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ABSTRACT

Many analyses are presented which attempt to examine the teaching of young children by teachers and parents. Teaching is comprehensively defined as behavior which influences someone's learning or development. The analysis of teaching is considered in light of the factor of efficiency of communication. Analyses are arranged on an operationality dimension beginning with high- and low-inference analyses of beliefs about teaching, then moving to high- and low-inference analyses of teaching behaviors and examples of reduction methods for the latter. Implications for research and practice are suggested. (Author/JMB)

ANALYSES OF TEACHING YOUNG CHILDREN

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Teaching

A child is born dependent. He relies on his fellow humans for the necessities of survival--air, water, food, and shelter. Likewise, his learning and development are influenced by the behavior of his fellow humans. When such influence is direct, the behavior may be called teaching.

Of course, it is also possible to define teaching more narrowly, as the professional activities of teachers in schools. But, as Schaefer (1972) suggests, the usefulness of this restricted, institutional definition is supported neither by research nor by experience with current early educational intervention programs. The histories of research on parental childrearing and research on the professional teaching of young children show striking similarities. Both began by measuring characteristics and beliefs of the teacher or parent, but eventually became more concerned with direct observation of their behavior. Both started out attending to the child's personality and socio-emotional adjustment, but reacted together to the emphasis in the 1960's on the early plasticity of intelligence. As for current early educational intervention, a limited focus on the teacher and child in the classroom, to the exclusion of family and community, has produced at best only short-lived accelerations of cognitive growth. Perhaps a broader perspective, which includes the

family and community as sources of teaching, will be more productive.

So teaching is defined here as behavior which directly influences someone's learning or development. Teaching is carried out not only by professional teachers, aides, and volunteers; but also by parents; caregivers, babysitters, physicians, and delivery men. It occurs in preschools, day-care centers, homes, and supermarkets. (Teaching can also occur between peers--between two teachers, or a parent and a teacher, or two children. While such phenomena are undoubtedly of great importance, they will not be systematically treated in the following review. Confusion of the teacher's relationship to children and the teacher's relationship to peers could be especially unfortunate.)

A comprehensive definition of teaching does not, however, deny the potential importance of various contexts to teaching. One's teaching behavior is surely dependent upon the role or functions one expects to perform towards a child. And it would certainly be rash to deny the reciprocal influence of children on a teacher (See Bell, 1971). Other factors--such as availability of space and materials, adult-child ratio, the mutual familiarity of adult and child, and their ages--probably help determine the patterns of teaching behavior as well. The contexts of the various analyses of teaching will be reported with the contextual detail that is available. The reader may draw his own conclusions about the generality of teaching and the similarity of various contexts, in the absence of empirical comparisons.

Young Children

Another question basic to this review concerns the parameters of early childhood as related to teaching. Burton White (1971) would begin teaching a child as soon after birth as possible. The same author (White, 1972) has identified the age of expected reading ability as the end of early childhood. That the significance of this age is widely recognized is borne out by the entry age of five to seven years in most compulsory schooling laws.

It has been shown that infants can be taught almost immediately after birth. Korner & Grobstein (1966) found that 12 baby girls from 45 to 79 hours old were significantly more visually alert if each was placed on an adult's shoulder after crying than if left in a crib after crying. Lipsett (1967) has demonstrated several experimental modifications of congenital responses in infants less than a week old: habituation to stimuli that initially disrupted sucking, more reliable sucking from a tube when reinforced with a dextrose solution, head-turning elicited by the conditioned stimulus of a buzzer. Rheingold, Gewirtz, & Ross (1959), working with 21 three-month-old infants, brought vocalization under the control of social reinforcing stimuli--a broad smile, "tsk" sounds, and a light touch to the infant's abdomen.

Comprehensive reviews of the effects of behavior towards children under three have been provided by Caldwell (1964) and Beller (1971). White (1971) has focused more precisely on informal educational practices towards children under three. Some three-year-olds have been found to be

better developed than some six-year-olds; White sees a crucial determinant of such differential development in the mother's responses to the child between two and three, as he becomes able to walk and to understand language. He identifies two important teaching functions: designing--filling the home with small, manipulable, visually detailed objects; and consulting--providing guides for behavior; being permissive, indulgent; usually, but not always, responding to the child's requests. He finds the good mother talking to her child often, at a level he can handle. It is rare to find a mother initiating a teaching sequence or talking to her child for over half a minute; rather, she teaches "on the fly," in response to the child's instigation. The sporadic nature of teaching children under three has lent itself only rarely to systematic analysis. Two such analyses, one by Tulkin & Kagan (1972) with 56 ten-month-old baby girls and their mothers (Table 17), one by White (1971) used with one- and two-year-olds (Table 24), are outlined below.

Approaches to the Analysis of Teaching

Clearly, one who teaches performs a variety of behaviors which may be named and organized in many, different ways. The attempt to name and organize these behaviors is called the analysis of teaching. Two factors are especially relevant to such analysis. One is efficiency of communication. As written verbiage and scholarly endeavors continue to multiply, the need for brief orientations, whether empirically validated or simply intuitive, becomes greater as well. The human brain presumably has an optimal processing level. When this

level is exceeded, information becomes random and easily forgotten. While it is debatable whether an analysis of teaching is most efficiently communicated by two or a dozen or fifty categories, there is somewhere a point of diminishing return. Efficiency of communication leads one to the principle of parsimony: the fewer categories there are, the easier it is to communicate an analysis of teaching to the desired audience.

A second factor relevant to the analysis of teaching might well be viewed as a dimension of operationality, which orders analyses according to the degree to which they have been defined in terms of identifiable and repeatable operations. Such a dimension has clear implications for the empirical validation of an analysis; it is probably related as well to the transportability of the teaching component of an educational program. At the less operational end of the dimension fall analyses of plans, beliefs, and expectations about teaching. These may be further divided into high-inference analyses of beliefs and low-inference analyses of beliefs. High-inference analyses of beliefs, such as Weikart's (1971) classification scheme for preschool curricular models (Figure 1), attempt to efficiently communicate an orientation to a great deal of information. Low-inference analyses of beliefs, such as Bijou's (1972) curriculum guide (Table 2), or the Parent Attitude Research Instrument of Schaefer & Bell (1958), attempt to state succinctly the plans, beliefs, or expectations of teachers or parents concerning their actual operations of teaching young children.

