A, and PSI) as adjusted by demographic and prescore covariables*. MODEL V of the regression analyses contrasted, within sponsor, classrooms with high implementation scores and those with lower implementation scores so as to check the results of the preliminary analysis above.

*The relationships of the covariables is discussed in the next analysis.

Following are the relevant hypotheses tested,* stated in the form of the null hypothesis with the significance levels of rejection shown.

Hypothesis--That the high/low implementation contrasts as a unitary set have no effect on the test results as a unitary set.

N = 47 classrooms
df = 24/79
F = 1.36
p < .05

Hypothesis--That the high/low implementation contrasts considered separately have no effect on the test results as a unitary set.

N = 47 classrooms
df = 3/27

Contrasts	F	p
1. University of Arizona†	0.41	NS
2. University of Arizona†	0.86	NS
3. High/Scope	5.15	.05
4. University of Kansas	0.14	NS
5. Far West	1.7	NS
6. EDC	1.4	NS
7. University of Oregon	0.7	NS
8. Bank Street	2.15	NS

The results of this analysis indicate that the contrasts between high and low levels of implementation within sponsor have an overall effect on the three adjusted test outcome as a unit ($p<.05$). However, when each sponsor's contrast is regressed on the outcomes, as a unit, only one sponsor's contrast (High/Scope) is significant ($p<.05$). The results of the hypothesis test of the relationship of each contrast to each outcome show that the H/S contrast has a significant ($p<.001$) effect on the PSI. This replicates the earlier finding, when, using raw change scores, the H/S classrooms with the lowest implementation scores attained much higher PSI scores.

*In the write-up of these and other regression MODELS, not all hypotheses tested are discussed. All the hypotheses tested in each model appear in Appendix H.

†Two contrasts were run for University of Arizona because of the distribution of classroom implementation scores in which several same and contiguous values occurred.

In general, however, the finding of the preliminary analysis that the level of implementation is not strongly related to test results is upheld by MODEL V.

There are several possible explanations for this. First, it is possible that the level of program implementation does not, in fact, bear any relationship to these outcomes, in all or most sponsors. That is, that the treatments offered by the sponsors are not relevant to the outcome measures employed, so that the test scores are unaffected by the level of implementation.

Another possibility is that the level of implementation of some or most sponsors' entire treatment is indeed relevant to the outcomes but that the particular treatment components used to assess implementation in this report (i.e., classroom processes and behaviors) are not in themselves relevant. This is tested in a subsequent analysis which examines the relationships of the implementation variables to the outcomes.

Yet another possibility is that the level of implementation as measured by the selected variable sets is related to test outcomes after all, but that this relationship does not appear in this analysis because of the levels of implementation contrasted. For example, Table 20 shows that the mean implementation score of UO's highly implemented classrooms is 93 percent and that mean of the less implemented classrooms against which these are tested is 87 percent. This difference is less than six percentage points and, in fact, both exceed the mean implementation scores of most sponsor's "high" classrooms. It is very possible that this analysis shows no significant differences in test outcomes between these two groups of classrooms because the difference in level of implementation is so small. Significant differences might well be found in contrasting classrooms between which there are more dramatic differences in implementation. To some degree, this problem is pertinent to all the models contrasted in these two analyses relating level of implementation to outcome.

Regression Analyses

MODEL I - Effect of Demographic Covariables on Test Results

On a preliminary run of MODEL I, test outcomes were regressed on 17 variables describing demographic characteristics and pretest scores selected from Huron's total list. MODEL I was designed to ascertain the amount of variance in test results accounted for by these variables, herein after referred to as covariables. Table 23 displays the effect of each of these 17 covariables on the set of four outcome measures (NYU 3-D, NYU 4-A, PSI and Stanford Binet).

After the first run of MODELs I, II, and III, the decision was made to rerun the regression MODELs deleting the Stanford Binet. Binet scores were unavailable for so many classrooms that the classroom sample was seriously diminished. MODELS were then rerun without Stanford Binet scores and also without non-contributing covariables so as to increase the sample size and the

Table 23

MODEL I ORIGINAL AND RERUN

Seventeen Original Covariables

Covariable	F Statistic	P
1. Number children in classroom present both fall and spring	1.67	NS
2. Mean age in months	14.14	.001
3. Percent female	1.08	NS
4. Percent having previous preschool	3.82	.01
5. Percent having English as first language	3.16	.05
6. Percent non-white	4.09	.01
7. Mean size of household	1.41	NS
8. Mean income	0.83	NS
9. Mean mother's education	4.49	.01
10. 3-D total pre-score	3.45	.05
11. 4-A total pre-score	1.68	NS
12. PSI total pre-score	14.09	.001
13. Stanford Binet (Pinneau scoring) pre-score	2.35	.1
14. Percent read at home	1.44	NS
15. Number valid pre and post 3-D	0.65	NS
16. Number valid pre and post 4-A	0.79	NS
17. Number valid pre and post PSI	1.77	NS

List of Nine Covariables

1. Mean age in months
2. Percent having previous preschool
3. Percent having English as first language
4. Percent non-white
5. Mean mother's education in years
6. Mean total 3-D pre-score
7. Mean total 4-A pre-score
8. Mean total PSI pre-score
9. Number valid pre and post PSI

degrees of freedom in significance tests.* Nine covariables were retained as covariables for all subsequent MODELs. These are listed in the lower part of Table 23. Mean age, percent preschool, percent having English as first language percent non-white, level of mother's education and 3-D and PSI pre-scores had significant effects in MODEL I. They were retained, and in addition, the pre-test score on the other outcome measure used in the analyses (NYU 4-A) was retained. Since the PSI was the strongest predictor of outcomes, the number of valid pre- and post-PSI tests per class was also retained.

The questions asked of MODEL I were: How much variance in test outcomes is accounted for by the nine covariables, and how much is left to be possibly accounted for by the classroom process variables? The proportion of variance accounted for by the set of nine covariables, as a unit, was:

Test	Percent Variance
NYU 3-D	0.77
NYU 4-A	0.66
PSI	0.66

Two-thirds of the variability on the NYU 4-A and the PSI are accounted for by these nine covariables; only one-third remains. Three-fourths of the NYU 3-D performance variability is accounted for by them, and only one-quarter remains to be accounted for.

The results of the hypothesis test in MODEL I is shown below, stated as a null hypothesis.

Hypothesis: The nine covariables considered separately have no effect on the three test results as a unitary set.

N = 121 classrooms
df = 3/109

Covariables	F	p <
1. Mean age in months	4.00	.01
2. Percent having previous preschool	1.97	NS
3. Percent having English as first language	0.920	NS
4. Percent non-white	2.95	.05
5. Mean mother's education in years	3.74	.05

*For the reader who does not wish to ignore the effects of these sets of variables on intelligence tests, results of all regression analyses are presented in Appendix H.

All covariables are expressed in classroom means, e.g., mean age in months.

Covariables	F	p
6. Mean total 3-D pre-score	8.69	.001
7. Mean total 4-A pre-score	1.45	NS
8. Mean total PSI pre-score	32.41	.001
9. Number valid pre and post PSI	3.21	.05

This indicates that when the reduced set of nine covariables is entered into this new MODEL I equation, with the Stanford Binet deleted, the degree of relationship the same covariables have with the new test battery is changed. The effect of entering these same nine covariables in MODELs II and III, where process variables are present, is again to reduce the effect of the covariables on test outcomes. It is likely that, for example, age and certain implementation processes covary so that the effect of age on tests is "adjusted" when implementation variables are introduced. This statistical adjustment may correspond to an actual educational adjustment, i.e., teachers may change their methods of teaching depending on the age of the children in their classes.

MODEL II - Effect of Implementation Variables on Test Results

MODEL II examines the effects of the selected implementation variables on adjusted test outcomes. The amount of variance which can be accounted for by the nine covariables and the 24 implementation variables on each test is listed below.

Test	Percent Variance
NYU 3-A	0.83
NYU 4-A	0.78
PSI	0.86

The addition of the implementation variables enables us to account for 20 percent more of the variability of PSI scores, 12 percent more of the NYU 4-A scores and 5 percent more of the NYU 3-D scores.

In the preceding analyses of the relationship between the actual degree of model implementation and test results, it was found that a higher level of implementation did not lead to higher outcomes. Several possible reasons for this were put forth, including the possibility that the part of sponsors' models reflected in the implementation variables is not relevant to the outcome measures.

Examination of the test of the regression results above, and the results of the hypothesis test below, would seem to contradict this alternative explanation.

Hypothesis: The implementation variables as a unit have no effect on the test results as a unit.

N = 121 classrooms
df = 72/255
F = 1.77
p < .01

The next hypothesis test reveals that the significant effect shown above is due primarily to three of the 24 selected process variables designating sponsors' methodologies and behavior goals. These variables are: Variable 11 (Numbers, alphabet, reading), Variable 24 (Wide range of activities), and Variable 25 (Independent child activity).

Hypothesis: The implementation variables considered separately have no effect on the test results as a unit.

N = 121 classrooms
df = 13/85

Implementation Variables	F	p <
6. Adult child ratio	1.95	NS
10. Group time, sharing, rest, story, etc.	0.68	NS
11. Numbers, alphabet, reading	5.11	.01
13. Games, Puzzles	2.07	NS
20. Adult with one or two children, academic activity	0.61	NS
21. Adult with small group, academic activity	2.32	.10
24. Wide range of activities	3.89	.05
25. Independent child activity	3.84	.05
26. Adult with one or two children	0.78	NS
46. Adult direct question, child response, adult corrective feedback	0.62	NS
47. Adult direct question, child response, adult acknowledgement	0.58	NS
48. Adult direct question, child response, adult praise	0.53	NS
49. Adult open-ended question	1.61	NS
52. Adult praise to child	0.26	NS
53. Adult acknowledgement	0.76	NS
54. Adult positive corrective feedback	2.57	.10
59. All child self-instruction	0.38	NS

Implementation Variables		F	p
62.	Adult interaction with one or two children	0.13	NS
63.	Adult interaction with small group	1.42	NS
69.	Child initiates interaction with adult	1.11	NS
70.	Child initiates interaction with other children	1.36	NS
71.	Child non-verbal	0.35	NS
72.	Child cooperates with other children	0.80	NS
81.	All motion	2.61	NS

MODEL III - Effect of Additional Process Variables on Test Results

MODEL III was designed to determine whether additional process variables, chosen because general educational theory would link them to test scores, relate to the outcomes.

The additional process variables, as a set, did not have a significant effect on the test outcomes.

Because of the covariance of the additional variables with the original set of implementation variables, the two sets cancelled each other's effects. Interpretations of results from MODEL III therefore do not help us answer the question of relating implementation to outcome.

MODEL IV - Effect of Factor Scores on Test Results

In MODEL IV, factor scores, which were used to some extent to evaluate implementation, were related to outcome scores.

In this analysis, the three dependent test variables were regressed on the nine covariables and the seven factors. The proportion of variance on the outcome tests explained in MODEL IV was:

Test	Percent Variance
NYU 3-D	0.77
NYU 4-A	0.73
PSI	0.67

The hypotheses tested, stated in terms of the null hypothesis, with the level of probability associated with their rejection, are:

Hypothesis: That the factor scores as a unitary set have no effect on the test results as a unitary set.

N = 121 classrooms
df = 21/293
F = 2.75
p < .001

Hypothesis: That the factors considered separately have no effect on the test results as a unitary set.

N = 121 classrooms
df = 3/102

Factor		F	p <
1.	Programmed academic instruction	4.58	.01
2.	Individual children in a wide variety of activities	0.883	NS
3.	Adult feedback to children	4.10	.01
4.	Positive choice request interaction	6.31	.001
5.	Negative behavior	2.49	.05*
6.	Positive behavior	0.677	NS
7.	Adult with large group	2.30	.10*

*negatively related.

The first observation to be made is that, unlike variables, the majority of the factors had an effect on test outcomes.

Although the use of factors is frequently criticized because of their difficulty of interpretation and their nebulous nature as compared to individual variables, it appears that they may be more useful in explaining outcome variability.

Factor 1 (Programmed academic instruction), which was one of the two factors found most useful in distinguishing sponsors and determining implementation, had a significant effect on the tests as a set. Factor 2 (Individual children in a wide variety of activities) did not. Three of the five factors that were difficult to use in determining implementation had significant effects on test performance.

Conclusions to be drawn from a consideration of MODELS I through IV seem to be that:

- Some variables and factors which were used to measure degree of implementation are significantly related to test performance.
- Some of the related factors are those which characterize sponsor programs but some of them (e.g., Negative behavior, Adult with large group, Adult feedback to children) are those which all sponsors and NPV hold in common.

It thus appears that the variables used as criteria of implementation are not those which have most effect on test scores. The explanation of earlier findings, contrasting well implemented and less well implemented classrooms on test performance, might well be that lack of difference occurred because the processes described by the implementation variables were not, for the most part, the effective processes.

MODEL VI - Contrast of PV and NPV Effect on Test Results

One of the questions about Planned Variation has been the lack of striking results, and whether this can be explained, at least in part, by failure to fully implement a program.

In MODEL VI, the effects of all PV classrooms are contrasted with all NPV classrooms on the three dependent variables (the post-test scores), given the effect of the covariables.

Hypothesis: That the PV/NPV contrast has no effect on the test results as a unitary set.

N	=	121 classrooms
df	=	3/108
F	=	0.80
p	<	NS

The PV experiment design designates as the comparison group non-sponsored Head Start centers in various sites, which receive on-going curricular guidance from OCD. The PV models, then, are contrasted against these preschool enrichment programs--not against a sample of children for whom no effort is being made to compensate for lack of early stimulation. This necessarily mitigates the recordable effects of PV. It is conceivable that many sponsors do not add to the Head Start experience any components which add significantly to the effects of regular Head Start.

IV. SUMMARY AND CONCLUSIONS

The focus of this report is the implementation of the Head Start Planned Variation models. Specifically, the scope encompasses the evaluation of implementation of sponsors' classroom curricula, i.e., classroom process and behavioral objectives, as these are measured by the Classroom Observation Instrument.

Three major questions regarding implementation were addressed:

- The degree to which models differ
- The degree to which models are implemented
- The relationship of implementation to the outcome measures.

The results of each of these investigations are reviewed briefly below.

Sponsor Differences

Sponsor differences were first examined in terms of the limited set of process variables selected to describe the classroom methodology and child behavior goals essential to each model. On this basis, two loose clusters of sponsors emerge, represented by two different sets of process variables forming several process dimensions.

Examination of actual observed frequencies on the set of 24 implementation variables revealed as many as three sponsor groups. In the examination of observed frequencies on the full variable set, the three clusters could be seen, but it was also clear that no two sponsors were identical. Profiles on the factor scores also pointed to differences among sponsors otherwise classified in the same group. UP had a high score on the programmed academic factor along with UK and UO. UP was also high on the factor describing individual children engaged in a wide variety of activities; they shared high scores with BC and REC.

In all these attempts to clarify sponsor differences and similarities, the same three models are most clearly differentiated. UO, UP, and UK are clearly set apart by variable descriptions of their programs, by observed variable frequencies and even by factor scores.

This finding may be related to the variability among sponsors regarding the specificity of classroom processes. Obviously, those sponsors who can provide operational definitions of discrete classroom behaviors are more likely to be fully characterized by the COI. Many sponsors are unable to describe classroom expectations in terms translatable into objective, reliable observation categories, and they follow educational philosophies from which it is difficult to infer specific adult and child behaviors.

In summary, more similarities appear among sponsors than differences on the 24 variables selected from the COI. This finding is confounded to some extent by the COI's greater reliability or sensitivity to well-defined programs, and to some extent by the selection of only 24 of the variables defined on the instrument.

It is important to remember that although sponsors may not display as much variety in this analysis as some might expect, they probably differ in many ways outside the scope of this study. For example, it is obvious from other sources that sponsors differ on the delivery systems, or methods, by which they install their models in Head Start centers. They differ considerably in their relationships with the parents associated with the centers, and perhaps in other ways which may be more crucial than classroom process as far as their acceptability and effectiveness are concerned. One characteristic which is dealt with only indirectly in the SRI classroom observation instrument or in other implementation measures (e.g., sponsor rating) is the content of the Head Start programs. No one can deny that content is related strongly, perhaps most strongly, to performance on the tests. The preacademic measures, being the most reliable instruments available, reflect primarily the content of any curriculum materials provided. To answer questions about sponsor differences and to understand differential sponsor effects, content analysis of the models' curriculum materials would be essential.

When the question of whether there are 12 different models comes up, then it is necessary to clarify the dimensions on which it is important that they be different. For some purposes, it might be enough to know that sponsors recommended 12 different sets of books and materials to Head Start center personnel.

Sponsor Implementation

The data were examined in the light of two defining conditions for full implementation of classroom curricula: (1) consistency between classroom events and sponsor objectives, and (2) consistency among sites. As the Lucas and Wohlleb report[36] on implementation made very clear, both aspects of implementation are assumed to exist when the differential effectiveness of the models is evaluated. However, the relationship between these two criteria is unclear. Analysis found that, although consistency between sponsor objectives and sponsor frequencies on the variables selected to reflect these objectives is quite high for all sponsors, consistency on these same process variables across sites was quite low.

For some sponsors, site-to-site replication is not a project goal at all. EDC and the Enablers make no attempt to impose classroom methodologies, but act as consultants or advisors to their Head Start centers. Other sponsors stipulate parts of the curriculum and consciously leave other areas to be formulated by the different sites, perhaps so as to assure the program is relevant to the community.

In the analysis of implementation, however, even those sponsors who are most prescriptive in their teacher training and expectations showed considerable site-to-site variation on central program variables.

When the question "How well implemented is the model?" comes up, therefore, it is necessary to clarify what is meant by "well implemented." That is, for what purpose is the information needed? For some purposes, it may be enough to know only that the sponsored programs differed consistently from NPV on several variables.

Relation of Implementation to Test Outcome

The relationship between the degree to which a model is implemented and test outcome was explored by contrasting the effects of those classrooms most consistent with, and least consistent with, sponsor objectives. No significant relationship was found between the level of implementation and test results. It seems clear that an unambiguous interpretation would have been possible only if "well implemented" classrooms had greater effects on the tests than "less well implemented" classrooms in every case. In this case, it could be claimed that when programs were well implemented, they were also more effective. However, this unambiguous result was not the case. The limited range on both process and outcome data was the most likely explanation for the present results showing lack of positive relationships. A test was made of the possibility that the criteria used to assess level of implementation, (i.e., the selected process variables) are not relevant to the outcome measures employed.[1] The results were somewhat ambiguous, but it appeared that most of these variables are not related significantly to scores on the three tests (NYU 3-D and 4-A, and PSI).

Another question addressed through regression analysis concerns the apparent lack of PV test effects. No significant differences were found when all PV classrooms mean post-test scores were contrasted with those of PV. It is possible that the PV models do not add to Head Start any elements that are relevant to the outcome measures, or that, if they do, the additions represent a small increment to the effects of Head Start itself as a compensatory preschool program. More dramatic results could be expected if the sponsors' test results, as a group or singly, were contrasted with those of children who are not in an environment enrichment program like Head Start.

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Appendix A

DESCRIPTION OF THE CLASSROOM OBSERVATION INSTRUMENT AND OF DATA COLLECTION PROCEDURES

Description of the Classroom Observation Instrument

The SRI Classroom Observation Instrument (COI) was developed to assess the classroom atmosphere and the teaching-learning processes. It provides a record of the classroom environment, classroom activities, and the interactions that take place among adults and children. The instrument was developed to describe the models in the Head Start Planned Variation Program according to the stated classroom process goals of the sponsors. This information is obtained by having a trained observer record what he sees and hears in the classroom in an observation protocol or booklet.

The COI booklet contains two major sections: the Observation Summary Form (OSF) for recording summary information about the classroom environment and the Classroom Observation Procedure (COP) for recording specific information about the classroom structure and process.

Observation Summary Form (OSF)

The OSF provides a daily record consisting of these parts: Identification Information, Class Observation Information, Summary of Classroom Environment, Physical Arrangement and Equipment Available, Active Play Observation, and space for the observer's reaction to the classroom environment. The OSF is completed once on each day that the classroom is observed. A reproduction of the relevant sections of the OSF appears as Exhibit A-1; however, the OSF information used in the present study includes only the information discussed below.

Identification Information

This part of the OSF identifies the sponsor, the classroom teacher, the location and observer, the grade level, the date of observation. An eight-digit identification code indicating sponsor, site and classroom remains with the observation data throughout the data processing and analysis.

Class Observation Information

In the Class Observation Information subsection of the OSF, the observer records the number of adults present in the classroom, the number of children enrolled, and the number of children present on the day of the observation, and whether, on a typical day, the teacher followed a predefined schedule.

Classroom Observation Procedure (COP)

The COP is composed of three subsections: (1) Classroom Check List (CCL), (2) Preamble to the Five-Minute Observation, and (3) Five-Minute Observation (FMO). One COP consisting of these three parts is completed approximately every 15 minutes (or four COPs per hour) throughout the Head Start day. A reproduction of the COP appears as Exhibit A-2.

Exhibit A-1

CLASSROOM OBSERVATION INSTRUMENT

OBSERVATION SUMMARY FORM

DIRECTIONS: Use one OBSERVATION SUMMARY FORM for each day's observation of one classroom. Make sure that all of the identifying information has been entered on the top half of this page prior to the observation. Do not make any stray marks outside the boxes provided in places where written information is required.

Write here: _____ – _____

the range of the serial numbers on the forms that you are using for this observation.

Teacher: _____

School/Center: _____

City & State: _____

Observer: _____

Street Address: _____

City & State: _____

Telephone: _____

DO NOT WRITE OUTSIDE THIS BOX

TEACHER NUMBER	Grade	OBSERVER NUMBER	TODAY'S DATE Mo. Day Year	NCS USE
0 0 0 0 0 0 0 0 0	0 0	0 0 0 0	0 0 0 0 0 0	0 0 0 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
2 2 2 2 2 2 2 2 2	2 2	2 2 2 2	2 2 2 2 2 2	2 2 2 2 2
3 3 3 3 3 3 3 3 3	3 3	3 3 3 3	3 3 3 3 3 3	3 3 3 3 3
4 4 4 4 4 4 4 4 4	4 4	4 4 4 4	4 4 4 4 4 4	4 4 4 4 4
5 5 5 5 5 5 5 5 5	5 5	5 5 5 5	5 5 5 5 5 5	5 5 5 5 5
6 6 6 6 6 6 6 6 6	6 6	6 6 6 6	6 6 6 6 6 6	6 6 6 6 6
7 7 7 7 7 7 7 7 7	7 7	7 7 7 7	7 7 7 7 7 7	7 7 7 7 7
8 8 8 8 8 8 8 8 8	8 8	8 8 8 8	8 8 8 8 8 8	8 8 8 8 8
9 9 9 9 9 9 9 9 9	9 9	9 9 9 9	9 9 9 9 9 9	9 9 9 9 9

CLASS OBSERVATION INFORMATION

Number of teachers: 1 2 3

Number of aides: 0 1 2 3

No. of volunteers present today: 0 1 2 3

Total class duration:

○ 2 hr. ○ 3½ hr. ○ 4½ hr. ○ 5½ hr.
○ 3 hr. ○ 4 hr. ○ 5 hr. ○ 6 hr.

A	B
0 0	0 0
1 1	1 1
2 2	2 2
3 3	3 3
4 4	4 4
5 5	5 5
6	6
7	7
8	8
9	9

A – Number of children enrolled

B – Number of children present today

(Observer asks teacher:)

With regard to a typical day's activities, do you:

A. Always
B. Generally
C. Often
D. Rarely

A B C D Follow a schedule
A B C D Use a schedule as a guideline
A B C D Have no pre-defined schedule

Exhibit A-2

№ 13850 SRI

CLASSROOM OBSERVATION PROCEDURE

CLASSROOM CHECK LIST (be sure to code EVERYONE in the class)	ONE CHILD	TWO CHILDREN	SMALL GROUPS	LARGE GROUPS
A 1. Snack, lunch	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 4 / A 1 2 3 4 / V 1 2 3 4 / I 1 2 3 4	T 1 2 / A 1 2 / V 1 2 / I 1 2
2. Group time, sharing, rest	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 4 / A 1 2 3 4 / V 1 2 3 4 / I 1 2 3 4	T 1 2 / A 1 2 / V 1 2 / I 1 2
B				
3. Story, singing, dancing	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 4 / A 1 2 3 4 / V 1 2 3 4 / I 1 2 3 4	T 1 2 / A 1 2 / V 1 2 / I 1 2
4. Numbers	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 4 / A 1 2 3 4 / V 1 2 3 4 / I 1 2 3 4	T 1 2 / A 1 2 / V 1 2 / I 1 2
C				
5. Alphabet, reading, language development	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 4 / A 1 2 3 4 / V 1 2 3 4 / I 1 2 3 4	T 1 2 / A 1 2 / V 1 2 / I 1 2
6. Finding out about people and how they live	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 4 / A 1 2 3 4 / V 1 2 3 4 / I 1 2 3 4	T 1 2 / A 1 2 / V 1 2 / I 1 2
D				
7. Finding out about the natural world (magnets, shapes, sound)	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 4 / A 1 2 3 4 / V 1 2 3 4 / I 1 2 3 4	T 1 2 / A 1 2 / V 1 2 / I 1 2
E 8. Table games, guessing games, working puzzles	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 4 / A 1 2 3 4 / V 1 2 3 4 / I 1 2 3 4	T 1 2 / A 1 2 / V 1 2 / I 1 2
9. Arts, crafts	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 4 / A 1 2 3 4 / V 1 2 3 4 / I 1 2 3 4	T 1 2 / A 1 2 / V 1 2 / I 1 2
F				
10. Cooking, sewing, pounding, or sawing	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 4 / A 1 2 3 4 / V 1 2 3 4 / I 1 2 3 4	T 1 2 / A 1 2 / V 1 2 / I 1 2
11. Blocks, trucks	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 4 / A 1 2 3 4 / V 1 2 3 4 / I 1 2 3 4	T 1 2 / A 1 2 / V 1 2 / I 1 2
G				
12. Dolls, dress-up, water play	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 4 / A 1 2 3 4 / V 1 2 3 4 / I 1 2 3 4	T 1 2 / A 1 2 / V 1 2 / I 1 2
13. Active play	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 / A 1 2 3 / V 1 2 3 / I 1 2 3	T 1 2 3 4 / A 1 2 3 4 / V 1 2 3 4 / I 1 2 3 4	T 1 2 / A 1 2 / V 1 2 / I 1 2
ADULTS WITHOUT CHILDREN				
14. Classroom management _____	T A V	1 2 3	1 2 3	1 2 3 4	1 2
15. Observing _____	T A V	1 2 3	1 2 3	1 2 3 4	1 2
16. Out of the room _____	T A V	1 2 3	1 2 3	1 2 3 4	1 2
17. Other _____	T A V	1 2 3	1 2 3	1 2 3 4	1 2
Number of Adults in Classroom		1 2 3 4 5 6 7 8 9			

NCS P-334B(.1675)

Classroom Check List (CCL)

The CCL records a series of relatively static pictures (or "snapshots") of the distribution of adults and children within activities occurring at given moments (four times each hour). Essentially, the CCL provides a record of activities taking place, group sizes, adult responsibilities, and child independence. It provides 13 alternative activity categories, any of which a class might be engaged in during an ordinary day, and four additional categories in which adults might be involved without children.

Preamble to the Five-Minute Observation (FMO)

The preamble to the Five-Minute Observation is shown as Exhibit A-3. It is completed just before the five-minute observation period is begun. It identifies the activity that is to be the focus of the observations, the size of the group involved, and the adult role, if any, within that activity. It also records the time that the five-minute observation is begun.

Five-Minute Observation (FMO)

The FMO is designed to record the interactions among adults and children in the classroom. FMO categories identify persons and actions in the classroom. The first two categories, "Who" and "To Whom," designate the classroom roles of people involved in events:

Who and To Whom Categories	Code
Teacher	T
Aide	A
Volunteer	V
Child	C
Different child	D
Two children	2
Small group	S
Large group	L
Everyone	E
Materials	M
Confusion	O

Exhibit A-3

KEY

R–Repeat

C–Cancel

Who and To Whom

T – Teacher
A – Assistant/Aide
V – Volunteer

C – Child
D – Different Child
2 – Two Children

S – Small Group
L – Large Group
E – Everyone

M – Materials
O – Confusion

What

1 – Direct request
2 – Choice request
3 – Respond
4 – Teach, Inform

5 – Comment, Play
6 – Praise
7 – Acknowledge
8 – Help

9 – Cooperate
10 – Corrective feedback
11 – No response, Ignore, "I don't know"
12 – Refuse, Reject

0 – Confusion

How

H – Happy
S – Sad
N – Negative
A – Angry

G – Guide to alternative
R – Reason
C – Control by praising
Q – Question

F – Firm
D – Demean
Th – Threaten
P – Punish

T – Touch
O – Object
Sy – Symbol

V – Verbal
N/V – Non-verbal

FIVE-MINUTE OBSERVATION PREAMBLE

What's happening?

Number of Children ① ② ③ ④

Adult Participation	Directing	Observing
Teacher	○	○
Assistant/Aide	○	○
Volunteer	○	○

Activity ① ③ ⑤ ⑦ ⑨ ⑪ ② ④ ⑥ ⑧ ⑩ ⑫

FOR NCS USE ONLY

Pupil Code

TIME STARTED

Hour | Minute

The third category ("What") describes the action.

What Category	Code
Direct request	1
Choice request	2
Response	3
Teach, inform	4
Comment, play	5
Praise	6
Acknowledge	6
Help	7
Cooperate	8
Corrective feedback	9
No response, ignore, "I don't know"	10
Refuse, reject	11
Observe	12
Confusion	0

The fourth category of the vocabulary ("How") modifies the action.

How Category	Code
Nonverbal	NV
Motion	V (used in spring '71 only)
Happy	H
Sad	S
Negative	N
Angry	A
Guide to alternative	G
Reason	R
Control by praise	C
Question	Q
Firm	F
Demean	D
Threaten	Th
Punish	P
Touch	T
Concrete object	O
Symbolic object	Sy

In addition, there is a symbol that means the entire interaction recurs immediately in the next frame in the sequence, R (Repeat). Another symbol indicates that a sentence is in error and should be eliminated from the data set, C (Cancel). The categories are operationally defined and include elements of educationally significant events. A full list of operational definitions of

FMO codes appears in Appendix B. Two examples of category definitions taken from the observer training manual are as follows:

- S--Sad: Crying; slack, down-turned face; frown, hunched-up body; quiet, monotonous voice; trembling chin.

- 8--Cooperate: Mutual help, group effort. Effort of each is affected by the efforts of other(s); what one does has a direct effect on the other(s), e.g.,

  --Children building a block house together;

  --Children playing a lotto game without an adult;

  --Group singing.

In the fall of 1970 and spring of 1971, the FMO consisted of 60 interaction frames. Each frame has four sections corresponding to the four code categories: the "Who" section, which identifies the initiator of an action; the "To Whom" section, which identifies the person to whom the action is directed; the "What" section, which indicates the action itself; and the "How" section, which describes or modifies the action. The FMO protocol is shown as Exhibit A-4. The observer marks the codes in each frame in sequence to form a sentence describing an action. The observer codes interaction frames for approximately five minutes. Since it takes an observer approximately five seconds to translate an action into codes and record it, a total of 60 frames is the expected output during a five-minute observation. Figure A-1 shows a sequence of three frames in which an observer records a teacher's question to a child in the first frame, the child's response to the teacher in the second frame, and the teacher's praise of the child's work in the third frame.

Revisions of the Spring 1971 Instrument

Some revisions were made to the instrument after the fall 1970 data collection and were reflected in the COI as used in the spring of 1971. These changes are set forth below.

Preamble to the Five-Minute Observation

An additional role of "participating" was added to the "Adult Participation" entry for the spring observations, making it possible to code whether an adult was directing, participating, or simply observing the activity in progress.

Five-Minute Observation

In the fall, 1970, Code 5 (Comment, play) was used when a person was reading, whereas in the spring, 1971, Code 4 (Teach, inform) was used when a person was reading.

In the fall, 1970, the Code V (Verbal) was not used. Interactions were considered to be verbal unless they were coded NV (Nonverbal). In the spring, 1971, the V code was used to indicate movement.

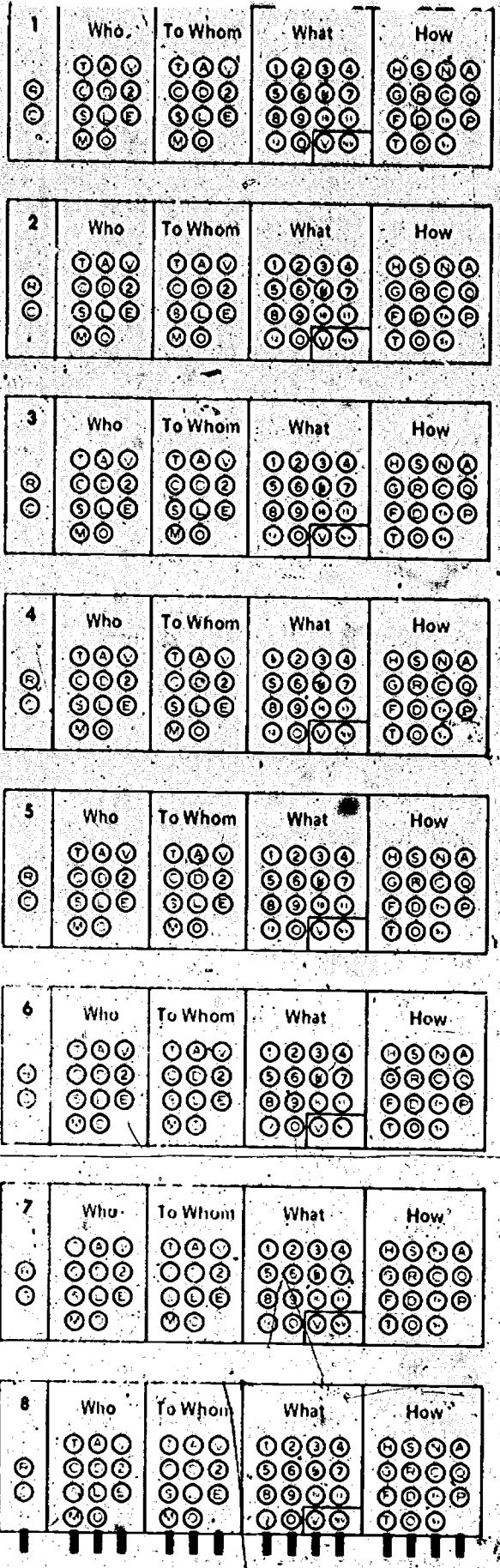
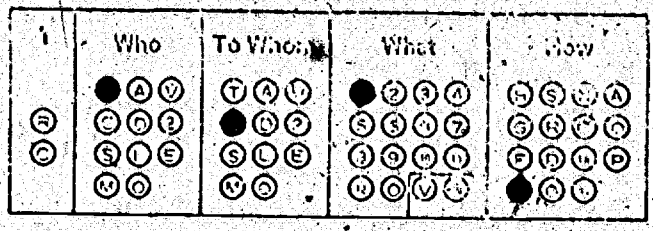

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Who
To Whom
What
How

Figure A-1

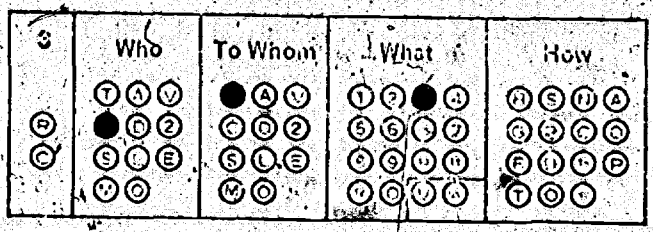
EXAMPLE OF THREE CODED FRAMES
FROM FIVE-MINUTE OBSERVATION PROTOCOL

Teacher: (touching child's shoulder)
"Did you finish the puzzle?"



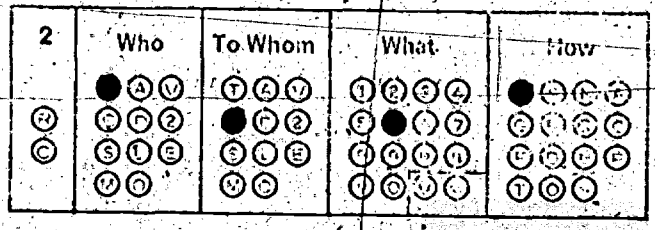
TCIT

Child: "Yeah, I got all the pieces in."



CT3

Teacher: (smiling) "That's fine--
you did a good job."



TC6H

Selection and Training of Classroom Observers

SRI Site Coordinators at the observation sites were given the responsibility for selecting and hiring classroom observers for the local communities according to guidelines that emphasized the ability to (1) learn symbol-concept relationships, (2) maintain objectivity toward behavior observed, and (3) hold as confidential all data collected. General intelligence and memory skills were considered more important qualifications than academic credentials.

Each observer received a training packet in advance of training that included the list of codes and definitions, self-tests, and flash cards for home study. Before coming to the training session, each observer was tested on knowledge of the codes by the SRI Site Coordinator.

In the fall of 1970, three five-day training sessions were held: the first was held in New York City for observers from the northeastern states; the second in Atlanta for observers from the southeastern and southern states; the third in Denver for observers from the West, Southwest, and Middle West. Approximately 13 observers were trained in each session by three trainers from SRI.

In the spring of 1971, a one-day refresher training session was held for returning observers in Denver. One-day refresher sessions in Philadelphia and Atlanta were also given to returning observers prior to a four-day training session for new observers. The sessions were conducted by three- or four-member SRI training teams.

Training for beginning observers consisted of explanation and demonstration of the coding of each part of the CO instrument, coding practice from role-playing situations and videotapes, and three mornings of live role-playing situations and videotapes, and three mornings of live observations in classrooms. On the final day of each training session, a criterion videotape was presented to the trainees for coding. Those whose speed and accuracy did not meet a minimum standard of 80-percent agreement with the frequencies and code content of the established coding standard were given an additional tape to code. All but one of the trainees completed the training successfully. A replacement for the unsuccessful trainee was subsequently trained at SRI headquarters in Menlo Park.

An assessment of the reliability of the observation protocols during analysis of the data revealed two problems. One of the observers had misused codes and had failed to completely fill in the protocols. Since so much of the data that she collected was not usable, the site at which she was observing had to be dropped from the set to be included in the analysis. The other problem was that nearly all observers experienced difficulty in using the codes for "Objects" (O) and "Symbolic" (Sy). This made it impossible to use variables based on these codes in most of the analyses.

The 1970-71 Classroom Observation Sample and Procedures

The original design of the classroom observation sample called for observations in three Head Start Planned Variation (PV) and three Head Start comparison classrooms. The number of classrooms was later increased to four PV at each site and four or more comparison classrooms for each sponsor; thus observations at these sites were conducted in every classroom in which pupil testing was done. The sites in which the observation procedure was used are listed in Table A-1.

Observations were conducted on two consecutive days in each classroom at a rate of approximately four COPs per hour. This resulted in a total number of COPs per day ranging from eight to 12, depending on the length of the Head Start day.

Observers were urged to record a representative sample of activities in each classroom. To this end, they were instructed to observe each of the first 13 activities listed on the CCL, if those activities were a part of the daily routine in the classroom. If some of these activities were not included in the day's schedule, observers were to observe more than once in the activities that did occur. In addition to the activity categories to be observed, specific groupings of adults and children were to be selected as the focus of observations. The following groupings were designated as important to observe: teacher with a large group, teacher with a small group, teacher with two children, and two children working together without an adult.

Table A-1

CLASSROOM OBSERVATION SAMPLE FOR FALL 1970 AND SPRING 1971

	Sponsor	Community
02	Far West Laboratory for Educational Research and Development	Duluth, Minnesota St. Cloud,* Minnesota Fresno, California Tacoma, Washington
03	University of Arizona	LaFayette, Georgia Albany,* Georgia Lincoln, Nebraska
05	Bank Street College	Boulder, Colorado Wilmington, Delaware DeLaWar,* Delaware Elmira, New York
07	University of Oregon	East St. Louis,† Illinois Tupelo, Mississippi East Las Vegas, New Mexico West Las Vegas,* New Mexico
08	University of Kansas	Oraibi, Arizona Acoma,† New Mexico Portageville, Missouri Mounds, Illinois
09	High/Scope	Ft. Walton Beach, Florida Pensacola,* Florida Greeley, Colorado Seattle, Washington
10	University of Florida	Jonesboro, Arkansas Chattanooga, Tennessee Houston, Texas
11	Educational Development Center	Washington, D.C. Paterson, New Jersey Johnston Co., North Carolina
12	University of Pittsburgh	Lock Haven, Pennsylvania Mifflenburg,* Pennsylvania
20	Responsive Environment Corporation	Kansas City, Missouri
26	New York University	St. Thomas,† Virginia
27	Enablers	Billings, Montana Colorado Springs, Colorado Bellows Falls, Vermont

*Off-site non-planned variation comparison.
†Fall 1970 only.

Appendix B

OPERATIONAL DEFINITIONS OF FIVE-MINUTE OBSERVATION CODES IN THE CLASSROOM OBSERVATION INSTRUMENT

"Who" Column

"Who" is doing the talking or acting:

T - Teacher: The one person who is ultimately responsible for the everyday conduct of the classroom.

A - Assistant/Aide: Classroom adults who are regular in their attendance and are paid through Head Start funds.

V - Volunteer: Any other adult in the classroom, such as a parent.

C - Child: When the focus of an observation is on a specific child, that child is "C" (other children are "D" = Different Child.) When the focus is on an adult, "C" refers to any individual child with whom the adult is interacting; a second child coming into the middle of the interaction would be coded as "D".

D - Different Child: A second child in interaction when the focus child "C" is being observed.

2 - Two Children

S - Small Group: Three to eight children.

L - Large Group: More than eight children.

E - Everyone: Adults and children in unison.