Towards the more operational end of the operationality dimension are analyses inferred from the direct observation of teaching behavior, again divided into high-inference analyses of behavior and low-inference analyses of behavior (Rosenshine & Furst, 1971). High-inference analyses of behavior require that an observer infer constructs from a series of events. They include teacher or parent ratings, such as that of Bain (1928; Table 5), and inferences about the activities, lessons, or values inherent in sequences of teaching (Conners & Eisenberg, 1966; Table 6). Low-inference analyses of behavior focus upon specific, denotable, relatively objective behaviors recorded by frequency counts. Typical instances of such behavior last only a few seconds. A good example of a low-inference analysis of behavior is that of Caldwell (1969; Table 21).

One way to categorize low-inference instances of teaching has been time-sampling, the characterization of certain behaviors which have been observed during regular, brief intervals ranging from perhaps 3 to 30 seconds, depending on the technique. Another way is by use of the episode (Wright & Barker, 1950). An episode consists of an interaction of subject person, object person, and situation; and ends when one of these three components changes.

Low-inference analysis of behavior has been greatly facilitated by modern technology. The event-recorder has greatly increased the potential amount and precision of data collection. The stopwatch has made the precise measurement of time much easier. The increased availability of video-

and audio-recording tape has brought the ability to make permanent and valid records of behavior within the reach of many people. And the electronic computer has made the analysis of vast amounts of data much more amenable to consideration.

Low-inference systems are notorious for generating ponderous amounts of data. Such data may be brought to manageable proportions by several reduction methods. One is time-distribution analysis, which permits concentration on the categories of behavior which have been observed to occur most frequently. Prescott & Jones (1967) have applied this technique to data collected in day-care centers (Table 26). A second way to reduce data is by means of statistical factor analysis; this technique combines those categories which occur together most frequently and account for the largest portion of the total variance in behavior. They are thus of higher inference than the original categories, but more operationally defined than categories that are highly inferred during the observation of behavior. Soar (1972) has used factor analysis to communicate more efficiently vast amounts of data collected in 289 Follow Through classrooms (Table 28). A third way to assign priority to certain categories of behavior is by determining which categories of teaching behavior are most related to certain learning or development outcomes in children, such as integrative personality (Anderson, 1939) or greater achievement (Soar, 1972). These reduction methods--time-distribution analysis, factor analysis, and teaching/learning analysis--can of course be used together.

It will be noted throughout the following analyses

that teaching beliefs or behaviors are sometimes not differentiated from child behaviors. Or perhaps it may be said that categories of teaching beliefs or behaviors have sometimes been named by their goals, which are often child behaviors. For example, creativity in children may be a goal of teaching. But to describe an instance of teaching as creativity leaves ambiguous the specification of the teaching operation by which the child's creativity is allowed or encouraged. Since this review is concerned with teaching, it will treat such categories as high-inference, but will nevertheless include them when it is clear that they are meant to refer to teaching.

The following review deals with analyses that have been specifically prepared for or carried out with the teaching of young children. A useful supplementary source is a catalog of 79 systems for the analysis of observed teaching--irrespective of age of children--assembled by Simon & Boyer (1970). Many of the systems which they describe are no doubt applicable to the teaching of young children. Another useful supplement is a review by Gordon & Jester (1973) of observational techniques used in early childhood programs.

The analyses which follow are arranged roughly in order of operationality, beginning with high-inference analyses of beliefs and low-inference analyses of beliefs about teaching, followed by high-inference analyses of behavior and low-inference analyses of behavior. Next are presented examples of the various reduction methods for low-inference analyses of behavior: time-distribution analyses, factor analyses, and teaching/learning analyses.

High-inference Analyses of Beliefs

Katz (1970) has elaborated on three role models which have had influence in early childhood education. The maternal model describes the teacher as functioning to keep children safe, comfortable, busy, and happy. The therapeutic model portrays the teacher helping children express inner feelings, work out tensions, and resolve developmental conflicts. Using the instructional model, the teacher deliberately transmits information and knowledge and consciously trains children in skills. Katz sees these models as having past and present influence on the role of the teacher in early childhood education. She defines role as the expectations that people have concerning the teacher's behavior. Complementing role is teaching style, the individual renderings of a role. Beller (1971) adds the third classification of teaching techniques, the planned strategies and methods employed by the teacher to carry out her role.

Insert Figure 1 about here

Weikart (1971) has proposed a bi-directional categorization of preschool curricular models on the basis of whether the teacher's primary role is to initiate or to respond to activities; and whether the child's typical role is to initiate or to respond to activities (Figure 1). Weikart has elaborated fully upon these categories and has given examples of each from the more visible early childhood curricular models.

Insert Figure 2 about here

Bussis & Chittenden (1970) have devised an analysis similar to Weikart's in order to better represent their views of the place of open education among other approaches to curriculum. Figure 2 depicts this analysis, which hinges on contributions of teacher and child. Such dimensions may well be more difficult to assess than Weikart's initiation/response dichotomy. One advantage of their approach is that it acknowledges the behavior of the teacher when children are not present as well as when they are. Jackson (1968) has seen the inability to handle such behavior as a defect of many analyses of teaching. Bussis & Chittenden see this behavior, especially as expressed in the teacher's preparation and arrangement of materials, to be a fundamental component of open education.

Insert Table 1 about here

Gordon (1972) has analyzed six Head Start models (University of Arizona, Bank Street College of Education, Educational Development Corporation, Englemann-Becker, Far West Laboratory, and University of Florida) on the basis of materials furnished by the sponsors. He fits their statements into categories reflecting goal, pupil, and instructional situation characteristics. The latter includes classroom organization, materials, teacher behavior in both instructional and management roles, and teacher personality. His categories of teacher behavior and personality are reproduced in Table 1.

Hess & Shipman (1968) relied on interviews with mothers from different levels of SES to obtain information about the

control or regulatory system each used in interaction with her child. The poorest mothers tended to be more imperative-normative, an approach based on appeals to social norms, and power and authority. A second type of regulatory manuever, the personal-subjective, appeals to personal considerations, feelings, and preferences. A third type, the cognitive-rational, makes appeal to the results of a sequence of events, a long-term payoff, or a principle.

Emmerich (1969) studied the beliefs of parents about effective childrearing practices. In developing a Parental Role Questionnaire, he identified five categories of beliefs about effective childrearing: (a) nonintervention (allowing development; (b) behavioral modification (reinforcement); (c) motivational modification (persuasion); (d) situational modification (via the environment); and (e) modeling. He found that 44 families with children in a university preschool placed most confidence in behavioral modification and least confidence in nonintervention.

Low-inference Analyses of Beliefs

A major source of systematic plans for teaching young children is the curricular descriptions of early childhood programs, especially those which served as models in the Head Start and Follow Through Projects. While curricular descriptions cover many other components of programs as well, some description of the sponsor's beliefs about the role and behavior of teachers is essential. All early childhood curricula will obviously not be covered here and have been well summarized elsewhere (e.g., Evans, 1970). Several analytic

descriptions will however be presented to exemplify the approach.

As mentioned above, goal or activity statements in education are often made in terms of child behaviors only. Such is the case with the presentation of goals and activities by McAffee, Nimnicht, & Meier (1969). Their major goals are: developing a positive self-image, concept formation, and problem solving. Teaching behavior plays a more prominent part in the more narrative description of goals, materials, and procedures by Hess & Croft (1972). They cover the general areas of language, cognitive processes and concepts, social concepts and behavior, the arts, and crises. Child behaviors are listed in detailed sequence by Bijou (1972) for a program used with eight retarded or disturbed children, averaging six years, four months in age. The individualized beginning reading program is outlined in Table 2, by way of example. Bijou has provided similar outlines for individualized beginning arithmetic and individualized beginning written language skills. Despite the invariant sequence of the outlines, he maintains that this program is individualized because children proceed through it at different rates.

Insert Table 2 about here

White (1971) did not produce a curriculum statement, but developed a very similar document by asking observers of young children to form a consensus on the abilities which they considered desirable in a six-year-old child (Table 3). This list is unique in that it is a goal statement which was

designed apart from consideration of teaching behaviors, but admittedly in anticipation of their development. White has also reported a system for observing tasks performed by young children (Table 24).

Insert Table 3 about here

Haberman & Persky (1969) prepared a report concerning the preparation of nursery school and kindergarten teachers. As summarized in Table 4, child behavior goals and the teaching techniques to implement them are interlaced. In all but the last category, the major headings are goals for children, and listed under them are the teaching techniques by which they are to be implemented.

Insert Table 4 about here

Another approach to beliefs about teaching can be found in Anastasiow's (1969) adaptation of Schaefer's (1959) circumflex model of maternal behavior. Figure 3 shows how he labelled the four quadrants formed in terms of professional teachers, as portrayed in research and literature. Fifteen teachers in an experimental primary grade and nursery school program were both observed teaching and asked to rate themselves. This analysis is included here under beliefs because the greatest individual differences showed up in teachers' self-ratings on these classifications.

Insert Figure 3 about here

The study of teaching or childrearing by parents relied

for a long time on retrospective reports by mothers of their earlier practices. The reliability of such data has often been called into question (e.g., Zunich, 1962). Bronfenbrenner (1958) has provided a review of such research. More recent studies of parent beliefs include those of Sears, Rau, & Alpert (1965) and Stolz (1967). Much research has been generated by the Parent Attitude Research Instrument (PARI) of Schaefer & Bell (1958). Parent belief studies often compare the beliefs of parents who differ in SES (Hess, 1970).

High-inference Analyses of Behavior

Analyses of teaching behavior find their roots in the more systematic observations by supervisors (for professional teachers) or clinicians and social workers (for parents). Bain (1928) devised a rating system for nursery school, kindergarten, and first-grade teaching. The categories, as listed in Table 5, were rated on ordinal scales from 1 to 5.

Insert Table 5 about here

Similarly, Baldwin, Kalhorn, & Breese (1945, 1949) devised the Fels Parent Behavior Rating Scales to provide a well-rounded description of home situations, for clinical use. Three dimensions of behavior which they assessed were: (a) the warmth of the parent-child relationship; (b) the intellectual objectivity of parents' attitudes towards their child; and (c) the type of parental control exerted, ranging from restrictive to lax. The ratings were also subjected to extensive syndrome analysis, in an attempt to characterize parents by elaborations on one or two descriptive adjectives.

Several more recent researchers, who also used other methods of analysis, used global ratings of teachers as well. Conners & Eisenberg (1966) rated 38 Baltimore Head Start teachers on warmth, variation, activity, and flexibility. Prescott & Jones (1967) rated caregivers in 57 Los Angeles day-care centers on tempo, amount of verbalization, and manner (from responsive to irritable). They also identified three alternative roles for a caregiver: custodial, adult-centered, or child-centered; and two dimensions of leadership style--authority and warmth.

Hess & Shipman (1968) observed the communication modes of mothers varying in SES. Bernstein (1961) has defined restricted codes of language as stereotyped, limited, and condensed, lacking in specificity and the exactness needed for precise conceptualization and differentiation. Elaborated codes feature individualized communication in which the message is specific, as well as more precise and differentiated. Hess & Shipman have offered limited support for the notion that these communication modes are associated with parents' SES, lower-class parents being limited to restricted codes.

Inferred Lessons or Values

Some investigators have attempted to infer curricular categories from observations of behavior. Reichenberg-Hackett (1962) exemplifies the difficulties of making such inferences. His observers originally attempted to categorize activities, lessons, and values, but often they disagreed; and while discussion led to some consensus on labels, the interpretation of these labels was still reported to reflect personal bias.

Observing 10 nursery school classes for four-year-olds from homes above average in SES, they inferred 95 kinds of activities; most frequent among them were: conversation, role play by children, teacher participation in toy manipulation, verbal contacts, and lining up. "Value-stressed episodes," that is, episodes utilized in a purposeful manner toward the achievement of some goal, were found as often as 58% of the time in one classroom. Most frequent values were: development of an adequate self-concept, personal responsibility, and consideration for the well-being of others.