M - Materials: Who = Record player, Tape recorder, TV (where the child is being acted upon by the "Materials"). Use code "M" for Materials as in the following examples: Child to Materials "CM" or Materials to Child "MC", when the interaction "Who to Whom" is going on directly between a child or a teacher and materials, and when there is no other person involved in the interaction.

O - Confusion: For some reason the situation makes it impossible for the observer to tell who is doing the talking or acting. For example, so many people may be talking at once that the observer can't tell who is saying what.

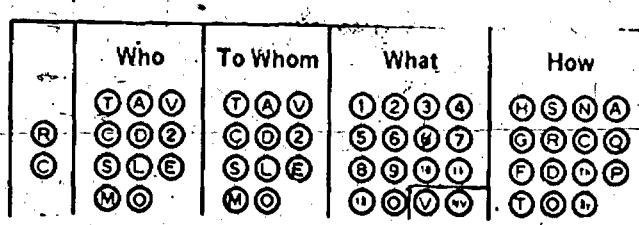
	Who	To Whom	What	How
	T A V	T A V	1 2 3 4	H S N A
R	C D 2	C D 2	5 6 7	G R C Q
C	S L E	S L E	8 9 " "	F D " P
	M O	M O	' O V Y	T O "

"To Whom" Column

"To Whom" the "Who" is talking to or interacting with.

T
A
V
C
D
2
S
L
E
M
O

These codes are all the same as the codes for "Who" except that M = Materials - "To Whom" refers to materials which can be acted upon, e.g. a lump of clay, a workbook, a record player, etc.



"What" Column

"What" happens might be either verbal (someone talking or reading out loud), or non-verbal (someone pointing, or frowning, or walking away):

1 - Direct Request: There is one expected, acceptable response. A person is directed to respond with specific information or action.

e.g. "Can you tell me how many dots are on this block?"
"Sit down, please."
"What street do you live on?"
"Teacher, I wanna paint."

2 - Choice Request: There is more than one acceptable response. A person is requested to respond with his own ideas, opinions, or actions.

e.g. "What do you think is in the bag?"
"Make whatever kind of painting you like."
"How does it feel to you?"

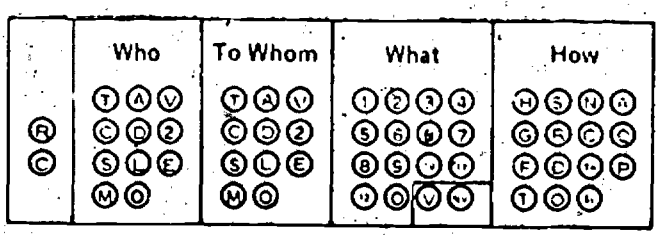
3 - Response: Response to what goes just before. It may be information, opinion, or action which follows a request (1 or 2) or corrective feedback (9).

4 - Teach, Inform: Gives instructions, rules, information.

e.g. "Flowers have roots under the ground."
"If we put these together, we'll have five."
"Next, add two cups of Rice Krispies."
"You can have another turn when everyone else has had a first turn."

5 - Comment, Play: Conversation, greetings, comments, dancing, playing, pretending. Reading a story.

e.g. "Hello."
"I like to ride bikes."
"My baby is sick."
Dressing a doll, washing play dishes. (Non-verbal)
"Once upon a time there were three bears..."



"What" (continued)

6 - Praise: A compliment; nice words said to or about a person or his contribution. Material reward, such as a token.

e.g. "What a pretty picture."
"That's a good question, Joe."
Giving a token. (Non-verbal)
Smile and Nod. (Non-verbal)

6 - Acknowledge: Repeat another's statement immediately, indicating that something is understood or agreed with.

e.g. "That's right."
Nodding. (Non-verbal)

7 - Help: Tying shoes, putting on apron for someone, etc.

8 - Cooperate: Mutual help, group effort. Effort of each is affected by the efforts of other(s); what one does has a direct effect on the other(s).

e.g. Children building a block house together. (Non-verbal)
Children playing a lotto game without an adult.
Group singing.

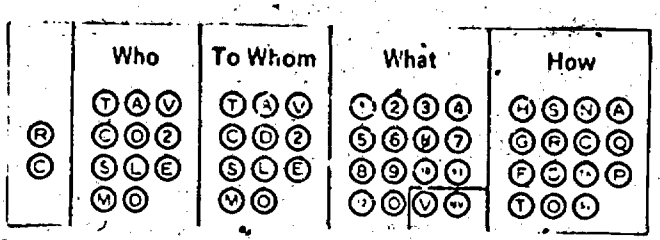
9 - Corrective feedback: Telling or showing that a response is wrong. Classroom control techniques (be sure to code "How".)

e.g. "No, your card is not just like my card."
"James, stop that!"
"Are you sure that three and four are eight?"
Tapping a child who is out of turn. (Non-verbal)
"Will you count it again?"

10 - "I don't know": The verbal statement verbatim.

No response, Ignore: Interaction is directed toward a person who makes no response to it. (Non-verbal)

e.g. A child calls out an answer to the teacher's question, but the teacher responds to a different child.



"What" (continued)

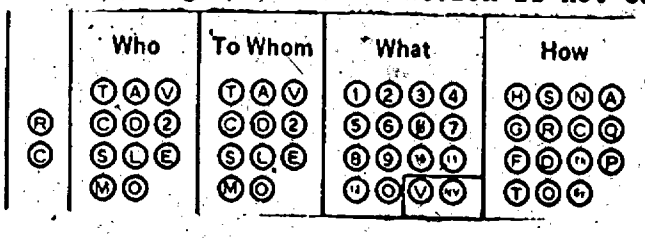
11 - Refuse, Reject: Show disagreement or lack of acceptance of an idea, suggestion, or behavior.

e.g. Shaking off someone's touch. (Non-verbal)
"Go away."
"I don't want to."

12 - Observe: A child or an adult is watching others in the room to the exclusion of carrying on other activity at the moment. (When the classroom observer is focusing on one child exclusively, which happens in "individual child" observations, the "12" category 'Observe' becomes very important since the observer will use it when the focus child is watching something or somebody else, and is not concentrating on his own activity.)

O - Confusion: The observer is confused about what is going on or what to score, either because too much is going on in the situation to be able to distinguish and categorize the parts, or because the observer himself loses track of his place.

e.g. Observer draws a momentary blank on one coding, and has therefore broken his coding pace. He notes "O" in his records, to indicate that his recording of the interaction is not continuous.



INDICATION OF VERBAL/NON-VERBAL

Fill in the appropriate circle for the coded event, either verbal or non-verbal. If the event includes some of both, fill in the circles in both verbal and non-verbal columns. (See example above.)

"How" Column

"How" is what we call the affect of the action and classroom control.

Affect

H - Happy: Smile, laughter; large or free body movements (jumping up and down, clapping); varied intonation; voice tone up or light; spontaneously humming or singing; exuberant.

S - Sadly: Includes fear. Crying; slack, down-turned face; frown, hunched-up body; quiet, monotonous voice; trembling chin.

N - Negative: Frown, strident tone; restraining (might also include code "T" = Touch).

A - Angry: Tight closed face; frown; yelling; extreme high or low intonation; tense body, clenched fists; stomping; namecalling; throwing things; sulking.

Classroom Control Use with "What" (9)

G - Guide to Alternative: Classroom control where the person is redirected to a more acceptable response.

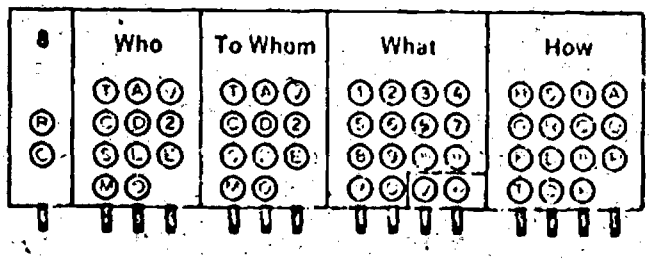
e.g. "Come on, I'll push you on the swing;" when a child is arguing with another child over a bike. or
The teacher begins singing a song at a time when the children are noisy, and everyone joins in.

R - Reason: Reasons are given, or a child's reason is appealed to, in order to maintain classroom control. "Reason" includes statements of rules and/or social norms.

e.g. "Janet would be unhappy if you took that." or
"You'll have to be quiet so others can hear the story."

C - Control by Praising: Praising a child who is doing what is wanted to get others to do it, too.

e.g. "Janet, I like the way you have your hands in your lap," when other children have their elbows on the table.



"How" (continued)

Q - Question: Asking a question to point out a mistake.

e.g. "Are you sure?" or
"Is your box just like my box?"

F - Firm Command: A firm controlling statement.

e.g. "Sit down!"
"Don't do that."
"Stop it!"

D - Demean: Reflections on a person's character or ability, unkind practical jokes, name-calling or labeling, putting-down.

e.g. "Stupid!"
"Why can't you do it like David does?"

Th - Threaten: An ultimatum with stated consequences.

e.g. "If you aren't quiet, you'll have to stay in at recess."
"If you touch it, I'll hit you."

P - Punish: Withholding or withdrawing privileges; striking, (see Code "T").

T - Touch: Any physical contact.

REPEAT and CANCEL

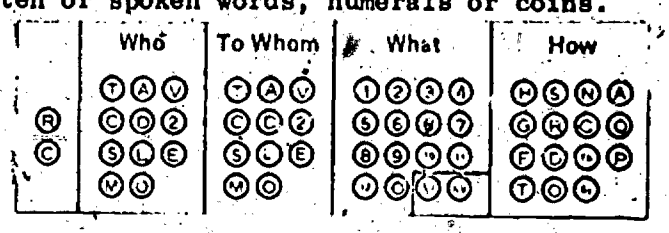
R - Repeat: If the interaction you are observing is continuous, mark R every five seconds.

C - Cancel: If an error has been made, fill in the circle C to cancel coding.

Used with "How" Interactions

O - Concrete Object: Any real material (not a substitute or a symbol for it).

Sy - Symbolic Object: Any representation of something else, such as written or spoken words, numerals or coins.



Appendix C

OPERATIONAL DEFINITIONS OF THE VARIABLES

CCL Variables

CCL Variables 9-18 show the proportion of time the listed activities occurred in each classroom. An activity was counted as occurring if one or more children was engaged in the activity.

For each of these variables, a COP was examined for the occurrence of the activity; if the activity occurred, the value was assigned to the variable for that COP, otherwise a zero was assigned. The final value of each variable is the average over all COPs for a class.

9) Activity A - Snack, lunch

10) Activity B - Group time, sharing, rest story, singing, dancing

11) Activity C - Numbers, alphabet, reading, language development

12) Activity D - Finding out about people and how they live, finding out about the natural world (magnets, shapes, sound)

13) Activity E - Table games, guessing games, working puzzles

14) Activity F - Arts, crafts, cooking, sewing, pounding, or sawing

15) Activity G - Blocks, trucks, dolls, dress-up, water play

16) Active play

CCL Variables 17-22 show the average number of the indicated groupings likely to be seen at any given time in a classroom. The value is found by counting up the occurrences of the indicated groupings for each COP, summing these frequencies for over all COPs and dividing by the number of COPs.

17) Adult with 1 or 2 children in any activity

18) Adult with small group in any activity

19) Adult with large group in any activity

20) Adult with 1 or 2 children in any academic activity

21) Adult with small group in any academic activity

22) Adult with large group in any academic activity

CCL Variable 23 gives the average number of any kind of grouping likely to be seen at any given time in any of the academic activities. Computation is same as for CCL variables 17-22.

23) Academic activity groupings -

24) Wide variety of activities - This variable indicates the range of different activities likely to be seen at any given time. Each numbered activity (i.e., activities 1 - 13) on the CCL is examined for occurrence. The number of different activities occurring on each COP is summed over all COPs, then divided by the number of COPs for a class.

25) Independent child activity - Average number of groups of children working independently at any given time.

26) Teacher interacting with 1 or 2 children in any activity - Gives average occurrence of this grouping likely to be seen at any given time.

27) Aide's participation in academic activities - Gives average occurrence of any grouping of children with an aide likely to be seen at any one time.

CCL Variables 28-31 give the average number of indicated groupings of children with or without adults in any activity including classroom management activities.

28) Groups of 1 child

29) Groups of 2 children

30) Small group

31) Large group

32) Aide's participation in any activity - Gives average number of groups an aide or aides is likely to be seen with at any given time.

Variables 33-36 give the average number of adults likely to be seen working alone in the indicated classroom management activities at any given time.

33) Classroom management

34) Observing

35) Out of the room

36) Other

37) Number of frames actually coded for a class.

FMQ	Variable	WHO	TO WHOM	WHAT	HOW	WHO	TO WHOM	WHAT	HOW	WHO	TO WHOM	WHAT	HOW
38	Adult informing child using symbolic objects	{T A V}	{C D 2 S L}	4	Sy								
39	Adult informing child using concrete objects	{T A V}	{C D 2 S L}	4	0								
40	Adult informing child	{T A V}	{C D 2 S L}	4	-								
41	Adult direct request to child	{T A V}	{C D 2 S L}	1	-								
42	Child response to adult direct request	{T A V}	{C D 2 S L}	1	=	{C D 2 S L}	{T A V}	3	-				
43	Adult corrective feedback to child response	{C D 2 S L}	{T A V}	3	-	{T A V}	{C D 2 S L}	9	-				
44	Adult acknowledgement to child response	{C D 2 S L}	{T A V}	3	-	{T A V}	{C D 2 S L}	8	-				

FMO	Variable	WHO	TO WHOM	WHAT	HOW	WHO	TO WHOM	WHAT	HOW	WHO	TO WHOM	WHAT	HOW

45 Adult praise to child response

$\begin{Bmatrix}C\\D\\2\\S\\L\end{Bmatrix}$ $\begin{Bmatrix}T\\A\\V\end{Bmatrix}$ 3 - $\begin{Bmatrix}T\\A\\V\end{Bmatrix}$ $\begin{Bmatrix}C\\D\\2\\S\\L\end{Bmatrix}$ 6 -

46 Adult direct request followed by child response followed by adult corrective feedback

$\begin{Bmatrix}T\\A\\V\end{Bmatrix}$ $\begin{Bmatrix}C\\D\\2\\S\\L\end{Bmatrix}$ 1 - $\begin{Bmatrix}C\\D\\2\\S\\L\end{Bmatrix}$ $\begin{Bmatrix}T\\A\\V\end{Bmatrix}$ 3 - $\begin{Bmatrix}T\\A\\V\end{Bmatrix}$ $\begin{Bmatrix}C\\D\\2\\S\\L\end{Bmatrix}$ 9 -

47 Adult direct request followed by child response followed by adult acknowledgement

$\begin{Bmatrix}T\\A\\V\end{Bmatrix}$ $\begin{Bmatrix}C\\D\\2\\S\\L\end{Bmatrix}$ 1 - $\begin{Bmatrix}C\\D\\2\\S\\L\end{Bmatrix}$ $\begin{Bmatrix}T\\A\\V\end{Bmatrix}$ 3 - $\begin{Bmatrix}T\\A\\V\end{Bmatrix}$ $\begin{Bmatrix}C\\D\\2\\S\\L\end{Bmatrix}$ 6 -

48 Adult direct request followed by child response followed by adult praise

$\begin{Bmatrix}T\\A\\V\end{Bmatrix}$ $\begin{Bmatrix}C\\D\\2\\S\\L\end{Bmatrix}$ 1 - $\begin{Bmatrix}C\\D\\2\\S\\L\end{Bmatrix}$ $\begin{Bmatrix}T\\A\\V\end{Bmatrix}$ 3 - $\begin{Bmatrix}T\\A\\V\end{Bmatrix}$ $\begin{Bmatrix}C\\D\\2\\S\\L\end{Bmatrix}$ 6 -

49 Adult choice request to child

$\begin{Bmatrix}T\\A\\V\end{Bmatrix}$ $\begin{Bmatrix}C\\D\\2\\S\\L\end{Bmatrix}$ 2 -

50 Child response to adult choice request

$\begin{Bmatrix}T\\A\\V\end{Bmatrix}$ $\begin{Bmatrix}C\\D\\2\\S\\L\end{Bmatrix}$ 2 - $\begin{Bmatrix}C\\D\\2\\S\\L\end{Bmatrix}$ $\begin{Bmatrix}T\\A\\V\end{Bmatrix}$ 3 -

FMO	Variable	TO WHO	TO WHOM	WHAT	HOW	TO WHO	TO WHOM	WHAT	HOW	TO WHO	TO WHOM	WHAT	HOW
51	Extended child response to adult choice request	{T A V}	{C D 2 S L}	3	-	{C D 2 S L}	{T A V}	3	-	{C D 2 S L}	{T A V}	4	-
52	Adult praise to child	{T A V}	{C D 2 S L}	6	-								
53	Adult acknowledgement to child	{T A V}	{C D 2 S L}	6	-								
54	Adult positive corrective feedback to child	{T A V}	{C D 2 S L}	9	{H G R C Q}								
55	Adult negative corrective feedback to child	{T A V}	{C D 2 S L}	9	{S Th N P A NT D AT F PT}								
56	All adult corrective feedback to child	{T A V}	{C D 2 S L}	9	-								
57	Child self-instruction using symbolic objects	{C C D D 2 2}		1	Sy								

EMO	Variable	WHO	TO WHOM	WHAT	HOW	WHO	TO WHOM	WHAT	HOW	WHO	TO WHOM	WHAT	HOW
58	Child self-instruction using concrete objects	C/D/2	C/D/2			4		0					
59	All child self-instruction	C/D/2	C/D/2			4		-					
60	Child asking questions of adults	C/D/2/S/L		A/V		1/2		-					
61	Child self expression, general comments	C/D/2/S/L		-		5 (not NV)							
62	Adult interaction with 1 or 2 children	T/A/V		C/D/2		-		-					
63	Adult interaction with small group	T/A/V		S		-		-					
64	Adult interaction with large group	T/A/V		L		-		-					
65	Adult negative behavior	T/A/V		-		S/N/A/D		Th/P/NT/AT/PT					

FMO Variable	WHO	TO WHOM	WHAT	HOW	WHO	TO WHOM	WHAT	HOW	WHO	TO WHOM	WHAT	HOW

66 Adult positive behavior

T / A / V	-	-	H / HT

67 Child negative behavior

C / D / 2 / S / L	-	S NT / N AT / A PT / D Th / P

68 Child positive behavior

C / D / 2 / S / L	-	-	H / HT

69 Child initiates interaction with adult

C / D / 2 / S / L	T / A / V	1 ø / 2 7 / 4 8 / 5 9 / 6

70 Child initiates interaction with other child

C	D / 2 / S / L	1 7 / 2 8 / 4 9 / 5 / 6 / ø
D	C / 2 / S / L	

71 Child non-verbal

C / D / 2 / S / L	-	1NV / 3NV / 9NV / 10NV / 11NV / 12NV

FMO Variable	WHO	TO WHOM	WHAT	HOW	WHO	TO WHOM	WHAT	HOW	WHO	TO WHOM	WHAT	HOW
72	Child cooperates											
	{C D 2 S L}		-	8	-							
73	Adult to child positive touch											
	{T A V}	{C D 2 S L}	-	HT								
74	Adult to child negative touch											
	{T A V}	{C D 2 S L}	-	{NT PT AT FT}								
75	Child gives positive touch											
	{C D 2 S L}		-	-	HT							
76	Child gives negative touch											
	{C D 2 S L}		-	-	{NT AT PT}							
77	Adult helps child											
	{T A V}	{C D 2 S L}	7	-								
78	Adult refuses, rejects child											
	{T A V}	{C D 2 S L}	11	-								

FMO	Variable	WHO	TO WHOM	WHAT	HOW	WHO	TO WHOM	WHAT	HOW	WHO	TO WHOM	WHAT	HOW
79	Child refuses, rejects adult	{C D 2 S L}		T	11	-							
80	Child interacts with machine	{C D 2 S L}		M	-	-	or	M	{C D 2 S L}	-		-	
81	All motion	-	-	{V NVV}	-								
82	All positive behavior	-	-	-	{H HT}								
83	All negative behavior	-	-	-	{S Th N P A NT D AT PT}								

Appendix D

DESCRIPTION OF THE OUTCOME MEASURES

The Instruments

Six outcome measures were administered in PV during 1970-71. These included the California Pre-School Social Competency Scale, the NYU-developed Early Childhood tests, the Preschool Inventory (PSI), the Stanford-Binet Intelligence Scale, and the Motor Inhibition Test. Data from two of these, the Motor Inhibition Test and the California Pre-School Social Competency Scale, were not included in any analyses in this report. The classroom processes measured by the COI are not expected to relate in any systematic way to motor skills or impulsive behavior and therefore the Motor Inhibition Test scores were not used. The Pre-School Social Competency Scale was not included because it is a rating scale administered by the teacher whose progress toward implementing a model is being assessed. By using only objective test measures of children's performance, it was possible to avoid having the results confounded. Descriptions of the outcome measures included in the present analyses follow.

New York University Tests (Booklets 3D and 4A)

The NYU tests, adapted from measures developed for the Early Childhood Inventories Project (headed by Martin Deutsch) are measures of preschool achievement designed for use with children with characteristics similar to those of children in Head Start.

The three subtests in Booklet 3D are: (1) Pre-mathematics, seven items assessing basic concepts of quantity and order: (2) Pre-science, seven items assessing relational concepts like height and width; and (3) Prepositions, five items assessing the comprehension of common prepositions like "behind."

The three subtests in Booklet 4A are: (1) Alphabet, nine items assessing recognition of capital letters; (2) Numerals, six items assessing recognition of numerals; and (3) Shape names, three items assessing recognition of "heart," "diamond," and "rectangle."

The Preschool Inventory (Booklet 5)

The Preschool Inventory (PSI) was developed by Bettye Caldwell for the Head Start Planned Variation evaluation to measure achievement in areas essential for school success. The items are divided into four main areas:

(1) Personal-Social Responsiveness, 18 items assessing knowledge about the child's own personal world and his ability to get along with and respond to communications of another person.

(2) Associative Vocabulary, 12 items assessing the ability to demonstrate awareness of the connotation of a word by carrying out some action or by associating to certain intrinsic qualities of the underlying verbal concept.

(3) Concept Activation--Numerical, 15 items assessing the ability to label quantities, to make judgments of "more or less," and to recognize seriated positions.

(4) Concept Activation--Sensory, 19 items assessing the awareness of sensory attributes like shape, size, motion, and color and the ability to demonstrate specific visual-motor configurations, such as "which way does a ferris wheel go?"

Stanford-Binet Intelligence Scale, Revised Edition, Form L-M

The Stanford-Binet Intelligence Scale is an age-scale test based upon the assumption that general intelligence increases with age. Subtests for ages two-three contain nonverbal tasks--e.g., building blocks, stringing beads--but later subtests include vocabulary, analogy, and number tasks. After a child's mental age has been determined, it is converted to an intelligence quotient (estimated intelligence score) using Pinneau's revised IQ tables.* The Stanford-Binet is just as much a measure of experience and achievement as it is of intelligence, and it does have high predictive validity in terms of future school success.

The Sample

These outcome measures were administered by SRI in all PV and comparison sites in the sample. The Huron Institute, which was responsible for analyzing the data and reporting on HSPV effects, converted the raw test data into usable test scores. Huron did not compute test scores for two sites: (1) University of Kansas' Oraibi (Arizona) PV site and its comparison group, Acoma (New Mexico); and (2) Far West's Fresno (California) PV site, which had no comparison group. The Oraibi and Acoma sites were dropped from the sample because it was considered that these American Indian sites were not only not comparable either to other HS sites or to each other, due to differences in language and culture. The Fresno site experienced considerable controversy and at the end of the year decided against continued association with the model. Huron decided that this situation not only affected the center and its community, but also the quality of the data collected there.

*L. M. Terman and M. A. Merrill, Stanford-Binet Intelligence Scale: Manual for the Third Revision Form L-M (Houghton-Mifflin, Boston, 1960).

Appendix E

MEANS, STANDARD DEVIATIONS, AND RANGE TESTS OF HEAD START PROGRAM SPONSORS AND NON-SPONSORED COMPARISON PROGRAMS ON CLASSROOM OBSERVATION VARIABLES

Variables		PW		UA		BC		DO		
No.	Name	X	SD	X	SD	X	SD	X	SD	X
6	Adult/child ratio	.175	.075	.188	.072	.247	.077	.175	.064	.273
7	Length of school day	2.23	1.055	5.25	1.832	4.727	2.149	4.545	3.142	6.083
8	Number of COPs for class	23.25	11.145	27.000	7.653	24.091	3.910	17.636	11.724	33.417
9	Activity A (snack, lunch)	.213	.100	.141	.037	.126	.081	.097	.114	.104
10	Activity B (grouptime, sharing, rest, story, singing, dancing)	.302	.147	.404	.116	.311	.153	.182	.170	.300
11	Activity C (nuabers, alphabet, reading, language development)	.233	.155	.151	.087	.367	.331	.500	.182	.405
12	Activity D (finding out about people and how they live;(finding out about the natural world)	.195	.111	.207	.138	.372	.338	.104	.143	.122
13	Activity E (table games, guessing games, working puzzles)	.353	.199	.223	.134	.425	.316	.052	.091	.187
14	Activity F (arts, crafts, cooking, sewing, pounding)	.420	.186	.335	.136	.590	.301	.135	.125	.348
15	Activity G (blocks, trucks, dolls, dress-up, water play)	.238	.175	.146	.138	.238	.101	.046	.090	.071
16	Active play	.067	.076	.025	.027	.237	.236	.033	.110	.091
18	Adult with small group	1.449	.393	1.597	.487	1.304	.714	1.025	.445	1.869
19	Adult with large group	.505	.220	.505	.285	.473	.430	.423	.569	.338
20	Adult with 1 or 2 children in academic activities (C and D)	.308	.215	.158	.121	.621	.549	.052	.113	.103
21	Adult with small group in academic activities	.210	.150	.254	.138	.346	.420	.655	.374	1.105
22	Adult with large group in academic activities	.050	.107	.071	.082	.062	.067	.076	.217	.018
23	Academic activities	.300	.200	.222	.169	.498	.470	.668	.366	1.049
24	Wide variety of activities	2.575	.576	1.979	.257	3.038	2.458	1.268	.449	2.019
25	Independent child activity	1.644	1.038	1.55	.433	2.864	1.909	.445	.451	.589
26	Adult with 1 or 2 children	.102	.080	.040	.047	.179	.180	.023	.060	.043
27	Aides' participation in academic activities	.064	.080	.022	.028	.058	.115	.146	.206	.598
28	Groups of 1 child	.589	.416	.576	.197	1.184	.711	.100	.142	.193
30	Small groups	1.453	.393	1.704	.584	1.397	.699	1.060	.483	1.871
31	Large groups	.513	.218	.559	.230	.496	.413	.435	.564	.338
	Adults without children:									
32	Classroom management	.625	.229	.480	.249	.616	.348	.283	.275	1.351
33	Observing	.440	.294	.389	.259	.366	.332	.372	.414	.378
34	Out of the room	.437	.259	.435	.291	.403	.313	.336	.412	.451
35	Other	.063	.086	.341	.309	.313	.280	.073	.126	.176
36	Aide's participation in all activities	.039	.088	.067	.089	.041	.064	.017	.033	.034
40	Adult informing child	4.327	2.916	2.117	1.002	4.787	4.389	4.485	2.013	2.787
41	Adult direct request to child	2.868	1.181	5.124	1.237	3.148	1.748	12.109	5.842	8.494
42	Child response to adult direct request	2.054	.910	3.253	.758	2.482	1.853	11.145	5.296	7.37
43	Adult corrective feedback to child response	.253	.187	.349	.170	.132	.111	.252	.291	.622
44	Adult acknowledgment to child response	.235	.148	.446	.257	.098	.140	.609	.382	.847
45	Adult praise to child response	.461	.472	.106	.112	.063	.096	3.411	.690	1.693
46	Adult direct request followed by child response followed by adult corrective feedback	.091	.101	.174	.101	.118	.104	.199	.244	.705
47	Adult direct request followed by child response followed by adult acknowledgment	.108	.114	.053	.084	.050	.090	2.602	.502	1.463
48	Adult direct request followed by child response followed by adult praise	.110	.097	.214	.135	.087	.130	.342	.230	.758

Means for CCL variables = total occurrence/NCOP.
Means for FMO variables = total occurrence x 60/XFRM.

Sponsor performance on each variable ranked in order of increased magnitude of means (——→). Underlining indicates subjects of no significant di

Appendix E-1

MEANS, STANDARD DEVIATIONS, AND RANGE TESTS OF HEAD START PROGRAM SPONSORS AND NON-SPONSORED COMPARISON PROGRAMS ON CLASSROOM OBSERVATION VARIABLES
Fall 1970

UK		NS		UP		ED		UP		REC		EB				
$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	F Ratio	P	
.273	.075	.200	.059	.231	.056	.150	.090	.248	.072	.196	.053	.239	.061	3.043	.01	ED
6.083	1.832	5.667	2.535	6.273	2.005	5.375	2.56	3.00	.000	2.000	.000			4.433	.001	
33.417	8.295	28.083	8.317	26.636	5.353	30.125	9.523	20.25	2.363	22.25	1.708			3.108	.01	
.104	.036	.251	.100	.225	.049	.194	.107	.244	.071	.202	.022	.293	.121	5.001	.001	UC
.300	.097	.335	.101	.340	.104	.285	.098	.394	.150	.296	.134	.246	.088	2.046	.10	UC
.405	.116	.078	.113	.156	.088	.143	.138	.247	.051	.348	.141	.115	.119	7.072	.001	UA
.122	.132	.090	.094	.072	.095	.098	.064	.058	.057	.154	.100	.100	.089	3.64	.01	UP
.167	.101	.230	.131	.165	.081	.171	.107	.177	.150	.315	.161	.224	.116	4.593	.001	UC
.348	.211	.277	.123	.159	.123	.287	.152	.285	.040	.259	.078	.390	.146	3.909	.001	UC
.071	.057	.042	.043	.061	.045	.172	.098	.098	.038	.101	.096	.173	.158	6.120	.001	UA
.091	.105	.087	.054	.029	.034	.111	.144	.039	.026	.011	.023	.057	.061	3.358	.01	UA
1.669	.585	1.091	.467	1.033	.875	.948	.633	1.544	.042	1.413	.330	1.562	.362	2.779	.05	UC
.338	.099	.686	.330	.623	.109	.728	.793	.572	.191	.339	.175	.355	.133	1.104	NS	UC
.103	.129	.061	.078	.033	.038	.102	.104	.152	.174	.247	.383	.105	.128	6.653	.001	UP
1.105	.382	.056	.051	.226	.305	.110	.127	.308	.112	.416	.254	.163	.197	13.937	.001	UA
.012	.034	.090	.097	.104	.110	.111	.151	.048	.055	.094	.120	.038	.052	.666	NS	UC
1.049	.353	.093	.124	.178	.116	.186	.199	.680	.159	.541	.473	.174	.192	11.594	.001	UA
2.019	.452	1.791	.407	1.348	.358	1.647	.721	1.835	.471	2.050	.450	1.680	.434	8.346	.001	UC
.589	.382	.735	.331	.511	.308	1.05	.645	1.278	.609	1.769	.492	1.320	.524	9.267	.001	UC
.043	.046	.060	.061	.020	.032	.068	.058	.278	.108	.067	.077	.064	.054	5.868	.001	UC
.598	.255	.007	.024	.057	.072	.049	.035	.125	.090	.156	.204	.046	.059	18.387	.001	UA
.193	.138	.301	.202	.167	.170	.477	.547	.929	.555	.899	.429	.438	.247	8.260	.001	UC
1.871	.584	1.098	.476	1.040	.881	.948	.633	1.566	.063	1.663	.349	1.598	.358	2.923	.05	UC
.338	.099	.686	.330	.623	.109	.728	.793	.584	.197	.339	.175	.371	.129	1.108	NS	UC
1.351	.607	.528	.153	.698	.456	.517	.183	.822	.113	.696	.408	.516	.354	7.184	.001	UC
.378	.172	.395	.301	.275	.256	.630	.332	.421	.309	.467	.178	.490	.378	.824	NS	UP
.451	.110	.689	.489	.455	.275	1.300	.531	.176	.136	.375	.136	.343	.276	8.279	.001	UC
.176	.120	.140	.160	.135	.188	.123	.230	.075	.150	.395	.331	.231	.233	3.780	.05	UA
.034	.047	.007	.017	.163	.324	.090	.222	.080	.159	.107	.104	.143	.198	1.109	.10	UC
3.767	2.282	4.254	3.744	6.035	5.618	7.753	4.621	1.978	.609	1.268	.735	3.484	1.618	3.269	.05	UA
8.494	3.403	7.234	2.257	4.426	2.411	6.334	5.344	8.282	1.792	9.232	.881	3.823	2.301	8.980	.001	UC
7.37	3.855	5.939	1.734	3.487	2.334	2.981	1.577	6.63	1.566	7.262	.494	2.284	2.038	11.880	.001	UC
.852	.382	.679	.416	.286	.200	.329	.359	.478	.385	.767	.243	.526	.390	6.811	.001	UC
.847	.897	1.349	.705	.818	.811	.242	.226	1.053	.361	2.169	.888	.912	.951	8.312	.001	UC
1.693	.677	.989	.857	.706	.419	.342	.141	2.467	.456	.431	.229	.384	.485	41.052	.001	UC
.705	.395	.479	.333	.150	.115	.137	.126	.360	.365	.719	.223	.233	.286	9.285	.001	UC
1.463	.664	.532	.479	.385	.211	.138	.090	1.857	.563	.348	.157	.194	.284	54.157	.001	UA
.758	.834	.837	.666	.383	.414	.103	.116	.800	.249	1.819	.767	.442	.615	8.221	.001	UC

gnificant difference as determined by multiple range test Newman/Keuls Method ($p < .05$).

REC		EB					HSPV		HSNPV			
X	SD	X	SD	F Ratio	P	Fall Range Tests* (| = NHSPV)	X	SD	X	SD	T	P
.186	.053	.239	.061	3.043	.01	ED, UO, FW, UA | RE, HS, UP, EB, UP, BC, UK	.21	.08	.18	.06	3.114	.005
2.000	.000			4.433	.001							
22.25	1.706			3.108	.01							
.202	.022	.293	.121	5.001	.001	UO, UK, UA, BC, ED | RE, FW, UP, UP, HS, EB	.19	.10	.20	.12	.478	--
.296	.134	.246	.088	2.046	.10	UO, EB, BC, ED, | RE, UK, FW | HS, UP, UP, UA	.30	.13	.33	.16	1.516	.10
.348	.141	.115	.119	7.072	.001	HS, EB | ED, UA, UP, BC, FW, UP, RE, UK, UO	.25	.20	.12	.14	4.420	.005
.154	.100	.100	.089	3.54	.01	UP, UP, HS, ED, EB, UO | UK, RE, BC, FW, UA	.15	.17	.11	.12	1.751	.05
.315	.161	.224	.116	4.593	.001	UO, UP, UK, ED, UP, BC, UA, EB | HS, RE, FW	.23	.18	.33	.16	.178	--
.359	.078	.390	.146	5.909	.001	UO, UP, RE, HS, UP, EO, UA | UK, BC, EB, FW	.31	.20	.34	.21	.662	--
.101	.096	.173	.158	8.120	.001	HS, UO, UP, UK, UP, RE | UA, ED, EB, FW, BC	.13	.13	.11	.10	1.178	--
.011	.023	.057	.061	3.358	.01	RE, UA, UP, UO, UP, EB, FW, HS, UK | BC, ED	.08	.12	.10	.14	1.254	--
1.413	.330	1.562	.362	2.779	.05	BC, ED, UO, UP, HS | RE, FW, UP, EB, UA, UK	1.33	.60	1.12	.89	1.823	.05
.339	.175	.355	.133	1.104	NS	BC, UK, RE, EB, UO, FW, UA, UP, UP, HS | ED	.50	.36	.70	.42	3.344	.005
.247	.383	.105	.128	8.653	.001	UP, UO, HS | ED, UK, EB, UA, RE, BC, FW, UP	.19	.26	.09	.17	2.560	.01
.416	.254	.163	.197	13.937	.001	HS, BC, ED | EB, FW, UP, UA, UP, RE, UO, UK	.35	.40	.15	.28	3.625	.005
.094	.120	.038	.052	.666	NS	UK, BC, EB, UP, FW | UA, UO, HS, RE, UP, ED	.07	.11	.07	.10	.283	--
.541	.473	.174	.192	11.594	.001	HS | EB, UP, ED, BC, UA, FW, RE, UO, UP, UK	.40	.39	.17	.23	4.390	.005
2.050	.450	1.860	.434	8.346	.001	UO, UP, ED, HS, UP, EB | UA, UK, RE, BC, FW	2.03	1.10	1.89	1.04	.839	--
1.769	.492	1.320	.524	8.267	.001	UO, UP, UK, HS, ED | UP, EB, BC, UA, FW, RE	1.21	1.04	1.20	1.05	.105	--
.047	.077	.064	.054	5.868	.001	UP, UO, UA, UK, HS, EB, RE, ED | BC, FW, UP	.05	.10	.07	.11	.426	--
.156	.206	.046	.039	18.387	.001	BC, HS | UA, EB, ED, UP, FW, UP, UO, RE, UK	.12	.21	.02	.04	4.090	.005
.699	.429	.438	.247	8.260	.001	UO, UP, UK, HS, EB, ED | UA, FW, RE, BC, UP	.48	.48	.51	.60	.289	--
1.663	.349	1.598	.358	2.923	.05	ED, UP, BC, UO, HS | FW, UP, EB, RE, UA, UK	1.36	.61	1.14	.89	1.954	.05
.339	.175	.371	.129	1.108	NS	UK, RE, BC, EB, UO, FW, UA, UP, UP, HS, ED	.51	.36	.73	.43	3.659	.005
.606	.408	.516	.354	7.184	.001	UO, BC, UA, EB, ED, HS | FW, RE, UP, UP, UK	.63	.44	.57	.59	.835	--
.407	.178	.490	.378	.824	NS	UP, UO, UK, UA | HS, UP, FW, RE, EB, BC, ED	.40	.30	.38	.34	.583	--
.378	.136	.343	.276	6.279	.001	UP, UO, EB, RE, UA, FW, UK, UP | BC, HS, ED	.49	.40	.54	.42	.756	--
.395	.331	.231	.223	2.780	.05	FW, UO, UP, ED, UP, HS, UK | EB, UA, RE, BC	.18	.21	.18	.25	.003	--
.107	.104	.143	.198	1.109	.10	HS, UO, UK, FW, BC, UA | UP, ED, RE, EB, UP	.07	.15	.08	.17	.400	--
3.268	.735	3.484	1.618	2.269	.05	RE, UP, UA, UK, BC, EB, HS, FW, UO | UP, ED	4.06	3.54	4.61	3.83	.972	--
7.332	.881	3.823	2.301	8.980	.001	BC, FW, EB, UP, UA, ED | HS, UP, UK, RE, UO	6.23	4.00	5.68	4.17	.714	--
7.242	.494	2.284	2.038	11.880	.001	BC, FW, EB, ED, UA, UP | HS, UP, RE, UK, UO	4.85	3.74	5.61	4.08	1.265	--
.767	.243	.526	.390	6.811	.001	BC, UO, FW, UP, ED, UA | UP, EB, HS, RE, UK	.43	.36	.36	.45	1.081	--
1.169	.886	.912	.951	8.312	.001	BC, FW, ED, UA, UO, UP, UK | EB, UP, HS, RE	.74	.75	.89	1.06	1.073	--
.431	.229	.384	.485	41.052	.001	BC, UA, ED, EB, RE, FW, UP | HS, UK, UP, UO	.97	1.11	.76	.80	1.320	.10
.719	.223	.233	.286	9.285	.001	BC, FW, ED, UP, UA, UO, EB | UP, HS, UK, RE	.29	.31	.29	.44	.061	--
.348	.157	.194	.284	54.157	.001	UA, BC, FW, ED, EB, RE, UP | HS, UK, UP, UO	.67	.88	.42	.44	2.137	.01
.819	.767	.442	.615	8.221	.001	ED, FW, BC, UA, UO, UP, EB | UK, UP, HS, RE	.47	.59	.62	.98	1.327	.10

Variables		FW		UA		BC		UO		
No.	Name	X	SD	X	SD	X	SD	X	SD	X
49	Adult choice request to child	2.185	1.331	2.297	1.012	.637	.535	2.503	1.685	.390
50	Child response to adult choice request	1.795	1.019	1.519	.618	.464	.325	2.376	1.671	.331
51	Extended child response to adult choice request question	.094	.096	.098	.081	.052	.073	.023	.042	.010
52	Adult praise to child	1.252	.982	.595	.348	.305	.283	4.421	1.058	3.224
53	Adult acknowledgment to child	.728	.190	1.240	.468	.250	.289	.819	.523	1.376
54	Adult positive corrective feedback to child	.714	.819	1.658	.863	.199	.281	.302	.547	1.363
55	Adult negative corrective feedback to child	.130	.178	.418	.293	.006	.021	.209	.362	.131
56	All adult corrective feedback to child	1.061	.895	2.202	1.134	.461	.363	.664	.934	1.849
59	All child self-instruction	.130	.183	.078	.180	.036	.082	.000	.000	.002
60	Child asking questions of adults	1.579	1.193	2.138	1.151	1.180	1.353	.673	.481	1.256
61	Child self-expression, general comments	17.872	6.818	17.985	4.633	17.217	13.116	5.764	5.610	14.291
62	Adult interaction with 1 or 2 children	10.286	4.422	14.064	3.058	8.306	6.215	13.307	2.467	16.599
63	Adult interaction with small group	2.323	1.220	2.354	2.229	1.288	1.487	11.636	5.219	3.657
64	Adult interaction with large group	3.860	2.843	4.583	3.784	4.64	4.26	3.060	4.335	2.879
65	Adult negative behavior	.241	.287	.192	.153	.080	.241	.234	.286	.081
66	Adult positive behavior	.976	1.026	.200	.226	1.377	2.100	.079	.126	.277
67	Child negative behavior	1.034	.842	.531	.454	.225	.319	.662	.819	.283
68	Child positive behavior	5.778	5.157	.597	.408	3.198	3.807	.142	.234	3.576
69	Child initiates interaction with adult	4.171	1.991	6.085	2.593	4.188	5.388	1.702	1.432	2.232
70	Child initiates interaction with other child	4.285	2.648	4.777	1.763	1.783	2.979	5.233	6.76	3.264
71	Child non-verbal	3.119	1.090	1.861	.836	.954	.932	.777	.813	1.750
72	Child cooperates with other children	.103	.132	.028	.036	1.977	2.526	.000	.000	.053
73	Adult to child positive touch	.050	.095	.004	.011	.016	.038	.031	.092	.020
74	Adult to child negative touch	.155	.208	.050	.058	.007	.016	.048	.072	.064
75	Child gives positive touch	1.159	1.946	.053	.128	.025	.046	.000	.000	.071
76	Child gives negative touch	.245	.338	.159	.176	.019	.034	.024	.062	.074
77	Adult helps child	.288	.269	1.104	.628	.994	.817	.454	.489	.815
78	Adult refuses, rejects child	.008	.019	.033	.056	.007	.017	.063	.107	.004
79	Child refuses, rejects adult	.132	.107	.071	.075	.062	.085	.015	.027	.014
80	Child interacts with machine	17.264	9.84	13.151	3.908	24.339	13.198	3.267	3.672	14.475
81	All motion									
82	All positive behavior	7.673	7.456	1.434	1.228	4.318	5.923	.251	.324	5.338
83	All negative behavior	1.698	1.357	1.055	.758	.427	.525	.998	.886	.484