Conners & Eisenberg (1966) categorized the activities of 38 Head Start teachers according to the values which were evidenced. Agreement between two raters on the nine values had a mean correlation of .87. Table 6 lists these values; they do not refer directly to teaching behavior, but certainly include it. The relationship between certain values and gains on the Peabody Picture Vocabulary Test are described below.

Insert Table 6 about here

Prescott & Jones (1967), in their study of 57 day-care centers, found that lessons were being taught 39% of the time. They assigned these lessons to 15 categories, grouped under 5 headings in Table 7. Reliability was considered adequate except for categories which occurred with low frequency. The frequency of occurrence for major headings is displayed in Table 25.

Insert Table 7 about here

In a review of research on teaching in nursery schools, Sears & Dowley (1963) arranged research under eight headings, reflecting the aims of teaching as investigated to that date. Table 8 shows that their headings are very similar to the broad goal statements of early childhood programs, expressed in terms of child behaviors.

Insert Table 8 about here

Hess (1969) has presented a list of parent behaviors found related to intellectual and academic achievement by children. This list is presented in Table 9, though it may be risky to interpret in the absence of the specific contexts in which those behaviors occurred.

Insert Table 9 about here

Low-inference Analyses of Behavior

Low-inference analyses of teaching behavior were reported as early as 1939. Anderson (1939) recorded 18 categories of teaching behavior by three kindergarten teachers who were responsible for a total of 55 children. Table 10 lists the categories (some numbers were skipped in Anderson's report). Anderson classed categories 1 through 8 as <u>dominative</u> behavior, considered rigid, fixed, and static; and demanding either resistance or submission in children. Categories 15 through 23 were classed as <u>integrative</u> behavior, "characterized by a voluntary or spontaneous yielding or abandoning of the existing structure or function for a new structure or function that is in the process of becoming [p. 291]."

Insert Table 10 about here

Tucker (1940) provided an interesting bridge between school and home by classifying the practices of 14 mothers towards their children in a cooperative nursery school. She distinguished 13 practices and 8 routine and nonroutine situations (Table 11).

Insert Table 11 about here

Landreth, Gardner, Eckhardt, & Prugh (1943) analyzed teacher-child contacts from the diary records made by observers in a university nursery school and in a Works Progress Administration (WPA) nursery school. Table 12 outlines their analysis. Method goals are of higher inference than the rest of the analysis, but are included in the table for the sake of simplicity.

Insert Table 12 about here

Gardner & Cass (1965) conducted two studies in Great Britain: one of infant schools (children aged five to seven) and one of 18 nursery schools (children under five). They found 45 types of episodes which were then grouped under the major headings given in Table 13.

Insert Table 13 about here

A seminal organization of teaching episodes was devised by Reichenberg-Hackett (1962) for use in 10 nursery school classes of children from homes above average in SES. Table

14 shows that the two main categories refer to approach and motivating techniques. The teacher's approach is always either communicative or non-communicative. Motivating techniques were recorded only as the teacher used them.

Insert Table 14 about here

Conners & Eisenberg (1966) used Reichenberg-Hackett's system in 38 Baltimore Head Start programs, slightly modified to include management as a category separate from encouragement and discouragement, rather than as a motivating technique.

Prescott & Jones (1967) also based their analysis of caregivers' behavior in 57 Los Angeles day-care centers on Reichenberg-Hackett's system. Table 15 shows that teacher approach was essentially the same (conversation with other adults was transferred to non-communicative). Encouragement was further differentiated. Discouragement and management were rather extensively rearranged into direction, guidance, and restriction. Activities contributing to the development of verbal skills were also differentiated. This system is described well by its authors. Along with their other categories, it was further organized by Beller (1971) into associated roles, styles, and techniques.

Insert Table 15 about here

Bijou (1972) developed a system of analysis based on the task, which he defines as "any situation, academic or non-academic, programmed for a child by a teacher, a teaching assistant, or a tutor [p. 28]." Table 16 exhibits his analysis

of task, child, and teacher behaviors. He used this system to observe teachers and kindergarten and first-grade children who had been referred to his special class because of serious problem behaviors. His distinctions, especially of teacher and child behaviors, pose an interesting contrast to the confusions of the two which have sometimes occurred. Bijou concluded from his use of the analysis that teacher-child interaction expedites learning and eventually independence in learning; and that teachers should attend to appropriate (on-task) behaviors and ignore inappropriate behaviors. However, supportive data was not readily apparent.

Insert Table 16 about here

An analysis of mothers' behavior towards infants has been devised by Tulkin & Kagan (1972). Observers, using five-second time-sampling over two-hour periods, recorded the behavior of 30 middle- and 26 working-class mothers in their homes with their firstborn baby girls who averaged 10 months in age. In addition to the categories in Table 17, several sequences of behavior were computed: (a) positive response to nonverbal behaviors; (b) per cent of reciprocal vocalizations; (c) response to child's frets; and (d) interaction. Reliability ranged from .81 to .92. Briefly, it was found that working-class babies had less interaction, especially verbal, with their mothers than middle-class babies; but there was no difference in amount of vocalization by babies differing in SES.

Insert Table 17 about here

White (1971) and his associates developed a coding scheme for the tasks of preschool children by inducing categories from running records of their behavior. The reported use of this Pre-School Project Task Scale was a time-distribution analysis of the tasks of one- and two-year-olds; the instrument and time-distribution analysis are displayed in Table 24.

Bee, Van Egeren, Streissguth, Nyman, & Leckie (1969) also conducted a study comparing mothers of different SES. There were 76 lower-class and 38 middle-class mothers and their children, aged between four and five and a half years, observed in a waiting room for 10 minutes and later while engaged in problem-solving interactions. Table 18 presents the 20 classifications of behavior used. Reliability ranged from 65% to 100%. Middle-class mothers were less controlling, less disapproving, and gave more information and attention to their children than did lower-class mothers.

Insert Table 18 about here

A widely used analysis of mother-child interaction is reported by Bishop (1951). Table 19 summarizes her categories of maternal behavior; child behavior categories were developed to reciprocate them. In the 1951 study, two observers categorized the behaviors of 34 mothers and children during five half-hour periods. Reliabilities ranged from .77 to .96. Correlations between Bishop's mother and child categories are

described below. Bishop's system has been employed by Shalock (1956), Smith (1958), Zunich (1961), Walters, Connor, & Zunich (1964), and Sears, Rau, & Alpert (1965).

Insert Table 19 about here

Baumrind & Black (1967) studied parent-child attitudes and behavior in 95 families whose children attended a university preschool. Sequences were observed and analyzed during home visits, after initial categorizations of control sequences as parent-initiated or child-initiated. The variables, in Table 20, were defined in terms of relative percentages of such control sequences.

Insert Table 20 about here

Caldwell (1969) has developed a set of criteria for the low-inference analysis of observed behavior. She maintains that it should: (a) include both input and output of a central figure; (b) apply to any social grouping; (c) apply to all members of the grouping; (d) permit detailed analysis between and within individuals; (e) allow for the contributions of non-human objects; (f) convert to numbers for computer analysis; (g) be easy for observers to learn. She has devised an analysis, called A Procedure for Patterning Responses of Adults and Children (APPROACH), which, by attempting to fill these criteria, also comes closest to the operationalization of the comprehensive definition of teaching maintained in this review. Table 21 exhibits this system in its entirety, being numbered so as to transfer to computer cards. Emitted behaviors are defined

by the streamlined grammar of subject of the behavioral clause, behavioral predicate, object of the behavior, and qualifiers of the behavior. Subject becomes a number in a computer card's first column, predicate occupies the next two columns, object the fourth column, and a qualifier the fifth. Behavior setting may also be coded when preceded by the setting alert number in the first column. Behavioral predicates potentially allow a hundred different behaviors and provide an unusually comprehensive attempt to taxonomize the richness of human activity. Inter-observer reliability with this instrument has ranged from 42% to 99%. It has been used by assigning observers to each of five children of various ages in a nursery school setting. This variation on the usual technique makes the "teacher" actually a composite of all the teachers who interacted with the observed child. The massiveness of the data limits the number of central figures, so the reliability of any generalizations is open to question. Nevertheless, APPROACH seems to be remarkably clear, operational, and potentially useful.

Insert Table 21 about here

Reduction Methods

Time-distribution Analyses

Researchers have considered relative proportions in the occurrence of behaviors or activities in Head Start, nursery school, and even day-care settings. The difficulty of such analysis is that it requires the assumption that the time spent in observation accurately represents some meaningful

period of time. This is easiest to assume in short programs lasting three hours a day or less. It may be possible in full-day programs. An instance of time-distribution analysis representing the behavior of parents towards their children in a routine setting has not been found.

Landreth and others (1943) compared a university nursery school to a WPA nursery school in the categories of their analysis (Table 12), thus providing a forerunner of the SES studies done with parents. Table 22 reports the approximate percentages of methods used, as derived from a bar graph presentation. Methods provided greater differentiation between the nursery schools than the other major classifications. (The percentages do not sum to 100 because of multiple coding of categories and because of rounding.) It is interesting to compare the general pattern of findings to the later parent studies and to Soar's study of Follow Through classrooms reviewed below. Similarities across these varied studies indicate that differences in teaching are duraoly related to SES.

Insert Table 22 about here.

Caldwell's (1969) APPROACH technique was described above. The time-distribution data was somewhat complex, but will be summarized here. It should be remembered that only one child was sampled at each of the first five years, making the generalizability of this data suspect. Table 23 presents the "composite" teacher data, again approximate because taken from a bar graph.

Insert Table 23 about here

White (1971) has been interested in contrasting excellent and poor practices in the rearing of young children. By a number of mechanisms, relying mainly on teachers' ratings of children's competence, he identified 10 highly competent (1A) and 3 less competent (1C) one-year-olds, 9 very competent (2A) and 4 less competent (2C) two-year-olds, for a total of 26 children. They were observed at home for 3 to 10 minutes once each 3 weeks for 15 weeks. The tasks which they performed were coded with reliabilities ranging from 67% to 71%. The time-distribution analysis for the various groups of children is displayed in Table 24. White emphasizes the predominance for these children of nonsocial tasks in general and in particular gaining information visually, that is, steadily staring at an object.

Insert Table 24 about here

Haupt (1966) focused on a discrete set of classroom behaviors, the questions asked by 26 four-year-old middle-class children taught by eight nursery school teachers, observed over a 30-day period on a rotating basis. She found that 58% of the children's questions sought direct information from the teacher, 20% extended the responses to previous questions, 9% were evaluative, 7% sought permission, and 7% were requests for assistance. Haupt's main conclusion relevant to teaching was that teachers appeared to tend to reinforce their role as prime verbal source of information.

The Department of Research of Montgomery County, Maryland Public Schools (1968) categorized the activities of teachers, aides, adult and student volunteers in 27 Head Start classrooms. Their categories and the way these activities distributed themselves over time are given in Table 25. Each of the listed activities combined 5 to 10 lower-inference subactivities.

Insert Table 25 about here

Prescott & Jones (1967) reported time distributions for all their categories--episodes, audiences for episodes, and lessons in 57 day-care centers. Table 26 gives the percentages of these distributions. (The categories are further differentiated in Tables 7 and 15.) Stability of these behaviors over 10 occasions was reported to be about .6 or higher. Since this data was gathered in day-care centers, the number and variety of lessons are noteworthy, although this may interact with the high percentage of teacher-individual contacts, lessening the number of lessons actually received by children during a specified time.

Insert Table 26 about here

Factor Analyses

Factor analyses have been included as a reduction method for low-inference analyses of behavior because they draw on low-inference data. It may also be argued that the mathematical operations of factor analysis are identifiable and repeatable. On the other hand, the naming of a factor,

once its components are identified, has often been done with a very high degree of inference, so that the assignment of analyses to this heading rather than to the high-inference heading is sometimes disputable.