Appendix E-1 (Concluded)

UK		HS		UF		ED		UP		NEC		EB			
$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	F Ratio	P
.390	.214	2.575	2.296	2.110	.798	1.857	1.124	1.631	.338	.847	.297	2.622	1.787	4.164	.001
.331	.177	2.419	2.286	1.932	.842	1.002	.428	1.307	.352	.729	.278	1.503	.822	4.550	.001
.010	.014	.027	.040	.068	.053	.049	.078	.056	.050	.095	.054	.105	.144	2.454	.05
3.224	1.347	1.875	1.038	1.103	.334	.938	.394	5.374	1.389	.683	.346	.734	.511	29.890	.001
1.376	1.302	2.690	1.390	.894	.789	.750	.408	1.930	.399	2.698	1.046	2.605	1.031	8.961	.001
1.362	.723	1.305	1.024	.407	.423	.681	.607	1.658	.612	1.152	.531	.949	.827	5.639	.001
.131	.149	.579	.774	.222	.266	.456	.506	.084	.077	.011	.023	.213	.149	2.551	.05
1.949	.928	2.397	1.688	.749	.639	1.439	1.114	1.987	.731	1.424	.359	2.404	1.024	4.837	.001
.002	.008	.004	.013	.030	.084	.267	.505	.000	.000	.000	.000	.040	.060	2.121	.10
1.258	.535	2.006	1.430	1.157	.585	.485	.336	.823	.101	1.360	.161	2.104	.879	2.870	.01
14.297	3.323	8.668	5.446	14.050	8.715	7.095	3.892	12.180	3.117	14.492	1.273	15.518	6.881	4.111	.001
16.599	3.660	18.369	3.366	9.309	3.639	11.602	3.262	18.435	1.028	15.015	1.779	15.038	4.757	7.854	.001
3.557	2.879	2.145	1.703	3.280	2.455	4.057	3.364	3.571	.783	2.080	1.115	2.468	2.001	12.569	.001
2.279	2.089	6.82	3.609	8.271	1.489	8.498	8.796	6.311	2.022	5.343	5.082	3.888	3.355	3.154	.05
.081	.110	.086	.091	.364	.359	.045	.081	.074	.085	.000	.000	.033	.050	2.400	.05
.277	.551	3.780	7.860	.139	.182	.141	.167	.883	.666	.150	.150	.110	.148	1.833	NS
.283	.170	.639	.356	.398	.288	.558	.612	.341	.222	.425	.120	.701	.497	2.281	.05
3.575	2.727	3.873	5.097	.679	.828	.770	.671	1.329	.353	.804	.451	.669	.268	3.745	.001
2.232	.609	5.362	3.027	2.916	1.474	3.199	1.876	2.841	.634	3.752	.813	5.334	2.357	2.740	.05
3.284	2.113	3.582	2.218	2.821	2.901	5.044	3.548	2.196	.620	4.093	.984	6.869	3.026	.775	NS
1.750	.541	3.295	1.717	.857	.961	2.041	2.533	3.417	.611	5.717	1.352	1.823	.967	10.064	.001
.053	.111	.051	.080	.359	.797	2.392	4.196	.000	.000	.000	.000	.137	.223	3.143	.01
.020	.056	.428	.605	.004	.012	.000	.000	.012	.023	.025	.029	.051	.137	3.816	.001
.064	.104	.077	.096	.043	.096	.007	.019	.058	.086	.025	.029	.019	.044	1.829	.10
.071	.120	.167	.247	.309	.811	.032	.074	.000	.000	.381	.456	.054	.121	2.342	.05
.074	.074	.089	.108	.031	.043	.085	.190	.000	.000	.085	.106	.102	.119	2.292	.05
.815	.446	.806	.367	.169	.191	1.698	1.858	1.589	.840	.176	.174	.850	.899	4.352	.001
.004	.015	.005	.017	.000	.000	.006	.016	.000	.000	.013	.026	.079	.155	2.186	.05
.074	.085	.104	.109	.122	.105	.023	.036	.146	.085	.058	.059	.198	.254	2.351	.05
14.475	3.589	5.604	2.419	15.523	5.47	11.007	9.545	9.646	2.281	11.165	1.954	8.356	3.726	7.688	.001
5.338	3.892	8.22	13.39	1.426	1.844	1.089	.853	2.29	.704	.881	.449	.823	.325	2.318	.05
.484	.242	1.709	.766	.901	.564	1.197	.999	.486	.262	.537	.258	.970	.606	3.689	.001

REC		EB					HSPV		HSPNV			
X	SD	X	SD	F Ratio	P	Fall Range Tests* (| = NHSPV)	X	SD	X	SD	T	P
.847	.297	2.622	1.787	4.164	.001	UK, RE, BC, UP, ED, UF, FW, UA, UO, HS, EB	1.82	1.48	1.67	1.41	.673	--
.729	.278	1.503	.822	4.550	.001	UK, BC, RE, ED, UP, EB, UA, FW, UF, UO, HS	1.44	1.26	1.42	1.32	.125	--
.095	.054	.135	.144	2.454	.05	UK, UO, HS, ED, UP, UF, BC, FW, RE, UA, EB	.06	.08	.05	.11	.208	--
.683	.346	.734	.511	29.890	.001	BC, UA, RE, EB, ED, UF, FW, HS, UK, UO, UP	1.74	1.63	1.42	1.20	1.407	.10
.698	1.040	2.205	1.031	8.961	.001	BC, FW, ED, UO, UF, UA, UK, UP, EB, HS, RE	1.35	1.11	1.33	1.30	.118	--
.152	.531	.949	.827	5.639	.001	UO, BC, UF, ED, FW, EB, RE, HS, UK, UA, UP	.87	.81	.61	.71	2.182	.05
.011	.023	.213	.149	2.551	.05	BC, RE, UP, FW, UK, UO, EB, UF, UA, ED, HS	.24	.37	.11	.17	2.669	.005
.421	.359	2.704	1.024	4.837	.001	BC, UO, UF, FW, RE, ED, UK, UP, UA, HS, EB	1.52	1.21	.97	.84	3.309	.005
.000	.000	.040	.060	2.121	.10	RE, UP, UO, UK, HS, UF, EB, BC, UA, FW, ED	.05	.17	.03	.09	1.215	--
.360	.161	2.104	.879	2.870	.01	ED, UO, UP, UF, UK, RE, FW, BC, HS, EB, UA	1.39	1.03	1.13	.79	1.823	.05
4.492	1.273	15.518	6.861	4.111	.001	UO, ED, HS, UP, UF, UK, RE, EB, FW, UA, BC	13.48	7.80	13.90	9.18	.323	--
5.016	1.779	15.038	4.557	7.854	.001	UF, BC, FW, ED, UO, UA, RE, EB, UK, HS, UP	13.29	6.08	11.45	4.61	2.428	.01
.080	1.115	2.468	2.001	12.569	.001	BC, RE, HS, FW, UA, EB, UP, UK, UF, ED, UO	3.54	3.74	3.15	3.47	.677	--
.343	5.082	3.868	3.355	2.158	.05	BC, UK, UO, FW, EB, UA, RE, UP, HS, UF, ED	5.05	4.40	7.59	5.72	3.315	.005
.000	.000	.033	.050	2.400	.05	RE, BC, EB, ED, UP, UK, HS, UA, UO, FW, UF	.14	.22	.13	.22	.217	--
.150	.150	.110	.148	1.633	NS	UO, EB, UF, ED, RE, UA, UK, UP, FW, BC, HS	.80	2.84	.93	2.99	.302	--
.425	.120	.701	.497	2.281	.05	UK, BC, UP, UF, RE, UA, ED, HS, UO, EB, FW	.54	.53	.43	.45	1.457	.10
.604	.451	.669	.268	3.745	.001	UO, UA, RE, EB, UF, ED, UP, UK, HS, BC, FW	2.10	3.29	2.03	2.84	.141	--
.752	.813	5.334	2.337	2.740	.05	UO, UK, UP, UF, ED, RE, FW, EB, HS, UA, BC	3.80	2.74	2.98	2.21	2.091	.05
.093	.984	6.869	3.026	.775	NS	UP, UF, UK, HS, RE, FW, UA, BC, ED, UO, EB	4.39	3.25	4.10	2.57	.608	--
.717	1.352	1.823	.967	10.084	.001	UO, UF, BC, UK, EB, UA, ED, FW, HS, UP, RE	2.10	1.62	1.53	1.32	2.435	.01
.000	.000	.137	.223	3.143	.01	RE, UP, UO, UA, HS, UK, FW, EB, BC, UF, ED	.45	1.55	.13	.42	1.659	.05
.025	.029	.051	.137	3.816	.001	ED, UF, UA, UP, UK, RE, BC, UO, FW, EB, HS	.07	.24	.08	.23	.353	--
.025	.029	.019	.044	1.829	.10	BC, ED, EB, RE, UF, UO, UA, UP, UK, HS, FW	.05	.10	.03	.09	1.399	.10
.381	.456	.054	.121	2.342	.05	UP, UO, ED, BC, UA, EB, UK, HS, UF, RE, FW	.22	.76	.09	.17	1.390	.10
.085	.106	.102	.119	2.292	.05	UP, BC, UO, UF, UK, RE, ED, HS, EB, UA, FW	.09	.16	.06	.11	1.114	--
.178	.174	.850	.899	4.352	.001	UF, RE, FW, UO, HS, UK, EB, BC, UA, UP, ED	.73	.82	1.31	2.02	2.560	.01
.013	.026	.079	.155	2.186	.05	UP, UF, UK, HS, ED, FW, BC, RE, UA, UO, EB	.02	.07	.01	.02	1.347	.10
.058	.059	.198	.254	2.351	.05	UO, ED, RE, BC, UA, UK, HS, UF, FW, UP, EB	.09	.12	.11	.15	.953	--
1.165	1.954	8.356	3.726	7.686	.001	UO, HS, EB, UP, ED, RE, UA, UK, UF, FW, BC	12.42	8.64	12.90	6.92	.351	--
.891	.449	.823	.325	2.318	.05	UO, EB, RE, ED, UF, UA, UP, UK, BC, FW, HS	3.42	6.10	3.50	5.79	.090	--
.537	.258	.970	.606	3.689	.001	UK, UP, BC, RE, UF, EB, UO, UA, ED, FW, HS	1.00	.85	.74	.69	2.116	.05

Variables		FW		UA		BC		UO		U
No.	Name	X̄	SD	X̄	SD	X̄	SD	X̄	SD	X̄
6	Adult/child ratio	.233	.083	.217	.098	.267	.061	.109	.053	.194
7	Length of school day	2.583	.996	4.00	.000	4.455	2.505	4.375	1.768	5.417
8	Number of COPs for class	20.333	4.793	34.750	4.528	20.091	2.914	29.375	8.363	34.417
9	Activity A (snack, lunch)	.208	.100	.134	.089	.165	.114	.057	.043	.111
10	Activity B (grouptime, sharing, rest, story, singing, dancing)	.393	.133	.482	.173	.234	.114	.189	.235	.318
11	Activity C (numbers, alphabet, reading, language development)	.253	.099	.268	.146	.274	.242	.791	.150	.360
12	Activity D (finding out about people And How they live; finding out about the natural world)	.240	.212	.170	.161	.333	.286	.092	.103	.077
13	Activity E (table games, guessing games, working puzzles)	.260	.119	.202	.140	.467	.254	.097	.121	.138
14	Activity F (arts, crafts, cooking, sewing, pounding)	.364	.175	.269	.141	.871	.207	.188	.171	.158
15	Activity G (blocks, trucks, dolls, dress-up, water play)	.215	.132	.120	.085	.275	.125	.104	.111	.040
16	Active play	.135	.110	.028	.029	.091	.106	.059	.051	.079
18	Adult with small group	1.158	.411	1.518	.453	1.529	.372	1.383	.322	1.732
19	Adult with large group	.399	.168	.432	.202	.431	.298	.261	.212	.374
20	Adult with 1 or 2 children in academic activities (C and D)	.406	.321	.215	.127	.610	.551	.072	.102	.023
21	Adult with small group in academic activities	.171	.128	.485	.212	.146	.147	1.068	.186	1.124
22	Adult with large group in academic activities	.039	.060	.017	.029	.029	.038	.034	.063	.017
23	Academic activities	.308	.127	.469	.200	.348	.287	1.090	.135	1.089
24	Wide variety of activities	2.437	.391	1.915	.310	3.786	1.444	1.897	.820	1.615
25	Independent child activity	1.358	.552	1.401	.473	2.663	1.079	.865	.654	.651
26	Adult with 1 or 2 children	.090	.091	.071	.052	.294	.308	.019	.027	.038
27	Aides' participation in academic activities	.084	.088	.121	.075	.037	.049	.336	.355	.569
28	Groups of 1 child	.871	.307	.485	.178	1.373	.708	.315	.369	.253
30	Small groups	1.175	.405	1.806	.518	1.648	.441	1.507	.388	1.765
31	Large groups	.422	.163	.456	.180	.469	.235	.295	.243	.389
	Adults without children:									
32	Classroom management	.542	.181	.494	.224	.691	.223	.484	.474	1.333
33	Observing	.568	.386	.282	.098	.201	.238	.574	.364	.520
34	Out of the room	.829	.549	.400	.245	.141	.166	.133	.102	.504
35	Other	.217	.305	.268	.153	.145	.252	.059	.122	.181
36	Aide's participation in all activities	.185	.279	.074	.057	.005	.015	.034	.088	.097
40	Adult informing child	3.064	1.829	1.959	.483	3.843	3.021	7.579	3.129	1.923
41	Adult direct request to child	3.466	1.361	4.939	1.485	3.409	2.200	11.014	3.828	7.401
42	Child response to adult direct request	2.570	1.011	3.823	1.136	2.750	1.694	9.820	3.522	6.225
43	Adult corrective feedback to child response	.123	.134	.258	.128	.235	.345	1.278	.583	.910
44	Adult acknowledgment to child response	.141	.131	.326	.314	.206	.227	1.850	1.307	.675
45	Adult praise to child response	.273	.247	.182	.206	.134	.320	1.784	.915	1.273
46	Adult direct request followed by child response followed by adult corrective feedback	.056	.064	.148	.110	.170	.241	1.091	.589	.781
47	Adult direct request followed by child response followed by adult acknowledgment	.144	.166	.088	.082	.083	.237	1.669	.852	1.132
48	Adult direct request followed by child response followed by adult praise	.091	.125	.155	.115	.100	.123	1.694	1.231	.553

Means for CCL variables = total occurrence/NCOP.
Means for FMO variables = total occurrence x 60/NFRM.

Sponsor performance on each variable ranked in order of increased magnitude of means (——). Underlining indicates subjects of no significant di

Appendix E-2

MEANS, STANDARD DEVIATIONS, AND RANGE TESTS OF HEAD START PROGRAM SPONSORS AND NON-SPONSORED COMPARISON PROGRAMS ON CLASSROOM OBSERVATION VARIABLES
Spring 1971

	UK		HS		UF		ED		UP		REC		EB			
SD	X̄	SD	X̄	SD	X̄	SD	X̄	SD	X̄	SD	X̄	SD	X̄	SD	F Ratio	P
053	.194	.085	.202	.053	.142	.138	.198	.119	.224	.033	.218	.063	.224	.072	2.3705	.05
,768	5.417	1.782	3.333	1.723	4.571	4.276	5.333	1.969	3.000	.000	2.00	.000			2.8121	.03
.393	34.417	8.702	21.583	3.204	25.714	5.282	23.000	7.148	20.000	2.000	23.000	1.155			9.3522	.00
043	.111	.054	.189	.088	.290	.078	.241	.102	.178	.059	.165	.060	.185	.108	5.0281	.00
835	.318	.099	.446	.149	.354	.120	.284	.133	.401	.205	.366	.158	.193	.140	3.5336	.01
150	.360	.104	.112	.144	.082	.046	.154	.165	.356	.111	.221	.145	.118	.095	13.8822	.00
103	.077	.122	.092	.075	.068	.129	.172	.108	.255	.118	.142	.131	.160	.107	2.6832	.05
121	.128	.075	.224	.136	.213	.091	.121	.140	.154	.080	.333	.098	.244	.165	6.0423	.00
171	.156	.100	.324	.118	.257	.150	.234	.206	.338	.078	.302	.118	.405	.268	8.8319	.00
111	.040	.040	.073	.074	.073	.078	.160	.114	.237	.067	.033	.043	.162	.162	6.6895	.00
051	.079	.071	.117	.115	.039	.010	.199	.221	.163	.090	.077	.065	.214	.274	1.0405	.10
122	1.732	.702	1.168	.533	1.319	.362	1.047	.632	1.221	.422	1.194	.096	1.256	.410	1.9965	.10
112	.374	.107	.667	.325	.577	.347	.890	.452	.476	.365	.446	.113	.542	.427	4.1883	.00
102	.023	.027	.100	.127	.063	.086	.181	.143	1.444	.458	.374	.263	.156	.165	13.9396	.00
186	1.124	.423	.066	.074	.094	.130	.142	.116	.083	.098	.288	.154	.208	.193	38.6357	.00
163	.017	.046	.059	.087	.039	.029	.131	.151	.000	.000	.087	.037	.047	.046	2.4107	.05
135	1.089	.416	.128	.183	.095	.077	.215	.198	.842	.339	.585	.378	.162	.120	20.7212	.00
120	1.615	.307	1.935	.484	1.559	.275	1.753	.683	2.658	.728	2.180	.550	2.173	1.035	9.1360	.00
154	.651	.336	1.075	.784	.941	.810	1.171	.800	2.478	1.240	1.565	.579	1.661	1.087	7.2132	.00
127	.038	.045	.072	.090	.069	.085	.083	.064	.323	.145	.075	.053	.069	.099	4.9209	.00
155	.569	.196	.040	.072	.012	.021	.054	.055	.148	.159	.021	.042	.052	.103	16.6076	.00
169	.253	.165	.516	.613	.288	.222	.490	.415	2.854	1.220	.907	.518	.772	.778	13.8334	.00
186	1.765	.721	1.212	.534	1.319	.362	1.063	.625	1.221	.422	1.205	.097	1.295	.420	2.2471	.05
143	.389	.113	.675	.318	.577	.347	.905	.455	.476	.365	.446	.113	.595	.412	3.9780	.00
174	1.333	.611	.608	.223	.839	.258	.599	.289	.628	.373	.463	.212	.347	.265	3.6765	.00
164	.520	.175	.309	.128	.440	.245	.729	.366	.478	.168	.648	.141	.373	.410	3.9986	.00
102	.504	.168	.605	.459	.378	.392	.765	.343	.187	.040	.685	.177	.338	.315	5.3574	.00
122	.181	.134	.163	.208	.140	.103	.284	.183	.012	.024	.165	.099	.130	.140	1.2277	—
188	.097	.131	.020	.039	.268	.279	.241	.223	.000	.000	.152	.121	.004	.014	3.1443	.01
129	1.923	1.479	3.405	2.266	1.525	.829	2.806	2.609	1.926	1.118	1.420	.638	2.978	1.485	5.8612	.00
828	7.402	3.488	5.049	3.546	4.608	2.797	6.392	2.770	4.035	1.451	8.199	2.460	6.854	1.455	6.3293	.00
212	6.225	3.912	3.650	2.661	3.903	2.296	4.196	1.790	3.083	1.038	6.674	1.995	5.060	.976	7.3429	.00
83	.910	.563	.204	.150	.269	.234	.268	.205	.182	.134	.829	.467	.819	.397	12.0106	.00
307	.675	.526	.537	.417	.458	.518	.403	.467	.853	.224	2.925	1.048	1.007	.637	13.6866	.00
15	1.273	.730	.267	.238	.259	.168	.427	.351	1.014	.534	.293	.156	.913	.525	13.4598	.00
99	.781	.628	.111	.111	.195	.172	.157	.121	.133	.156	.896	.412	.384	.221	10.7074	.00
92	1.132	.727	.159	.154	.194	.124	.243	.283	.818	.338	.157	.139	.673	.394	15.5829	.00
331	.553	.513	.309	.322	.318	.376	.216	.284	.616	.193	1.934	.710	.746	.464	12.3811	.00

no significant difference as determined by multiple range test Newman/Keuls Method ($p < .05$).

REC		EB					HSPV		HSNPV			
$\bar{X}$	SD	$\bar{X}$	SD	F Ratio	P	Spring Range Tests* (1 = NHSPV)	$\bar{X}$	SD	$\bar{X}$	SD	T	P
.218	.063	.224	.072	2.3705	.05	UO, UF, UK, ED, HS, UA, RE, EB, UP, FW, BC	.20	.09	.15	.09	3.643	.005
2.00	.000			2.8121	.05							
23.000	1.155			9.3522	.001							
.165	.060	.185	.108	5.0287	.001	UO, UK, UA, RE, UP, EB, HS, FW, BC, ED, UF	.18	.10	.20	.13	1.274	--
.366	.158	.193	.140	3.5338	.01	UO, EB, ED, BC, UK, UF, RE, FW, UP, HS, UA	.33	.17	.36	.15	1.307	.10
.321	.145	.118	.095	13.8822	.001	UF, HS, EB, BC, ED, FW, UA, RE, UP, UK, UO	.26	.23	.17	.16	2.854	.005
.142	.131	.160	.107	2.6832	.05	UF, UK, HS, UO, RE, BC, EB, UA, ED, FW, UP	.16	.17	.18	.17	.201	--
.333	.098	.244	.165	6.0423	.001	UO, ED, UK, UP, UA, UF, HS, EB, FW, BC, RE	.22	.17	.20	.19	.658	--
.302	.118	.405	.268	8.8319	.001	UK, UO, ED, UF, UA, RE, HS, UP, FW, EB, BC	.32	.22	.30	.21	.597	--
.033	.043	.162	.162	6.6895	.001	RE, UK, UF, HS, UO, UA, ED, EB, FW, UP, BC	.14	.13	.12	.10	.779	--
.077	.065	.214	.274	1.0405	.10	UA, UF, UO, RE, UK, BC, HS, FW, UP, ED, EB	.12	.15	.12	.12	.417	--
1.194	.096	1.256	.410	1.9965	.10	ED, FW, HS, RE, UP, EB, UF, UO, BC, UA, UK	1.33	.51	1.07	.66	2.712	.005
.446	.113	.542	.427	4.1883	.001	UO, UK, FW, UA, BC, RE, UP, EB, UF, HS, ED	.51	.34	.73	.39	3.604	.005
.374	.263	.156	.165	13.9396	.001	UK, UF, UO, HS, EB, ED, UA, BC, RE, FW, UP	.27	.35	.18	.32	1.412	.10
.288	.154	.208	.193	28.6357	.001	HS, UP, UF, BC, ED, FW, EB, RE, UA, UO, UK	.36	.43	.16	.19	3.414	.005
.087	.037	.047	.046	2.4107	.05	UP, UA, UK, BC, FW, UF, EB, UO, HS, RE, ED	.05	.08	.09	.11	2.425	.01
.583	.376	.162	.120	20.7212	.001	UF, HS, EB, ED, BC, FW, UA, RE, UP, UK, UO	.45	.42	.22	.21	3.789	.005
2.180	.550	2.173	1.035	9.1360	.001	UF, UK, ED, UO, UA, HS, EB, RE, FW, UP, BC	2.17	.95	1.99	1.15	1.032	--
1.565	.579	1.661	1.087	7.2132	.001	UK, UO, UF, HS, ED, FW, UA, RE, EB, BC, UP	1.38	.94	1.36	1.20	.123	--
.075	.053	.069	.099	4.9209	.001	UO, UK, EB, UF, UA, HS, RE, ED, FW, BC, UP	.10	.15	.11	.21	.444	--
.021	.042	.052	.103	16.6076	.001	UF, BC, RE, HS, EB, ED, FW, UA, UP, UO, UK	.14	.22	.04	.06	3.515	.005
.907	.516	.772	.778	13.8334	.001	UK, UF, UO, UA, ED, HS, FW, EB, RE, BC, UP	.70	.74	.60	.65	.840	--
1.205	.097	1.295	.420	2.2171	.05	ED, FW, RE, HS, UP, EB, UF, UO, UA, BC, UK	1.37	.53	1.13	.74	2.351	.05
.446	.113	.595	.412	3.9780	.001	UO, UK, FW, RE, UA, UP, BC, UF, EB, HS, ED	.54	.33	.75	.40	3.584	.005
.483	.212	.347	.265	3.6765	.001	EB, RE, UO, UA, FW, BC, ED, HS, UP, UF, UK	.63	.38	.54	.45	1.389	.10
.649	.141	.373	.410	3.9986	.001	UA, BC, HS, EB, UF, UP, UK, FW, UO, RE, ED	.46	.31	.55	.46	1.413	.10
.665	.177	.338	.315	5.3574	.001	UO, BC, UP, EB, UF, UA, UK, HS, RE, ED, FW	.48	.39	.46	.39	.210	--
.165	.099	.130	.140	1.2277	--	UP, UO, EB, UF, HS, RE, UK, BC, FW, ED, UA	.17	.19	.15	.17	.743	--
.132	.121	.004	.014	3.1443	.01	UP, BC, EB, HS, UO, UA, UK, RE, FW, ED, UF	.10	.17	.06	.11	1.525	.10
1.430	.638	2.978	1.485	5.6612	.001	RE, UF, UK, UP, UA, ED, EB, FW, HS, BC, UO	3.07	2.46	3.72	3.29	1.411	.10
8.199	2.460	6.854	1.455	6.3293	.001	FW, UP, BC, UF, UA, HS, ED, EB, UK, RE, UO	5.84	3.28	5.39	3.65	.787	--
6.674	1.995	5.060	.976	7.3429	.001	FW, UP, BC, HS, UA, UF, ED, EB, UK, RE, UO	4.57	2.92	4.43	3.41	.255	--
.829	.467	.539	.397	12.0108	.001	FW, UP, HS, UA, ED, UF, BC, EB, RE, UK, UO	.44	.48	.39	.47	.645	--
2.925	1.048	1.007	.637	13.6866	.001	FW, BC, UA, ED, UF, HS, UK, UP, EB, UO, RE	.69	.84	.64	.88	.401	--
.203	.156	.913	.525	13.4598	.001	UA, RE, BC, UF, HS, FW, ED, EB, UP, UK, UO	.60	.68	.32	.31	2.991	.005
.696	.412	.384	.221	10.7074	.001	FW, HS, UP, UA, ED, UF, BC, EB, RE, UK, UO	.34	.44	.32	.46	.238	--
.137	.139	.673	.394	15.5829	.001	UA, BC, FW, RE, HS, UF, ED, UP, EB, UK, UO	.47	.62	.24	.28	2.605	.01
1.934	.710	.746	.464	12.3811	.001	FW, UA, BC, ED, HS, UF, UK, UP, EB, UO, RE	.50	.69	.52	.79	.150	--

Variables		FW		UA		BC		UO		
No.	Name	X	SD	X	SD	X	SD	X	SD	X
49	Adult choice request to child	1.003	.758	2.111	1.876	.470	.785	.135	.244	.409
50	Child response to adult choice request	.809	.664	1.703	1.580	.334	.557	.114	.189	.349
51	Extended child response to adult choice request question	.087	.071	.215	.141	.017	.043	.003	.009	.016
52	Adult praise to child	.987	.672	.635	.477	.334	.432	2.163	.958	2.689
53	Adult acknowledgment to child	.592	.432	1.068	.670	.478	.527	2.099	1.406	1.[illegible]
54	Adult positive corrective feedback to child	.192	.238	1.266	.968	.524	.603	.196	.190	1.483
55	Adult negative corrective feedback to child	.031	.053	.053	.051	.248	.345	.827	.265	.363
56	All adult corrective feedback to child	.436	.315	1.435	.903	.984	1.139	2.648	.692	2.331
58	All child self-instruction	.071	.133	.329	.294	.004	.015	.018	.034	.033
60	Child asking questions of adults	.809	.592	1.355	.521	1.079	.931	.584	.228	1.090
61	Child self-expression, general comments	21.070	5.054	21.892	5.067	19.520	10.307	8.108	7.580	16.481
62	Adult interaction with 1 or 2 children	11.028	4.367	11.774	3.037	9.234	8.218	11.098	1.934	10.609
63	Adult interaction with small group	3.073	1.603	2.556	1.166	1.832	1.724	17.313	8.660	1.849
64	Adult interaction with large group	4.656	2.729	4.173	1.927	3.327	3.399	1.095	1.311	3.027
65	Adult negative behavior	.247	.393	.083	.086	.144	.267	.149	.181	.037
66	Adult positive behavior	.751	1.015	.149	.127	.820	1.370	.363	.302	.207
67	Child negative behavior	.965	.833	.458	.348	.992	1.139	.362	.406	.286
68	Child positive behavior	3.815	4.704	.817	.418	8.300	13.664	1.174	.844	2.337
69	Child initiates interaction with adult	5.562	3.506	3.157	.795	3.214	3.552	2.170	.954	1.850
70	Child initiates interaction with other child	5.798	2.500	6.701	1.278	2.794	1.793	2.779	2.604	2.552
71	Child non-verbal	1.775	.945	2.412	.785	1.195	1.397	1.416	1.162	1.596
72	Child cooperates with other children	.087	.119	.000	.000	6.204	9.200	.072	.075	.020
73	Adult to child positive touch	.004	.015	.007	.013	.087	.239	.003	.009	.003
74	Adult to child negative touch	.078	.186	.028	.045	.041	.087	.004	.011	.035
75	Child gives positive touch	.795	1.729	.062	.078	.153	.270	.007	.021	.033
76	Child gives negative touch	.291	.381	.041	.038	.204	.316	.037	.070	.077
77	Adult helps child	1.179	1.441	.257	.134	.391	.413	.197	.155	.719
78	Adult refuses, rejects child	.000	.000	.023	.048	.017	.056	.022	.041	.004
79	Child refuses, rejects adult	.100	.127	.162	.176	.104	.146	.033	.071	.053
80	Child interacts with machine	13.583	7.623	11.787	3.532	23.821	18.953	5.835	4.316	12.391
81	All motion	1.837	1.306	4.556	1.197	2.489	2.262	1.611	.750	3.137
82	All positive behavior	8.059	7.872	1.671	1.315	9.143	14.585	1.785	1.298	2.907
83	All negative behavior	1.268	1.175	.584	.411	1.485	1.813	2.080	1.484	.590

Appendix E-2 (Concluded)

UO	UK		HS		UF		ED		UP		REC		EB		
SD	X̄	SD	X̄	SD	X̄	SD	X̄	SD	X̄	SD	X̄	SD	X̄	SD	F Ratio
.244	.409	.307	1.748	.839	1.064	.368	1.518	1.278	1.989	.722	1.712	.844	.355	.330	4.8628
.189	.349	.255	1.287	.781	.918	.315	1.148	1.053	1.792	.746	1.350	.702	.313	.298	4.2965
.009	.016	.029	.042	.061	.057	.049	.010	.024	.317	.152	.093	.068	.005	.016	19.7830
.958	2.689	1.173	1.204	1.019	.559	.293	1.037	.601	3.985	1.159	.644	.257	1.418	.903	14.0434
1.406	1.035	.619	1.081	.556	.713	.499	.920	.782	2.036	.288	3.460	1.037	1.892	1.384	9.2024
.190	1.483	.698	.337	.251	.938	.691	.440	.377	.521	.246	1.207	.539	1.292	1.330	7.5509
.265	.263	.455	.198	.166	.291	.250	.366	.379	.064	.061	.085	.088	.178	.199	2.6531
.692	2.371	.687	.942	.449	1.353	.994	1.635	1.223	.883	.420	1.467	.846	1.905	1.735	6.3945
.034	.033	.058	.000	.000	.000	.000	.059	.157	2.612	1.679	.000	.000	.000	.000	33.8647
.228	1.090	.436	1.109	.422	.855	.533	1.126	.724	1.177	.536	1.601	.345	1.237	.631	1.5703
7.580	16.481	4.072	21.521	11.517	26.580	7.258	15.264	6.415	15.429	1.721	13.253	3.409	18.444	11.663	3.8994
1.934	16.609	3.518	12.877	7.038	8.254	3.203	11.723	3.977	13.703	1.804	15.840	4.581	11.939	5.061	2.4230
8.660	1.949	.693	2.882	3.248	2.756	3.150	3.562	1.760	2.895	1.097	2.124	1.037	3.616	3.049	17.4023
1.311	3.027	1.676	6.073	2.675	3.901	2.241	5.826	5.022	5.481	1.855	5.500	1.250	3.583	2.329	2.5075
.181	.037	.036	.017	.037	.253	.347	.221	.191	.078	.084	.034	.043	.146	.220	1.6003
.202	.207	.201	.687	.753	.138	.099	.497	.822	2.744	.649	.174	.038	1.152	2.139	4.9303
.406	.286	.260	.423	.412	.302	.109	.386	.361	.346	.212	.352	.129	.643	.598	2.1886
.844	2.327	1.879	4.781	5.104	.888	.588	1.733	1.740	2.096	.851	.331	.220	10.775	14.562	1.8191
.954	1.880	1.000	8.300	2.394	2.891	1.429	3.840	2.066	4.528	.503	4.520	.626	3.714	2.621	7.7099
3.604	2.552	2.138	1.404	2.472	6.739	3.626	3.744	2.998	3.893	.557	2.951	.693	3.832	2.017	4.3590
1.162	1.596	1.313	1.856	1.157	1.553	.585	2.977	2.178	2.343	.830	4.645	1.115	2.221	1.790	3.5931
.075	.020	.054	.174	.213	.000	.000	.088	.123	.025	.049	.000	.000	.000	.000	3.4219
.009	.003	.010	.008	.018	.014	.033	.031	.098	.220	.257	.057	.044	.031	.068	2.1572
.011	.035	.046	.020	.054	.041	.087	.099	.147	.025	.028	.115	.199	.037	.066	.8940
.021	032	.066	.015	.032	.052	.074	.098	.183	.030	.060	.057	.055	.492	.973	1.5064
.070	.077	.071	.058	.094	.035	.047	.091	.118	.015	.030	.074	.090	.065	.087	3.0893
.155	.719	.636	1.106	1.239	.158	.171	.844	.918	1.459	.680	.300	.193	.305	.293	2.2761
.041	.004	.015	.011	.025	.030	.055	.008	.019	.000	.000	.011	.022	.000	.000	.7100
.071	.053	.058	.069	.110	.082	.067	.105	.177	.072	.114	.442	.265	.047	.065	3.3890
4.318	12.391	7.325	10.200	6.883	18.743	8.477	8.859	6.561	10.832	3.390	10.165	3.707	13.566	13.372	3.1217
.750	3.137	2.410	.732	.699	1.191	.396	3.945	4.031	1.770	1.201	.498	.493	3.974	6.045	3.6511
1.298	2.907	2.516	5.515	5.534	1.162	.731	2.357	2.693	5.067	1.128	.842	.438	12.136	16.061	1.6019
1.484	.390	.689	.836	.706	.813	.516	1.365	1.302	.447	.219	.449	.146	1.090	1.133	2.0418

UP	REC		EB					HSPV		HSNPV			
SD	X	SD	X	SD	F Ratio	P	Spring Range Tests* ( ) = NHSPV)	X	SD	X	SD	T	P
.722	1.712	.844	.355	.330	4.8628	.001	UO, EB, UK, BC, FW, UP, ED, RE, HS, UP, UA	1.04	1.06	.91	1.05	.789	--
.746	1.350	.702	.313	.296	4.2965	.001	UO, EB, UK, BC, FW, UP, ED, HS, RE, UA, UP	.83	.87	.72	.85	.744	--
.152	.093	.068	.005	.016	13.7530	.001	UO, EB, ED, UK, BC, HS, UP, FW, RE, UA, UP	.06	.10	.05	.08	.621	--
1.159	.644	.257	1.418	.903	14.0434	.001	BC, UP, UA, RE, FW, ED, HS, EB, UO, UK, UP	1.34	1.17	.78	.68	3.332	.005
.286	3.460	1.037	1.892	1.384	9.2024	.001	FW, UP, BC, ED, UK, UA, HS, EB, UP, UO, RE	1.21	1.04	.97	1.03	1.398	.10
.246	1.207	.559	1.292	1.330	7.5309	.001	FW, UO, HS, ED, UP, BC, UP, RE, UA, EB, UK	.74	.79	.51	.59	1.893	.05
.061	.085	.088	.178	.199	2.6531	.05	FW, UA, UP, RE, EB, HS, UK, UP, ED, BC, UO	.22	.29	.34	.44	2.103	.05
.420	1.467	.846	1.905	1.735	6.3945	.001	FW, UP, HS, UP, UA, RE, BC, ED, EB, UK, UO	1.46	1.13	1.24	.85	1.289	--
1.679	.000	.000	.000	.000	23.8647	.001	EB, RE, UP, HS, BC, UO, UK, ED, FW, UA, UP	.15	.59	.18	.47	.273	--
.536	1.601	.345	1.237	.631	1.5702	--	UO, FW, UP, UK, HS, ED, UP, EB, UA, RE, BC	1.07	.60	.94	.71	1.156	--
1.721	13.253	3.409	18.444	11.663	3.8994	.001	UO, RE, ED, UP, UK, EB, FW, HS, UA, BC, UP	18.32	8.73	19.78	9,38	.980	--
1.804	15.840	4.581	11.939	5.061	2.4230	.05	UP, FW, UO, ED, UA, EB, HS, BC, UP, RE, UK	12.07	5.22	9.94	5.21	2.453	.01
1.097	2.124	1.037	3.616	3.049	17.4033	.001	UK, RE, UA, UP, BC, HS, UP, FW, ED, EB, UO	3.92	4.98	3.41	4.50	.643	--
1.855	5.300	1.250	3.583	2.329	2.5073	.05	UO, BC, UK, EB, UP, UA, FW, UP, RE, ED, HS	4.20	3.04	3.01	4.35	3.054	.005
.084	.034	.043	.146	.220	1.6003	--	HS, RE, UK, UP, UA, EB, UO, ED, BC, FW, UP	.13	.32	.12	.22	.258	--
.649	.174	.038	1.152	2.139	4.9303	.001	UP, UA, RE, UK, UO, ED, HS, FW, EB, BC, UP	.64	1.09	.83	1.15	1.035	--
.212	.352	.129	.643	.598	2.1886	.05	UK, UP, UP, RE, UO, ED, HS, UA, EB, FW, BC	.54	.61	.54	.64	.061	--
.651	.331	.220	10.775	14.582	1.8191	.10	RE, UA, UP, UO, ED, UP, UK, FW, HS, EB, BC	3.90	7.51	3.11	4.86	.713	--
.502	4.520	.626	3.714	2.821	7.7099	.001	UK, UO, UP, EB, ED, RE, UP, BC, UA, FW, HS	4.22	2.89	3.37	2.66	1.825	.05
.557	2.951	.693	3.832	2.017	4.3596	.001	UK, UO, RE, ED, BC, EB, UP, HS, FW, UA, UP	4.17	2.57	4.15	3.21	.044	--
.830	4.645	1.115	2.221	1.790	3.5931	.01	UO, UP, UK, FW, HS, BC, EB, UP, UA, ED, RE	2.03	1.49	1.51	1.18	2.282	.05
.049	.000	.000	.000	.000	3.8212	.001	EB, RE, UP, UA, UK, UP, BC, UO, FW, ED, HS	.73	3.47	.90	2.96	.311	--
.237	.057	.044	.031	.068	2.1572	.05	UK, UO, FW, UA, HS, UP, EB, ED, RE, BC, UP	.03	.11	.04	.11	.684	--
.028	.115	.199	.037	.066	.8940	--	UO, HS, UP, UA, UK, EB, UP, BC, FW, ED, RE	.05	.10	.05	.17	.153	--
.000	.057	.055	.492	.973	1.5064	--	UO, HS, UP, UK, UP, RE, UA, ED, BC, EB, FW	.19	.71	.11	.28	.887	--
.030	.074	.090	.065	.087	2.0892	.10	UP, UP, UO, UA, HS, EB, RE, UK, ED, FW, BC	.10	.19	.14	.22	.992	--
.680	.300	.193	.305	.293	2.2761	.05	UP, UO, UA, RE, EB, BC, UK, ED, HS, FW, UP	.65	.86	.85	1.43	1.070	--
.000	.011	.022	.000	.000	.7100	--	EB, UP, FW, UK, ED, HS, RE, UO, UA, BC, UP	.01	.03	.01	.03	.291	--
.114	.442	.265	.047	.065	3.3890	.01	UO, EB, UK, HS, UP, UP, FW, ED, UA, BC, RE	.10	.15	.07	.12	1.246	--
3.390	10.165	3.707	13.566	13.372	3.1277	.01	UO, ED, RE, HS, UP, BC, UA, UK, FW, EB, UP	12.93	10.26	14.68	11.64	.975	--
1.201	.498	.493	3.974	6.045	3.6951	.001	RE, HS, UP, UO, UP, FW, UK, BC, ED, EB, UA	2.51	2.94	1.78	2.18	1.648	.10
1.128	.842	.438	12.136	16.061	1.6019	--	RE, UP, UA, UO, ED, UK, UP, HS, FW, EB, BC	4.91	8.41	4.63	5.76	.223	--
.219	.449	.146	1.090	1.133	2.0412	.10	UP, RE, UA, UK, UP, HS, EB, FW, ED, UO, BC	1.07	1.10	1.37	1.61	1.382	.10