Schaefer (1959), in the development of a circumflex model of maternal behavior, used factor analysis as well as other ordering techniques to organize the social and emotional behavior of a mother toward an individual child. The model was used with the data of the longitudinal Berkeley Growth Study, which followed 27 boys and 27 girls (Schaefer & Bayley, 1963). Figure 4 shows the dimensions originally employed. Going clockwise, in the quadrant between autonomy and love fall maternal behaviors called democratic and cooperative; accepting is identified with the pole of the love dimension. Between love and control are the behaviors overindulgent, protective indulgent, overprotective, and at the pole of the control dimension, possessive. From control to hostility are: dictatorial, authoritarian, antagonistic, and demanding, rejecting being associated with the hostility pole. From hostility to autonomy are the categories neglecting, indifferent, detached, and finally freedom on the autonomy pole.

Insert Figure 4 about here

Baumrind (1971) supervised the observations of 146 preschool children and their families during two home visits of three hours each. She factored the behaviors observed into <u>authoritative</u>, <u>authoritarian</u>, and <u>permissive</u> parental behavior.

Prescott & Jones (1967) factor-analyzed their episode analysis (Table 15) into the four factors of encouragement/restriction, conformity to routine, group teaching, and independence/dependence.

Pierce-Jones (1966) factor-analyzed data from an Observer Rating Form used in 70 Head Start centers during a summer program in Texas. Nine factors were found and are listed in Table 27.

Insert Table 27 about here

The most extensive use of factor analysis reviewed here is the work of Soar (1971, 1972). He and his associates, in the course of three years, observed 439 Follow Through classrooms (kindergarten through second-grade) all over the United States. In 1972 alone they observed 289 classrooms. They used five systems identified in Table 28 to report, in 1972, the factors at which they arrived. Among the eight experimental model programs observed, 32 of these 39 factors made significant discriminations. Soar concluded that they were reliable and useful as program descriptors. One wonders, however, if the bulk of his presentation does not suggest some factoring of the factors.

Insert Table 28 about here

Teaching/Learning Analyses

The definition of teaching introduced early in this review defined it by its consequences: teaching young children is behaving so as to influence their learning or development.

The categories used in the above analyses for the most part determine teaching from appearances, from the judgment of observers. It may be useful to distinguish apparent teaching as judged by an observer from effective teaching which actually does influence a child's learning or development. Apparent teaching may or may not be effective teaching.

An important question in the determination of effective teaching concerns whether or not a delay is considered necessary in the assessment of the child's learning or development; and, if so, the length of the delay. With no delay, the immediate, reciprocating behaviors of the child may be recorded, their influence upon future behavior assumed. Such was the method of Anderson (1939) in determining the relationship between dominative teaching behavior and the child's resistance or submission. Bishop (1951) likewise found consistently moderate correlations between her categories of maternal behavior and the reciprocal child behaviors.

When teaching behaviors and child outcomes are assessed separately, some delay between them is likely. The briefest possible delay has been used in studies of modeling and imitation (Rosenblith, 1959; Bandura & Huston, 1961; Bandura, Ross, & Ross, 1961), which have shown that imitation of the behavior modeled during a brief session does occur often in the immediately following behavior of children between three and five years of age.

As the time of observation increases, teaching behaviors are expected to be associated with much more general indicators of the child's learning or development. In such cases, length

of delay may be small or great, and the specific teaching/learning pattern which would be most directly responsible for a particular change in the child's behavior may or may not have occurred. Broadly speaking, transfer is assumed to occur in such situations, but the similarity between learned information and tested information has to be taken for granted.

Schaefer & Bayley (1963) frequently found high correlations between the love-hostility dimension of maternal behavior and child adjustment variables, in the Berkeley Growth Study. Maternal love during children's first 3 years was highly correlated with happy, positive, and calm behaviors of children during those years; and with positive task-oriented behavior of daughters through 4 years and sons through 12 years. The difference between daughters and sons is suggested to exist because daughters' behavior is more under the control of their current interpersonal situations.

Baumrind & Black (1967) summarized their findings with 95 university preschool families by noting that parental practices which are intellectually stimulating and to some extent tension-producing are associated in the young child with various aspects of socio-emotional competence. Baumrind (1971), studying 146 preschool children and their families, found that authoritative parental behavior was clearly associated with independent, purposive behavior for girls, but only associated with such behavior for boys when the parents were nonconforming. Authoritative parental behavior was clearly associated with social responsibility in boys and with high achievement in girls. Parental nonconformity was not associated with lack

of children's social responsibility, as might have been otherwise expected.

Conners & Eisenberg (1966) rated each of their 38 Head Start teachers as high, median, or low in each of their episode categories as well as their categories of values inferred from activities (Table 6). The students of each teacher were compared as to their mean change on the Peabody Picture Vocabulary Test (PPVT) from the beginning to the end of the summer. Significant differences were found within the categories of total communication (highs did best); communication to individuals (highs did worst--most of these communications were corrections or insistence upon obedience); and communication to the group (highs did best). Differences in encouragement and management were not statistically significant. Two values inferred from activities predicted improvement in PPVT scores: valuing of the intellectual (highs did best); and valuing of property and materials (highs did worst).

Scar (1972) used days absent and cognitive gain scores from the beginning to the end of the school year as his student measures in Follow Through evaluation. He found that strong control was positively correlated with the number of days absent and that positive affect was negatively correlated with days absent. He also found that teacher structuring, narrow focus, no exploration, and group activities produced larger gains in cognitive growth among the children in Follow Through, perhaps, he suggested, because these children need structuring of their activities in order to learn from them. He reported that the expression of either

positive or negative affect was negatively related to cognitive gains, as was extended teacher talk. Reading opportunities and greater teacher-child interaction were positively related to cognitive gains.

Next Research Steps

Several ways to usefully expand empirical knowledge are suggested by this review and the endeavor it represents.

It would apparently be worthwhile to develop methodologies and observational analyses applicable to the teaching of children under three. White (1971) would draw special attention to the influence of another's behavior on the child from two to three years old, as his abilities to walk and to understand language develop so quickly. Any influence brought to bear on such fundamental and pervasive activities must certainly be significant as often as those activities are carried out.

Time-distribution analyses of typical parent behaviors would be very valuable, although unbiased observation requires very clever techniques. Rebelsky & Hanks (1972) may be pointing a way toward the gathering of such information. They obtained permission to attach microphones to 10 two-week to three-month old infants for a total of six 24-hour periods. They found that the average father in their sample spoke to his baby a total of 37.7 seconds a day.