Appendix F

SITE DIFFERENCES AND FALL TO SPRING CHANGES

Variables No.	Name	Fall - All Activities Site 4	Site 5	Site 13	Overall	F Ratio	P	Site
6	Adult/child ratio	.1149	.1859	.2246	.1751	3.0563	.10	.1950
7	Length of school day	1.25	3.000	2.5	2.25	5.0870	.05	1.75
8	Number of COPs for class	19.0	27.25	23.5	23.25	.4995	--	20.50
9	Activity A (snack, lunch)	.2765	.1088	.2553	.2134	6.9248	.05	.2218
10	Activity B (grouptime, sharing, rest, story, singing, dancing)	.2545	.3301	.3205	.3017	.2715	--	.4000
11	Activity C (numbers, alphabet, reading, language development)	.2718	.3282	.0994	.2331	3.4194	.10	.1896
12	Activity D (finding out about people and how they live; finding out about the natural world)	.2531	.2453	.0878	.1954	4.6729	.05	.2347
13	Activity E (table games, guessing games, working puzzles)	.4991	.2703	.2904	.3533	1.8763	--	.2312
14	Activity F (arts, crafts, cooking, sewing, pounding)	.4216	.4872	.3517	.4201	.4810	.05	.4312
15	Activity G (blocks, trucks, dolls, dress-up, water play)	.0776	.3006	.3345	.2376	3.9108	.10	.2139
16	Active play	.0250	.0417	.1348	.0671	3.5086	.10	.2069
18	Adult with small group	1.3405	1.3818	1.6250	1.449	.5621	--	1.247
19	Adult with large group	.4113	.5509	.5529	.5050	.4971	--	.5458
20	Adult with 1 or 2 children in academic activities (C and D)	.5158	.3061	.1036	.3085	9.0431	.01	.4042
21	Adult with small group in academic activities	.1700	.2949	.1651	.2100	.9571	--	.0493
22	Adult with large group in academic activities	.0388	.0926	.0185	.0500	.4605	--	.0389
23	Academic activities	.3231	.4093	.1673	.2999	1.7029	--	.2299
24	Wide variety of activities	3.0091	2.5031	2.2137	2.573	2.4853	--	2.468
25	Independent child activity	2.7561	1.427	.7488	1.644	10.8681	.01	1.773
26	Adult with 1 or 2 children	.1394	.0821	.0634	.1016	1.8724	--	.1361
27	Aides' participation in academic activities	.0776	.1023	.0114	.0638	1.5021	--	.0708
28	Groups of 1 child	1.0351	.3419	.3913	.5894	7.6019	.05	.8333
30	Small groups	1.3530	1.3818	1.625	1.4532	.5283	--	1.247
31	Large groups	.4238	.5509	.5654	.5133	.4604	--	.5458
	Adults without children:							
32	Classroom management	.6186	.6325	.6253	.6255	.0030	--	.5125
33	Observing	.2879	.3065	.7253	.4399	4.7679	.05	.2736
34	Out of the room	.3666	.5473	.3981	.4373	.5077	--	.3528
35	Other	.0507	.0093	.1280	.0626	2.4887	--	.0889
36	Aide's participation in all activities	.000	.0907	.0250	.0386	1.1839	--	.0000
37	Number of frames for this class	1122.25	1590.75	1389.25	1367.42	.4614	--	1187.
40	Adult informing child	2.2738	3.0680	7.6388	4.3269	11.4193	.01	1.152
41	Adult direct request to child	1.8907	3.1836	3.5288	2.8677	8.8602	--	2.203
42	Child response to adult direct request	1.6091	2.0833	2.4888	2.0537	.9212	--	1.846
43	Adult corrective feedback to child response	.1592	.1797	.4200	.2530	3.52	.10	.1544
44	Adult acknowledgment to child response	.2698	.1156	.3201	.2352	2.7262	--	.2044
45	Adult praise to child response	.2656	.7893	.3271	.4607	1.6462	--	.2903
46	Adult direct request followed by child response followed by adult corrective feedback	.0934	.0444	.1359	.0912	.7957	--	.1015
47	Adult direct request followed by child response followed by adult acknowledgment	.0934	.1365	.0955	.1085	.1534	--	.1864

Appendix F

ES WITHIN SPONSORS AND FALL-SPRING DIFFERENCES BY SITE

FAR WEST LABORATORY (FW)

		Spring - All Activities						Fall/Spring Differences							
								Site 4		Site 5		Site 13		Overall Ratio	
Ratio	P	Site 4	Site 5	Site 13	Overall	F Ratio	P	T Score	P	T Score	P	T Score	P	T Score	P
.0563	.10	.1950	.2607	.2445	.2334	.6447	--	2.00	NS	1.62	NS	.29	NS	1.814	.1
.0870	.05	1.75	3.000	3.000	2.5833	2.7778	--	.93	NS	.00	NS	1.73	NS	.796	NS
1995	--	20.50	22.00	18.50	20.333	.4868	--	1.13	NS	.50	NS	1.75	NS	.833	NS
.9248	.05	.2215	.1194	.2845	.2085	4.6114	.05	1.08	NS	.63	NS	.40	NS	.120	NS
1715	--	.4000	.3730	.4048	.3926	.0545	--	1.10	NS	.63	NS	.75	NS	1.585	NS
4194	.10	.1896	.3362	.2330	.2529	3.2819	.10	.88	NS	.09	NS	3.41	.05	.374	NS
6729	.05	.2347	.4492	.0357	.2399	10.2176	.01	.23	NS	2.28	.10	.86	NS	.644	NS
8763	--	.2312	.3405	.2074	.2597	1.5564	--	2.31	.10	.92	NS	.66	NS	1.398	NS
810	.05	.4312	.2611	.3997	.3640	1.0919	--	.08	NS	1.48	NS	.44	NS	.762	NS
9106	.10	.2139	.1624	.2690	.2154	.6175	--	1.56	NS	1.60	NS	.55	NS	.351	NS
5086	.10	.2069	.1388	.0604	.1354	2.1721	--	3.20	.05	1.48	NS	1.38	NS	1.771	.1
621	--	1.2479	1.0333	1.1935	1.1582	.2548	--	.30	NS	1.20	NS	1.43	NS	1.770	.1
971	--	.3458	.4923	.3595	.3992	.9121	--	.46	NS	.32	NS	2.13	.10	1.325	NS
043	.01	.4042	.5968	.2161	.4057	1.5449	--	.64	NS	1.38	NS	1.11	NS	.871	NS
571	--	.0493	.3224	.1408	.1708	27.0160	.001	1.99	.10	.31	NS	.28	NS	.688	NS
605	--	.0389	.0768	.0000	.0386	1.9534	--	.00	NS	.16	NS	1.00	NS	.322	NS
7029	--	.2299	.3721	.3211	.3077	1.3840	--	.75	NS	.29	NS	1.96	.10	.114	NS
4853	--	2.4687	2.5884	2.2539	2.4370	.7128	--	1.51	NS	.33	NS	.12	NS	.689	NS
.8681	.01	1.7736	.9690	1.3318	1.3581	2.8428	--	2.65	.05	.92	NS	2.14	.10	.844	NS
8724	--	.1361	.0386	.0961	.0903	1.1928	--	.35	NS	.84	NS	.60	NS	.323	NS
5021	--	.0708	.0907	.0911	.0842	.0575	--	.10	NS	.17	NS	1.72	NS	.593	NS
8019	.05	.8333	.6110	.5676	.6706	.8383	--	.82	NS	1.40	NS	.88	NS	.544	NS
383	--	1.2479	1.0333	1.2446	753	.3232	--	.33	NS	1.20	NS	1.31	NS	1.705	NS
304	--	.3458	.4923	.4280	.4220	.7751	--	.56	NS	.32	NS	1.53	NS	1.161	NS
030	--	.5125	.6222	.4899	.5415	.8531	--	1.02	NS	.07	NS	.73	NS	1.060	NS
7679	.05	.2736	.9986	.4315	.5679	11.0264	.01	.17	NS	10.45	.01	1.14	NS	.914	NS
077	--	.3528	1.4519	.6815	.8288	14.9362	.01	.09	NS	8.07	.01	1.34	NS	2.235	.05
1887	--	.0889	.0172	.5458	.2173	8.1495	.01	.58	NS	.41	NS	2.41	.10	1.693	NS
1639	--	.0000	.5258	.0286	.1848	20.0861	.001	1	--	3.27	.05	.12	NS	1.732	.1
114	--	1187.50	1298.75	892.0	1126.0833	1.9146	--	.85	NS	.47	NS	2.79	.05	1.138	NS
4193	.01	1.1528	2.7556	5.2844	3.0643	75.0324	.001	2.35	.10	.69	NS	1.69	NS	1.271	NS
1602	--	2.2034	4.1553	4.0405	3.4664	4.0052	.10	.63	NS	1.05	NS	.67	NS	1.151	NS
112	--	1.8465	2.5579	3.3067	2.5704	2.7539	--	.51	NS	.61	NS	1.41	NS	1.316	NS
2	.10	.1544	.1985	.0157	.1229	2.5972	--	.08	NS	.16	NS	3.91	.01	1.959	.1
262	--	.2044	.0411	.1789	.1415	2.1693	--	.86	NS	.97	NS	1.41	NS	1.64	NS
462	--	.2903	.4901	.0389	.2731	7.0578	.05	.12	NS	.89	NS	2.41	.10	1.22	NS
57	--	.1013	.0495	.0157	.0556	2.2056	--	.13	NS	.11	NS	1.83	NS	1.034	NS
34	--	.1864	.2060	.0389	.1438	1.2738	--	.96	NS	.53	NS	.83	NS	.607	NS

ppendix F

AND FALL-SPRING DIFFERENCES BY SITE

LABORATORY (FW)

Spring - All Activities						Fall/Spring Differences							
						Site 4		Site 5		Site 13		Overall Ratio	
Site 4	Site 5	Site 13	Overall	F Ratio	P	T Score	P	T Score	P	T Score	P	T-Score	P
1950	.2607	.2445	.2334	.6447	--	2.00	NS	1.62	NS	.29	NS	.814	.1
.75	3.000	3.000	2.5833	2.7778	--	.93	NS	.00	NS	1.73	NS	.796	NS
0.50	22.00	18.50	20.333	.4868	--	1.13	NS	.50	NS	1.75	NS	.833	NS
2215	.1194	.2845	.2085	4.6114	.05	1.08	NS	.63	NS	.40	NS	.120	NS
4000	.3730	.4048	.3926	.0545	--	1.10	NS	.63	NS	.75	NS	1.585	NS
3896	.3362	.2330	.2529	3.2819	.10	.88	NS	.09	NS	3.41	.05	.374	NS
2347	.4492	.0357	.2399	10.2176	.01	.23	NS	2.28	.10	.86	NS	.644	NS
8312	.3405	.2074	.2597	1.5564	--	2.31	.10	.92	NS	.66	NS	1.398	NS
6312	.2611	.3997	.3640	1.0919	--	.08	NS	1.48	NS	.44	NS	.762	NS
2139	.1624	.2699	.2154	.6175	--	1.56	NS	1.60	NS	.55	NS	.351	NS
2069	.1388	.0604	.1354	2.1721	--	3.20	.05	1.48	NS	1.38	NS	1.771	.1
.2479	1.0333	1.1935	1.1582	.2548	--	.30	NS	1.20	NS	1.43	NS	1.770	.1
4458	.4923	.3595	.3992	.9121	--	.46	NS	.32	NS	2.13	.10	1.325	NS
1042	.5968	.2161	.4057	1.5449	--	.64	NS	1.38	NS	1.11	NS	.871	NS
1493	.3224	.1408	.1708	27.0160	.001	1.99	.10	.31	NS	.28	NS	.688	NS
1389	.0768	.0000	.0386	1.9534	--	.00	NS	.16	NS	1.00	NS	.322	NS
1299	.3721	.3211	.3077	1.3840	--	.75	NS	.39	NS	1.96	.10	.114	NS
4687	2.5884	2.2539	2.4370	.7128	--	1.51	NS	.33	NS	.12	NS	.689	NS
7736	.9690	1.3318	1.3581	2.8428	--	2.65	.05	.92	NS	2.14	.10	.844	NS
361	.0386	.0961	.0903	1.1928	--	.35	NS	.84	NS	.60	NS	.323	NS
1708	.0907	.0911	.0842	.0575	--	.10	NS	.17	NS	1.72	NS	.593	NS
1333	.6110	.5676	.6706	.8383	--	.82	NS	1.40	NS	.96	NS	.544	NS
2479	1.0333	1.2446	1.1753	.3232	--	.33	NS	1.20	NS	1.31	NS	1.705	NS
458	.4923	.4280	.4220	.7751	--	.56	NS	.32	NS	1.53	NS	1.181	NS
125	.6222	.4899	.5415	.8531	--	1.02	NS	.07	NS	.73	NS	1.060	NS
738	.9986	.4315	.5679	11.0264	.01	.17	NS	10.45	.01	1.14	NS	.914	NS
528	1.4519	.6815	.8288	14.9362	.01	.09	NS	4.07	.01	1.34	NS	2.235	.05
889	.0172	.5458	.2173	8.1495	.01	.58	NS	.41	NS	2.41	.10	1.693	NS
000	.5258	.0286	.1848	20.0861	.001	I	--	3.27	.05	.12	NS	1.732	.1
87.50	1298.75	892.0	1126.0833	1.9146	--	.85	NS	.47	NS	2.79	.05	1.138	NS
1528	2.7556	5.2844	3.0643	75.0324	.001	2.35	.10	.69	NS	1.69	NS	1.271	NS
2034	4.1553	4.0405	3.4664	4.0052	.10	.63	NS	1.05	NS	.67	NS	1.151	NS
3465	2.5579	3.3067	2.5704	2.7539	--	.51	NS	.61	NS	1.41	NS	1.316	NS
944	.1985	.0157	.1229	2.5972	--	.08	NS	.16	NS	3.91	.01	1.959	.1
044	.0411	.1789	.1415	2.1693	--	.86	NS	.97	NS	1.41	NS	1.64	NS
903	.4901	.0389	.2731	7.0578	.05	.12	NS	.89	NS	2.41	.10	1.22	NS
915	.0495	.0157	.0556	2.2056	--	.13	NS	.11	NS	1.83	NS	1.034	NS
961	.2060	.0389	.1438	1.2738	--	.96	NS	.53	NS	.83	NS	.607	NS

Variables No.	Name	Fall - All Activities Site 4	Site 5	Site 13	Overall	F Ratio	P	Sit
48	Adult direct request followed by child response followed by adult praise	.1209	.0378	.1721	.1102	2.4944	--	.08
49	Adult choice request to child	1.9978	3.4863	1.6696	2.1848	5.0672	.05*	1.3
50	Child response to adult choice request	1.2249	2.7023	1.4568	1.7946	3.5671	.10	1.1
51	Extended child response to adult choice request question	.0802	.1557	.0460	.0940	1.4867	--	.12
52	Adult praise to child	.3974	2.3579	1.002	1.2525	14.2094	.01*	.70
53	Adult acknowledgment to child	.8149	.7951	.5749	.7283	2.4844	--*	.64
54	Adult positive corrective feedback to child	.4017	.0229	.7171	.7139	27.2617	.001	.41
55	Adult negative corrective feedback to child	.0143	.0551	.3193	.1296	7.563	.05	.05
56	All adult corrective feedback to child	.7417	.3553	2.0858	1.0609	13.4207	.01	.61
59	All child self-instruction	.000	.2381	.1518	.1300	2.9842	--*	.00
60	Child asking questions of adults	.8964	.8859	2.9557	1.5794	11.8142	.01	.52
61	Child self-expression, general comments	25.9504	15.8522	11.812	17.8715	21.9258	.001	26.
62	Adult interaction with 1 or 2 children	6.2815	9.1011	15.4759	10.2862	21.2274	.001	8.0
63	Adult interaction with small group	1.5542	2.2169	3.1978	2.323	2.2559	--	3.2
64	Adult interaction with large group	3.5545	5.0684	2.9578	3.8602	.5366	--	5.4
65	Adult negative behavior	.0143	.3800	.3290	.2411	2.3967	--	.01
66	Adult positive behavior	.2099	2.1716	.5478	.9764	14.2851	.01	.56
67	Child negative behavior	.3355	.8247	1.9416	1.0340	10.2743	.01	.44
68	Child positive behavior	.7150	9.9326	6.6877	5.7764	6.6873	.05	1.0
69	Child initiates interaction with adult	2.3578	5.6012	4.5546	4.1712	4.5523	.05*	2.2
70	Child initiates interaction with other child	3.030	6.0393	3.7847	4.2847	1.5368	--*	3.9
71	Child non-verbal	2.4431	2.7716	4.1427	3.1191	4.4541	.05	2.3
72	Child cooperates with other children	.000	.1007	.2083	.1030	3.7331	.10	.00
73	Adult to child positive touch	.000	.0094	.1403	.0499	4.3454	.05	.01
74	Adult to child negative touch	.000	.0846	.3805	.1550	9.7007	.01	.00
75	Child gives positive touch	3.4234	.0303	.0231	1.1590	12.7069	.01	2.3
76	Child gives negative touch	.0397	.0470	.6476	.2447	15.6114	.01	.00
77	Adult helps child	.0904	.5900	.1823	.2876	10.9223	.01	.06
78	Adult refuses, rejects child	.0000	.0141	.0093	.0078	.5399	--	.00
79	Child refuses, rejects adult	.1055	.1622	.1272	.1317	.2475	--	.07
80	Child interacts with machine	29.5499	12.5023	9.7399	17.2640	28.7347	.001	22.
81	All motion							3.0
82	All positive behavior	.9909	14.5193	7.5083	7.6728	6.7163	.05	1.5
83	All negative behavior	.3641	1.9915	2.7372	1.6976	6.2565	.05	.55

*Sponsor prediction.

FW (Concluded)

Ratio	P	Spring - All Activities Site 4	Site 5	Site 13	Overall	F Ratio	P	Fall/Spring Differences Site 4 T Score	P	Site 5 T Score	P	Site 13 T Score	P	Overall Ratio T Score	P
1944	--	.0810	.0121	.1789	.0907	2.2080	--	.55	NS	.65	NS	.08	NS	.428	NS
0672	.05*	1.3403	1.5573	.1127	1.0034	15.1940	.01	.18	NS	2.26	.10	6.72	.01	2.673	.05
5671	.10	1.1743	1.1623	.0895	.8087	7.9950	.05	.18	NS	2.06	.10	7.25	.01	2.808	.05
4867	--	.1207	.1181	.0232	.0873	3.5549	.10	.66	NS	.57	NS	.76	NS	.193	NS
.2094	.01*	.7068	1.7482	.5072	.9874	11.3551	.01	1.43	NS	1.34	NS	1.78	NS	.772	NS
4944	--*	.6426	.2992	.8357	.5925	1.8212	--	.77	NS	5.23	.01	.90	NS	.997	NS
.2417	.001	.4137	.0471	.1165	.1924	4.2387	.10	.08	NS	.68	NS	5.31	.01	2.119	.05
663	.05	.0502	.0439	.0000	.0314	1.1011	--	.90	NS	.25	NS	3.32	.05	1.833	.1
.4207	.01	.6130	.5012	.1933	.4358	2.3941	--	.63	NS	.71	NS	1.74	.01	2.282	.05
9842	--*	.0000	.2142	.0000	.0714	7.6639	.05	I	--	.18	NS	2.42	.10	.966	NS
.8142	.01	.5230	.4350	1.4677	.8086	9.5655	.01	1.23	NS	2.20	.10	2.59	.05	2.003	.1
.9258	.001	28.3114	21.4579	15.4395	21.0696	24.4683	--	.19	NS	2.64	.05	2.14	.10	1.305	NS
.2274	.001	8.0987	8.6779	16.3081	11.0283	18.0723	.001	2.18	.10	.27	NS	.45	NS	.414	NS
2559	--	3.2211	1.8944	4.1032	3.0729	2.4237	--	1.37	NS	.47	NS	1.32	NS	1.29	NS
368	--	5.4388	4.3668	4.1612	4.6562	.2165	--	.67	NS	.35	NS	1.05	NS	.700	NS
3967	--	.0144	.6577	.0703	.2475	6.6608	.05	.005	NS	.96	NS	1.75	NS	.046	NS
.2851	.01	.3672	1.8868	.0000	.7513	10.7916	.01	1.56	NS	.42	NS	2.50	.05	.540	NS
.2743	.01	.4403	1.5597	.8961	.9654	2.2405	--	.59	NS	1.13	NS	2.57	.05	.201	NS
8873	.05	1.0075	10.0865	.3504	3.8148	164.2957	.001	1.10	NS	.05	NS	9.44	.01	.975	NS
5525	.05*	2.2994	.7245	9.6636	5.5625	22.5117	.001	.09	NS	.71	NS	3.94	.01	1.195	NS
5366	--*	3.9737	5.4957	7.9259	5.7985	3.8708	.10	1.00	NS	.34	NS	1.96	.10	1.440	NS
4541	.05	2.3788	2.1883	.7658	1.7776	7.7359	.05	.14	NS	.81	NS	10.09	.01	3.221	.01
7331	.10	.0000	.0209	.2391	.0866	40.3827	.001	I	--	1.38	NS	.38	NS	.318	NS
3454	.05	.0131	.0000	.0000	.0044	1.0000	--	1.00	NS	1.00	NS	2.18	.10	1.632	NS
0007	.01	.0000	.2349	.0000	.0783	2.8274	--	I	--	.92	NS	5.28	.01	.957	NS
7069	.01	2.3837	.0000	.0000	.7946	3.8435	.10	.67	NS	1.00	NS	1.00	NS	.485	NS
8114	.01	.0000	.6968	.1762	.2910	8.6366	.01	1.54	NS	3.71	.01	2.43	.10	.315	NS
9223	.01	.0656	.4468	3.0251	1.1792	44.3895	.001	.39	NS	.66	NS	7.50	.01	2.107	.05
999	--	.0000	.0000	.0000	.0000	I	--	I	--	1.00	NS	1.00	NS	1.448	NS
175	--	.0771	.0828	.1397	.0999	.2569	--	.54	NS	.72	NS	.13	NS	.663	NS
7347	.001	22.0695	12.9121	5.5862	13.5226	26.2297	.001	2.59	NS	.14	NS	2.52	.05	1.041	NS
		3.0477	2.2061	.2563	1.8367	31.3185	.001*								
7163	.05	1.5015	16.3263	.3504	6.0594	61.3899	.001	1.78	NS	.37	NS	7.80	.01	.515	NS
3565	.05	.5528	2.2781	.9664	1.2658	3.3581	.10	.96	NS	.27	NS	3.44	.05	.833	NS

SITE DIFFERENCES WITHIN SPONSORS A

UNIVERSITY OF

Variables No.	Name	Fall - All Activities Site 8	Site 16	Overall	F Ratio	P
6	Adult/child ratio	.1302	.2465	.1884	17.9023	.01
7	Length of school day	6.5	4.0	5.25	6.8182	.05
8	Number of COPs for class	33.0	21.0	27.0	14.1639	.01
9	Activity A (snack, lunch)	.1622	.1190	.1406	3.8387	.10
10	Activity B (grouptime, sharing, rest, story, singing, dancing)	.4159	.3929	.4044	.0686	--
11	Activity C (numbers, alphabet, reading language development)	.1482	.1548	.1515	.0098	--
12	Activity D (finding out about people and how they live; finding out about the natural world)	.1766	.2381	.2074	.3630	--
13	Activity E (table games, guessing games, working puzzles)	.1956	.25	.2228	.2986	--
14	Activity F (arts, crafts, cooking, sewing, pounding)	.2645	.4048	.3346	2.5922	--
15	Activity G (blocks, trucks, dolls, dress-up, water play)	.1365	.1548	.1456	.0302	--
16	Active play	.0379	.0119	.0249	2.1591	--
18	Adult with small group	1.205	1.9881	1.5965	17.0755	.01
19	Adult with large group	.7609	.25	.5055	66.591	.001
20	Adult with 1 or 2 children in academic activities (C and D)	.1364	.1786	.1575	.2151	--
21	Adult with small group in academic activities	.2698	.2381	.2539	.0914	--
22	Adult with large group in academic activities	.1300	.0119	.0710	8.8674	.05
23	Academic activities	.2652	.1786	.2219	.4844	--
24	Wide variety of activities	1.8757	2.0833	1.9795	1.3760	--
25	Independant child activity	1.6362	1.4643	1.5502	.2826	--
26	Adult with 1 or 2 children	.020	.0595	.0397	1.4878	--
27	Aides' participation in academic activities	.0441	.000	.0221	15.1826	.01
28	Groups of 1 child	.6171	.5357	.5764	.3075	--
30	Small groups	1.2050	2.2024	1.7037	29.9012	.01
31	Large groups	.7609	.3571	.559	45.422	.001
	Adults without children:					
32	Classroom management	.6105	.3095	.4600	4.2891	.10
33	Observing	.1954	.5833	.3893	10.783	.05
34	Out of the room	.6430	.2262	.4346	8.4274	.05
35	Other	.1106	.5714	.3410	10.4046	.05
36	Aide's participation in all activities	.0385	.0952	.0668	.7815	--
37	Number of frames for this class	1853.75	1038.0	1445.87	26.8853	.01
40	Adult informing child	1.692	2.5423	2.1171	1.5541	--
41	Adult direct request to child	5.4946	4.7538	5.1242	.6845	--
42	Child response to adult direct request	3.5487	2.9576	3.2531	1.2629	--
43	Adult corrective feedback to child response	.4612	.2367	.3489	5.8964	.10
44	Adult acknowledgment to child response	.5732	.3197	.4464	2.2995	--
45	Adult praise to child response	.1082	.1046	.1064	.0017	--
46	Adult direct request followed by child response followed by adult corrective feedback	.2602	.0870	.1738	19.4268	.01
47	Adult direct request followed by child response followed by adult acknowledgment	.0312	.0757	.0534	.5176	--

Appendix F

ENCES WITHIN SPONSORS AND FALL-SPRING DIFFERENCES BY SITE

UNIVERSITY OF ARIZONA (UA)

) Activities			Spring - All Activities					Fall/Spring Differences					
								Site 8		Site 16		Overall Ratio	
Overall	F Ratio	P	Site 8	Site 16	Overall	F Ratio	P	T Score	P	T Score	P	T Score	P
1884	17.9023	.01	.1898	.2452	.2175	.6001	--	.86	NS	.04	NS	.677	NS
.25	9.8182	.05	4.000	4.000	4.000	1	--	2.61	.05	1	--	1.93	.1
7.0	14.1639	.01	38.75	30.75	34.75	49.5484	.001	1.73	NS	15.50	.01	2.465	.05
1406	3.8387	.10	.0646	.2040	.1343	14.4878	.01	3.48	.05	2.63	.05	.186	NS
4044	.0686	--	.6131	.3511	.4821	11.4413	.05	3.37	.05	.41	NS	1.057	NS
1515	.0098	--	.3126	.2242	.2684	.7025	--	1.84	NS	.80	NS	1.945	.1
2074	.3630	--	.0615	.2747	.1696	5.7177	.10	1.42	NS	.34	NS	.505	NS
2228	.2986	--	.1977	.2062	.2019	.0062	--	.02	NS	.45	NS	.304	NS
5346	2.5922	--	.1811	.3567	.2689	4.7143	.10	1.81	NS	.44	NS	.046	NS
1456	.0302	--	.0724	.1790	.1257	5.0011	.10	.85	NS	.28	NS	.348	NS
0349	2.1591	--	.0399	.0167	.0283	1.3080	--	.09	NS	.31	NS	.239	NS
5985	17.0755	.01	1.2895	1.7461	1.5178	2.4491	--	.39	NS	.89	NS	.335	NS
8955	66.591	.001	.5622	.3010	.4316	5.4703	.10	2.13	.10	.58	NS	.597	NS
1575	.2151	--	.1828	.2465	.2146	.4669	--	.47	NS	.80	NS	.922	NS
2539	.0914	--	.5036	.4670	.4853	.3514	--	2.93	.05	1.31	NS	2.583	.05
0710	8.8674	.05	.0335	.0000	.0167	3.5598	--	2.31	.10	1.00	NS	1.766	.1
2219	.4844	--	.6617	.2759	.4688	6.1571	.05	2.73	.05	.71	NS	2.080	.1
.9795	1.5760	--	1.7652	2.0639	1.9145	2.1573	--	.57	NS	.10	NS	.456	NS
.5502	.2828	--	1.6032	1.1986	1.4009	1.5885	--	.08	NS	1.23	NS	.659	NS
0397	1.4878	--	.0324	.0891	.0707	.9901	--	.85	NS	.96	NS	1.242	NS
0221	15.1826	.01	.1095	.1332	.1214	.1748	--	2.52	.05	2.58	.05	3.495	.01
6744	.3075	--	.5355	.4319	.4852	.6038	--	.50	NS	.95	NS	.972	NS
.7037	29.9012	.01	1.2895	1.9218	1.6056	4.4519	.10	.39	NS	1.02	NS	.355	NS
839	45.722	.001	.5622	.3500	.4561	3.9252	.10	2.13	.10	.09	NS	.997	NS
4600	4.2891	.10	.4763	.5114	.4939	.0424	--	.71	NS	1.67	NS	.286	NS
3893	10.783	.05	.2678	.2952	.2815	.1371	--	.72	NS	2.97	.05	1.102	NS
4344	8.4274	.05	.6039	.1970	.4004	22.5513	.01	.31	NS	.265	NS	.254	NS
3410	10.4016	.05	.1405	.3964	.2685	23.8162	.01	.57	NS	1.23	NS	.594	NS
1668	.7815	--	.0260	.1219	.0739	27.1985	.01	.31	NS	.50	NS	.190	NS
145.87	26.8853	.01	2261.75	1476.25	1869.00	100.0267	.001	2.49	.05	6.97	.01	1.848	.1
.1171	1.5541	--	1.8160	2.1019	1.9589	.6680	--	.31	NS	.68	NS	.402	NS
.1242	.6815	--	5.6105	4.2377	4.9391	2.0529	--	.16	NS	.54	NS	.271	NS
.2531	1.2629	--	4.6056	3.0391	3.8230	7.1534	.05	1.86	NS	.15	NS	1.180	NS
9489	3.8964	.10	.2996	.2157	.2576	.9808	--	2.33	.10	.20	NS	1.239	NS
1464	2.2995	--	.3155	.3364	.3260	.0076	--	1.46	NS	.07	NS	.839	NS
1064	.0017	--	.0812	.2837	.1824	2.2968	--	.46	NS	1.22	NS	.019	NS
1738	19.4268	.01	.1961	.0996	.1480	1.6986	--	1.00	NS	.23	NS	.477	NS
9534	.5176		.0747	.1015	.0881	.1903	--	1.07	NS	.33	NS	.834	NS

UA (Concluded)

Variables		Fall - All Activities					Spring - All Activit			
No.	Name	Site 8	Site 16	Overall	F Ratio	P	Site 8	Site 16	Overall	F
48	Adult direct request followed by child response followed by adult praise	.3135	.1151	.2143	9.7676	.05	.2288	.0813	.1550	5.
49	Adult choice request to child	1.9916	2.6028	2.2972	.6986	--*	1.0301	3.1914	2.1108	3.
50	Child response to adult choice request	1.2241	1.8135	1.5188	2.1037	--	.7591	2.6469	1.7030	4.
51	Extended child response to adult choice request question	.0371	.1588	.0979	10.5664	.05	.1471	.2821	.2146	2.
52	Adult praise to child	.6885	.5011	.5948	.5428	--*	.4793	.7898	.6345	.8
53	Adult acknowledgment to child	1.4203	1.0388	1.2396	1.2360	--*	1.4886	.6479	1.0683	4.
54	Adult positive corrective feedback to child	2.3458	.9701	1.6579	15.8616	.01	2.0577	.4731	1.2659	19
55	Adult negative corrective feedback to child	.6178	.2185	.4181	6.766	.05	.0672	.0381	.0526	.6
56	All adult corrective feedback to child	3.1014	1.3023	2.2018	15.3803	.01	2.1515	.7185	1.435	15
59	All child self-instruction	.1517	.000	.0759	1.5211	--*	.5691	.0888	.3290	19
60	Child asking questions of adults	1.2124	3.0645	2.1385	17.0576	.01	1.0155	1.6953	1.3554	5.
61	Child self-expression, general comments	14.2947	21.6761	17.9854	15.8404	.01	18.4036	25.3797	21.8916	7.
62	Adult interaction with 1 or 2 children	11.9903	16.1381	14.0642	6.652	.05	10.9272	12.6198	11.7735	.5
63	Adult interaction with small group	1.2384	3.4703	2.3543	2.4086	--*	2.3105	2.8023	2.5564	.3
64	Adult interaction with large group	7.6702	1.4961	4.5831	19.0734	.01	5.2206	3.1248	4.1727	3.
65	Adult negative behavior	.2247	.1591	.1919	.3334	--	.0660	.0992	.0826	.2
66	Adult positive behavior	.8709	.0295	.2002	10.6347	.05	.2385	.0603	.1494	7.
67	Child negative behavior	.8119	.2494	.5306	4.6963	.05	.5576	.3591	.4583	.6
68	Child positive behavior	.8448	.3488	.5968	4.390	.10	1.0833	.5509	.8171	5.
69	Child initiates interaction with adult	3.8708	8.2997	6.0852	30.1393	.01	4.9189	5.3952	5.1571	.8
70	Child initiates interaction with other child	5.5324	4.022	4.7772	1.5918	--*	6.2858	7.1169	6.7013	.8
71	Child non-verbal	2.0355	1.6856	1.8606	.3164	--	1.1983	2.8451	2.4117	2.
72	Child cooperates with other children	.0568	.000	.0284	14.4216	.01	.0000	.0000	.0000	1
73	Adult to child positive touch	.0081	.000	.0041	1.000	--	.0137	.0000	.0069	2.
74	Adult to child negative touch	.0585	.0423	.0504	.1343	--	.0137	.0427	.0282	.6
75	Child gives positive touch	.1064	.000	.0532	1.4749	--	.1241	.0000	.0620	16
76	Child gives negative touch	.2751	.0419	.1585	6.102	.05	.0403	.0409	.0406	.0
77	Adult helps child	1.4806	.7274	1.1040	4.1886	.10	.1905	.3226	.2556	2.
78	Adult refuses, rejects child	.0666	.0000	.0333	4.1598	.10	.0131	.0330	.0230	.3
79	Child refuses, rejects adult	.0893	.0535	.0714	.4218	--	.1546	.1692	.1619	.0
80	Child interacts with machine	11.0069	15.296	13.1514	3.1475	--	10.0907	13.4839	11.7873	2.
81	All motion						5.0142	4.0986	4.5564	1.
82	All positive behavior	2.1891	.3783	1.4337	32.3506	.01	2.7315	.6112	1.6713	17
83	All negative behavior	1.6136	.4955	1.0545	9.8584	.05	.6898	.4790	.5844	.4

*Sponsor prediction.