Teaching relies greatly on feedback from those supposedly being taught. Such feedback is often unrelated to whether or not learning is actually occurring. One way of dealing with this is to attempt to socialize young children into the currently accepted pupil role (e.g., Hess & Shipman, 1968).

An alternative means of attack may be provided by a broadening of Rothkopf's (1970) concept of mathemagenic activities. Mathemagenic activities are those behaviors of the child which are positively correlated with measurable learning. Empirical determination of the mathemagenic activities which a child may exhibit and the conditions which the teacher may provide to give rise to them could be useful in two ways. First, the teacher who recognized and could provide for true mathemagenic behaviors would be less likely to be led astray by behaviors irrelevant to learning. Secondly, if identified mathemagenic behaviors could themselves be trained, the early childhood teacher could encourage the components of a pupil role that was not necessarily a compromise with a status quo perceived as inadequate.

Another area for useful research on teaching is the observation and comparison of teaching behaviors in nominally different contexts. Prescott & Jones (1967) observed teaching in day-care centers, but did not also make observations at that time in centers which claimed to provide education. If large-scale studies of this sort are conducted in the future, it might be well to select from a wider range of places where children spend time: day-care centers, nursery schools, preschools, and even homes and neighborhoods. A comparison between the behaviors of parents and professional teachers could be very illuminating.

One comparison that has been repeatedly researched is that between the teaching of lower-class (or working-class) and middle-class children. It may be argued that, in much of

this research, so-called middle-class children have been selected from university preschools, whose representativeness of the middle-class may certainly be questioned. Such children in the study by Baumrind & Black (1967) were reported to have a mean IQ of 125. Nevertheless, it may well be time to move beyond these studies to a consideration of what to do about the differences. If it is felt that they should be minimized, programs for the changing of one or both groups on the appropriate variables should be researched. It should be noted that the changing of teaching behavior has only begun to be assessed. But if it is believed that differences in teaching behavior are resistant to change or even valuable in themselves, perhaps it would be well to determine whether people can come to accept these differences without constantly evaluating them.

Implications for Practice

The analysis of teaching is most valuable to those concerned with communication about teaching--teacher trainers and evaluators. Competency-based programs and competency assessment both operate on the premise that teaching can be analyzed into trainable units on which skillfulness can be evaluated. It is suggested that the categories of teaching listed throughout this review each deserve some consideration as a competency of teaching. Two of the general criteria upon which a category might be accepted or rejected have already been alluded to in the discussion above on operationality and efficiency of communication.

It would seem that operationality should be the primary

criterion for a competency. That is, a competency should be capable of expression as a low-inference behavior or group of behaviors. For it is only at that level that there is sufficient reliability among observers to insure that a competency is actually being carried out. A competency that cannot be translated into low-inference behavior may become little more than a rationalization for a first-impression judgment of a teacher made on trivial grounds.

That is not to say that a high-inference behavior or belief about teaching is not acceptable as a label for a competency. People presently tend to communicate in terms of their beliefs and high inferences from observations; statements using such terms can often cue in someone or obtain their initial interest more quickly than an operational description of the same behaviors. It is valuable for competencies to be labelled so that people have an intuitive and immediate grasp of the activities to which they refer. Otherwise, training in the use or assessment of a competency can be greatly lengthened.

A third criterion for a competency of teaching is that the competency should be a valuable thing to do: that it contributes to a student's learning or development or that it maintains a desirable classroom climate or even that it maintains the composure of the teacher. Support on this basis for competencies among the categories of teaching in this review is difficult to demonstrate. First, the generalizability of any study is open to error, and, given the present state of knowledge, generalizations about all teachers or all

students appear foolhardy. Even Soar (1972), after studying 289 Follow Through classrooms, was not confident to extend his findings much beyond these classrooms. Second, it is difficult to systematically summarize factor-analytic studies (where effective teaching has been studied the most) because of possible differences in populations and possible biases of different investigators in the labelling of factors. Summary statements carefully constructed appear without substance, such as, "Love contributes to a child's social and emotional development."

Research and inductive analysis have yet to resolve differing educational ideologies or models of teaching. The best they appear to offer now is an occasional qualified assurance for a particular teaching behavior. Perhaps, in a pluralistic democracy, that is enough.

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Table 1

Teacher Behavior in Head Start Model Descriptions

Teacher Instructional Role Behavior
Sensitive observer
Positive social reinforcer
Initiator
Responder to child
Creator, experimenter
Planner of learning episodes
Structurer of activities
Developer of learning tasks
Asker of child's feelings
Asker for child's ideas, questions
Modeler for child
Giver of correct answers, leader
Pace setter
Teacher Management Role Behavior
Planning time
Structure of environment
Responsible decision maker
Limit setter
Transition planner
Team manager
Teacher Personality
Supportive

Note.--Adapted from Gordon, 1972.

Table 2

Program Description for Individualized Beginning Reading

A. Oral reading.

1. Sight.

a. Discrimination.

b. Oral reading discrimination.

2. Self-prompting.

a. Word forms.

b. Blending.

3. Oral reading phrases.

B. Comprehension.

1. Picture identification.

2. Reading comprehension.

3. Stories.

4. Direction table.

Note.--Adapted from Bijou, 1972.

Table 3

Competences for a Six-year-old Child

Social Abilities:

1. To get and maintain the attention of adults in socially acceptable ways.

2. To use adults as resources

3. To express both affection and hostility to adults

4. To lead and to follow peers

5. To express both affection and hostility to peers

6. To compete with peers

7. To show pride in one's accomplishments

8. To involve oneself in adult-role play behavior or to otherwise express desire to grow up.

Nonsocial Abilities:

1. Linguistic competence, i.e., grammatical capacity, vocabulary, articulation, and extensive use of expressed language

2. Intellectual competence--the ability to

a) sense dissonance or note discrepancies

b) anticipate consequences

c) deal with abstractions, i.e., numbers, letters, rules

d) take the perspective of another

e) make interesting associations

3. Executive abilities--the ability to

a) plan and carry out multistepped activities

b) use resources effectively

4. Attentional ability--the ability to maintain attention to

Table 3

Competences for a Six-year-old Child (Continued)

a proximal task and at the same time to monitor peripheral events (called dual-focus ability).