UA (Concluded)

All Activities			Spring - All Activities					Fall/Spring Differences					
								Site 8		Site 16		Overall Ratio	
Overall	F Ratio	P	Site 8	Site 16	Overall	F Ratio	P	T Score	P	T Score	P	T Score	P
.2143	9.7676	.05	.2288	.0813	.1550	5.3345	.10	.89	NS	1.23	NS	.946	NS
2.2972	.6986	--	1.0301	3.1914	2.1108	3.6662	--	1.72	NS	.48	NS	.247	NS
1.5188	2.1037	--	.7591	2.6469	1.7030	4.1295	.10	1.68	NS	.85	NS	.307	NS
.0979	10.5661	.05	.1471	.2821	.2146	2.1482	--	1.97	.10	1.50	NS	2.031	.05
.5948	.5428	--	.4793	.7898	.6345	.8272	--	.76	NS	.89	NS	.190	NS
1.2396	1.2360	--	1.4886	.6479	1.0683	4.9039	.10	.19	NS	1.18	NS	.593	NS
1.6579	15.8616	.01	2.0577	.4741	1.2659	19.5471	.01	.65	NS	2.15	.10	.855	NS
.4181	6.766	.05	.0672	.0381	.0526	.6062	--	3.94	.01	2.45	.05	3.473	.01
3.2018	15.3803	.01	2.1515	.7185	1.435	15.3701	--	1.79	NS	2.35	10	1.498	NS
.0759	1.5211	--	.5691	.0888	.3290	19.4017	.01	2.58	.05	3.22	.01	2.077	.1
2.1385	17.0576	.01	1.0155	1.6953	1.3554	5.68	.10	.76	.10	2.96	.05	1.753	NS
17.9854	15.8404	.01	18.4036	25.3797	21.8916	7.0837	.05	2.63	.05	1.32	NS	1.609	NS
14.0642	6.652	.05	10.9272	12.6198	11.7735	.5841	--	.52	NS	1.92	NS	1.503	NS
2.3543	2.4086	--	2.3105	2.8023	2.5564	.3216	--	1.15	NS	.48	NS	.227	NS
4.5831	19.0734	.01	5.2206	3.1248	4.1727	3.0612	--	1.56	NS	1.66	NS	.273	NS
.1919	.3334	--	.0660	.0992	.0826	.2654	--	1.79	NS	.62	NS	1.762	.1
.2002	10.6347	.05	.2385	.0603	.1494	7.5925	.10	1.16	NS	.67	NS	.549	NS
.5306	4.6963	.05	.5576	.3591	.4583	.6144	--	.85	NS	.54	NS	.358	NS
.5968	4.390	.10	1.0833	.5509	.8171	5.1956	.10	.75	NS	2.30	.10	1.067	NS
8.0852	30.1393	.01	4.9189	5.3952	5.1571	.6864	--	1.73	NS	3.71	.01	.968	NS
4.7772	1.5918	--	6.2858	7.1169	6.7013	.8250	--	.71	NS	2.90	.05	2.499	.05
1.8606	.3164	--	1.9983	2.8251	2.4117	2.7879	--	.06	NS	2.23	.10	1.36	NS
.0284	14.4216	.01	.0000	.0000	.0000	I	--	3.80	.01	I	--	2.223	.05
.0041	1.000	--	.0137	.0000	.0069	2.9871	--	.49	NS	I	--	.462	NS
.0504	.1343	--	.0137	.0427	.0282	.8170	--	1.23	NS	.01	NS	.855	NS
.0532	1.4749	--	.1241	.0000	.0620	16.2226	.01	.19	NS	I	--	.167	NS
.1585	6.102	.05	.0403	.0409	.0406	.0004	--	2.55	.05	.03	NS	1.856	.1
1.1040	4.1886	.10	.1905	.3226	.2556	2.2866	--	3.61	.05	3.29	.05	3.733	.01
.0333	4.1598	.10	.0131	.0330	.0230	.3153	--	1.52	NS	1.00	NS	.396	NS
.0714	.4218	--	.1546	.1692	.1619	.0118	--	.83	NS	.95	NS	1.336	NS
13.1514	3.1475	--	10.0902	13.4839	11.7873	2.1485	--	.54	NS	.63	NS	.732	NS
			5.0142	4.0986	4.5564	1.2042	--						
1.4337	32.3506	.01	2.7315	.6112	1.6713	17.2748	.01	.39	NS	2.79	.05	.373	NS
1.0545	9.8584	.05	.6898	.4790	.5844	.4882	--	2.37	.10	.06	NS	1.543	NS

SITE DIFFERENCES WITHIN SPONSORS AND FALL-SPRING DIFFERENCES B

BANK STREET COLLEGE (BC)

Variables No.	Name	Fall - All Activities Site I	Site II	Site 12	Overall	F Ratio	P	Spring Site I	Site II	Site
6	Adult/child ratio	.2733	.2393	.2224	.2471	.3540	--	.3104	.2396	.248
7	Length of school day	3.000	4.000	8.000	4.7273	R	--	2.000	4.25	8.00
8	Number of CDPs for class	25.75	25.75	19.6667	24.0909	4.4753	.05	20.75	20.75	18.3
9	Activity A (snack, lunch)	.2039	.0285	.1526	.1262	150.2611	.001	.2858	.0739	.126
10	Activity B (grouptime, sharing, rest, story, singing, dancing)	.1927	.4090	.3395	.3114	2.8105	--*	.3296	.1340	.238
11	Activity C (numbers, alphabet, reading, language development)	.0578	.7259	.3000	.3668	19.875	.001	.1656	.4916	.130
12	Activity D (finding out about people and how they live; finding out about the natural world)	.2214	.7528	.0667	.3724	19.8818	.001	.1988	.6155	.093
13	Activity E (table games, guessing games, working puzzles)	.2229	.8072	.1860	.4253	46.2078	.001	.2846	.7468	.339
14	Activity F (arts, crafts, cooking, sewing, pounding)	.3756	.9428	.4061	.5901	25.0161	.001	.5374	.8654	.590
15	Activity G (blocks, trucks, dolls, dress-up, water play)	.3110	.1928	.2018	.2382	1.9388	--	.3014	.1535	.398
16	Active play	.1643	.4604	.0351	.2367	6.4613	.05	.1211	.0494	.108
18	Adult with small group	1.1216	2.0209	.593	1.3044	10.6601	.01	1.5468	1.5563	1.47
19	Adult with large group	.1547	.7157	.5754	.4735	2.2935	--	.3284	.4261	.575
20	Adult with 1 or 2 children in academic activities (C and D)	.1976	1.2603	.3333	.6210	25.0423	.001	.3093	1.1769	.256
21	Adult with small group in academic activities	.1513	.7634	.050	.3463	6.8324	.05	.1651	.1983	.049
22	Adult with large group in academic activities	.0089	.1242	.050	.0620	6.1167	.05	.0228	.0352	.030
23	Academic activities	.0578	1.0364	.3667	.4979	36.2313	.001	.2265	.5779	.204
24	Wide variety of activities	2.1024	6.9022	2.0588	3.8339	179.3364	.001*	2.8509	5.4564	2.60
25	Independent child activity	1.5873	5.215	1.4316	2.864	84.6102	.001*	1.7987	3.7325	2.38
26	Adult with 1 or 2 children	.1378	.3306	.0333	.1794	3.9985	.10*	.1267	.4984	.244
27	Aides' participation in academic activities	.0000	.1598	.0000	.0581	3.9097	.10	.0286	.0721	.000
28	Groups of 1 child	.8984	1.8627	.6598	1.184	5.8199	.05	1.0272	1.7671	1.30
30	Small groups	1.377	2.0209	.5930	1.3973	10.1069	.01	1.6744	1.5563	1.47
31	Large groups	.2155	.7157	.5754	.4956	1.7831	--	.4328	.4261	.575
	Adults without children:									
32	Classroom management	.4113	1.0415	.3219	.6161	76.7173	.001	.7056	.8824	.417
33	Observing	.7156	.0000	.3677	.3660	53.2869	.001	.4931	.0008	.000
34	Out of the room	.5101	.1189	.6404	.4034	4.8679	.05	.3018	.0869	.000
35	Other	.5605	.0200	.3728	.3127	12.9088	.01	.3269	.0727	.000
36	Aide's participation in all activities	.1137	.000	.000	.0413	16.27	.01	.0000	.0125	.000
37	Number of frames for this class	1468.75	1526.75	1175.00	1409.72	4.4023	.10	1173.75	1234.50	1050
40	Adult informing child	3.8621	8.2714	1.3745	4.787	3.2883	.10	4.4707	4.3826	2.28
41	Adult direct request to child	3.0754	4.7553	1.1019	3.1418	12.0986	.01	4.6181	1.5487	4.01
42	Child response to adult direct request	1.8818	4.4629	.6421	2.4823	15.4868	.01	3.6607	1.50	3.20
43	Adult corrective feedback to child response	.0750	.2242	.0837	.1316	3.1063	--	.2566	.0125	.501
44	Adult acknowledgment to child response	.0545	.0000	.2881	.0984	15.3096	.01	.3536	.0000	.282
45	Adult praise to child response	.0445	.0000	.1699	.0625	5.1554	.05	.0643	.0000	.405
46	Adult direct request followed by child response followed by adult corrective feedback	.0465	.2141	.0837	.1176	5.055	.05	.1664	.0125	.385
47	Adult direct request followed by child response followed by adult acknowledgment	.0352	.0000	.1347	.0496	2.6617	--	.0304	.0000	.265

Appendix F

S WITHIN SPONSORS AND FALL-SPRING DIFFERENCES BY SITE

BANK STREET COLLEGE (BC)

ies			Spring - All Activities						Fall/Spring Differences					
									Site 1		Site 12		Overall Ratio	
l	F Ratio	P	Site 1	Site 11	Site 12	Overall	F Ratio	P	T Score	P	T Score	P	T Score	P
	.3540	--	.3104	.2396	.2451	.2669	1.9391	--	1.02	NS	1.36	NS	1.168	NS
	R	--	2.000	4.25	8.00	4.4545	330.5455	.001	R	--	1	--	.362	NS
9	4.4753	.05	20.75	20.75	18.333	20.0909	.7063	--	1.64	NS	.71	NS	1.547	NS
	150.2611	.001	.2856	.0739	.1251	.1648	11.0963	.01	3.71	.01	.82	NS	.914	NS
	2.8105	--	.3296	.1340	.2387	.2337	5.7885	.05	1.73	NS	2.26	.10	.812	NS
	19.875	.001	.1656	.4916	.1301	.2745	4.1864	--	1.25	NS	.99	NS	.119	NS
	19.8818	.001	.1986	.6155	.0936	.3216	8.8704	.01	.22	NS	.34	NS	.020	NS
	46.2078	.001	.2846	.7468	.3368	.4662	13.3578	.01	.56	NS	1.93	NS	1.484	NS
	25.0161	.001	.5374	.8654	.5901	.6710	5.1811	.05	1.89	NS	1.17	NS	2.257	.05
	1.9388	--	.3014	.1555	.3986	.2749	8.5104	.05	.15	NS	3.43	.05	1.551	NS
	6.4613	.05	.1211	.0494	.1061	.0909	.4420	--	.47	NS	.64	NS	.083	NS
	10.6601	.01	1.5468	1.5563	1.4701	1.5294	.0427	--	1.56	NS	3.32	.05	2.985	.05
	2.2935	--	.3284	.4261	.5754	.4313	.5338	--	1.41	NS	.00	NS	.779	NS
	25.0423	.001	.3093	1.1769	.2567	.6104	7.9865	.05	1.09	NS	.31	NS	.275	NS
	6.8324	.05	.1651	.1983	.0499	.1457	.9157	--	.14	NS	.002	NS	.121	NS
	6.1167	.05	.0228	.0352	.0303	.0293	.0904	--	.87	NS	.47	NS	.027	NS
	36.2313	.001	.7265	.5779	.2041	.3482	3.4873	.10	1.40	NS	.77	NS	.222	NS
	179.3364	.001	2.8509	5.4564	2.8058	3.7861	21.2153	.001	2.16	.10	1.76	NS	3.048	.05
	84.6102	.001	1.7987	3.7325	2.3893	2.663	8.0632	.05	.68	NS	1.44	NS	1.632	NS
	3.9985	.10	.1267	.4984	.2440	.2938	1.7308	--	.21	NS	1.78	NS	1.361	NS
	3.9097	.10	.0288	.0721	.0000	.0366	2.46	--	1.69	NS	1	--	1.52	NS
	5.8199	.05	1.0272	1.7675	1.3074	1.3728	1.1422	--	.35	NS	2.05	NS	1.451	NS
	10.1069	.01	1.8744	1.5563	1.4701	1.6485	.8282	--	.55	NS	3.32	.05	2.52	.05
	1.7831	--	.4328	.4261	.5754	.4693	.2267	--	1.58	NS	.00	NS	1.060	NS
	76.7173	.001	.7056	.8824	.4174	.6913	11.0474	.01	4.91	.01	.98	NS	2.678	.05
	53.2869	.001	.4931	.0608	.0000	.2014	87.4646	.001	2.99	.05	6.23	.01	2.287	.05
	4.3679	.05	.3018	.0869	.0000	.1414	6.9475	.05	1.75	NS	3.53	.05	3.431	.01
	12.9088	.01	.3269	.0727	.0000	.1453	2.074	--	1.10	NS	5.16	.01	2.105	.1
	16.27	.01	.0000	.0125	.0000	.0045	.8485	--	4.38	.01	1	--	2.421	.05
	4.4023	.10	1173.75	1234.50	1050.33	1162.1818	1.0593	--	1.70	NS	1.49	NS	1.894	.1
	3.2883	.10	4.4707	4.3826	2.2856	3.8427	.4931	--	.57	NS	1.55	NS	.812	NS
	12.0986	.01	4.8181	1.5487	4.0111	3.4091	3.5816	.10	1.64	NS	2.32	.10	2.619	.05
	15.4866	.01	3.6607	1.50	3.2017	2.7498	2.1976	--	2.11	.10	2.39	.10	3.192	.01
	3.1063	--	.2566	.0125	.5015	.2347	2.1185	--	2.30	.10	1.20	NS	1.922	.1
	15.3096	.01	.3536	.0000	.2829	.2057	4.5354	.05	2.74	.05	.03	NS	1.763	NS
	8.1554	.05	0643	.0000	.4058	.1340	1.7599	--	.70	NS	.67	NS	.736	NS
	8.055	.05	.1664	.0125	.3855	.1702	2.7754	--	2.48	.05	1.29	NS	1.925	.1
	2.6617	--	.0304	.0000	.2651	.0834	1.2978	--	.16	NS	.47	NS	.450	NS

Variables No.	Name	Fall - All Activities Site 1	Site 1P	Site 2	Overall	F Ratio	P	Spring - Site 1	Site 11	Site 1
48	Adult direct request followed by child response followed by adult praise	.0346	.0000	.2713	.0866	23.0431	.001	.1561	.0000	.1588
49	Adult choice request to child	1.2769	.2467	.3057	.6374	36.5088	.001*	1.2088	.0114	.0974
50	Child response to adult choice request	.8256	.2467	.2705	.4637	14.1433	.01	.8512	.0114	.0760
51	Extended child response to adult choice request question	.1426	.0000	.0000	.0519	101.1166	.001	.0471	.0000	.0000
52	Adult praise to child	.3787	.0000	.6167	.3051	23.375	.001	.5126	.0114	.5266
53	Adult acknowledgment to child	.4336	.000	.3384	.2500	3.8453	.10	1.0731	.0000	.5209
54	Adult positive corrective feedback to child	.4830	.0000	.0855	.1989	13.0617	.01	1.1426	.0000	.3968
55	Adult negative corrective feedback to child	.0173	.0000	.0000	.0063	.8485	--	.3663	.0000	.4219
56	All adult corrective feedback to child	.8296	.2342	.2714	.4609	7.3981	.05	1.8163	.0125	1.171
59	All child self-instruction	.0984	.0000	.0000	.0358	2.2999	--	.0121	.0000	.0000
60	Child asking questions of adults	2.8291	.1584	.3444	1.1803	59.2536	.001	2.1287	.1365	.6351
61	Child self-expression, general comments	12.7575	7.1023	36.6478	17.2166	65.5969	.001	17.2707	14.8464	28.75
62	Adult interaction with 1 or 2 children	15.5319	5.9694	1.7884	8.3064	50.9731	.001*	18.6296	1.4726	7.056
63	Adult interaction with small group	2.8883	.0675	.7825	1.2883	13.2067	.01*	3.2553	.1945	2.116
64	Adult interaction with large group	.6627	8.8183	4.3704	4.6396	11.0691	.01	2.0770	4.9612	3.813
65	Adult negative behavior	.0093	.2118	.0000	.0804	.9213	--	.1091	.0000	.3823
66	Adult positive behavior	3.7865	.0000	.0000	1.3769	19.2273	.001	.4320	.0000	2.431
67	Child negative behavior	.5806	.0391	.000	.2254	14.3249	.01	1.6846	.0000	1.392
68	Child positive behavior	6.3646	.0183	.6483	2.4979	7.5324	.05	.9506	.0000	20.16
69	Child initiates interaction with adult	10.9253	.2188	.4987	4.1884	235.8276	.001	7.5392	.1636	1.618
70	Child initiates interaction with other child	7.344	4.3767	1.9095	4.7828	5.5775	.05*	4.6720	1.0140	2.665
71	Child non-verbal	2.0249	.0592	.7191	.9539	43.0099	.001	1.1467	.0000	2.852
72	Child cooperates with other children	.6184	4.8188	.0000	1.9772	16.6209	.001*	.1022	16.9564	.0000
73	Adult to child positive touch	.0451	.0000	.0000	.0164	2.2961	--	.2240	.0000	.0198
74	Adult to child negative touch	.0087	.0105	.000	.0070	.3723	--	.0853	.0000	.0360
75	Child gives positive touch	.0696	.0000	.0000	.0253	5.8638	.05	.3801	.0000	.0546
76	Child gives negative touch	.0317	.0194	.0000	.0186	.6973	--	.2943	.0000	.3572
77	Adult helps child	1.7625	.9723	.0000	.9945	15.8707	.01	.7657	.2948	.0214
78	Adult refuses, rejects child	.0205	.0000	.0000	.0075	2.5002	--	.0467	.0000	.0000
79	Child refuses, rejects adult	.0985	.0597	.0176	.0623	.7451	--	.2688	.0000	.0214
80	Child interacts with machine	9.0857	28.4567	39.186	24.3389	80.9658	.001	7.4331	45.4924	16.77
81	All motion							3.1653	.0000	4.852
82	All positive behavior	10.6929	.0183	1.5422	4.3156	11.385	.01	1.4159	.0000	31.63
83	All negative behavior	.8914	.2815	.0000	.4265	4.737	.05	2.1103	.0580	2.552

*Sponsor prediction.

BC (Concluded)

All Activities				Spring - All Activities						Fall/Spring Differences					
										Site 1		Site 12		Overall Ratio	
12	Overall	F Ratio	P	Site 1	Site 11	Site 12	Overall	F Ratio	P	T Score	P	T Score	P	T Score	P
3	.0866	23.0431	.001	.1561	.0000	.1588	.1001	2.8221	--	1.74	NS	1.17	NS	.300	NS
7	.6374	36.5088	.001*	1.2088	.0114	.0974	.4703	5.0637	.05	.14	NS	2.83	.05	.324	NS
5	.4637	14.1433	.01	.8512	.0114	.0760	.3344	4.7755	.05	.07	NS	2.40	.10	.256	NS
0	.0519	101.1166	.001	.0471	.0000	.0000	.0171	1.7283	--	2.69	.05	1	--	1.525	NS
7	.3051	13.375	.001	.5126	.0114	.5266	.3342	2.1613	--	1.34	NS	.20	NS	.212	NS
4	.2500	3.8453	.10	1.0731	.0000	.3209	.4777	26.0280	.001	2.85	.05	.10	NS	1.739	NS
5	.1989	13.0617	.01	1.1426	.0000	.3968	.5237	11.1845	.01	2.45	.05	1.53	NS	2.162	.1
0	.0063	.8485	--	.3663	.0000	.4219	.2482	1.9729	--	2.07	.10	1.53	NS	2.745	.05
4	.1609	7.3981	.05	1.8163	.0125	1.1711	.9844	4.2087	.10	1.71	NS	1.34	NS	2.179	.05
0	.0358	2.2999	--	.0121	.0000	.0000	.0044	.8485	--	1.42	NS	1	--	1.289	NS
4	1.1803	59.2536	.001	2.1287	.1385	.9351	1.0795	48.3174	.001	2.14	.10	2.45	.10	.249	NS
478	17.2166	65.5969	.001	17.2707	14.8464	28.75	19.5199	2.0780	--	2.66	.05	.121	NS	.135	NS
84	8.3064	50.9731	.001*	18.6296	1.4726	7.0566	9.2344	36.3222	.001	2.17	.10	1.95	NS	1.047	NS
5	1.2883	13.2067	.01*	3.2553	.1945	2.1161	1.8316	7.1735	.05	.45	NS	1.22	NS	1.008	NS
04	4.6396	11.0691	.01	2.0770	4.9612	2.8133	3.3266	.7250	--	1.99	.10	.91	NS	.132	NS
0	.0804	.9213	--	.1091	.0000	.3823	.1439	2.2824	--	1.54	NS	1.48	NS	1.877	.1
0	1.3769	19.2273	.001	.4320	.0000	2.4319	.6203	5.7806	.05	4.03	.01	2.26	.10	.828	NS
	.2254	14.3249	.01	1.6846	.0000	1.3922	.9923	3.8211	.10	1.64	NS	2.90	.05	2.891	.05
8	2.4979	7.5324	.05	.9506	.0000	29.1647	8.2997	103.4359	.001	2.65	05	8.42	.01	1.507	NS
7	4.1884	235.8276	.001	7.5392	.1638	1.5154	3.2143	87.9151	.001	3.88	.01	2.67	.10	.604	NS
5	4.7828	5.5775	.05*	4.6720	1.0140	2.6651	2.7945	20.1675	.001	1.87	NS	.85	NS	.837	NS
	.9539	43.0099	.001	1.1467	.0000	2.8528	1.1950	10.0753	.01	2.71	.05	2.33	.10	.710	NS
3	1.9772	16.6209	.001*	.1022	16.9594	.0000	6.7042	24.3788	.001	1.29	NS	1	--	1.187	NS
	.0164	2.2961	--	.2240	.0000	.0198	.0869	1.0484	--	.91	NS	1.00	NS	.978	NS
	.0070	.3733	--	.0853	.0000	.0380	.0414	.9539	--	1.09	NS	1.95	NS	1.515	NS
	.0253	5.8638	.05	.3801	.0000	.0546	.1531	3.3024	.10	1.70	NS	1.87	NS	1.684	NS
	.0186	.6973	--	.2943	.0000	.3572	.2045	1.4736	--	1.18	NS	2.34	.10	2.275	.05
	.9945	15.8707	.01	.7657	.2946	.0214	.3914	5.8049	.05	3.04	.05	1.00	NS	1.321	NS
	.0075	2.5002	--	.0467	.0000	.0000	.0170	.8485	--	.34	NS	1	--	.539	NS
	.0623	.7451	--	.2688	.0000	.0214	.1036	16.6539	.01	2.08	.10	.14	NS	1.429	NS
6	24.3389	80.9658	.001	7.4331	45.4924	16.7750	23.8207	25.2983	.001	1.35	NS	3.80	.05	1.656	NS
				3.1653	.0000	4.8527	2.4690	21.3691	.001*						
2	4.3156	11.385	.01	1.4159	.0000	31.6362	9.1429	230.4318	.001	3.36	.05	12.32	.01	1.149	NS
	.4265	4.737	.05	2.1103	.0580	2.5528	1.4847	4.0738	.10	1.39	NS	2.99	.05	2.97	.05

SITE DIFFERENCES WITHIN SPONSORS AND FALL-SPR

UNIVERSITY OF OREGON (U

Variables No.	Name	Fall - All Activities Site 3	Site 11	Site 14	Overall	F Ratio	P	Spri Site 11	Site 14
6	Adult/child ratio	.2339	.1128	.1779	.1746	9.9426	.01	.0622	.1858
7	Length of school day	8.000	1.000	4.6667	4.5455	588 36	.001	2.750	6.000
8	Number of COPs for class	11.0	11.0	35.333	17.6364	62.5103	.001	23.50	35.25
9	Activity A (snack, lunch)	.1441	.0662	.0752	.0970	.4896	--	.0225	.0913
10	Activity B (grouptime, sharing, rest, story, singing, dancing)	.3190	.000	.2426	.1822	12.3882	.01	.0313	.3465
11	Activity C (numbers, alphabet, reading, language development)	.3295	.5491	.6631	.5003	6.5592	.05*	.8977	.6834
12	Activity D (finding out about people and how they live; finding out about the natural world)	.0227	.2350	.0381	.1041	4.4897	.05	.0597	.1264
13	Activity E (table games, guessing games, working puzzles)	.0227	.0192	.1341	.0518	2.0351	--	.0147	.1758
14	Activity F (arts, crafts, cooking, sewing, pounding)	.0564	.1303	.2460	.1350	2.6237	--	.0303	.3057
15	Activity G (blocks, trucks, dolls, dress-up, water play)	.0147	.0000	.1501	.0463	5.0182	.05	.0528	.1539
16	Active play	.0909	.0000	.0000	.0331	.8485	--	.0225	.0951
18	Adult with small group	.7551	.9615	1.4688	1.0248	3.3111	.10	1.1454	1.6212
19	Adult with large group	.8742	.0577	.3083	.4229	2.0031	--	.1048	.4166
20	Adult with 1 or 2 children in academic activities (C and D)	.000	.000	.1901	.0518	6.3027	.05	.0234	.1200
21	Adult with small group in academic activities	.2760	.7842	.9874	.6548	9.1453	.01*	1.0015	1.1349
22	Adult with large group in academic activities	.1818	.0000	.0368	.0762	.7248	--	.0294	.0788
23	Academic activities	.4123	.5491	1.1664	.6677	15.4994	.01	.9790	1.2013
24	Wide variety of activities	1.0147	1.000	1.9643	1.2684	464.0932	.001	1.1766	2.6183
25	Independent child activity	.6018	.0577	.7509	.4446	3.6973	.10	.3529	1.3778
26	Adult with 1 or 2 children	.0000	.0000	.0855	.0233	3.2410	.10	.0225	.0147
27	Aides' participation in academic activities	.0147	.0470	.4542	.1463	51.9201	.001	.0078	.6644
28	Groups of 1 child	.0417	.0385	.2581	.0995	4.1914	.10	.0156	.6151
30	Small groups	.7551	.9615	1.6994	1.0604	4.9049	.05	1.2782	1.7358
31	Large groups	.8742	.0769	.3271	.4351	2.8321	--	.1048	.4847
	Adults without children:								
32	Classroom management	.2408	.0748	.6173	.2831	8.4969	.05	.0625	.9063
33	Observing	.8691	.0000	.2055	.3722	72.3623	.001	.9012	.2467
34	Out of the room	.7419	.0192	.2160	.3357	7.4357	.05	.0685	.1971
35	Other	.1000	.0000	.1335	.0728	1.1293	--	.0156	.1025
36	Aide's participation in all activities	.0397	.0000	.0095	.0170	1.7593	--	.0625	.0060
37	Number of frames for this class	619.50	637.50	1818.0	952.9091	36.1279	.001	1396.75	2069.00
40	Adult informing child	7.5386	2.7759	2.6920	4.4849	24.2887	.001	10.08	5.0783
41	Adult direct request to child	8.3130	17.9306	9.4082	12.1090	14.4153	.01	14.4406	7.5869
42	Child response to adult direct request	7.5606	17.1932	7.8585	11.1446	18.284	.01	12.9189	6.7205
43	Adult corrective feedback to child response	.2412	.0583	.5233	.2516	3.1233	.10	1.5473	1.0088
44	Adult acknowledgment to child response	.6867	.3838	.8052	.6089	1.4189	--	2.6422	1.0574
45	Adult praise to child response	3.3681	4.0666	2.5947	3.4112	14.451	.01	2.0979	1.47
46	Adult direct request followed by child response followed by adult corrective feedback	.2259	.0389	.3770	.1991	2.0384	--*	1.3691	.8135
47	Adult direct request followed by child response followed by adult acknowledgment	2.4648	3.0721	2.1598	2.6025	6.3394	.05*	1.9451	1.3938

Appendix F

SITE DIFFERENCES WITHIN SPONSORS AND FALL-SPRING DIFFERENCES BY SITE

UNIVERSITY OF OREGON (UO)

Fall - All Activities				Spring - All Activities					Fall/Spring Differences					
									Site 11		Site 14		Overall Ratio	
Site 14	Overall	F Ratio	P	Site 11	Site 14	Overall	F Ratio	P	T Score	P	T Score	P	T Score	P
1779	.1746	9.9426	.01	.0622	.1558	.1090	45.2460	.001	4.00	.01	.70	NS	1.479	NS
.6667	4.5455	588.36	.001	2.750	6.000	4.3750	169.000	.001	7.00	.01	4.00	.05	1.561	NS
5.333	17.6364	62.5103	.001	23.50	35.25	29.375	7.679	.05	3.46	.05	1.32	NS	1.085	NS
0752	.0970	.4896	--	.0225	.0913	.0569	15.1214	.01	1.59	NS	.87	NS	.883	NS
2426	.1822	2.3882	.01	.0313	.3465	.1889	6.3816	.05	1.00	NS	1.25	NS	.870	NS
6631	.5003	6.5592	.05	.8977	.6834	.7905	8.4385	.001	3.15	.05	.24	NS	2.522	.05
0381	.1041	4.4897	.05	.0597	.1264	.0931	.8182	--	1.83	NS	1.05	NS	.829	NS
1341	.0518	2.0331	--	.0147	.1798	.0972	6.8032	.05	.19	NS	.16	NS	.090	NS
2460	.1350	2.6237	--	.0303	.3057	.1680	17.290	.01	1.36	NS	.05	NS	.822	NS
1501	.0463	5.0182	.05	.0528	.1559	.1044	1.9644	--	1.71	NS	.30	NS	.733	NS
0000	.0331	.8485	--	.0225	.0951	.0588	8.457	.05	1.59	NS	5.99	.01	2.929	.05
.4688	1.0248	3.3111	.10	1.1454	1.6212	1.3833	9.9324	.05	1.78	NS	.32	NS	.831	NS
3083	.4229	3.0031	--	.1048	.4166	.2607	9.7219	.05	.60	NS	.92	NS	.746	NS
1901	.0518	6.3027	.05	.0234	.1200	.0717	2.0438	--	1.00	NS	.32	NS	.044	NS
9874	.6548	9.1453	.01	1.0015	1.1345	1.0682	1.0315	--	4.52	.01	.25	NS	1.383	NS
0368	.0762	.7248	--	.0294	.0788	.0541	1.2988	--	1.00	NS	1.08	NS	1.399	NS
.1684	.6677	15.4996	.01	.9700	1.2013	1.0901	20.6475	.01	4.78	.01	.01	NS	1.621	NS
.9645	1.2684	464.0932	.001	1.1766	2.6183	1.8975	45.3099	.001	1.50	NS	2.45	.10	1.010	NS
7509	.4446	3.6973	.10	.3529	1.3778	.8654	14.0374	.01	1.21	NS	3.65	.05	1.557	NS
0855	.0233	3.2410	.10	.0225	.0147	.0186	.1464	--	1.59	NS	1.09	NS	.518	NS
4542	.1463	51.9201	.001	.0078	.6644	.3361	253.0080	.001	1.35	NS	2.75	.10	.440	NS
2581	.0995	4.1914	.10	.0156	.6151	.3154	18.4020	.01	.56	NS	2.41	.10	1.087	NS
.5994	1.0604	4.9049	.05	1.2782	1.7358	1.5070	4.0113	.10	1.58	NS	.29	NS	1.035	NS
9271	.4351	2.8321	--	.1048	.4847	.2947	14.0347	.01	.34	NS	1.10	NS	.713	NS
6173	.2831	8.4969	.05	.0625	.9063	.4844	58.0134	.001	.15	NS	2.10	NS	.582	NS
2055	.3722	72.3623	.001	.9012	.2467	.5740	75.2057	.001	15.62	.01	1.14	NS	3.973	.01
3160	.3357	7.4357	.05	.0685	.1971	.1328	5.022	.10	1.10	NS	.31	NS	.289	NS
1335	.0728	1.1293	--	.0156	.1025	.0591	1.0213	--	1.00	NS	.03	NS	.182	NS
0095	.0170	1.7593	--	.0625	.0060	.0342	.8112	--	1.00	NS	1.00	NS	.880	NS
918.0	952.9091	36.1279	.001	1396.75	2069.00	173.875	7,0082	.05	3.61	.05	.71	NS	1.656	NS
6920	4.4849	24.2887	.001	10.08	5.0783	7.5791	16.21	.01	6.17	.01	1.99	NS	4.137	.01
4082	12.1090	14.4153	.01	14.4406	7.5869	11.0137	61.6081	.001	2.29	.10	1.34	NS	1.139	NS
8585	11.1446	18.284	.01	12.9189	6.7205	9.8197	46.0421	.001	2.78	.05	.89	NS	1.170	NS
9233	.2516	3.1233	.10	1.5473	1.0088	1.2781	1.9352	--	4.17	.01	1.78	NS	4.063	.01
0032	.6089	1.4189	--	2.6422	1.0574	1.8498	4.3487	.10	3.01	.05	.51	NS	2.472	.05
5947	3.4112	14.451	.01	2.0979	1.47	1.784	.9323	--	3.03	.05	4.05	.05	3.355	.01
770	.1991	2.0384	--	1.3691	.8135	1.0913	2.046	--	3.69	.05	1.81	NS	3.797	.01
1598	2.6025	6.3394	.05	1.9451	1.3938	1.6695	.8161	--	1.87	NS	3.14	.05	2.484	.05

Variables No.	Name	Fall - All Activities Site 3	Site 11	Site 14	Overall	F Ratio	P	Site 11
48	Adult direct request followed by child response followed by adult praise	.2846	.2569	.5325	.3421	1.6011	--[*]	2.4398
49	Adult choice request to child	.7370	4.0027	2.8584	2.5031	13.3349	.01	.0132
50	Child response to adult choice request	.6814	3.9744	2.5027	2.3756	14.1052	.01	.0132
51	Extended child response to adult choice request question	.0000	.0000	.0860	.0235	45.2751	.001	.0000
52	Adult praise to child	5.3207	4.2397	3.4630	4.421	4.8332	.05[*]	2.4392
53	Adult acknowledgment to child	1.0894	.4033	1.0141	.8194	2.6906	--[*]	3.0465
54	Adult positive corrective feedback to child	.0000	.0000	1.1067	.3018	33.808	.001[*]	.0715
55	Adult negative corrective feedback to child	.0000	.0000	.7674	.2093	217.7466	.001	.6264
56	All adult corrective feedback to child	.2412	.0583	2.0364	.6643	35.0327	.001	2.8454
59	All child self-instruction	.0000	.0000	.0000	.0000	I	--	.0000
60	Child asking questions of adults	.9354	.1746	.9860	.6725	8.3328	.05	.4164
61	Child self-expression, general comments	5.9214	.4398	12.6548	5.7645	17.4212	.01	1.0930
62	Adult interaction with 1 or 2 children	12.255	13.6953	14.1936	13.3075	.5528	--	10.9242
63	Adult interaction with small group	7.8598	16.6412	9.998	11.6362	6.1723	.05[*]	25.0819
64	Adult interaction with large group	5.1728	.1166	4.1676	3.0601	1.7064	--	.0525
65	Adult negative behavior	.1774	.0000	.6226	.2343	21.0301	.001	.0476
66	Adult positive behavior	.0767	.0000	.1891	.0795	2.5286	--	.3574
67	Child negative behavior	1.6164	.0281	.2355	.6622	25.4421	.001	.0955
68	Child positive behavior	.1708	.0000	.2938	.1422	1.5485	--	.5533
69	Child initiates interaction with adult	2.4228	.2506	2.6747	1.7016	7.4492	.05	1.3503
70	Child initiates interaction with other child	11.5329	.3045	3.4035	5.2328	5.5706	.05[*]	.4768
71	Child non-verbal	1.0182	.0210	1.4617	.7765	5.843	.05	.4240
72	Child cooperates with other children	.0000	.0000	.0000	.0000	I	--	.0661
73	Adult to child positive touch	.0767	.0000	.0097	.0305	.7618	--	.0000
74	Adult to child negative touch	.0460	.0000	.1137	.0477	2.9543	--	.0000
75	Child gives positive touch	.0000	.0000	.0000	.0000	I	--	.0149
76	Child gives negative touch	.0499	.0000	.0228	.0244	.0648	--	.0000
77	Adult helps child	.1162	.8964	.3134	.4537	4.7532	.05	.0661
78	Adult refuses, rejects child	.0274	.0000	.1950	.0632	7.1418	.05	.0297
79	Child refuses, rejects adult	.0153	.0000	.0340	.0149	1.4411	--	.0000
80	Child interacts with machine	2.0831	.4398	8.6162	3.2673	43.3292	.001	1.9543
81	All motion							1.9151
82	All positive behavior	.2475	.0000	.5900	.2509	5.2352	.05	.9106
83	All negative behavior	1.9325	.0281	1.0452	.9980	48.8308	.001	.7298

[*] Sponsor prediction.

UO (Concluded)

Fall - All Activities					Spring - All Activities					Fall/Spring Differences					
										Site 11		Site 14		Overall Ratio	
Site 11	Site 14	Overall	F Ratio	P	Site 11	Site 14	Overall	F Ratio	P	T Score	P	T Score	P	T Score	P
.2369	.5325	.3421	1.6011	--	2.4398	.9473	1.6935	4.3452	.10	3.10	.05	1.31	NS	2.724	.05
4.0027	2.8584	2.5031	13.3349	.01	.0132	.2563	.1348	2.3722	--	5.59	.01	11.34	.01	7.591	.01
3.9744	2.5027	2.3756	14.1052	.01	.0132	.2141	.1136	2.8386	--	5.77	.01	9.86	.01	6.830	.01
.0000	.0860	.0235	45.2751	.001	.0000	.0060	.0030	1.000	--	1	--	5.58	.01	2.011	.1
1.2397	3.4630	1.421	4.8332	.05	2.4392	1.8859	2.1625	.6329	--	2.63	.05	1.01	.05	3.912	.01
.4033	1.0141	.8194	2.6906	--	3.0465	1.1512	2.0989	6.4855	.05	3.64	.05	.06	NS	2.539	.05
.0000	1.1067	.3018	33.808	.001	.0715	.3202	.1958	5.7508	.10	1.00	NS	3.49	.05	1.290	NS
.0000	.7674	.2093	217.7466	.001	.6264	.4284	.5274	1.1417	--	13.22	.01	2.22	.10	.679	NS
.0583	2.0361	.6643	35.0327	.001	2.8154	2.4505	2.648	.6151	--	6.21	.01	.69	NS	3.408	.01
.0000	.0000	.0000	1	--	.0000	.0314	.0157	1.8995	--	1	--	1.00	NS	1.000	NS
.1746	.9860	.6725	8.3328	.05	.4164	.7525	.5845	9.8352	.05	2.19	.10	.91	NS	.184	NS
.4398	12.6548	5.7645	17.4212	.01	1.0930	15.123	8.1080	277.1551	.001	2.58	.05	1.87	NS	.332	NS
13.6953	14.1936	13.3075	.5528	--	10.9242	11.2715	11.0979	.0558	--	2.28	.10	1.60	NS	2.947	.05
16.6412	9.998	11.6362	6.1723	.05	25.0819	9.5447	17.3133	68.7703	.001	4.44	.01	.31	NS	1.223	NS
.1168	4.1676	3.0601	1.7064	--	.0525	2.1375	1.0950	15.614	.01	.52	NS	1.25	NS	.790	NS
.0000	.6226	.2343	21.0301	.001	.0476	.2509	.1492	3.3999	.10	1.26	NS	3.38	.05	1.162	NS
.0000	.1891	.0795	2.5286	--	.3574	.3692	.3633	.0059	--	4.92	.01	.61	NS	3.382	.01
.0281	.2355	.6622	25.4421	.001	.0955	.6292	.3623	5.8684	.10	1.14	NS	2.17	.10	1.308	NS
.0000	.2938	.1422	1.5485	--	.5533	1.7853	1.1743	9.7362	.05	2.30	.10	3.89	.05	3.118	.01
.2506	2.6747	1.7016	7.4492	.05	1.3503	2.9887	2.1695	2.2435	.01	4.23	.01	.47	NS	1.157	NS
.3045	3.4035	5.2328	5.5706	.05	.4768	5.0816	2.7792	50.3306	.001	.64	NS	1.65	NS	.609	NS
.0210	1.4617	.7765	5.843	.05	.4210	2.4072	1.4156	29.8786	.01	1.72	NS	2.27	.10	1.264	NS
.0000	.0000	.0000	1	--	.0661	.0786	.0724	.0483	--	1.67	NS	2.37	.10	2.941	.05
.0000	.0097	.0305	.7618	--	.0000	.0060	.0030	1.000	--	1	--	1.00	NS	1.000	NS
.0000	.1137	.0477	2.9543	--	.0000	.0076	.0038	1.000	--	1	--	3.50	.01	1.732	NS
.0000	.0000	.0000	1	--	.0149	.0000	.0074	1.000	--	1.00	NS	1	--	1.000	NS
.0000	.0228	.0244	.0648	--	.0000	.0736	.0368	2.8161	--	1	--	.56	NS	.564	NS
.8964	.3134	.4537	4.7532	.05	.0661	.3276	.1968	26.2389	.01	2.93	.05	.04	NS	2.337	.05
.0000	.1950	.0632	7.1418	.05	.0297	.0136	.0217	.2733	--	1.00	NS	2.51	.10	1.222	NS
.0000	.0340	.0149	1.4411	--	.0000	.0653	.0326	1.884	--	1	--	.66	NS	.622	NS
.4398	8.6162	3.2673	43.3292	.001	1.9543	9.7164	5.8353	72.0556	.001	3.19	.05	1.21	NS	.629	NS
					1.9151	1.3067	1.6109	1.3890	--						
.0000	.5900	.2509	5.2352	.05	.9106	2.6592	1.7849	6.4539	--	2.94	.05	2.28	.10	2.780	.05
.0281	1.0452	.9980	48.8308	.001	.7298	3.4309	2.0803	105.8447	.001	7.45	.01	6.79	.01	2.372	.05

Appendix F

SITE DIFFERENCES WITHIN SPONSORS AND FALL-SPRING DIFFER

UNIVERSITY OF KANSAS (UK)

Variables No.	Name	Fall - All Activities Site 2	Site 4	Site 8	Overall	F Ratio	P	Spring Site 2	Site 4	Site
6	Adult/child ratio	.2166	.3056	.2956	.2726	1.997	--*	.1732	.2175	.191
7	Length of school day	4.25	6.00	8.00	6.0833	14.4857	.01	3.25	6.00	7.00
8	Number of COPs for class	22.75	40.00	37.50	33.4167	50.6599	.001	25.00	40.00	38.2
9	Activity A (snack, lunch)	.0653	.1062	.1398	.1038	15.3855	.01	.1309	.1437	.059
10	Activity B (grouptime, sharing, rest, story, singing, dancing)	.3651	.2375	.2988	.3005	2.0889	--	.3085	.2812	.364
11	Activity C (numbers, alphabet, reading, language development)	.4246	.4500	.3392	.4046	1.0074	--*	.4371	.3937	.248
12	Activity D (finding out about people and how they live; finding out about the natural world)	.1795	.1125	.0750	.1223	.5992	--	.0991	.0938	.039
13	Activity E (table games, guessing games, working puzzles)	.2395	.2000	.0609	.1668	7.6033	.05	.1733	.1375	.072
14	Activity F (arts, crafts, cooking, sewing, pounding)	.2831	.6062	.1548	.3481	34.2836	.001	.1510	.2500	.066
15	Activity G (blocks, trucks, dolls, dress-up, water play)	.0702	.0500	.0939	.0713	.5546	--	.0303	.0375	.051
16	Active play	.1854	.0437	.0451	.0914	3.5418	.10	.1076	.0625	.065
18	Adult with small group	2.2533	2.1812	1.1719	1.8688	15.5937	.01	2.0917	2.1687	.934
19	Adult with large group	.3170	.4000	.2977	.3382	1.2641	--	.4323	.3812	.307
20	Adult with 1 or 2 children in academic activities (C and D)	.1259	.1187	.0639	.1028	.2368	--	.0235	.0187	.026
21	Adult with small group in academic activities	1.2860	1.250	.7795	1.1052	2.9679	--*	1.2656	1.4125	.694
22	Adult with large group in academic activities	.000	.0062	.0294	.0119	.7967	--	.0385	.0000	.012
23	Academic activities	1.1071	1.2562	.7831	1.0488	2.3412	--	1.2358	1.3375	.694
24	Wide variety of activities	2.8040	2.400	1.574	2.0193	7.2755	.05	1.7314	1.8562	1.25
25	Independent child activity	.8525	.2062	.7094	.5894	6.0871	.05	.6545	.3937	.905
26	Adult with 1 or 2 children	.0104	.0812	.0382	.0433	3.3762	.10	.0303	.0562	.026
27	Aides' participation in academic activities	.3937	.9000	.4997	.5978	17.4257	.01	.5670	.7437	.398
28	Groups of 1 child	.1395	.2000	.2382	.1926	.4682	--	.2544	.1687	.335
30	Small groups	2.2533	1.1812	1.1781	1.8709	15.1947	.01	2.1089	2.2437	.910
31	Large groups	.3170	.4000	.2977	.3382	1.2641	--	.4586	.3812	.325
	Adults without children:									
32	Classroom management	1.4173	1.9125	.7240	1.3513	10.7276	.01	1.3848	1.5250	.488
33	Observing	.5156	.3062	.3107	.3775	2.4559	--	.5094	.4312	.620
34	Out of the room	.4654	.3500	.5366	.4507	5.0549	.05	.3615	.4625	.689
35	Other	.1088	.1375	.2810	.1753	3.4457	.10	.1182	.1000	.321
36	Aide's participation in all activities	.0000	.0812	.0199	.0337	6.6199	.05	.0000	.0437	.247
37	Number of frames for this class	1357.25	2359.5	2113.25	1943.33	38.4278	.001	1436.0	2378.5	2205
40	Adult informing child	5.0556	1.0933	2.152	2.7667	6.4135	.05	3.6264	.9587	1.18
41	Adult direct request to child	5.7607	13.3082	6.4136	8.4942	57.6309	.001	5.0574	11.557	5.18
42	Child response to adult direct request	4.2807	12.3984	5.4197	7.3696	76.4305	.001	3.0353	11.3739	4.26
43	Adult corrective feedback to child response	.6072	1.2077	.6504	.8218	5.6793	.05	.5128	1.5569	.660
44	Adult acknowledgment to child response	.7266	1.8739	.0603	.8869	14.3218	.01	.5489	1.1176	.369
45	Adult praise to child response	1.7588	1.6926	1.6285	1.6933	.0305	--	.8211	2.0986	.899
46	Adult direct request followed by child response followed by adult corrective feedback	.4806	1.1695	.4660	.7054	13.7883	.01*	.3982	1.5506	.393
47	Adult direct request followed by child response followed by adult acknowledgment	1.3672	1.6352	1.3856	1.4627	.1729	--*	.6622	2.0238	.710

Appendix F

FFERENCES WITHIN SPONSORS AND FALL-SPRING DIFFERENCES BY SITE

UNIVERSITY OF KANSAS (UK)

ities			Spring - All Activities						Fall/Spring Differences							
									Site 2		Site 4		Site 8		Overall Ratio	
1	F Ratio	P	Site 2	Site 4	Site 8	Overall	F Ratio	P	T Score	P	T Score	P	T Score	P	T Score	P
	1.997	--*	.1732	.2175	.1915	.1941	.2377	--	.67	NS	1.32	.10	3.09	.05	2.405	.05
	14.4857	.01	3.25	6.00	7.00	5.4167	28.5789	.01	.94	NS	I	--	R	--	.904	NS
7	50.8599	.001	25.00	40.00	38.25	34.4167	8.2163	.01	.44	NS	I	--	.44	NS	.288	NS
	15.3855	.01	.1309	.1437	.0591	.1113	4.8651	.05	1.91	NS	4.24	.01	4.66	.01	.399	NS
	2.0889	--	.3085	.2812	.3646	.3181	.6979	--	.66	NS	.96	NS	1.02	NS	.442	NS
	1.0074	--*	.4371	.3937	.2488	.3599	8.2852	.05	.12	NS	1.57	NS	2.70	.05	.994	NS
	.5992	--	.0994	.0938	.0391	.0774	.2577	--	.72	NS	.16	NS	.92	NS	867	NS
	7.6033	.05	.1733	.1375	.0728	.1279	2.3128	--	1.13	NS	1.19	NS	.48	NS	1.076	NS
	34.2838	.001	.1510	.2500	.0662	.1558	7.3141	.05	2.62	.05	5.30	.01	2.61	.05	2.854	.05
	.5546	--	.0303	.0375	.0515	.0398	.2530	--	.89	NS	.36	NS	1.50	NS	1.581	NS
	3.5418	.10	.1076	.0625	.0659	.0787	.4545	--	.91	NS	.45	NS	.76	NS	.351	NS
	15.5937	.01	2.0917	2.1687	.9344	1.7316	10.7804	.01	.40	NS	.08	NS	1.97	.10	.520	NS
	1.2641	--	.4323	.3812	.3070	.3735	1.5150	--	2.28	.10	.23	NS	.13	NS	.839	NS
	.2368	--	.0235	.0187	.0265	.0229	.0673	--	1.02	NS	1.48	NS	1.43	NS	2.093	.05
	2.9679	--*	1.2656	1.4125	.6943	1.1241	6.3744	.05	.06	NS	1.12	NS	.66	NS	.115	NS
	.7967	--	.0385	.0000	.0128	.0171	.7000	--	1.00	NS	1.00	NS	.52	NS	.317	NS
	2.3412	--	1.2358	1.3375	.6945	1.0892	4.5464	.10	.40	NS	.42	NS	.77	NS	.257	NS
	7.2755	.05	1.7314	1.8562	1.2576	1.6151	15.1774	.01	1.31	NS	4.76	.01	3.98	.91	2.563	.05
	6.0871	.05	.6545	.3937	.9058	.6514	3.2820	.10	.77	NS	.97	NS	1.67	NS	.422	NS
	3.3762	.10	.0303	.0562	.0263	.0376	.4799	--	.84	NS	.58	NS	.62	NS	.304	NS
	17.4257	.01	.5670	.7437	.3969	.5692	6.0071	.05	2.03	.10	1.59	NS	1.01	NS	.308	NS
	.4682	--	.2544	.1687	.3358	.2530	1.0383	--	.89	NS	.29	NS	1.12	NS	.973	NS
	15.1947	.01	2.1089	2.2437	.9409	1.7646	11.4412	.01	.36	NS	.39	NS	1.88	NS	.397	NS
	1.2641	--	.4586	.3812	.3258	.3885	1.5088	--	3.13	.05	.23	NS	.34	NS	1.157	NS
	10.7276	.01	1.3848	1.5250	.4882	1.1327	7.2102	.05	.08	NS	1.80	NS	1.86	NS	.879	NS
	2.4559	--	.5094	.4312	.6205	.5204	1.2241	--	.04	NS	1.87	NS	3.15	.05	2.017	.10
	5.0549	.05	.3615	.4625	.6890	.5044	12.0298	.01	1.86	NS	1.85	NS	2.06	.10	.926	NS
	3.4457	.10	.1182	.1000	.3248	.1810	7.6578	.05	.13	NS	.53	NS	.81	NS	.101	NS
	6.8199	.05	.0000	.0437	.2476	.0971	13.1282	.01	I	--	.93	NS	4.05	.01	1.584	NS
	38.4278	.001	1436.0	2378.5	2205.5	2006.6667	9.3064	.01	.26	NS	3.19	.05	.79	NS	.312	NS
	6.4135	.05	3.6264	.9587	1.1829	1.9227	12.0623	.01	.97	NS	.58	NS	1.76	NS	1.075	NS
	57.6309	.001	5.0574	11.967	5.1826	7.4023	64.2624	.001	1.04	NS	1.35	NS	2.78	.05	.744	NS
	76.4305	.001	3.0353	11.3739	4.2666	6.2253	117.0226	.001	3.44	.05	1.05	NS	2.66	.05	.722	NS
	8.6793	.05	.5126	1.5569	.6603	.9099	12.3328	.01	.41	NS	1.29	NS	.10	NS	.449	NS
	14.3218	.01	.5489	1.1176	.3592	.6752	3.1264	.10	1.03	NS	1.41	NS	3.08	.05	.705	NS
	.0305	--	.8211	2.0996	.8991	1.2732	10.5598	.01	2.82	.05	.70	NS	2.18	.10	1.461	NS
	13.7883	.01*	.3982	1.5506	.3955	.7815	20.1388	.001	.47	NS	1.50	NS	.95	NS	.355	NS
	.1729	--*	.6622	2.0238	.7106	1.1322	20.5408	.001	2.27	.10	.71	NS	2.42	.10	1.162	NS

UK (Concluded)

Variables		Fall - All Activities						Spring		
No.	Name	Site 2	Site 4	Site 8	Overall	F Ratio	P	Site 2	Site 4	Sit
48	Adult direct request followed by child response followed by adult praise	.5125	1.7087	.0530	.7581	14.5965	.01*	.3436	1.0734	.24
49	Adult choice request to child	.3624	.2672	.5418	.3905	2.0033	--	.6392	.1771	.41
50	Child response to adult choice request	.2577	.2545	.4797	.3306	2.8351	--	.5136	.1581	.37
51	Extended child response to adult choice request question	.0000	.0000	.0286	.0095	361.6845	.001	.0339	.0000	.01
52	Adult praise to child	4.45	2.5138	2.7089	3.2242	3.7694	.10*	3.2415	3.3935	1.1
53	Adult acknowledgment to child	1.3103	2.6423	1.1754	1.3760	8.5088	.01*	1.2171	1.3511	.53
54	Adult positive corrective feedback to child	1.8219	1.5888	.6766	1.3625	4.6703	.05*	2.0274	1.6202	.80
55	Adult negative corrective feedback to child	.0669	.0127	.3128	.1308	22.6389	.001	.0000	.0063	.78
56	All adult corrective feedback to child	2.5549	1.6586	1.6334	1.9490	1.3728	--	2.7428	1.9291	2.2
59	All child self-instruction	.0000	.0000	.0073	.0024	1.000	--	.0439	.0000	.03
60	Child asking questions of adults	1.1584	1.647	.9682	1.2579	2.0386	--	1.5298	.8009	.93
61	Child self-expression, general comments	16.9294	10.5107	15.4496	14.2966	13.0919	.01	17.2074	16.8584	15.
62	Adult interaction with 1 or 2 children	15.0266	20.589	14.181	16.5989	8.6595	.01*	18.4709	19.0576	12.
63	Adult interaction with small group	6.4816	2.1866	2.0039	3.5574	5.8098	.05	2.3307	1.8360	1.8
64	Adult interaction with large group	3.9532	3.7612	.9231	2.8792	4.1537	.10	2.0498	4.4957	2.5
65	Adult negative behavior	.0109	.1655	.0661	.0809	2.637	--	.0000	.0441	.06
66	Adult positive behavior	.7404	.0000	.0904	.2770	2.8795	--	.2837	.1634	.19
67	Child negative behavior	.3679	.2288	.2530	.2832	.7295	--	.1524	.1263	.54
68	Child positive behavior	2.486	6.9145	1.3258	3.5754	25.6898	.001	1.2269	3.6636	2.0
69	Child initiates interaction with adult	2.6145	1.8376	2.2439	2.232	1.8918	--	2.8603	.9209	1.8
70	Child initiates interaction with other child	3.4133	1.0431	5.3942	3.2835	15.3321	.01	2.7675	.2150	4.6
71	Child non-verbal	1.5295	1.5135	2.2071	1.75	2.873	--	1.6818	.3790	2.7
72	Child cooperates with other children	.1124	.0000	.0475	.0533	1.0309	--	.0000	.0000	.05
73	Adult to child positive touch	.0588	.0000	.0000	.0196	1.6424	--	.0088	.0000	.00
74	Adult to child negative touch	.0324	.1528	.0073	.0642	3.1287	--	.0000	.0378	.06
75	Child gives positive touch	.2354	.0000	.0066	.0707	9.8879	.01	.0168	.0000	.07
76	Child gives negative touch	.1061	.1018	.0148	.0742	2.4101	--	.0856	.0443	.10
77	Adult helps child	1.1351	.3561	.9552	.8154	6.9433	.05	1.3242	.1322	.70
78	Adult refuses, rejects child	.0000	.0127	.0000	.0042	1.000	--	.0000	.0000	.01
79	Child refuses, rejects adult	.0000	.0954	.1274	.0743	3.6443	.10	.0088	.0820	.06
80	Child interacts with machine	13.8734	11.4375	18.1139	14.4789	8.1631	.01	14.314	18.8897	3.9
81	All motion							5.2363	.1329	4.0
82	All positive behavior	4.559	10.0420	1.4162	5.338	48.5349	.001	1.5097	4.9254	2.3
83	All negative behavior	.4348	.4198	.5969	.4838	.6101	--	.1912	.2209	1.3

*Sponsor prediction.

UK (Concluded)

ies			Spring - All Activities						Fall/Spring Differences							
									Site 2		Site 4		Site 6		Overall Ratio	
I	F Ratio	P	Site 2	Site 4	Site 8	Overall	F Ratio	P	T Score	P	T Score	P	T Score	P	T Score	P
	14.5965	.01	.3436	1.0734	.2419	.5330	4.9874	.05	1.76	NS	1.25	NS	2.78	.05	.718	NS
	2.0033	--	.6392	.1771	.4108	.4090	3.1628	.10	1.40	NS	.63	NS	.93	NS	.172	NS
	2.8351	--	.3136	.1581	.3756	.3491	2.5282	--	1.82	NS	.76	NS	.4	NS	.206	NS
	361.6615	.001	.0339	.0000	.0134	.0158	1.5075	--	1.49	NS	1	--	1.93	NS	.667	NS
	3.7694	.10	3.2415	3.3935	1.4335	2.6895	7.4503	.05	2.27	.10	.94	NS	2.72	.05	1.035	NS
	8.5086	.01	1.2171	1.3511	.5368	1.0350	2.5474	--	.33	NS	1.59	NS	2.55	.05	.819	NS
	4.6703	.05	2.0274	1.6202	.8028	1.4833	6.2517	.05	.41	NS	.09	NS	.68	NS	.416	NS
	22.6389	.001	.0000	.0063	.7833	.2632	11.2458	.01	3.07	.05	.45	NS	1.97	.10	.959	NS
	1.3728	--	2.7428	1.9291	2.2910	2.2310	1.5513	--	.23	NS	.67	NS	2.61	.05	1.218	NS
	1.000	--	.0139	.0000	.0543	.0327	.9851	--	1.00	NS	1	--	1.83	NS	1.791	.10
	2.0386	--	1.5298	.8009	.9395	1.0901	6.0706	.05	.93	NS	4.72	.01	.12	NS	.843	NS
8	13.0919	.01	17.2071	16.8584	15.3768	16.4809	.1945	--	.08	NS	4.29	.01	.06	NS	1.140	NS
9	8.6595	.01	18.4709	19.0376	12.2980	16.6088	21.0842	.01	2.61	.05	.85	NS	1.72	NS	.007	NS
	5.8098	.05	2.3307	1.8360	1.6817	1.9195	.9478	--	2.41	.10	.58	NS	.56	NS	1.881	.10
	4.1537	.10	2.0496	4.4957	2.536	3.0271	3.4521	.10	1.36	NS	.89	NS	1.70	NS	.191	NS
	2.637	--	.0000	.0441	.0676	.0373	8.8319	.01	1.00	NS	1.53	NS	.05	NS	1.306	NS
	2.8795	--	.2632	.1631	.1911	.2069	.2230	--	1.13	NS	1.17	NS	1.38	NS	.413	NS
	.7295	--	.1824	.1263	.5180	.2856	5.854	.05	1.26	NS	1.35	NS	1.98	.10	.026	NS
	25.6898	.001	1.2299	3.6636	2.0919	2.3274	2.0639	--	1.74	NS	2.14	.10	1.21	NS	1.308	NS
	1.8918	--	2.8603	.9209	1.8599	1.8804	9.7194	.01	.51	NS	5.71	.01	.74	NS	1.040	NS
	15.3321	.01	2.7675	.2150	4.6730	2.5518	17.58	.001	.66	NS	2.21	.10	.87	NS	.843	NS
	2.873	--	1.6816	.3790	2.7264	1.5927	6.3002	.05	.41	NS	5.48	.01	.45	NS	.377	NS
	1.0309	--	.0000	.0000	.0589	.0196	1.8650	--	1.19	NS	1	--	.25	NS	.943	NS
	1.6424	--	.0088	.0000	.0000	.0029	1.000	--	1.07	NS	1	--	1	--	1.015	NS
	3.1287	--	.0000	.0378	.0668	.0349	2.7845	--	1.55	NS	1.54	NS	1.89	NS	.894	NS
	9.8879	.01	.0168	.0000	.0778	.0315	1.7750	--	2.92	.05	1	--	1.35	NS	.990	NS
	2.4101	--	.0856	.0443	.1014	.0771	.6580	--	.31	NS	1.33	NS	2.56	.05	.056	NS
	6.9433	.05	1.3242	.1322	.7007	.7191	7.9485	.05	.48	NS	2.35	.10	1.27	NS	.430	NS
	1.000	--	.0000	.0000	.0132	.0044	1.000	--	1	--	1.00	NS	1.00	NS	.028	NS
	3.6442	.10	.0088	.0820	.0679	.0529	2.2263	--	1.00	NS	.32	NS	.97	NS	.724	NS
9	8.1531	.01	14.314	18.8897	3.9697	12.3911	17.1222	.001	.13	NS	4.49	.01	17.11	.01	.885	NS
			5.2363	.1329	4.0408	3.1367	37.3184	.001								
	48.5349	.001	1.5097	4.8754	2.2860	2.9070	2.6257	--	4.08	.01	2.62	.05	1.27	NS	1.817	.10
	.6101	--	.1912	.2209	1.3584	.5901	9.5024	.01	1.47	.10	1.46	NS	2.02	NS	.504	NS

Appendix F

SITE DIFFERENCES WITHIN SPONSORS AND FALL-SPRING DIF

HIGH/SCOPE (HS)

Variables No.	Name	Fall - All Activities Site A	Site 6	Site 10	Overall	F Ratio	P	Spring Site 2	Site 6	Site
6	Adult/child ratio	.1502	.2275	.2178	.2005	2.0082	--	.1485	.2523	.204
7	Length of school day	8.000	4.000	5.000	5.6667	4.3333	.05	4.000	4.000	2.00
8	Number of COPs for class	39.000	23.50	21.75	28.0833	81.6415	.001	22.25	22.50	20.0
9	Activity A (snack, lunch)	.2872	.1495	.3162	.2510	6.2897	.05	.2167	.1089	.242
10	Activity B (grouptime, sharing, rest, story, singing, dancing)	.3872	.3102	.3062	.3346	.7896	--	.3215	.6096	.406
11	Activity C (numbers, alphabet, reading, language development)	.0000	.0224	.0125	.0783	35.3022	.001	.0000	.2898	.045
12	Activity D (finding out about people and how they live; finding out about the natural world)	.0650	.0960	.1083	.0898	.1911	--	.1094	.1413	.024
13	Activity E (table games, guessing games, working puzzles)	.0888	.3496	.2510	.2298	12.4282	.01	.1090	.3817	.182
14	Activity F (arts, crafts, cooking, sewing, pounding)	.1655	.3822	.2825	.2768	5.8514	.05	.3058	.3887	.287
15	Activity G (blocks, trucks, dolls, dress-up, water play)	.0581	.0213	.0478	.0424	.7573	--	.1089	.0000	.111
16	Active play	.1092	.0639	.0892	.0874	.6734	--	.1685	.1397	.043
18	Adult with small group	.6352	1.1898	1.4486	1.0912	9.092	.05	.8025	1.0788	1.62
19	Adult with large group	.9439	.6920	.4224	.6861	3.7592	.10	1.0156	.6721	.313
20	Adult with 1 or 2 children in academic activities (C and D)	.0267	.1060	.0500	.0609	1.1735	--	.0510	.2268	.028
21	Adult with small group in academic activities	.0589	.0530	.0562	.0561	.0112	--	.0584	.0983	.041
22	Adult with large group in academic activities	.0321	.1907	.0479	.0902	6.3314	.05	.0	.1769	.000
23	Academic activities	.0135	.2432	.0225	.0931	17.378	.001	.0000	.3224	.062
24	Wide variety of activities	1.3272	2.1676	1.8779	1.7909	18.1479	.001	1.7365	2.4864	1.58
25	Independent child activity	.4158	.9878	.8011	.7349	5.8087	.05	.7149	1.8997	.609
26	Adult with 1 or 2 children	.0198	.1051	.0564	.0601	2.7666	.10	.0227	.1804	.012
27	Aides' participation in academic activities	.000	.0208	.000	.0069	1.000	--	.0000	.0914	.039
28	Groups of 1 child	.1868	.4434	.2726	.3009	1.9568	--	.0988	1.2972	.153
30	Small groups	.6352	1.1898	1.4686	1.0978	6.1733	.05	.8410	1.0788	1.71
31	Large groups	.9439	.6920	.4224	.6861	3.7592	.10	1.0156	.6721	.336
	Adults without children:									
32	Classroom management	.6256	.4457	.5115	.5276	1.5484	--	.6161	.5601	.648
33	Observing	.0000	.5747	.6096	.3948	67.7065	.001	.2472	.3834	.297
34	Out of the room	.2951	1.2736	.4999	.6895	19.3831	.001	.1402	1.1207	.052
35	Other	.1581	.1495	.1117	.1397	.0791	--	.0358	.1393	.314
36	Aide's participation in all activities	.0000	.0213	.0000	.0071	2.9973	--	.0125	.0000	.048
37	Number of frames for this class	2313.00	1380.50	1231.50	1641.67	80.3122	.001	1317.25	1296.75	928.
40	Adult informing child	9.2651	1.6634	1.8320	4.2535	198.7327	.001	4.0345	.7896	5.37
41	Adult direct request to child	5.8507	7.5576	8.2945	7.2342	1.3013	--	1.6523	5.3918	8.80
42	Child response to adult direct request	5.589	6.0611	6.1679	5.9393	.1057	--	.7090	5.0494	5.19
43	Adult corrective feedback to child response	.2713	.7587	1.0068	.6789	6.4276	.05	.1527	.2869	.172
44	Adult acknowledgment to child response	1.3272	.8224	1.8978	1.349	3.2999	.10	.2314	1.0254	.354
45	Adult praise to child response	1.8205	.2494	.8963	.9888	7.2474	.05	.1776	.1762	.448
46	Adult direct request followed by child response followed by adult corrective feedback	.1404	.6061	.6891	.4785	6.0572	.05	.0255	.1666	.139
47	Adult direct request followed by child response followed by adult acknowledgment	.7851	.1629	.6471	.5317	8.3096	--	.0467	.1309	.300

Appendix F

E DIFFERENCES WITHIN SPONSORS AND FALL-SPRING DIFFERENCES BY SITE

HIGH/SCOPE (HS)

ities			Spring - All Activities						Fall/Spring Differences							
									Site 2		Site 6		Site 10		Overall Ratio	
all	F Ratio	P	Site 2	Site 6	Site 10	Overall	F Ratio	P	T Score	P	T Score	P	T Score	P	T Score	P
5	2.0082	--	.1485	.2523	.2045	.2018	10.9431	.01	.487	NS	.626	NS	.391	NS	.056	NS
67	4.3333	.05	1.000	4.000	2.000	3.333	2.1818	--	2.954	.05	I	--	1.732	NS	2.637	.05
833	81.6415	.001	22.25	22.50	20.00	21.5833	.6982	--	11.219	.01	.577	NS	.701	NS	2.526	.05
0	6.2897	.05	.2167	.1089	.2423	.1893	4.3142	.10	1.789	NS	1.533	NS	1.045	NS	1.622	NS
6	.7896	--	.3215	.6096	.4062	.4458	11.3029	.01	1.125	NS	3.650	.05	1.667	NS	2.139	.10
3	35.3022	.001	.0000	.2898	.0458	.1119	12.6841	.01	I	--	.876	NS	.985	NS	.607	NS
8	.1911	--	.1094	.1415	.0244	.0918	4.0765	.10	.935	NS	1.317	.05	.998	NS	.057	NS
8	12.4282	.01	.1090	.3817	.1824	.2244	16.4724	.001	.292	NS	.683	NS	2.394	.10	.100	NS
6	5.8514	.05	.3058	.3987	.2670	.3238	1.4021	--	1.732	NS	.320	NS	.191	NS	.954	NS
4	.7573	--	.1089	.0000	.1113	.0734	5.1151	.10	1.596	NS	1.731	NS	1.238	NS	1.253	NS
4	.6734	--	.1685	.1397	.0437	.1173	1.3907	--	2.011	.10	.849	NS	.880	NS	.818	NS
12	6.092	.05	.8025	1.0786	1.6238	1.1883	3.6282	.10	.655	NS	.349	NS	.701	NS	.377	NS
1	3.7592	.10	1.0156	.6721	.3137	.6671	24.8921	.001	.303	NS	.312	NS	1.142	NS	.142	NS
9	1.1735	--	.0510	.2208	.0288	.1001	4.5009	.10	.592	NS	1.358	NS	.406	NS	.918	NS
1	.0112	--	.0584	.0983	.0417	.0661	.5613	--	.014	NS	.741	NS	.353	NS	.386	NS
2	6.5314	.05	.0000	.1769	.0000	.0590	602.4708	.001	1.000	NS	.386	NS	1.353	NS	.830	NS
1	17.376	.001	.0000	.3224	.0625	.1283	7.8264	.05	1.000	NS	.737	NS	.814	NS	.551	NS
09	18.1479	.001	1.7365	2.4864	1.5821	1.9350	11.9594	.01	2.585	.05	1.68	NS	1.87	NS	.790	NS
9	5.8067	.05	.7149	1.8997	.6095	1.0747	6.9411	.05	1.565	NS	1.960	.10	1.691	NS	1.382	NS
1	2.4666	.10	.0227	.1804	.0125	.0719	16.9204	.001	.113	NS	1.513	NS	1.691	NS	.374	NS
9	1.000	--	.0000	.0914	.0292	.0402	1.9937	--	I	--	1.207	NS	1.698	NS	1.520	NS
9	1.9568	--	.0988	1.2972	.1530	.5163	35.5602	.001	1.094	NS	4.187	.01	.925	NS	1.157	NS
78	6.1733	.05	.8410	1.0786	1.7155	1.2117	4.9169	.05	.854	NS	.349	NS	1.077	NS	.551	NS
1	3.7592	.10	1.0156	.6721	.3360	.6746	22.0523	.001	.303	NS	.312	NS	.867	NS	.087	NS
9	1.5484	--	.6561	.5601	.6485	.6083	.1358	--	.080	NS	.591	NS	1.447	NS	1.033	NS
9	67.7065	.001	.2472	.3834	.2970	.3092	1.2096	--	5.118	.01	1.833	NS	5.110	.01	.905	NS
9	19.3831	.001	.1402	1.1202	.5527	.6045	23.0981	.001	1.040	NS	.813	NS	.429	NS	.439	NS
7	.0791	--	.0358	.1393	.3140	.1630	2.2484	--	1.181	NS	.108	NS	1.167	NS	.307	NS
	2.9973	--	.0125	.0000	.0488	.0204	2.0272	--	1.000	NS	1.731	NS	1.731	NS	1.095	NS
67	80.3122	.001	1317.25	1296.75	928.0	1180.6667	5.0320	.05	10.888	.01	.906	NS	1.938	NS	2.78	.01
5	196.7327	.001	4.0545	.7896	5.3701	3.4047	16.7230	.001	5.363	.01	3.530	.05	6.688	.01	.672	NS
2	1.3013	--	1.6523	5.3918	8.1033	5.0491	6.9447	.05	2.919	.05	1.819	NS	.088	NS	1.801	.10
3	.1057	--	.7090	5.0494	5.1919	3.6501	9.0094	.01	3.708	.01	.965	NS	.686	NS	2.497	.05
	6.4276	.05	.1527	.2869	.1722	.2039	.9282	--	1.692	NS	2.587	.05	3.972	.01	3.722	.01
	3.2999	.10	.2314	1.0254	.3548	.5372	14.6522	.01	3.487	.05	.988	NS	3.883	.01	3.433	.01
	7.2474	.05	.1776	.1762	.4482	.2674	2.0574	--	4.341	.01	.880	NS	1.182	NS	2.808	.01
	6.0572	.05	.0255	.1666	.1338	.1106	2.2179	--	1.688	NS	2.834	.10	3.686	.05	3.631	.01
	2.3096	--	.0467	.1309	.3006	.1594	4.7397	.05	2.824	.05	.490	NS	1.252	NS	2.566	.05

Variables No.	Name	Fall - All Activities Site 2	Site 6	Site 10	Overall	F Ratio	P	Spring Site 2	Site 6	Site
48	Adult direct request followed by child response followed by adult praise	.4456	.5602	1.5062	.8373	5.6105	.05	.0127	.5738	.339
49	Adult choice request to child	5.5235	1.0982	1.1029	2.5748	40.2834	.001*	2.166	2.3215	.755
50	Child response to adult choice request	5.3541	.9790	.9245	2.4192	40.0902	.001	1.0824	2.1873	.832
51	Extended child response to adult choice request question	.0259	.0216	.0341	.0272	.0854	--	.0413	.0834	.000
52	Adult praise to child	2.8619	.8330	1.9286	1.8745	10.2875	.01	.6073	.6820	2.32
53	Adult acknowledgment to child	1.4861	2.1935	4.4114	2.6904	34.9692	.001*	.6877	1.6722	.881
54	Adult positive corrective feedback to child	.1099	1.6180	2.1862	1.3047	17.8083	.001	.2488	.5355	.228
55	Adult negative corrective feedback to child	.0063	1.3244	.4055	.5787	5.595	.05	.0765	.3186	.197
56	All adult corrective feedback to child	.3669	3.3348	3.4893	2.397	17.0137	.001	1.0420	.9991	.784
59	All child self-instruction	.0000	.0110	.0000	.0037	1.0	--	.0000	.0000	.000
60	Child asking questions of adults	.7339	3.6874	1.5973	2.0062	20.4538	.001	.9281	1.4603	.937
61	Child self-expression, general comments	1.6471	12.5339	11.8232	8.6681	45.4087	.001	34.3791	18.7211	11.4
62	Adult interaction with 1 or 2 children	14.9364	19.2832	20.887	18.3689	6.9897	.05	3.6207	16.8762	19.1
63	Adult interaction with small group	3.8781	.8856	1.6711	2.1449	6.8476	.05	3.1323	.7630	6.75
64	Adult interaction with large group	11.1139	5.2901	4.0566	6.8202	17.2599	.001	8.3654	6.0113	3.84
65	Adult negative behavior	.1023	.1098	.0470	.0864	.5130	--	.0097	.0098	.030
66	Adult positive behavior	10.7412	.4152	.1827	3.7797	3.367	.10	1.1490	.7808	.131
67	Child negative behavior	.8434	.4998	.7750	.6394	.5494	--	.7730	.2546	.240
68	Child positive behavior	9.9836	.8890	.7451	3.8726	16.3431	.01	10.5156	2.3677	1.46
69	Child initiates interaction with adult	1.8006	8.4894	5.7956	5.3619	40.0142	.001	9.9243	7.8205	7.15
70	Child initiates interaction with other child	1.271	5.3551	4.1205	3.5822	8.2986	.01	1.890	8.6460	4.86
71	Child non-verbal	1.7498	3.7451	4.39	3.2949	3.95	.10	1.5758	2.5358	1.45
72	Child cooperates with other children	.0444	.1090	.0000	.0512	2.3569	--	.1657	.0527	.302
73	Adult to child positive touch	1.1735	.0000	.1109	.4281	22.4938	.001	.0000	.0236	.000
74	Adult to child negative touch	.0000	.1212	.1087	.0766	2.3939	--	.0000	.0122	.046
75	Child gives positive touch	.4680	.0210	.0114	.1668	19.4138	.001	.0000	.0294	.015
76	Child gives negative touch	.0446	.0430	.1786	.0887	2.745	--	.0121	.0000	.161
77	Adult helps child	.4294	.9543	1.0348	.8062	6.269	.05	.1454	.7533	2.42
78	Adult refuses, rejects child	.0000	.0000	.0151	.0050	1.000	--	.0000	.0000	.032
79	Child refuses, rejects adult	.1244	.0000	.1876	.1040	5.6457	--	.0242	.0000	.193
80	Child interacts with machine	3.1516	6.1565	7.5043	5.6041	7.2543	.05	18.3972	8.1266	4.07
81	All motion							.0000	1.3355	.881
82	All positive behavior	22.3501	1.3675	.9430	8.2202	6.9670	.05	11.7156	3.2368	1.59
83	All negative behavior	1.6868	2.0507	1.3905	1.7093	.7063	--	1.3366	.6487	.522

*Sponsor prediction.

HS (Concluded)

		Spring - All Activities						Fall/Spring Differences							
								Site 2		Site 6		Site 10		Overall Ratio	
Ratio	P	Site 2	Site 6	Site 10	Overall	F Ratio	P	T Score	P	T Score	P	T Score	P	T Score	P
6105	.05	.0127	.5738	.3395	.3087	5.6233	.05	3.826	.01	.038	NS	2.958	.05	2.474	.05
.2834	.001	2.166	2.3215	.7559	1.7478	15.9144	.01	5.895	.01	4.539	.01	.725	NS	1.173	NS
.0902	.001	1.0824	2.1873	.5327	1.2674	24.9211	.001	7.435	.01	4.923	.01	.927	NS	1.652	NS
854	--	.0413	.0834	.0000	.0416	2.3289	--	.521	NS	1.530	NS	1.000	NS	.684	NS
.2875	.01	.6073	.6820	2.3219	1.2037	8.6602	.01	6.269	.01	1.314	NS	.566	NS	1.897	NS
.9692	.001	.6877	1.6722	.8818	1.0806	7.9935	.05	2.198	.10	2.137	.10	10.23	.01	3.725	.01
.8083	.001	.2488	.5355	.2281	.3375	2.3204	--	1.148	NS	6.637	.01	4.482	.01	3.177	.01
396	.05	.0765	.3186	.1978	.1976	1.9941	--	2.053	.10	1.968	.10	3.014	.05	1.658	NS
.0137	.001	1.0420	.9991	.7846	.9419	.3314	--	3.028	.05	4.039	.01	4.68	.01	2.886	.01
)	--	.0000	.0000	.0000	.0000	1	--	1	--	1.900	--	1	--	1.000	NS
4536	.001	.9281	1.4605	.9370	1.1085	2.7612	--	.732	NS	4.568	.01	1.823	NS	2.085	.05
4087	.001	34.3791	18.7211	11.4616	21.5206	12.7606	.01	6.548	.01	3.118	.05	.150	NS	3.47	.01
897	.05	3.6207	16.8762	18.1329	12.8766	84.1272	.001	11.765	.01	2.038	.10	1.368	NS	2.439	.05
1476	.05	1.1323	.7630	6.7504	2.8810	15.5947	.01	2.593	.05	.281	NS	3.676	.05	.698	NS
2599	.001	8.3654	6.0113	3.8429	6.0732	3.6849	.10	1.450	NS	.739	NS	.148	NS	.861	NS
30	--	.0097	.0098	.0308	.0167	.3853	--	1.670	NS	1.842	NS	.370	NS	2.153	.05
67	.10	1.1490	.7808	.1312	.6870	2.3260	--	1.678	NS	1.687	NS	.613	NS	1.337	NS
94	--	.7730	.2546	.2402	.4228	2.9412	--	.401	NS	1.950	.10	1.926	NS	1.380	NS
3431	.01	10.5156	2.3677	1.4611	4.7815	10.2170	.01	.183	NS	1.315	NS	.981	NS	.436	NS
0142	.001	9.8243	7.8205	7.1547	8.2998	1.6248	--	5.158	.01	.750	NS	1.136	NS	2.637	.05
986	.01	1.890	6.6460	4.6680	4.4041	9.4251	.01	1.49	NS	1.148	NS	.392	NS	.857	NS
5	.10	1.5758	2.5358	1.4569	1.8562	1.0560	--	.274	NS	.975	NS	4.182	.01	2.407	.05
569	--	.1657	.0527	.3027	.1737	1.5152	--	.726	NS	.812	NS	6.565	.01	1.868	.10
4938	.001	.0000	.0236	.0000	.0079	2.9925	--	4.966	.01	1.730	NS	9.528	.01	2.404	105
939	--	.0000	.0122	.0467	.0196	.7550	--	1	--	1.508	NS	1.199	NS	1.783	.10
4138	.001	.0000	.0294	.0153	.0149	.5906	--	4.092	.01	.233	NS	.206	NS	2.107	.05
48	--	.0121	.0000	.1617	.0579	9.1442	.01	1.436	NS	2.505	.10	.183	NS	.746	NS
69	.05	.1454	.7533	2.4200	1.1062	8.6060	.01	2.422	.10	.334	NS	3.481	.05	.804	NS
00	--	.0000	.0000	.0326	.0109	2.9781	--	1	--	1	--	.721	NS	.653	NS
457	--	.0242	.0000	.1838	.0693	2.6332	--	2.893	.05	1	--	.031	NS	.678	NS
543	.05	18.3972	8.1266	4.0748	10.1995	23.0745	.001	6.881	.01	.992	NS	6.369	.01	2.182	.05
		.0000	1.3355	.8614	.7323	9.6790	.01								
670	.05	11.7156	3.2368	1.5923	5.5149	10.5447	.01	1.262	NS	1.657	NS	.812	NS	1.406	NS
58	--	1.3366	.6487	.5226	.8359	1.7511	--	.618	NS	2.177	.10	3.611	.05	.647	NS

SITE DIFFERENCES WITHIN SPONSORS AND FALL-SPRING DIFFERENC

EDUCATION DEVELOPMENT CENTER (ED)

Variables No.	Name	Fall - All Activities Site 5	Site 6	Site 8	Overall	F Ratio	P	Spring - All Site 5	Site 6	Site 8
6	Adult/child ratio	.2867	.1543	.0999	.1505	2.2058	--	.3221	.1545	.1188
7	Length of school day	2.000	4.25	8.000	5.375	10.6071	.05	4.0000	8.0000	4.0000
8	Number of COPs for class	22.00	24.50	46.833	30.125	9.7405	.05	21.2500	26.5000	21.2500
9	Activity A (snack, lunch)	.4091	.1486	.1836	.1943	5.3271	.10	.2948	.2011	.2264
10	Activity B (grouptime, sharing, rest, story, singing, dancing)	.0909	.3011	.3284	.2851	4.9865	.10	.1884	.3878	.2756
11	Activity C (numbers, alphabet, reading, language development)	.0455	.0442	.3064	.1427	67.5136	.001*	.0687	.1108	.2840
12	Activity D (finding out about people and how they live; finding out about the natural world)	.1364	.0487	.1522	.0985	5.8135	.05	.0718	.1945	.2511
13	Activity E (table games, guessing games, working puzzles)	.0455	.1380	.2565	.1709	2.7237	--	.0104	.0531	.3005
14	Activity F (arts, crafts, cooking, sewing, pounding)	.5000	.1808	.3575	.2869	4.6886	.10	.1843	.0844	.4339
15	Activity G (blocks, trucks, dolls, dress-up, water play)	.3636	.1018	.2016	.1720	19.0029	.01	.1648	.0770	.2378
16	Active play	.4091	.0298	.1207	.1113	9.6357	.05	.4429	.1058	.0469
18	Adult with small group	2.3636	.7282	.7690	.9479	11.2989	.05	1.5031	.7002	.9387
19	Adult with large group	.0909	.3272	1.4738	.7276	4.0414	.10	.3954	.8674	1.4061
20	Adult with 1 or 2 children in academic activities (C and D)	.0909	.0338	.1956	.1016	3.7480	--	.0934	.2682	.1811
21	Adult with small group in academic activities	.1364	.0402	.1952	.1103	1.4902	--	.0579	.1398	.2284
22	Adult with large group in academic activities	.0000	.0279	.2597	.1113	5.0353	.10	.0346	.0880	.2690
23	Academic activities	.0455	.0442	.4226	.1863	65.5598	.001	.1028	.1515	.3893
24	Wide variety of activities	2.4091	1.0019	2.2526	1.6468	26.3532	.01*	1.4942	1.3385	2.4265
25	Independent child activity	2.1364	.5012	1.4193	1.0499	58.1948	.001*	1.5067	.6187	1.3866
26	Adult with 1 or 2 children	.1818	.0308	.0792	.0678	9.8886	.05*	.1071	.0366	.0861
27	Aides' participation in academic activities	.0455	.0323	.0716	.0487	1.1678	--	.0227	.0354	.0831
28	Groups of 1 child	1.5455	.1125	.6072	.4771	11.5702	.05	.7745	.3091	.3868
30	Small groups	2.3636	.7282	.7690	.9479	11.2989	.05	1.5135	.7111	.9828
31	Large groups	.0909	.3272	1.4738	.7276	4.0414	.10	.3954	.8147	1.4061
	Adults without children:									
32	Classroom management	1.0000	.2940	.6541	.5173	16.8321	.01	.4530	.5424	.8017
33	Observing	.2273	.5115	.9211	.6296	3.9541	.10	.4138	.7032	1.0591
34	Out of the room	.4545	1.5287	1.2778	1.3004	2.2112	--	.8085	.6877	.8175
35	Other	.6218	.0089	.0882	.1228	427.9901	.001	.3307	.4025	.0602
36	Aide's participation in all activities	.6364	.0000	.0284	.0902	427.5353	.001	.3863	.3376	.0000
37	Number of frames for this class	1309.0	1297.75	2330.0	1686.25	9.1834	.05	1191.50	1516.75	1243.00
40	Adult informing child	6.9672	4.8853	11.8387	7.753	3.173	--	2.1581	.8802	5.3787
41	Adult direct request to child	4.4003	2.5462	12.0297	6.3343	9.5536	.05	6.6437	8.6569	3.8763
42	Child response to adult direct request	2.8877	1.9727	4.3577	2.9814	3.1894	--	4.6462	4.9486	2.9918
43	Adult corrective feedback to child response	.3209	.5687	.0113	.3287	3.6138	--	.2917	.4496	.0638
44	Adult acknowledgment to child response	.4125	.3471	.0460	.2424	2.8118	--	.8966	.0978	.2132
45	Adult praise to child response	.1833	.3174	.4277	.3420	1.3805	--	.2157	.6803	.3851
46	Adult direct request followed by child response followed by adult corrective feedback	.1833	.2203	.0113	.1374	5.7704	.10	.1673	.2719	.0319
47	Adult direct request followed by child response followed by adult acknowledgment	.0000	.1436	.1752	.1375	1.7355	--	.1794	.4151	.1345

Appendix F

ITE DIFFERENCES WITHIN SPONSORS AND FALL-SPRING DIFFERENCES BY SITE

EDUCATION DEVELOPMENT CENTER (ED)

tivities			Spring - All Activities						Fall/Spring Differences							
									Site 5		Site 6		Site 8		Overall Ratio	
Overall	F Ratio	P	Site 5	Site 6	Site 8	Overall	F Ratio	P	T Score	P	T Score	P	T Score	P	T Score	P
.1505	2.2038	--	.3221	.1545	.1188	.1985	6.7474	.05			.003	NS	.36	NS	.259	NS
3.375	10.6071	.05	4.0000	8.0000	4.0000	5.3333	R				4.39	.01	R	--	.358	NS
30.125	9.7405	.05	21.2500	26.5000	21.2500	23.0000	.6771	--			.41	NS	3.96	.01	1.705	NS
.1943	5.3271	.10	.2948	.2011	.2264	.2408	.8912	--			.64	NS	.56	NS	.907	NS
.2851	4.9865	.10	.1884	.3878	.2756	.2839	3.1192	.10			1.31	NS	.68	NS	.462	NS
.1427	67.5136	.001*	.0687	.1108	.2840	.1545	2.3956	--			1.12	NS	.25	NS	.261	NS
.0985	5.8135	.05	.0718	.1945	.2511	.1725	5.2732	.05			4.37	.01	1.42	NS	3.025	NS
.1709	2.7237	--	.0104	.0331	.3005	.1214	48.9468	.001			1.90	NS	.84	NS	.346	NS
.2869	4.6886	.10	.1843	.0844	.4339	.2342	5.6169	.05			1.27	NS	1.32	NS	.026	NS
.1720	19.0029	.01	.1648	.0770	.2378	.1599	2.5289	--			.71	NS	1.09	NS	.239	NS
.1113	9.6357	.05	.4429	.1058	.0489	.1992	9.4624	.01			1.55	NS	1.31	NS	.135	NS
.9479	11.2989	.05	1.5031	.7002	.9387	1.0473	2.0202	--			.08	NS	.74	NS	.334	NS
.7276	4.0414	.10	.3954	.8674	1.4061	.8897	45.0069	.001			3.93	.01	.12	NS	.850	NS
.1016	3.7480	--	.0934	.2682	.1811	.1809	1.6647	--			4.59	.01	.02	NS	2.092	.10
.1103	1.4902	--	.0579	.1398	.2284	.1420	2.8792	--			2.60	.05	.39	NS	1.160	NS
.1113	5.0353	.10	.0346	.0880	.2690	.1305	4.1316	.10			1.92	NS	.27	NS	.211	NS
.1863	65.5598	.001	.1028	.1515	.3893	.2145	3.4479	.10			1.21	NS	.87	NS	.317	NS
.6468	28.3532	.01*	1.4942	1.3385	2.4265	1.7531	5.2629	.05			2.40	.10	.66	NS	.794	NS
.0499	58.1948	.001*	1.5067	.6187	1.3868	1.1707	1.6124	--			.67	NS	1.01	NS	.492	NS
.0678	9.8886	.05*	.1071	.0566	.0841	.0826	.5728	--			.86	NS	.54	NS	.907	NS
.0487	1.1678	--	.0227	.0554	.0831	.0537	1.2448	--			.75	NS	.09	NS	.493	NS
.4771	11.5702	.05	.7745	.3091	.3868	.4901	1.5995	--			2.40	.10	.48	NS	.350	NS
.9479	11.2989	.05	1.5135	.7111	.9828	1.0691	2.0196	--			.05	NS	1.07	NS	.471	NS
.7276	4.0414	.10	.3954	.9147	1.4061	.9054	39.8913	.001			4.06	.01	.12	NS	.935	NS
.5173	16.6321	.01	.4530	.5424	.8017	.5990	1.9747	--			1.44	NS	1.44	NS	1.492	NS
.6296	3.9541	.10	.4238	.7032	1.0591	.7287	5.5412	.05			1.24	NS	.03	NS	.750	NS
.3004	2.2112	--	.8085	.6877	.8175	.7646	.2048	--			3.69	.05	1.00	NS	3.191	.01
.1228	427.9901	.001	.3307	.4025	.0602	.2645	11.0676	.01			7.28	.01	.49	NS	2.647	.05
.0902	427.5353	.001	.3883	.3376	.0000	.2413	8.2924	.01			3.50	.05	1.56	NS	2.102	.1
886.25	9.1834	.05	1191.50	1516.75	1243.00	1317.08	.7024	--			.81	NS	3.56	.05	1.385	NS
.753	3.173	--	2.1581	.8802	3.3787	2.8057	6.0636	.05			6.52	.01	2.30	.10	2.774	.05
.3343	9.5536	.05	6.6437	8.6569	3.8763	6.3923	6.4092	.05			6.17	.01	3.31	.05	.099	NS
.9814	3.1894	--	4.6482	4.9486	2.9918	4.1956	1.5149	--			4.83	.01	1.71	NS	1.101	NS
.287	3.6138	--	.2917	.4496	.0638	.2684	8.4672	.01			.63	NS	.69	NS	.321	NS
.424	2.8118	--	.8966	.0978	.2132	.4023	7.3937	.05			1.99	.10	.82	NS	.361	NS
.420	1.3805	--	.2157	.6803	.3851	.4270	2.1850	--			1.56	NS	1.76	NS	.853	NS
.374	5.7704	.10	.1673	.2719	.0319	.1570	11.4058	.01			.92	NS	.39	NS	.454	NS
.375	1.7355	--	.1794	.4151	.1345	.2430	1.1722	--			1.17	NS	1.93	NS	.837	NS

ED (Concluded)

Variables No.	Name	Fall - All Activities Site 5	Site 6	Site 8	Overall	F Ratio	P	Spring - A Site 5	Site 6	Site
48	Adult direct request followed by child response followed by adult praise	.2292	.1373	.0153	.1030	2.1768	--	.5115	.0308	.1057
49	Adult choice request to child	2.2002	.8978	3.0206	1.8566	19.8949	.01*	.6532	.7443	3.1553
50	Child response to adult choice request	1.5128	.7064	1.2258	1.0020	3.6298	--	.4616	.5644	2.4175
51	Extended child response to adult choice request question	.2292	.0242	.0225	.0492	16.9121	.01	.0000	.0188	.0151
52	Adult praise to child	.5959	.7074	1.3603	.9383	9.6676	.05	.6891	1.2250	1.1988
53	Adult acknowledgment to child	1.6043	.7849	.4193	.7502	26.0078	.01	1.7130	.5360	.5105
54	Adult positive corrective feedback to child	1.1917	1.0633	.0000	.6806	16.4435	.01	.4906	.7895	.0604
55	Adult negative corrective feedback to child	.1833	.8661	.0000	.4560	8.173	.05	.7430	.3545	.0000
56	All adult corrective feedback to child	2.8877	2.0005	.2086	1.4394	24.9974	.01	2.2637	2.2637	.3782
59	All child self-instruction	.0000	.4851	.0641	.2666	.6877	--	.1508	.0266	.0000
60	Child asking questions of adults	1.2376	.3381	.4307	.4853	12.6439	.05	.9565	1.5421	.8783
61	Child self-expression, general comments	14.4385	5.867	6.2845	7.0950	3.5099	--	21.4230	8.0861	16.284
62	Adult interaction with 1 or 2 children	23.56	10.6762	8.8516	11.6025	17.0895	.01	14.9700	13.0152	7.1842
63	Adult interaction with small group	1.2834	2.0059	7.7168	4.0572	11.1385	.05	2.7292	2.8960	5.0621
64	Adult interaction with large group	.9167	2.6982	18.7594	8.4985	37.7471	.001	1.3141	5.4928	10.666
65	Adult negative behavior	.2292	.0331	.0000	.0452	20.0813	.01	.2653	.3963	.0000
66	Adult positive behavior	.0000	.1248	.2106	.1414	.5540	--	.0305	1.4249	.0151
67	Child negative behavior	1.7876	.6630	.0076	.5578	38.2634	.001	.6488	.4941	.0151
68	Child positive behavior	.3209	1.2884	.2298	.7705	5.3999	.10	1.1040	3.9475	.1460
69	Child initiates interaction with adult	5.9129	3.956	1.2862	3.1995	12.8752	.05*	3.4108	6.1589	1.9491
70	Child initiates interaction with other child	6.1421	6.2209	3.1092	5.0441	1.5358	--*	4.8624	.6926	5.8770
71	Child non-verbal	2.8419	3.2864	.1137	2.0411	1.6702	--	3.7696	4.0764	1.0824
72	Child cooperates with other children	.0000	4.528	.3402	2.3916	1.0559	--*	.0769	.0079	.1785
73	Adult to child positive touch	.0000	.0000	.0000	.0000	1	--	.0000	.0931	.0000
74	Adult to child negative touch	.0000	.0137	.0000	.0069	.4167	--	.1640	.1337	.0000
75	Child gives positive touch	.0458	.0524	.0000	.0319	.3740	--	.0000	.2885	.0000
76	Child gives negative touch	.5500	.0330	.0000	.0853	124.6415	.001	.1145	.1595	.0000
77	Adult helps child	2.3377	.7987	2.6828	1.6976	.9307	--	.2430	.4387	1.8501
78	Adult refuses, rejects child	.0458	.0000	.0000	.0057	R	--	.0000	.0230	.0000
79	Child refuses, rejects adult	.0458	.0346	.0000	.0231	1.0571	--	.0293	.2776	.0084
80	Child interacts with machine	5.2254	18.3015	3.2089	11.0072	5.1258	.10	11.5661	2.3196	12.681
81	All motion							4.0736	7.3036	.4579
82	All positive behavior	.3209	1.439	.8796	1.0895	.7793	--	1.1545	5.7551	.1811
83	All negative behavior	2.1085	1.8607	.0076	1.1968	110.8903	.001	1.5516	2.4959	.0487

*Sponsor prediction.

ED (Concluded)

Activities			Spring - All Activities						Fall/Spring Differences							
									Site 5		Site 6		Site 8		Overall Ratio	
Overall	F Ratio	P	Site 5	Site 6	Site 8	Overall	F Ratio	P	T Score	P	T Score	P	T Score	P	T Score	P
.1030	2.1766	--	.5115	.0308	.1057	.2160	6.8716	.05			1.57	NS	.89	NS	.096	NS
1.8566	19.8949	.01*	.6532	.7443	3.1553	1.5176	38.8436	.001			.58	NS	1.17	NS	.125	NS
1.0020	3.6298	--	.4816	.5644	2.4175	1.1478	17.3856	.001			.68	NS	4.19	.05	1.180	NS
.0492	16.9121	.01	.0000	.0158	.0151	.0103	.5005	--			.40	NS	.08	NS	.360	NS
.9383	9.6676	.05	.6891	1.2250	1.1969	1.0370	1.0078	--			1.25	NS	2.79	.05	.326	NS
.7502	26.0078	.01	1.7130	.5360	.5105	.9198	5.7717	.05			2.12	.10	.36	NS	.230	NS
.6806	16.4435	.01	.4906	.7695	.0604	.4402	8.4748	.01			1.19	NS	1.00	NS	.461	NS
.4560	8.173	.05	.7430	.3545	.0000	.3658	10.4977	.01			2.22	.10	I	--	1.296	NS
1.4394	24.9974	.01	2.2637	2.2637	.3782	1.6352	6.1287	.05			.73	NS	.82	NS	.333	NS
.2066	.6877	--	.1508	.0266	.0000	.0591	1.0648	--			1.34	NS	1.99	NS	1.435	NS
.4853	12.6439	.05	.9565	1.5421	.8783	1.1256	1.0068	--			3.18	.05	4.92	.01	3.977	.01
7.0950	3.5099	--	21.4230	8.0861	16.2842	15.2644	17.9719	.001			2.57	.05	4.32	.05	2.708	.05
11.6025	17.0895	.01	14.9700	13.0152	7.1842	11.7231	13.8122	.01			1.62	NS	.44	NS	.757	NS
4.0572	11.1385	.05	2.7292	2.8960	5.0621	3.5624	2.9736	--			1.12	NS	2.47	.10	.792	NS
8.4985	37.7471	.001	1.3141	5.4928	10.6699	5.8256	7.7775	.01			2.46	.05	3.97	.05	.842	NS
.0452	20.0813	.01	.2653	.3963	.0000	.2205	19.3548	.001			5.73	.01	I	--	2.38	.05
.1414	.5540	--	.0505	1.4249	.0151	.4968	10.2760	.01			2.98	.05	1.36	NS	1.779	.1
.5578	38.2634	.001	.6488	.4941	.0151	.3860	7.0591	.05			1.12	NS	.58	NS	.500	NS
.7705	5.3999	.10	1.1040	3.9475	.1460	1.7325	69.4807	.001			6.29	.01	.35	NS	1.797	.1
3.1995	12.8752	.05*	3.4108	6.1589	1.9495	3.8397	15.7769	.01			2.60	.05	1.92	NS	1.563	NS
5.0441	1.6358	--*	4.8624	.6926	5.6770	3.7440	6.1760	.05			12.09	.01	.54	NS	1.688	NS
2.0411*	1.6702	--	3.7696	4.0784	1.0824	2.9768	3.2103	.10			.51	NS	1.22	NS	.730	NS
2.3916	1.0559	--*	.0769	.0079	.1785	.0878	2.4383	--			1.68	NS	.86	NS	1.586	NS
.0000	I	--	.0000	.0931	.0000	.0310	1.2613	--			1.12	NS	I	--	1.105	NS
.0069	.4167	--	.1640	.1337	.0000	.0992	1.3465	--			3.85	.01	I	--	2.152	.1
.0319	.3740	--	.0000	.2885	.0000	.0962	6.7935	.05			1.93	NS	I	--	1.528	NS
.0853	124.6415	.001	.1145	.1595	.0000	.0913	2.4446	--			1.95	.10	I	--	1.512	NS
1.6976	.8307	--	.2430	.4387	1.8501	.8439	8.8685	.01			1.64	NS	.60	NS	.815	NS
.0057	R	--	.0000	.0230	.0000	.0077	2.5066	--			1.58	NS	I	--	1.452	NS
.0231	1.0571	--	.0293	.2776	.0084	.1051	4.8588	.05			2.10	.05	I	--	1.655	NS
11.0072	5.1258	.10	11.5661	2.3196	12.6898	8.8585	5.4361	.05			3.69	.05	2.85	.05	.811	NS
			4.0736	7.3036	.4579	3.9150	4.9740	.05*								
1.0895	.7793	--	1.1545	5.7551	.1611	2.3569	37.5755	.001			5.04	.01	1.03	NS	1.737	NS
1.1968	110.8903	.001	1.5516	2.4959	.0487	1.3654	8.5040	.01			.91	NS	.58	NS	.505	NS

Appendix F

SITE DIFFERENCES WITHIN SPONSORS AND FALL-SPRING DIFFERENCES BY SITE

UNIVERSITY OF PITTSBURGH (UP)

Variables No.	Variables Name	Fall - All Activities	Spring - All Activities	Fall/Spring Differences T Score	Fall/Spring Differences P
6	Adult/child ratio	.2475	.2237	.606	NS
7	Length of school day	3.000	3.0000	1	--
8	Number of COPs for class	20.25	20.0000	.162	NS
9	Activity A (snack, lunch)	.2441	.1779	1.431	NS
10	Activity B (grouptime, sharing, rest, story, singing, dancing)	.3936	.4013	.060	NS
11	Activity C (numbers, alphabet, reading, language development)	.2475*	.3557	1.766	NS
12	Activity D (finding out about people and how they live; finding out about the natural world)	.0580	.2549	3.013	NS
13	Activity E (table games, guessing games, working puzzles)	.1769	.1541	.270	NS
14	Activity F (arts, crafts, cooking, sewing, pounding)	.2849	.3382	1.214	NS
15	Activity G (blocks, trucks, dolls, dress-up, water play)	.0977	.2374	3.613	.05
16	Active play	.0386	.1632	2.651	.05
18	Adult with small group	1.5437	1.2213	1.522	NS
19	Adult with large group	.5723	.4762	.467	NS
20	Adult with 1 or 2 children in academic activities (C and D)	.4516*	1.4440	4.051	.01
21	Adult with small group in academic activities	.3076	.0833	3.011	.05
22	Adult with large group in academic activities	.0477	.0000	1.728	NS
23	Academic activities	.6797	.8424	.870	NS
24	Wide variety of activities	1.8349	2.6583	1.900	NS
25	Independent child activity	1.2783	2.4783	1.738	NS
26	Adult with 1 or 2 children	.2779*	.3228	.497	NS
27	Aides' participation in academic activities	.1249	.1478	.250	NS
28	Groups of 1 child	.9289	2.8543	2.873	.05
30	Small groups	1.5664	1.2213	1.619	NS
31	Large groups	.5837	.4762	.519	NS
	Adults without children:				
32	Classroom management	.8217	.6282	.995	NS
33	Observing	.4206	.4783	.329	NS
34	Out of the room	.1758	.1870	.157	NS

UP (Continued)

Variables No.	Name	Fall - All Activities	Spring - All Activities	Fall/Spring Differences T Score	P
35	Other	.0750	.0119	.831	NS
36	Aide's participation in all activities	.0795	.0000	1.000	NS
37	Number of frames for this class	1148.50	1170.0	.242	NS
40	Adult informing child	1.9776	1.9259	.081	NS
41	Adult direct request to child	8.2619	4.0349	3.667	.05
42	Child response to adult direct request	6.6302	3.0827	3.777	.01
43	Adult corrective feedback to child response	.4783	.1824	1.450	NS
44	Adult acknowledgment to child response	1.0527	.8591	.911	NS
45	Adult praise to child response	2.4673	1.0137	4.146	.01
46	Adult direct request followed by child response followed by adult corrective feedback	.3596	.1334	1.110	NS
47	Adult direct request followed by child response followed by adult acknowledgment	1.8569	.6177	3.775	.01
48	Adult direct request followed by child response followed by adult praise	.7993	.6160	1.165	NS
49	Adult choice request to child	1.6311	1.9893	.899	NS
50	Child response to adult choice request	1.3069	1.7921	1.176	NS
51	Extended child response to adult choice request question	.0558	.3165	3.256	.01
52	Adult praise to child	5.3740	3.9846	1.536	NS
53	Adult acknowledgment to child	1.9302	2.0356	.430	NS
54	Adult positive corrective feedback to child	1.6582	.5213	3.45	.05
55	Adult negative corrective feedback to child	.0840	.0611	.401	NS
56	All adult corrective feedback to child	1.9867	.8831	2.611	.05
59	All child self-instruction	.0000	2.6124	3.111	.05
60	Child asking questions of adults	.9229	1.1766	1.298	NS
61	Child self-expression, general comments	12.1801	15.4291	1.825	NS
62	Adult interaction with 1 or 2 children	18.435*	13.7031	4.558	.01
63	Adult interaction with small group	3.5706*	2.8954	1.002	NS
64	Adult interaction with large group	6.3106	5.4813	.601	NS
65	Adult negative behavior	.0743	.0763	.034	NS
66	Adult positive behavior	.8828	2.7437	4.002	.01
67	Child negative behavior	.3112	.3456	.029	NS
68	Child positive behavior	1.3280	2.0959	2.074	.1

UP (Concluded)

Variables No.	Name	Fall - All Activities	Spring - All Activities	Fall/Spring Differences T Score	P
69	Child initiates interaction with adult	2.8408*	4.5278	4.171	.01
70	Child initiates interaction with other child	2.1960	3.8928	4.072	.01
71	Child non-verbal	3.4166	2.3429	2.083	.1
72	Child cooperates with other children	.0000	.0245	1.000	NS
73	Adult to child positive touch	.0116	.2198	1.616	NS
74	Adult to child negative touch	.0580	.0246	.734	NS
75	Child gives positive touch	.0000	.0299	1.000	NS
76	Child gives negative touch	.0000	.0149	1.000	NS
77	Adult helps child	1.5887	1.4586	.241	NS
78	Adult refuses, rejects child	.0000	.0000	I	--
79	Child refuses, rejects adult	.1456	.0720	1.035	NS
80	Child interacts with machine	9.6461	10.6323	.483	NS
81	All motion		1.7695		
82	All positive behavior	2.2902	5.0869	4.176	.01
83	All negative behavior	.4858	.4465	.230	NS

*Sponsor prediction.

Appendix F

SITE DIFFERENCES WITHIN SPONSORS AND FALL-SPRING DIFFERENCES BY SITE

RESPONSIVE ENVIRONMENT CORPORATION (REC)

Variables		Fall - All	Spring - All	Fall/Spring Differences	
No.	Name	Activities	Activities	T Score	P
6	Adult/child ratio	.1960	.2183	.543	NS
7	Length of school day	2.000	2.0000	1	--
8	Number of COPs for class	22.25	23.000	.728	NS
9	Activity A (snack, lunch)	.2024	.1618	1.171	NS
10	Activity B (grouptime, sharing, rest, story, singing, dancing)	.2960	.3655	.870	NS
11	Activity C (numbers, alphabet, reading, language development)	.3483	.3210	.269	NS
12	Activity D (finding out about people and how they live; finding out about the natural world)	.1536	.1420	.110	NS
13	Activity F (table games, guessing games, working puzzles)	.3153	.3333	.192	NS
14	Activity F (arts, crafts, cooking, sewing, pounding)	.2595	.3021	.603	NS
15	Activity G (blocks, trucks, dolls, dress-up, water play)	.1009	.0331	1.289	NS
16	Active play	.0111	.0767	1.893	NS
18	Adult with small group	1.4126	1.1941	1.273	NS
19	Adult with large group	.3393	.4160	1.026	NS
20	Adult with 1 or 2 children in academic activities (C and D)	.2471	.3741	.546	NS
21	Adult with small group in academic activities	.4162	.2879	.864	NS
22	Adult with large group in academic activities	.0938	.0871	.106	NS
23	Academic activities	.5410	.5852	.147	NS
24	Wide variety of activities	2.05	2.1799	.365	NS
25	Independent child activity	1.7688	1.6653	.536	NS
26	Adult with 1 or 2 children	.0667	.0748	.173	NS
27	Aides' participation in academic activities	.1558	.0208	1.285	NS
28	Groups of 1 child	.6988	.9072	.621	NS
30	Small groups	1.6629	1.2055	2.527	.05
31	Large groups	.3393	.4160	1.026	NS
	Adults without children:				
32	Classroom management	.6955	.4631	1.012	NS
33	Observing	.4667	.6187	1.602	NS
34	Out of the room	.3751	.6618	2.597	.05

REC (Continued)

Variables No.	Name	Fall - All Activities	Spring - All Activities	Fall/Spring Differences T Score	P
35	Other	.3952	.1648	1.332	NS
36	Aide's participation in all activities	.1070	.1525	.571	NS
37	Number of frames for this class	1248.75	1286.25	.640	NS
40	Adult informing child	1.2676	1.4198	.313	NS
41	Adult direct request to child	9.2322	8.1991	.791	NS
42	Child response to adult direct request	7.2624	6.6735	.573	NS
43	Adult corrective feedback to child response	.7671	.8292	.236	NS
44	Adult acknowledgment to child response	2.1694	2.9252	1.101	NS
45	Adult praise to child response	.4306	.2029	1.614	NS
46	Adult direct request followed by child response followed by adult corrective feedback	.7191*	.6957	.100	NS
47	Adult direct request followed by child response followed by adult acknowledgment	.3478*	.1568	1.823	NS
48	Adult direct request followed by child response followed by adult praise	1.8190*	1.9336	.219	NS
49	Adult choice request to child	.8471	1.7122	1.934	NS
50	Child response to adult choice request	.7286	1.3497	1.646	NS
51	Extended child response to adult choice request question	.0955	.0935	.047	NS
52	Adult praise to child	.6832	.6438	.183	NS
53	Adult acknowledgment to child	2.6977	3.4596	1.034	NS
54	Adult positive corrective feedback to child	1.1523	1.2068	.141	NS
55	Adult negative corrective feedback to child	.0115	.0855	1.633	NS
56	All adult corrective feedback to child	1.4238	1.4867	.093	NS
59	All child self-instruction	.0000	.0000	1	--
60	Child asking questions of adults	1.3603	1.6010	1.263	NS
61	Child self-expression, general comments	14.4922	13.2533	.681	NS
62	Adult interaction with 1 or 2 children	15.0151	15.8403	.336	NS
63	Adult interaction with small group	2.0798*	2.1239	.058	NS
64	Adult interaction with large group	5.3427	5.4998	.060	NS
65	Adult negative behavior	.0000	.0342	1.5[illegible]	NS
66	Adult positive behavior	.1497	.1744	.318	NS
67	Child negative behavior	.4245	.3518	.827	NS
68	Child positive behavior	.6036	.3308	1.088	NS

Variables No.	Name	Fall - All Activities	Spring - All Activities	Fall/Spring Differences T Score	P
69	Child initiates interaction with adult	3.7521	4.5203	1.498	NS
70	Child initiates interaction with other child	4.0934	2.9510	1.898	NS
71	Child non-verbal	5.7170	4.6447	1.224	NS
72	Child cooperates with other children	.0000	.0000	I	--
73	Adult to child positive touch	.0250	.0569	1.208	NS
74	Adult to child negative touch	.0250	.1146	.893	NS
75	Child gives positive touch	.3810	.0570	1.410	NS
76	Child gives negative touch	.0847	.0742	.150	NS
77	Adult helps child	.1759	.3003	.957	NS
78	Adult refuses, rejects child	.0130	.0111	.114	NS
79	Child refuses, rejects adult	.0585	.4425	2.831	.05
80	Child interacts with machine	11.1647	10.1646	.477	NS
81	All motion		.4982		
82.	All positive behavior	.8814	.8419	.126	NS
83	All negative behavior	.5371	.4493	.594	NS

* Sponsor prediction.

Appendix G

FACTOR SCORE MEANS AND STANDARD DEVIATIONS FOR FALL AND SPRING BY SPONSOR AND BY ALL HSPV AND HS COMPARISONS

Table G-1 (a)

FACTOR SCORE MEANS AND STANDARD DEVIATIONS
FOR FALL DATA BY SPONSOR AND BY ALL HSPV AND HS COMPARISONS

SPONSOR		FACTOR 1	2	3	4	5	6	7
FW	Mean	-.11	.84	-.60	.23	.87	.29	-.35
N=12	S.D.	.35	.72	.46	.83	1.89	.54	.50
UA	Mean	-.46	.28	-.02	-.07	.25	-.82	-.27
N= 8	S.D.	.21	.38	.35	.44	.98	.41	.96
BC	Mean	-.77	.47	-.79	.16	-.65	.34	-.98
N= 7	S.D.	.30	.57	.30	1.05	.73	.90	.41
UO	Mean	2.12	-1.18	-.64	1.01	-.22	-.04	-.42
N=11	S.D.	.67	.64	.45	.68	.81	.36	1.01
UK	Mean	1.99	.32	.28	-.91	-.01	-.06	-.11
N=12	S.D.	.93	.65	1.02	.27	.36	.30	.41
HS	Mean	-.58	-.09	1.16	1.06	.64	-.03	.23
N=12	S.D.	.44	.39	.85	1.81	.74	1.74	.72
UF	Mean	-.20	-.78	-.40	.28	-.26	-.21	.06
N=11	S.D.	.44	.64	.40	.94	.50	.60	.38
ED	Mean	-.28	-.55	-.50	.03	.02	-.25	.49
N= 8	S.D.	.67	.97	.45	.64	.85	.50	2.02
UP	Mean	1.11	.80	.67	.59	-.36	-.40	.34
N= 4	S.D.	.20	.61	.55	.28	.21	.06	.31
RE	Mean	-.18	.69	1.49	-.30	-.60	-.29	-.53
N= 4	S.D.	.65	.82	.18	.29	.22	.20	.23
EB	Mean	-.68	.22	.24	.29	.07	-1.10	-.63
N=12	S.D.	.62	.56	.88	.65	.54	.51	.43
HSPV	Mean	.21	.01	.00	.22	.07	-.22	-.20
N=101	S.D.	1.20	.90	.93	1.07	1.01	.87	.91
HSNPV	Mean	-.27	-.24	.06	.24	-.33	.02	.38
N=61	S.D.	.65	.94	1.24	1.17	.71	.96	1.33

Table G-1 (b)

FACTOR SCORE MEANS AND STANDARD DEVIATIONS
FOR SPRING DATA BY SPONSOR AND BY ALL HSPV AND HS COMPARISONS

Sponsor		Factor 1	2	3	4	5	6	7
FW	Mean	- .13	.54	- .89	.01	.20	.18	- .38
N=12	S.D.	.52	.65	.48	.48	1.26	.93	.50
UA	Mean	- .14	.41	- .29	.03	- .36	- .69	- .65
N= 8	S.D.	.27	.53	.45	.82	.42	.35	.51
BC	Mean	- .32	1.23	- .24	- .12	1.28	.81	- .53
N= 7	S.D.	.37	.77	.36	.59	1.56	1.95	.52
UO	Mean	2.18	- .67	.79	- .41	.15	.45	- .81
N= 8	S.D.	.49	.93	1.05	.57	.76	.33	.73
UK	Mean	1.68	- .12	.20	-1.22	.05	- .14	- .03
N=12	S.D.	.92	.63	.67	.47	.47	.43	.42
HS	Mean	- .58	.03	- .30	.02	- .34	- .11	.01
N=12	S.D.	.48	.77	.56	.38	.47	.73	.38
UF	Mean	- .59	- .34	- .42	- .80	- .33	- .24	- .17
N= 7	S.D.	.31	.34	.38	.55	.77	.45	.77
ED	Mean	- .23	- .10	- .16	- .04	.37	- .14	.64
N=12	S.D.	.57	.69	.62	.47	1.13	.39	1.05
UP	Mean	.49	2.74	.25	1.71	- .83	.20	- .28
N= 4	S.D.	.44	1.15	.07	.31	.31	.28	.47
RE	Mean	- .62	.83	1.99	.41	- .50	- .37	- .45
N= 4	S.D.	.25	.69	1.06	.36	.48	.20	.17
EB	Mean	- .25	.47	.52	- .37	.21	.91	- .28
N=11	S.D.	.45	1.28	.88	.43	.76	2.32	.70
HSPV	Mean	.16	.28	.00	- .21	.05	.09	- .20
N=91	S.D.	1.06	1.06	.91	.78	.99	1.16	.75
HSNPV	Mean	- .38	- .27	- .08	- .31	.13	.24	.32
N=54	S.D.	.52	1.00	.99	.86	1.22	.89	.97

Table G-2 (a)

FACTOR SCORE MEANS AND STANDARD DEVIATIONS FOR FALL DATA
BY SITE WITHIN SPONSORS

SPONSOR			FACTOR 1	2	3	4	5	6	7
FW									
SITE	4	Means	-.37	1.44	-.64	-.59	-1.05	.36	-.50
N=	4	S.D.	.22	.67	.23	.22	.23	.07	.33
SITE	5	Means	.30	.89	-.93	.97	.41	.56	-.39
N=	4	S.D.	.17	.37	.37	.73	.88	.72	.76
SITE	13	Means	-.24	.19	-.23	.32	3.24	-.04	.15
N=	4	S.D.	.22	.42	.46	.52	.64	.40	.07
UA									
SITE	8	Means	-.40	-.02	.27	-.43	.96	-.52	.64
N=	4	S.D.	.04	.21	.22	.28	.88	.32	.22
SITE	16	Means	-.52	.58	-.32	.29	-.46	-1.13	-1.19
N=	4	S.D.	.28	.24	.16	.22	.35	.21	.34
BC									
SITE	1	Means	-.90	.75	-.58	.74	-.06	-.38	-1.31
N=	4	S.D.	.21	.47	.21	.16	.37	.43	.19
SITE	12	Means	-.59	.11	-1.07	-1.36	-1.42	1.30	-.55
N=	3	S.D.	.32	.47	.11	.19	.13	.15	.13
UO									
SITE	3	Means	1.36	-1.65	-.84	.71	.40	-.15	.21
N=	4	S.D.	.38	.19	.54	.26	.19	.35	1.38
SITE	11	Means	2.62	-1.47	-.72	1.76	-1.28	.31	-1.07
N=	4	S.D.	.22	.12	.15	.40	.04	.10	.12
SITE	14	Means	2.45	-.18	-.26	.39	.36	-.36	-.40
N=	3	S.D.	.44	.20	.36	.40	.12	.11	.32
UK									
SITE	2	Means	2.20	.43	-.10	-.83	.06	-.23	-.11
N=	4	S.D.	.94	.43	.54	.38	.38	.20	.31
SITE	4	Means	2.46	.98	1.52	-1.05	.09	.24	.30
N=	4	S.D.	.92	.24	.64	.16	.43	.28	.22
SITE	8	Means	1.30	-.44	-.55	-.86	-.20	-.19	-.53
N=	4	S.D.	.31	.07	.10	.13	.08	.14	.13

Table G-2 (a) (Concluded)

FACTOR SCORE MEANS AND STANDARD DEVIATIONS FOR FALL DATA
BY SITE WITHIN SPONSORS

SPONSOR			FACTOR 1	2	3	4	5	6	7
HS									
SITE	2	Means	-.12	-.31	.23	3.48	.65	2.09	.79
N=	4	S.D.	.42	.51	.27	.85	.27	1.44	.95
SITE	6	Means	-.78	.07	1.21	-.34	.79	-1.22	.16
N=	4	S.D.	.13	.32	.28	.39	1.13	.36	.16
SITE	10	Means	-.84	-.02	2.04	.04	.50	-.97	-.25
N=	4	S.D.	.30	.16	.63	.33	.51	.24	.28
UF									
SITE	2	Means	.20	-.10	-.62	-.28	-.14	-1.05	.12
N=	3	S.D.	.41	.28	.37	.23	.65	.46	.32
SITE	7	Means	-.36	-1.53	-.30	1.45	-.11	.08	.08
N=	4	S.D.	.31	.06	.17	.34	.35	.14	.18
SITE	10	Means	-.35	-.53	-.35	-.49	-.50	.13	-.02
N=	4	S.D.	.38	.32	.50	.28	.41	.31	.52
ED									
SITE	5	Means	-.32	1.21	-.16	.49	1.44	-1.50	-.52
N=	1	S.D.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SITE	6	Means	-.87	-1.43	-.44	-.57	.39	-.08	-.98
N=	4	S.D.	.22	.30	.58	.15	.27	.11	.72
SITE	8	Means	.51	.03	-.68	.69	-.96	-.07	2.78
N=	3	S.D.	.26	.05	.12	.29	.00	.25	1.31
UP									
SITE	3	Means	1.11	.80	.67	.59	-.36	-.40	.34
N=	4	S.D.	.20	.61	.56	.28	.21	.06	.31
RE									
SITE	1	Means	-.18	.69	1.49	-.30	-.60	-.29	-.53
N=	4	S.D.	.65	.82	.18	.29	.22	.20	.23
EB									
SITE	3	Means	-.58	.80	-.54	.88	.65	-1.61	-.77
N=	4	S.D.	.10	.36	.38	.65	.39	.26	.35
SITE	4	Means	-.03	-.30	1.23	-.14	-.07	-.59	-.37
N=	4	S.D.	.30	.27	.72	.39	.12	.28	.38
SITE	5	Means	-1.43	.15	.02	.14	-.36	-1.12	-.75
N=	4	S.D.	.24	.38	.20	.36	.39	.31	.43

Table G-2 (b)

FACTOR SCORE MEANS AND STANDARD DEVIATIONS FOR SPRING DATA
BY SITE WITHIN SPONSORS

SPONSOR			FACTOR 1	2	3	4	5	6	7
FW									
	SITE 4	Means	-.40	.90	-.71	-.33	-.79	.38	-.62
	N= 4	S.D.	.31	.57	.14	.19	.22	.16	.46
	SITE 5	Means	.44	.69	-1.06	.33	1.59	1.12	-.32
	N= 4	S.D.	.24	.39	.43	.27	1.12	.22	.26
	SITE 13	Means	-.36	.09	-.93	-.04	-.13	-.98	-.31
	N= 4	S.D.	.28	.39	.32	.28	.47	.18	.06
UA									
	SITE 8	Means	-.11	.10	.07	-.47	-.20	-.47	-.27
	N= 4	S.D.	.25	.48	.23	.41	.40	.29	.40
	SITE 16	Means	-.18	.73	-.66	.53	-.53	-.91	-1.04
	N= 4	S.D.	.29	.37	.30	.81	.36	.26	.26
BC									
	SITE 1	Means	-.35	1.03	-.20	.30	1.10	-.85	-.49
	N= 4	S.D.	.37	.39	.28	.40	1.68	.18	.32
	SITE 12	Means	-.29	1.49	-.30	-.68	1.51	3.02	-.57
	N= 3	S.D.	.37	1.02	.44	.24	1.34	.50	.70
UO									
	SITE 11	Means	2.08	-1.56	1.66	.14	-.51	.73	-1.44
	N= 4	S.D.	.53	.30	.90	.17	.38	.22	.46
	SITE 14	Means	2.27	.21	-.01	-.95	.81	.16	-.18
	N= 4	S.D.	.42	.30	.30	.13	.39	.09	.20
UK									
	SITE 2	Means	1.76	.23	-.17	-1.15	-.06	-.65	.07
	N= 4	S.D.	.51	.41	.25	.59	.22	.21	.17
	SITE 4	Means	2.63	.28	.98	-1.58	-.34	.30	.29
	N= 4	S.D.	.31	.20	.59	.29	.12	.12	.40
	SITE 8	Means	.65	-.87	-.19	-.93	.53	-.06	-.45
	N= 4	S.D.	.45	.37	.19	.13	.45	.21	.19

Table G-2 (b) (Concluded)

FACTOR SCORE MEANS AND STANDARD DEVIATIONS FOR SPRING DATA
BY SITE WITHIN SPONSORS

SPONSOR			FACTOR 1	2	3	4	5	6	7
HS									
SITE	2	Means	-1.04	-.28	-.78	-.32	-.10	.81	.33
N=	4	S.D.	.22	.11	.20	.42	.52	.36	.23
SITE	6	Means	-.57	1.01	.31	.29	-.75	-.27	.02
N=	4	S.D.	.42	.38	.40	.22	.22	.16	.07
SITE	10	Means	-.11	-.65	-.44	.08	-.17	-.86	-.32
N=	4	S.D.	.22	.29	.34	.11	.32	.15	.41
UF									
SITE	2	Means	-.37	-.06	-.32	-.32	-.02	-.70	-.03
N=	3	S.D.	.36	.25	.50	.10	.87	.22	.38
SITE	10	Means	-.76	-.56	-.49	-1.16	-.56	.11	-.27
N=	4	S.D.	.10	.21	.24	.46	.57	.19	.95
ED									
SITE	5	Means	-.59	-.15	.22	-.54	.85	-.22	-.50
N=	4	S.D.	.56	.72	.34	.41	.83	.17	.43
SITE	6	Means	-.22	-.63	.20	.18	1.28	-.05	.60
N=	4	S.D.	.26	.15	.20	.28	.36	.58	.34
SITE	8	Means	.12	.47	-.91	.23	-1.02	-.15	1.81
N=	4	S.D.	.60	.53	.40	.20	.16	.28	.54
UP									
SITE	3	Means	.49	2.74	.25	1.71	-.83	.20	-.28
N=	4	S.D.	.44	1.15	.07	.31	.31	.28	.47
RE									
SITE	1	Means	-.62	.83	1.99	.41	-.50	-.37	-.45
N=	4	S.D.	.25	.69	1.06	.36	.48	.20	.17
EB									
SITE	3	Means	-.41	1.99	-.32	-.87	.18	3.94	-.13
N=	4	S.D.	.05	.66	.39	.24	.51	.18	1.01
SITE	4	Means	.17	-.75	.47	-.18	-.45	-.47	-.59
N=	4	S.D.	.45	.16	.17	.15	.29	.18	.33
SITE	5	Means	-.62	.05	1.70	.04	1.14	-1.28	-.07
N=	3	S.D.	.25	.43	.50	.15	.43	.21	.25

Appendix H

RESULTS OF MULTIVARIATE REGRESSION ANALYSES AND HYPOTHESIS TESTING

Introduction

The reader will note that certain liberties have been taken in the manner with which the results of the multivariate model analyses are reported; however, it should be emphasized that these analyses are of a highly exploratory nature. The analytical intention was not merely to accept or reject hypotheses, but to uncover and display any relationships or tendencies that the data may contain. Strictly speaking, if a hypothesis test fails to reject the null at a gross level, subsequent finer levels should not be subjected to analyses. In the program used in this analysis, however, all specified hypothesis levels are tested in each computer run. The decision was made to report all findings indicative of a relationship wherever they appear. Also, without entering into a discourse on the trade off risks between alpha and beta errors, we are reporting hypotheses tests significant at the 0.10 level.

MODEL I: Effect of Demographic Covariables on Test Results

Mean classroom scores on the 17 demographic and pre-test covariables described in Chapter II were subjected to multivariate regression analysis on classroom mean scores on the four outcome measures as dependent variables. The results of this analysis are shown below.

(1) Proportion of test variance accounted for by the 17 covariables (R^2):

Test	Percent Variance
3-D	.794
4-A	.747
PSI	.804
Stanford Binet (SB)	.494

(2) Tests of hypotheses (stated in terms of the null hypotheses and their levels of rejection).

(a) Hypothesis 1: That the covariables as a unit have no effect on the test scores as a unit.

N = 100 classrooms
df = 68/312
F = 6.52
p < .001

(b) Hypotheses 2 - 18: That each of the covariables considered separately have no effect on the test scores as a unit.

N = 100 classrooms
df = 4/79

Covariable	F	p<
1. Number children in classroom present both fall and spring	1.67	NS
2. Mean age in months	14.14	.001
3. Percent female	1.08	NS
4. Percent having previous preschool	3.82	.01
5. Percent having English as first language	3.16	.05
6. Percent non-white	4.09	.01
7. Mean size of household	1.41	NS
8. Mean income	0.83	NS
9. Mean mother's education in years	4.49	.01
10. 3-D total pre-score	3.45	.05
11. 4-A total pre-score	1.58	NS
12. PSI total pre-score	14.09	.001
13. Stanford Binet (Pinneau scoring) pre-score	2.35	.1
14. Percent read to at home	1.44	NS
15. Number valid pre and post 3D	0.65	NS
16. Number valid pre and post 4A	0.79	NS
17. Number valid pre and post PSI	1.77	NS

(c) Hypotheses 19 - 86: That each of the covariables considered separately affect each of the test outcomes considered separately.

N = 100 classrooms
df = 1/82

Hypothesis 19 - 86

N = 100 classrooms
df = 1/82

Covariables	3D		4A		PSI		SB	
	F	p<	F	p<	F	p<	F	p<
1. Number children in classroom present both fall and spring	--	NS	--	NS	--	NS	3.09	.1
2. Mean age in months	--	NS	17.04	.001	10.71	.01	5.13	.05
3. Percent female	--	NS	2.95	.1	--	NS	--	NS
4. Percent having previous preschool	4.81	.05	8.43	.01	--	NS	3.57	.1
5. Percent having English as first language	--	NS	3.24	.1	--	NS	7.74	.01
6. Percent non-white	7.52	.01	5.98	.05	--	NS	4.17	.05
7. Mean size of household	4.72	.05	--	NS	--	NS	--	NS
8. Mean income	--	NS	--	NS	--	NS	--	NS
9. Mean mother's education in years	9.32	.01	5.53	.05	9.87	.01	--	NS
10. 3-D total pre-score	4.37	.05	5.83	.05	--	NS	--	NS
11. 4-A total pre-score	--	NS	--	NS	--	NS	5.75	.05
12. PSI total pre-score	12.83	.001	28.99	.001	26.64	.001	--	NS
13. Stanford Binet (Pinneau scoring) pre-score	--	NS	4.29	.05	2.93	.1	3.00	.1
14. Percent read to at home	3.43	.1	--	NS	--	NS	--	NS
15. Number valid pre and post 3D	--	NS	--	NS	--	NS	--	NS
16. Number valid pre and post 4A	--	NS	--	NS	--	NS	--	NS
17. Number valid pre and post PSI	--	NS	--	NS	--	NS	5.53	.05

MODEL II: Effect of Implementation Variables on Test Results

In this MODEL, classroom mean frequencies on the 24 implementation variables were added to the covariables used in MODEL I and subjected to multivariate analysis with classroom means on the four outcomes. The results are as follows:

(1) Proportion of test score variance accounted for by all variables (R^2).

Test	Percent Variance
3D	.917
4A	.885
PSI	.916
SB	.744

(2) Tests of Hypotheses (stated in terms of the null hypotheses and their levels of rejection).

(a) Hypothesis 1: That the covariables as a unit have no effect on test scores as a unit.

N = 80 classrooms
df = 68/140
F = 2.48
p < .001

(b) Hypothesis 2: That the implementation variables as a unit have no effect on the test scores as a unit.

N = 80 classrooms
df = 96/141
F = 1.33
p < .10

(c) Hypotheses 3 - 19: That the covariables considered separately have no effect on the test scores as a unit.

N = 80 classrooms
df = 4/35

Covariables	F	p<
1. Number children in classroom present both fall and spring	--	NS
2. Mean age in months	3.27	.05
3. Percent female	--	NS
4. Percent having previous preschool	3.21	.05
5. Percent having English as first language	--	NS
6. Percent non-white	--	NS
7. Mean size of household	--	NS
8. Mean income	--	NS
9. Mean mother's education in years	3.56	.05
10. 3-D total pre-score	2.28	.1
11. 4-A total pre-score	--	NS
12. PSI total pre-score	3.98	.01
13. Stanford Binet (Pineau scoring) pre-score	2.31	.1
14. Percent read to at home	--	NS
15. Number valid pre and post 3D	--	NS
16. Number valid pre and post 4A	--	NS
17. Number valid pre and post PSI	--	NS

(d) Hypotheses 20 - 43: That the implementation variables considered separately have no effect on the test scores as a unit.

N = 80 classrooms
df = 4/35

Implementation Variables	F	p<
6. Adult/child ratio	--	NS
10. Group time, sharing, rest, story, etc.	--	NS
11. Numbers, alphabet, reading	--	NS
13. Games, puzzles	--	NS
20. Adult with one or two children, academic activity	--	NS
21. Adult with small group, academic activity	2.43	.1
24. Wide range of activities	--	NS
25. Independent child activity	--	NS
26. Adult with one or two children	--	NS
46. Adult direct question, child response, adult corrective feedback	--	NS
47. Adult direct question, child response, adult acknowledgement	--	NS
48. Adult direct question, child response, adult praise	--	NS
49. Adult open-ended question	--	NS
52. Adult praise to child	--	NS
53. Adult acknowledgment	--	NS
54. Adult positive corrective feedback	--	NS
59. All child self-instruction	--	NS
62. Adult interaction with one or two children	--	NS
63. Adult interaction with small group	2.35	.1
69. Child initiates interaction with adult	--	NS
70. Child initiates interaction with other children	--	NS
71. Child non-verbal	--	NS
72. Child cooperates with other children	--	NS
81. All motion	--	NS

(e) Hypotheses 44 - 104: That the covariables considered separately have no effect on the test scores considered separately.

N = 80 classrooms
df = 1/38.

(f) Hypotheses 105 - 200: That the implementation variables considered separately have no effect on the test results considered separately.

N = 80 classrooms
df = 1/38

Hypotheses 44 - 104
N = 80 classrooms
df = 1/38

Covariable	3D		4A		PSI		SB	
	F	p<	F	p<	F	p<	F	p<
1. Number children in classroom present both fall and spring	--	NS	--	NS	--	NS	2.89	.1
2. Mean age in months	8.75	.01	3.44	.1	8.45	.01	--	NS
3. Percent female	--	NS	--	NS	3.55	.1	2.84	.1
4. Percent having previous preschool	3.62	.1	--	NS	4.58	.05	10.12	.01
5. Percent having English as first language	--	NS	2.57	.1	--	NS	--	NS
6. Percent non-white	--	NS	--	NS	--	NS	--	NS
7. Mean size of household	2.61	NS	--	NS	--	NS	5.69	.05
8. Mean income	--	NS	--	NS	--	NS	3.46	.1
9. Mean mother's education, in years	9.78	.01	--	NS	11.39	.01	--	NS
10. 3-D total pre-score	5.92	.05	--	NS	3.01	.1	--	NS
11. 4-A total pre-score	--	NS	--	NS	--	NS	--	NS
12. PSI total pre-score	4.48	.05	10.54	.01	8.73	.01	--	NS
13. Stanford Binet (Pinneau scoring) pre-score	--	NS	--	NS	--	NS	7.72	.01
14. Percent read to at home	--	NS	--	NS	2.69	.1	3.14	.1
15. Number valid pre and post 3D	--	NS	--	NS	--	NS	--	NS
16. Number valid pre and post 4A	--	NS	--	NS	--	NS	--	NS
17. Number valid pre and post PSI	--	NS	--	NS	--	NS	--	NS

Hypotheses 105 - 200
N = 80 classrooms
df = 1/38

Implementation Variables	3D		4A		PSI		SB	
	F	p<	F	p<	F	p<	F	p<
6. Adult/child ratio	--	NS	--	NS	--	NS	--	NS
10. Group time, sharing, rest, story, etc.	--	NS	--	NS	5.60	.05	--	NS
11. Numbers, alphabet, reading	--	NS	2.99	.1	4.57	.05	--	NS
13. Games, Puzzles	--	NS	--	NS	--	NS	--	NS
20. Adult with one or two children, academic activity	--	NS	--	NS	--	NS	--	NS
21. Adult with small group, academic activity	--	NS	2.42	NS	8.10	.01	--	NS
24. Wide range of activities	--	NS	--	NS	--	NS	--	NS
25. Independent child activity	--	NS	--	NS	--	NS	--	NS
26. Adult with one or two children	--	NS	--	NS	--	NS	2.72	.1
46. Adult direct question, child response, adult corrective feedback	--	NS	--	NS	--	NS	--	NS
47. Adult direct question, child response, adult acknowledgment	--	NS	--	NS	--	NS	--	NS
48. Adult direct question, child response, adult praise	--	NS	4.54	.05	--	NS	--	NS
49. Adult open-ended question	--	NS	--	NS	--	NS	--	NS
52. Adult praise to child	--	NS	--	NS	--	NS	--	NS
53. Adult acknowledgment	--	NS	4.56	.05	--	NS	--	NS
54. Adult positive corrective feedback	--	NS	3.56	.1	--	NS	--	NS
59. All child self-instruction	--	NS	--	NS	--	NS	--	NS
62. Adult interaction with one or two children	--	NS	--	NS	--	NS	--	NS
63. Adult interaction with small group	--	NS	8.53	.01	--	NS	--	NS
69. Child initiates interaction with adult	--	NS	--	NS	--	NS	--	NS
70. Child initiates interaction with other children	--	NS	--	NS	--	NS	--	NS
71. Child non-verbal	--	NS	--	NS	--	NS	--	NS
72. Child cooperates with other children	--	NS	--	NS	--	NS	--	NS
81. All motion	--	NS	--	NS	--	NS	--	NS

MODEL III: Effect of Other Process Variables on Test Results

In this MODEL the classroom scores on nine additional process variables thought to affect children's test performances were added to the covariables used in MODEL I and the implementation variables used in MODEL II, and all were subjected to multivariate analysis with the classroom mean post scores on the four tests as dependent variables. The results are as follows:

(1) Proportion of test score variance accounted for by all variables (R^2).

Test	Percent Variance
3D	.928
4A	.898
PSI	.946
SB	.824

(2) Hypothesis Tests (stated in terms of the null hypotheses and their levels of rejection).

(a) Hypothesis 1: That the covariables as a unit set have no effect on the test scores as a unit.

N = 80 classrooms
df = 68/104
F = 2.35
p = .001

(b) Hypothesis 2: That the implementation variables as a unit have no effect on the test scores as a unit.

N = 80 classrooms
df = 96/106
F = 0.886
p = NS

(c) Hypothesis 3: That the additional process variables as a unit have no effect on the test scores as a unit.

N = 80 classrooms
df = 36/99
F = 1.16
p = NS

(d) Hypotheses 4 - 20: That the covariables considered separately have no effect on the test scores as a unit.

N = 80 classrooms
df = 4/26

Hypotheses 4 - 20
N = 80
df = 4/26

Covariable	F	p<
1. Number children in classroom present both fall and spring	--	NS
2. Mean age in months	2.20	.1
3. Percent female	--	NS
4. Percent having previous preschool	5.05	.01
5. Percent having English as first language	--	NS
6. Percent non-white	--	NS
7. Mean size of household	--	NS
8. Mean income	--	NS
9. Mean mother's education in years	3.68	.05
10. 3-D total pre-score	2.21	.1
11. 4-A total pre-score	--	NS
12. PSI total pre-score	3.69	.05
13. Stanford Binet (Pinneau scoring) pre-score	2.80	.05
14. Percent read to at home	--	NS
15. Number valid pre and post 3D	--	NS
16. Number valid pre and post 4A	--	NS
17. Number valid pre and post PSI	--	NS

(e) Hypotheses 21 - 44: That the implementation variables considered separately have no effect on the test scores as a unit.

N = 80 classrooms
df = 4/26

Implementation Variables	F	p <
6. Adult/child ratio	--	NS
10. Group time, sharing, rest, story, etc.	--	NS
11. Numbers, alphabet, reading	--	NS
13. Games, puzzles	--	NS
20. Adult with one or two children, academic activity	--	NS
21. Adult with small group, academic activity	--	NS
24. Wide range of activities	--	NS
25. Independent child activity	--	NS
26. Adult with one or two children	--	NS
46. Adult direct question, child response, adult corrective feedback	--	NS
47. Adult direct question, child response, adult acknowledgment	2.37	.10
48. Adult direct question, child response, adult praise	--	NS
49. Adult open-ended question	2.88	.05
52. Adult praise to child	--	NS
53. Adult acknowledgment	--	NS
54. Adult positive corrective feedback	--	NS
59. All child self-instruction	--	NS
62. Adult interaction with one or two children	--	NS
63. Adult interaction with small group	--	NS
69. Child initiates interaction with adult	--	NS
70. Child initiates interaction with other children	--	NS
71. Child non-verbal	--	NS
72. Child cooperates with other children	--	NS
81. All motion	--	NS

(f) Hypotheses 45 - 53: That the additional process variables considered separately have no effect on the test scores as a unit.

N 80 classrooms
df 4/26

Additional Process Variables	F	p <
14. Activity F (arts, crafts, cooking, sewing, pounding, or sawing)	--	NS
23. Academic activity groupings	--	NS
27. Aide's participation in academic activities	--	NS
50. Child response to adult choice request	2.19	.1
60. Child asking question of adults	--	NS
61. Child self expression, general comments	--	NS
80. Child interacts with machine	--	NS
82. All positive behavior	--	NS
83. All negative behavior	--	NS

(g) Hypotheses 54 - 114: That the covariables considered separately have no effect on the test results considered separately.

N = 80 classrooms
df = 1/29

(h) Hypotheses 115 - 210: That the implementation variables considered separately have no effect on the test results considered separately.

N = 80 classrooms
df = 1/29

(i) Hypotheses 211 - 246: That the additional process variables considered separately have no effect on the test results considered separately.

N = 80 classrooms
df = 1/29

Hypotheses 54 - 114
N = 80 classrooms
df = 1/29

Covariable	3D F	3D p<	4A F	4A p<	PSI F	PSI p<	SB F	SB p<
1. Number of children in classroom present both fall and spring	--	NS	--	NS	--	NS	8.02	.01
2. Mean age in months	2.86	.1	3.34	.1	3.83	.1	--	NS
3. Percent female	--	NS	--	NS	--	NS	--	NS
4. Percent having previous preschool	3.48	.1	--	NS	10.36	.01	15.17	.001
5. Percent having English as first language	--	NS	--	NS	--	NS	--	NS
6. Percent non-white	--	NS	--	NS	--	NS	--	NS
7. Mean size of household	--	NS	--	NS	--	NS	3.95	.1
8. Mean income	--	NS	--	NS	--	NS	--	NS
9. Mean mother's education in years	10.52	.01	--	NS	14.60	.001	--	NS
10. 3-D total pre-score	3.94	.1	--	NS	3.17	.1	3.52	.1
11. 4-A total pre-score	--	NS	--	NS	--	NS	--	NS
12. PSI total pre-score	3.93	.1	6.19	.05	11.07	.01	3.17	.1
13. Stanford Binet (Pinneau scoring) pre-score	--	NS	--	NS	--	NS	9.97	.01
14. Percent read to at home	--	NS	--	NS	--	NS	--	NS
15. Number valid pre and post 3D	--	NS	--	NS	--	NS	--	NS
16. Number valid pre and post 4A	--	NS	--	NS	--	NS	--	NS
17. Number valid pre and post PSI	--	NS	--	NS	--	NS	--	NS

Hypotheses 115 - 210
N = 80 classrooms
df = 1/29

Implementation Variables	3D F	3D p<	4A F	4A p<	PSI F	PSI p<	SB F	SB p<
6. Adult/child ratio	--	NS	--	NS	--	NS	--	NS
10. Group time, sharing, rest, story, etc.	--	NS	--	NS	--	NS	--	NS
11. Numbers, alphabet, reading	--	NS	--	NS	--	NS	--	NS
13. Games, puzzles	--	NS	--	NS	--	NS	--	NS
20. Adult with one or two children, academic activity	--	NS	--	NS	--	NS	--	NS
21. Adult with small group, academic activity	--	NS	--	NS	--	NS	--	NS
24. Wide range of activities	--	NS	--	NS	--	NS	--	NS
25. Independent child activity	--	NS	--	NS	--	NS	--	NS
26. Adult with one or two children	--	NS	--	NS	--	NS	4.66	.05
46. Adult direct question, child response, adult corrective feedback	--	NS	--	NS	--	NS	--	NS
47. Adult direct question, child response, adult acknowledgment	--	NS	--	NS	4.26	.05	--	NS
48. Adult direct question, child response, adult praise	--	NS	--	NS	--	NS	--	NS
49. Adult open-ended question	--	NS	--	NS	4.54	.05	--	NS
52. Adult praise to child	--	NS	--	NS	--	NS	--	NS
53. Adult acknowledgment	--	NS	--	NS	--	NS	--	NS
54. Adult positive corrective feedback	--	NS	--	NS	--	NS	--	NS
59. All child self-instruction	--	NS	--	NS	--	NS	--	NS
62. Adult interaction with one or two children	--	NS	--	NS	4.90	.05	--	NS
63. Adult interaction with small group	--	NS	--	NS	--	NS	--	NS
69. Child initiates interaction with adult	--	NS	--	NS	--	NS	--	NS
70. Child initiates interaction with other children	--	NS	--	NS	--	NS	--	NS
71. Child non-verbal	--	NS	--	NS	--	NS	--	NS
72. Child cooperates with other children	--	NS	--	NS	--	NS	--	NS
81. All motion	--	NS	--	NS	--	NS	--	NS

Hypotheses 211 - 246
N = 80 classrooms
df = 1/29

Additional Process Variables	3D		4A		PSI		SB	
	F	p<	F	p<	F	p<	F	p<
14. Activity F (arts, crafts, cooking, sewing, pounding, or sawing)	--	NS	--	NS	--	NS	--	NS
23. Academic activity groupings	--	NS	--	NS	--	NS	3.66	.1
27. Aide's participation in academic activities	--	NS	--	NS	--	NS	--	NS
50. Child response to adult choice request	--	NS	--	NS	4.72	.05	--	NS
60. Child asking questions of adults	--	NS	--	NS	--	NS	--	NS
61. Child self-expression, general comments	--	NS	--	NS	3.24	.1	--	NS
80. Child interacts with machine	--	NS	--	NS	--	NS	2.88	.1
82. All positive behavior	--	NS	--	NS	--	NS	--	NS
83. All negative behavior	--	NS	--	NS	--	NS	--	NS

MODELS I, II, and III Reruns

The foregoing data were presented so that the reader could gain some insight into the relationships between the variables analyzed and the Stanford Binet Intelligence Test. It is obvious however that retention of the Stanford Binet scores in the analysis greatly restricted the sample size because the test was not given in many of the classrooms, and the analysis technique employed could not be used with missing data.

Having fulfilled what was felt to be an obligation to not ignore the intelligence test relationships by presenting results from 80 classrooms above, the decision was made to drop the Stanford Binet scores from further analysis, thereby increasing the sample size to 121 classrooms. At the same time, so as to gain a few degrees of freedom and remove from analysis the "noise" generated by covariables that had proven to be unrelated to test results in the first three MODELS, the list of covariables was reduced from 17 to nine as detailed in the previous chapter.

MODEL I Rerun: Effect of Demographic Covariables on Test Results

In this MODEL, classroom scores on the reduced set of nine demographic and pre-test covariables described earlier were subjected to multivariate regression analysis on three dependent post-test classroom scores with the following results:

(1) Proportion of test variance accounted for by the list of covariables (R^2).

Test	Percent Variance
3D	.769
4A	.657
PSI	.661

(2) Tests of Hypotheses (stated in terms of the null hypotheses and their levels of rejection).

(a) Hypothesis 1: That the covariable as a unitary set have no effect on the test results as a unitary set.

N = 121 classrooms
df = 27/319
F = 14.17
p < .001

(b) Hypotheses 2 - 10: That the covariables considered separately have no effect on the test results as a unitary set.

N = 121 classrooms
df = 3/109

Covariables	F	p<
1. Mean age of children in months	4.00	.01
2. Percent having previous preschool	--	NS
3. Percent English first language	--	NS
4. Percent non-white	2.95	.05
5. Mother's education level	3.74	.05
6. Mean total 3D pre-score	8.69	.001
7. Mean total 4A pre-score	--	NS
8. Mean total PSI pre-score	32.41	.001
9. Number of valid pre and post PSIs	3.21	.05

(c) Hypotheses 11 - 37: That the covariables considered separately have no effect on the test results considered separately.

N = 121 classrooms
df = 1/111

Covariables	3D		4A		PSI	
	F	p<	F	p<	F	p<
1. Mean age of children in months	9.06	.01	--	NS	9.50	.01
2. Percent having had previous preschool	--	NS	3.01	.1	3.46	.1
3. Percent English first language	--	NS	--	NS	--	NS
4. Percent non-white	4.35	.05	5.83	.05	3.40	.1
5. Mother's education level	4.36	.05	--	NS	11.26	.01
6. Mean total 3D pre-score	21.74	.001	--	NS	2.83	.1
7. Mean total 4A pre-score	--	NS	--	NS	--	NS
8. Mean total PSI pre-score	6.33	.05	40.54	.001	57.42	.001
9. Number of valid pre and post PSIs	--	NS	6.73	.05	2.94	.1

MODEL II Rerun: Effect of Implementation Variables on Test Results

In this MODEL, the classroom scores on the 24 implementation variables were added to the covariables used in MODEL I rerun and subjected to multivariate analysis with the mean classroom post scores on the three dependent tests.

The results are as follows:

(1) Proportion of test variance accounted for by all variables.

Test	Percent Variance
3D	.829
4A	.780
PSI	.861

(2) Test of Hypotheses (stated as null hypotheses and their levels of rejection).

(a) Hypothesis 1: That the covariables as a unit have no effect on the test scores as a unit.

N = 121 classrooms
df = 27/249
F = 9.12
p < .001

(b) Hypothesis 2: That the implementation variables as a unit have no effect on the test scores as a unit.

N = 121 classrooms
df = 72/255
F = 1.77
p < .01

(c) Hypotheses 3 - 11: That the covariables considered separately have no effect on the test results as a unit.

N = 121 classrooms
df = 3/86

Covariables	F	p <
1. Mean age of children in months	2.74	.1
2. Percent having had previous preschool	--	NS
3. Percent English first language	--	NS
4. Percent non-white	2.72	.1
5. Mother's education level	4.83	.01
6. Mean total 3D pre-score	6.93	.001
7. Mean total 4A pre-score	--	NS
8. Mean total PSI pre-score	16.62	.001
9. Number of valid pre and post PSIs	--	NS

(d) Hypotheses 12 - 35: That the implementation variables considered separately have no effect on the test results as a unit.

N = 121 classrooms
df = 3/85

Implementation Variables	F	p <
6. Adult/child ratio	--	NS
10. Group time, sharing, rest, story, etc.	--	NS
11. Numbers, alphabet, reading	5.11	.01
13. Games, puzzles	--	NS
20. Adult with one or two children, academic activity	--	NS
21. Adult with small group, academic activity	2.32	.1
24. Wide range of activities	3.89	.05
25. Independent child activity	3.84	.05
26. Adult with one or two children	--	NS
46. Adult direct question, child response, adult corrective feedback	--	NS
47. Adult direct question, child response, adult acknowledgment	--	NS
48. Adult direct question, child response, adult praise	--	NS
49. Adult open-ended question	--	NS
52. Adult praise to child	--	NS
53. Adult acknowledgment	--	NS

Implementation Variables	F	p <
54. Adult positive corrective feedback	2.57	.1
59. All child self-instruction	--	NS
62. Adult interaction with one or two children	--	NS
63. Adult interaction with small group	--	NS
69. Child initiates interaction with adult	--	NS
70. Child initiates interaction with other children	--	NS
71. Child non-verbal	--	NS
72. Child cooperates with other children	--	NS
81. All motion	--	NS

(e) Hypotheses 36 - 62: That the covariables considered separately have no effect on the test results considered separately.

N = 121 classrooms
df = 1/87

Covariables	3D		4A		PSI	
	F	p <	F	p <	F	p <
1. Mean age of children in months	2.60	NS	--	NS	5.93	.05
2. Percent having had previous preschool	--	NS	--	NS	--	NS
3. Percent English first language	--	NS	--	NS	--	NS
4. Percent non-white	8.25	.01	--	NS	3.44	.1
5. Mother's education level	--	NS	--	NS	13.23	.001
6. Mean total 3D pre-score	20.02	.001	--	NS	8.98	.01
7. Mean total 4A pre-score	--	NS	--	NS	--	NS
8. Mean total PSI pre-score	3.49	.1	24.09	.001	29.57	.001
9. Number of valid pre and post PSIs	--	NS	3.69	.1	--	NS

(f) Hypotheses 63 - 134: That the implementation variables considered separately have no effect on the test results considered separately.

N = 121 classrooms
df = 1/87

Implementation Variables	3D F	3D p<	4A F	4A p <	PSI F	PSI p <
6. Adult/child ratio	--	NS	--	NS	--	NS
10. Group time, sharing, rest, story, etc.	--	NS	--	NS	--	NS
11. Numbers, alphabet, reading	--	NS	4.25	.05	8.40	.01
13. Games, puzzles	3.26	.1	4.33	.05	2.83	.1
20. Adult with one or two children, academic activity	--	NS	--	NS	--	NS
21. Adult with small group, academic activity	--	NS	--	NS	4.74	.05
24. Wide range of activities	8.95	.01	6.70	.05	--	NS
25. Independent child activity	8.81	.01	6.69	.05	--	NS
26. Adult with one or two children	--	NS	--	NS	--	NS
46. Adult direct question, child response, adult corrective feedback	--	NS	--	NS	--	NS
47. Adult direct question, child response, adult acknowledgment	--	NS	--	NS	--	NS
48. Adult direct question, child response, adult praise	--	NS	--	NS	--	NS
49. Adult open-ended question	4.12	.05	--	NS	--	NS
52. Adult praise to child	--	NS	--	NS	--	NS
53. Adult acknowledgment	--	NS	--	NS	--	NS
54. Adult positive corrective feedback	--	NS	--	NS	4.85	.05
59. All child self-instruction	--	NS	--	NS	--	NS
62. Adult interaction with one or two children	--	NS	--	NS	--	NS
63. Adult interaction with small group	--	NS	--	NS	--	NS
69. Child initiates interaction with adult	--	NS	--	NS	--	NS
70. Child initiates interaction with other children	--	NS	3.31	.1	--	NS
71. Child non-verbal	--	NS	--	NS	--	NS
72. Child cooperates with other children	--	NS	--	NS	--	NS
81. All motion	--	NS	--	NS	--	NS

MODEL III Rerun: Effect of Other Process Variables on Test Results

In this MODEL, classroom scores on the nine general interest variables were added to those of the covariables and the implementation variables for multivariate analysis with the classroom scores on the three post tests as dependent variables. The results are as follows:

(1) Proportion of test variance accounted for by all variables (R^2).

Test	Percent Variance
3D	.837
4A	.808
PSI	.873

(2) Tests of Hypotheses (stated in terms of the null hypothesis and their levels of rejection).

(a) Hypothesis 1: That the covariables as a unit have no effect on the test scores as a unit.

N = 121 classrooms
df = 27/223
F = 7.23
p < .001

(b) Hypothesis 2: That the implementation variables as a unit have no effect on the test variables as a unit.

N = 121 classrooms
df = 72/228
F = 1.29
p < .1

(c) Hypothesis 3: That the general interest variables as a unit have no effect on the test scores as a unit.

N = 121 classrooms
df = 27/223
F = 1.37
p < .1

(d) Hypotheses 4 - 12: That the covariables considered separately have no effect on the test results considered as a unit.

N = 121 classrooms
df = 3/76

Covariables	F	p <
1. Mean age of children in months	--	NS
2. Percent having had previous preschool	--	NS
3. Percent English first language	--	NS
4. Percent non-white	2.17	.1
5. Mother's education level	4.81	.01
6. Mean total 3D pre-score	5.56	.01
7. Mean total 4A pre-score	--	NS
8. Mean total PSI pre-score	12.56	.001
9. Number of valid pre and post PSIs	--	NS

(e) Hypotheses 13 - 36: That the implementation variables considered separately have no effect on the test results considered as a unit.

N = 121 classrooms
df = 3/76

Implementation Variables	F	p <
6. Adult/child ratio	2.31	.1
10. Group time, sharing, rest, story, etc.	--	NS
11. Numbers, alphabet, reading	--	NS
13. Games, puzzles	--	NS
20. Adult with one or two children, academic activity	--	NS
21. Adult with small group, academic activity	--	NS
24. Wide range of activities	--	NS
25. Independent child activity	2.87	.05
26. Adult with one or two children	--	NS
46. Adult direct question, child response, adult corrective feedback	--	NS
47. Adult direct question, child response, adult acknowledgment	2.24	.1
48. Adult direct question, child response, adult praise	--	NS
49. Adult open-ended question		
52. Adult praise to child	--	NS
53. Adult acknowledgment	--	NS
54. Adult positive corrective feedback	2.27	.1

Implementation Variables	F	p <
59. All child self-instruction	--	NS
62. Adult interaction with one or two children	--	NS
63. Adult interaction with small group	--	NS
69. Child initiates interaction with adult	--	NS
70. Child initiates interaction with other children	--	NS
71. Child non-verbal	--	NS
72. Child cooperates with other children	--	NS
81. All motion	--	NS

(g) Hypotheses 37 - 45: That the additional process variables considered separately have no effect on the test results considered as a unit.

N = 121 classrooms
df = 3/76

Additional Process Variables	F	p <
14. Activity T (arts, crafts, cooking, sewing, pounding, or sawing)	--	NS
23. Academic activity groupings	2.43	.1
27. Aide's participation in academic activities		
50. Child response to adult choice request	--	NS
60. Child asking questions of adults	--	NS
61. Child self expression, general comments	--	NS
80. Child interacts with machine	2.72	.1
82. All positive behavior	--	NS
83. All negative behavior	--	NS

(h) Hypotheses 46 - 72: That the covariables considered separately have no effect on the test scores considered separately.

N = 121 classrooms
df = 1/78

Covariables	3D F	3D p <	4A F	4A p <	PSI F	PSI p <
1. Mean age of children in months	--	NS	--	NS	4.07	.05
2. Percent having had previous preschool	--	NS	--	NS	--	NS
3. Percent English first language	--	NS	--	NS	--	NS
4. Percent non-white	5.87	.05	--	NS	4.37	.05
5. Mother's education level	--	NS	3.53	.1	12.79	.001
6. Mean total 3D pre-score	15.86		--	NS	7.56	.01
7. Mean total 4A pre-score	--	NS	3.20	.1	--	NS
8. Mean total PSI pre-score	--	NS	18.50	.001	23.31	.001
9. Number of valid pre and post PSIs	--	NS	--	NS	3.05	.1

(J) Hypotheses 73 - 144: That the implementation variables considered separately have no effect on the test results considered separately.

N = 121 classrooms
df = 1/78

Implementation Variables	3D F	3D p <	4A F	4A p <	PSI F	PSI p <
6. Adult/child ratio	6.63	.05	--	NS	--	NS
10. Group time, sharing, rest, story, etc.	--	NS	--	NS	--	NS
11. Numbers, alphabet, reading	--	NS	--	NS	2.81	.1
13. Games, Puzzles	--	NS	--	NS	--	NS
20. Adult with one or two children, academic activity	--	NS	--	NS	--	NS
21. Adult with small group, academic activity	--	NS	--	NS	--	NS
24. Wide range of activities	3.90	.1	--	NS	--	NS
25. Independent child activity	6.35	.05	4.81	.05	--	NS
26. Adult with one or two children	--	NS	--	NS	--	NS
46. Adult direct question, child response, adult corrective feedback	--	NS	--	NS	--	NS

Implementation Variables	3D F	3D p <	4A F	4A p <	PSI F	PSI p <
47. Adult direct question, child response, adult acknowledgment	2.92	.1	--	NS	--	NS
48. Adult direct question, child response, adult praise	--	NS	2.70	NS	--	NS
49. Adult open-ended question	--	NS	--	NS	--	NS
52. Adult praise to child	--	NS	--	NS	--	NS
53. Adult acknowledgment	--	NS	--	NS	--	NS
54. Adult positive corrective feedback	--	NS	--	NS	3.42	.1
59. All child self-instruction	--	NS	2.80	.1	--	NS
62. Adult interaction with one or two children	--	NS	--	NS	--	NS
63. Adult interaction with small group	--	NS	--	NS	--	NS
69. Child initiates interaction with adult	--	NS	--	NS	--	NS
70. Child initiates interaction with other children	--	NS	--	NS	--	NS
71. Child non-verbal	--	NS	--	NS	--	NS
72. Child cooperates with other children	--	NS	--	NS	--	NS
81. All motion	--	NS	--	NS	--	NS

(J) Hypotheses 145 - 171: That the general interest variables considered separately have no effect on the test results considered separately.

N = 121 classrooms
df = 1/78

Additional Process Variables	3D F	3D p<	4A F	4A p<	PSI F	PSI p<
14. Activity F (arts, crafts, cooking, sewing, pounding, or sawing)	--	NS	3.66	.1	--	NS
23. Academic activity groupings	--	NS	--	NS	2.96	.1
27. Aide's participation in academic activities	--	NS	--	NS	--	NS
50. Child response to adult choice request	--	NS	--	NS	--	NS
60. Child asking questions of adults	--	NS	--	NS	--	NS
61. Child self expression, general comments	--	NS	3.40	.1	--	NS
80. Child interacts with machine	--	NS	--	NS	--	NS
82. All positive behavior	--	NS	--	NS	--	NS
83. All negative behavior	--	NS	--	NS	2.89	.1

MODEL IV: Effect of Global Factors on Test Results

In this MODEL, classroom scores on the seven factors resulted from the previously described factor analysis were combined with those on the nine covariables and subjected to multivariate analysis with classroom scores on the three post tests as dependent variables. The results are as follows:

(1) Proportion of test score variance accounted for by the covariables and the factors (R^2).

Test	Percent Variance
3D	.775
4A	.730
PSI	.670

(2) Tests of hypotheses (stated in terms of the null hypothesis and their levels of rejection).

(a) Hypothesis 1: That the covariables as a unitary set have no effect on the test results as a unitary set.

N = 121 classrooms
df = 27/299
F = 12,20
p < ,001

(b) Hypothesis 2: That the factor scores as a unitary set have no effect on the test results as a unitary set.

N = 121 classrooms
df = 21/293
F = 2,75
p < ,001

(c) Hypotheses 3 - 11: That the covariables considered separately have no effect on the test results as a unitary set.

N = 121 classrooms
= 3/102

Covariables	F	p <
1. Mean age of children in months	3.27	.05
2. Percent having had previous preschool	3.05	.05
3. Percent English first language	--	NS
4. Percent non-white	--	NS
5. Mother's education level	5.42	.01
6. Mean total 3D pre-score	5.86	.001
7. Mean total 4A pre-score	--	NS
8. Mean total PSI pre-score	22.49	.001
9. Number of valid pre and post PSIs	--	NS

(d) Hypotheses 12-18: That the factors considered separately have no effect on the test results as a unitary set.

N = 121 classrooms
df = 3/102

Factors	F	p <
1. Programmed academic instruction	4.58	.01
2. Individual children in a wide variety of activities	--	NS
3. Adult feedback to children	4.10	.01
4. Positive choice request interaction	6.31	.001
5* Negative behavior	2.49	.05 (neg)
6. Positive behavior	--	NS
7* Adult with large group	2.30	.1 (neg)

*Classrooms with high scores on these factors scored significantly lower on the tests indicated.

(e) Hypotheses 19 - 45: That the covariables considered separately have no effect on the test results considered separately.

N = 121 classrooms
df = 1/104

Covariables	3D F	3D p<	4A F	4A p<	PSI F	PSI p<
1. Mean age of children in months	5.35	.05	--	NS	8.52	.01
2. Percent having had previous preschool	--	NS	6.40	.05	4.09	.05
3. Percent English first language	--	NS	--	NS	--	NS
4. Percent non-white	--	NS	4.30	.05	--	NS
5. Mother's education level	3.86	.1	--	NS	16.25	.001
6. Mean total 3D pre-score	15.66	.001	--	NS	4.85	.05
7. Mean total 4A pre-score	--	NS	--	NS	--	NS
8. Mean total PSI pre-score	8.39	.01	31.57	.001	44.15	.001
9. Number of valid pre and post PSIs	--	NS	--	NS	--	NS

(f) Hypotheses 19 - 39: That the factors considered separately have no effect on the test results considered separately.

N = 121 classrooms
df = 1/104

Factors	3D F	3D p<	4A F	4A p<	PSI F	PSI p<
1. Programmed academic instruction	0.648	NS	9.81	.01	1.50	NS
2. Individual children in a wide variety of activities	0.225	NS	0.247	NS	0.915	NS
3. Adult feedback to children	--	NS	4.90	.05	1.44	NS
4. Positive choice request interaction	--	NS	9.44	.01	4.60	.05
5† Negative behavior	0.351	NS	0.566 (neg)	NS	3.37 (neg)	.1
6. Positive behavior	0.166	NS	0.405	NS	1.19	NS
7† Adult with large group	0.240	NS	5.77 (neg)	.05	0.360 (neg)	NS

†Classrooms with high scores on these factors scored significantly lower on the tests indicated.

Comment and Discussion

Inasmuch as factors scores were used to some degree as criteria on which to evaluate sponsor program implementation, it is incumbent in a thorough analysis to assess the effect of factors on child test performance. The results of the analysis of this model clearly show that several of the factors are indeed related to test performance. Of the seven factors, five show some relationship and four are significant at $p < .05$. This result is in distinct contrast with the analysis of individual variables also used to assess model implementation that showed little more than random effects between the 24 designated variables and the test results.

Although the use of factors and factor scores is frequently criticized because of their nebulous and non-specific nature as opposed to individual variables, it appears that they may be more useful in some situations in describing and evaluating sponsor goals in terms of desired "atmosphere" characteristics of their classrooms. Certainly, it seems that many of the sponsors in this sample would be better able to state their goals in terms of global atmospheres than in terms of specific variable frequency. Unfortunately, since a classroom atmosphere represents some sort of ongoing gestalt, it is patently impossible to measure the "frequency rate of its occurrence" as an observable variable. Such a measurement can only be obtained through some weighted combination of variables as is represented by the use of factors and classroom scores on factors.

MODEL V: Effect of Level of Implementation on Test Results

This MODEL contrasts the effects of classrooms within sponsors rated as highly implemented with those rated as poorly or less well implemented, on the test results as dependent variable. The covariables are included in the analysis for the effect of providing "adjusted" test outcomes. The analysis results are as follows:

(1) Proportion of test variance accounted for by the variables (R^2). Since this MODEL uses a highly restricted (47 classrooms) sample of the "high" and "low" implemented classrooms within seven sponsors, and since the eight contrasts are represented in the MODEL by "dummy" variables, the R^2 measurements are not meaningful and were not computed.

(2) Test of Hypotheses (stated in terms of the null and the significance levels of its rejection).

(a) Hypothesis 1: That the covariables as a unitary set have no effect on the test results as a unitary set.

$N = 47$ classrooms
$df = 27/79$
$F = 4.54$
$p < .001$

(b) Hypothesis 2: That the high/low constrasts as a unitary set have no effect on the test results as a unitary set.

N = 47 classrooms
df = 24/79
F = 1.36
p < .05

(c) Hypotheses 3 - 11: That the covariables considered separately have no effect on the test results as a unitary set.

N = 47 classrooms
df = 3/27

Covariables	F	p <
1. Mean age of children in months	--	NS
2. Percent having had previous preschool	--	NS
3. Percent English first language	--	NS
4. Percent non-white	--	NS
5. Mother's education level	3.04	.05
6. Mean total 3D pre-score	--	NS
7. Mean total 4A pre-score	3.30	.05
8. Mean total PSI pre-score	11.77	.001
9. Number of valid pre and post PSIs	2.07	NS

(d) Hypotheses 12 - 19: That the high/low contrasts considered separately have no effect on the test results as a unitary set.

N = 47 classrooms
df = 3/27

Implementation Contrasts	F	p <
1. High/low classrooms, U Arizona	0.41	NS
2. High/low classrooms, U Arizona	0.86	NS
3. High/low classrooms, High Scope	5.15	.05
4. High/low classrooms, U Kansas	0.14	NS
5. High/low classrooms, Far West	1.7	NS
6. High/low classrooms, EDC	1.4	NS
7. High/low classrooms, U Oregon	0.7	NS
8. High/low classrooms, Bank Street	2.45	.1

(e) Hypotheses 20 - 46: That each covariable considered separately has no effect on the test results considered separately.

N = 47 classrooms
df = 1/29

Covariables	3D F	3D p<	4A F	4A p<	PSI F	PSI p<
1. Mean age of children in months	4.07	--		NS	--	NS
2. Percent having had previous preschool	--	NS	--	NS	--	NS
3. Percent English first language	--	NS	--	NS	--	NS
4. Percent non-white	--	NS	--	NS	--	NS
5. Mother's education level	3.67	.1	4.12	.1	--	NS
6. Mean total 3D pre-score	--	NS	3.41	.1	--	NS
7. Mean total 4A pre-score	3.74	.1	--	NS	--	NS
8. Mean total PSI pre-score	6.39	.05	22.81	.001	18.70	.001
9. Number of valid pre and post PSIs	--	NS	6.21	.05	--	NS

(f) Hypotheses 47 - 70: That the high/low contrasts considered separately have no effect on the test results considered separately.

N = 47 classrooms
df = 1/29

Implementation Contrasts	3D F	3D p<	4A F	4A p<	PSI F	PSI p<
1. High/low classrooms, U Arizona	--	NS	--	NS	--	NS
2. High/low classrooms, U Arizona	--	NS	--	NS	--	NS
3* High/low classrooms, High/Scope	4.46	.05 (neg)	--	NS	12.55	.001 (neg)
4. High/low classrooms, U Kansas	--	NS	--	NS	--	NS
5. High/low classrooms, Far West	--	NS	--	NS	--	NS
6. High/low classrooms, EDC	--	NS	--	NS	4.35	.05 (pos)
7. High/low classrooms, U Oregon	--	NS	--	NS	--	NS
8. High/low classrooms, Bank Street	4.89	.05 (pos)	--	NS	4.24	.05 (pos)

*The negative relationship is caused by the low implementation classrooms within this model obtaining significantly higher test scores.

MODEL VI: Contrast of PV and NPV Effects on Test Results

In this MODEL, the effects of classrooms within PV (i.e., in sponsored programs) are contrasted with those in NPV classrooms (i.e., unsponsored) on test scores as dependent variables given the effects of the covariables. The results are as follows:

(1) Proportion of the variance accounted for: In this MODEL, a dummy variable was used to represent the contrast between PV and NPV. Since the R^2s would not be meaningful, they were not computed.

(2) Tests of hypotheses (stated in terms of the null hypothesis and the probability of rejection thereof).

(a) Hypothesis 1: That the covariables as a unitary set have no effect on the test results as a unitary set.

N = 121 classrooms
df = 27/316
F = 13.99
p < .001

(b) Hypothesis 2: That the PV/NPV contrast has no effect on the test results as a unitary set.

N = 121 classrooms
df = 3/108
F = 0.80
p = NS

(c) Hypotheses 3 - 11: That the covariables considered separately have no effect on the test results as a unitary set.

N = 121 classrooms
df = 3/108

Covariable	F	p <
1. Mean age of children in months	3.65	.05
2. Percent having had previous preschool	--	NS
3. Percent English first language	--	NS
4. Percent non-white	2.92	.05
5. Mother's education level	4.03	.01
6. Mean total 3D pre-score	8.69	.001
7. Mean total 4A pre-score	--	NS
8. Mean total PSI pre-score	32.08	.001
9. Number of valid pre and post PSIs	--	NS

(d) Hypotheses 12 - 38: That the covariables considered separately have no effect on the test results considered separately.

N = 121 classrooms
df = 1/110

Covariables	3D F	3D p <	4A F	4A p <	PSI F	PSI p <
1. Mean age of children in months	8.31	.01	--	NS	8.63	.01
2. Percent having had previous preschool	--	NS	--	NS	4.35	.05
3. Percent English first language	--	NS	--	NS	--	NS
4. Percent non-white	4.33	.05	5.83	.05	3.39	.1
5. Mother's education level	4.82	.05	--	NS	12.10	.001
6. Mean total 3D pre-score	21.67	.001	--	NS	2.81	.1
7. Mean total 4A pre-score	--	NS	--	NS	--	NS
8. Mean total PSI pre-score	6.54	.05	39.83	.001	58.23	.001
9. Number of valid pre and post PSIs	--	NS	6.74	.05	2.92	.1

(e) Hypothesis 39 - 41: That the PV/NPV contrast has no effect on the test scores considered separately.

Contrast	3D F	3D p <	4A F	4A p <	PSI F	PSI p <
1. PV - NPV	0.87	NS	0.99	NS	1.23	NS