Note.--Reprinted from White, 1971.

Table 4

Planned Teaching Goals and Techniques

I. Child's independence.

A. Teacher makes materials accessible to children.

B. Teacher intervenes only when necessary.

II. Child's positive self-image.

A. Teacher listens.

B. Teacher responds.

C. Teacher praises.

III. Child's intellectual stimulation.

A. Teacher questions.

B. Teacher uses everyday materials.

C. Teacher varies.

IV. Child's creativity.

V. Child's socialization.

A. Teacher stimulates interaction.

B. Teacher involves socially isolated children.

VI. Child's physical development.

VII. Child's emotional development.

VIII. Teaching staff collaboration and cooperation.

Note.--Adapted from Haberman & Persky, 1969.

Table 5

Categories for Rating Teachers

1.	Habits of cleanliness in the school.	15.	Arrangement of room for work.
2.	Physical conditions of room.	16.	Creative use of materials.
3.	Habits of personal cleanliness.	17.	Problem solving.
4.	Regulation of wraps.	18.	Stimulating experiences.
5.	Out-of-door play.	19.	Interpretation of social life.
6.	Protection from danger.	20.	Interpretation of nature.
7.	Postural habits and development.	21.	Dramatic play.
8.	Prevention of contagion.	22.	Singing.
9.	Habits of eating.	23.	Rhythmic expression.
10.	Habits of rest.	24.	Drawing and painting.
11.	Elimination.	25.	Literature.
12.	Social organization.	26.	Language expression.
13.	Social adjustment.	27.	Social skills.
14.	Emotional adjustment.	28.	Reading.

Note.--Adapted from Bain, 1928.

Table 6

Values Inferred from Teaching Activities

I.	Self-concept.
II.	Intellectual.
III.	Property and materials.
IV.	Manners.
V.	Rights of others.
VI.	Physical-motor.
VII.	Creativity.
VIII.	Obedience.

Note.--Adapted from Conners & Eisenberg, 1966.

Table 7

Lessons Inferred in Day-care Centers

I. Physical skills.

A. Large muscle activity.

B. Eye-hand coordination.

C. Verbal-physical coordination.

II. Social skills.

A. Rules of social living.

B. Dealing with other children.

C. Consideration of rights and feelings.

III. Intellectual attainment.

A. Formal skills.

B. Knowledge and awareness of the world.

C. Sense of pleasure, awe, wonder.

IV. Self-responsibility.

A. Self-sufficiency and independence.

B. Creativity and experimentation.

C. Control and restraint.

D. Dealing with strong emotions.

V. Other.

A. Can't decide.

B. No lesson taught.

Note.--Adapted from Prescott & Jones, 1967.

Table 8

Areas of Nursery School Teaching Research

I.	Meeting organic needs and establishing routine habits.
II.	Learning motor skills and confidences.
III.	Developing manipulatory skills.
IV.	Learning control and restraint.
V.	Developing appropriate behavior.
VI.	Psycho-sexual development.
VII.	Language development.
VIII.	Intellectual development.

Note.--Adapted from Sears & Dowley, 1963.

Table 9

Parent Behaviors Found Related to

Intellectual Development and Academic Achievement

A. Intellectual relationship.

1. Demand for high achievement.
2. Maximization of verbal interaction.
3. Engagement with and attentiveness to child.
4. Maternal teaching behavior.
5. Diffuse intellectual stimulation.

B. Affective relationship.

1. Warm affective relationship with child.
2. Feelings of high regard for child and self.

C. Interaction patterns.

1. Pressure for independence and self-reliance.
2. Clarity and severity of disciplinary rules.
3. Use of conceptual rather than arbitrary regulatory strategies.

Note.--Reprinted from Hess, 1969.

Table 10

Dominative, Integrative, and Other Teaching Behaviors

1. Determines a detail of activity or acts for the child in carrying out a detail.
2. Direct refusal.
4. Postponing, slowing up a child.
5. Disapproval, blame, or obstruction.
6. Warning, threats, or conditional promises.
7. Calls to attention or to group activity.
8. Rations material.
9. Lecture method.
10. Questions: lecture method.
15. Perfunctory question or statement.
16. Approval.
17. Accepts difference.
18. Extends invitation to activity.
19. Question or statement regarding child's expressed interest or activity.
20. The build-up.
21. Participates in joint activity with children.
22. Sympathy.
23. Permission.

Note.--Reprinted from Anderson, 1939.

Table 11

Mothers' Practices and Situations in a Nursery School

Mothers' Practices	
1. Seeks information.	8. Forces.
2. Offers explanation.	9. Warns.
3. Diverts attention.	10. Overlooks.
4. Urges	11. Commends.
5. Directs	12. Reassures.
6. Encourages.	13. Discourages.
7. Impedes.	

Routine Situations	Nonroutine Situations
1. Wraps.	1. Emergencies.
2. Toileting.	2. Instruction.
3. Lunch.	3. Free play.
4. Rest.	4. Conflict.

Note.--Reprinted from Tucker, 1940.

Table 12

Teacher-child Contacts in Nursery Schools

I. Type of contact.

A. Physical: child, equipment, clothing.

B. Verbal: declarative, imperative, interrogative, exclamatory, social.

C. Visual: gaze, facial, body gesture.

II. Methods.

A. Physical restraint, compulsion, guidance, assistance, caress, chastisement.

B. Example, demonstration, illustration, indication.

C. Suggestion: positive, negative.

D. Command: positive, negative.

E. Request: positive, negative.

F. Disapproval.

G. Question.

H. Information.

I. Encouraging.

III. Method goals.

A. Physical care.

B. Adjustment to routine (preservation of materials).

C. Motor development.

D. Emotional development.

E. Social development.

F. Mental development: language, facts, relationships.

G. Aesthetic development.

Note.--Adapted from Landreth, Gardner, Eckhardt, & Prugh, 1943.

Table 13

Teacher Actions in the Infant and Nursery School

I. Contacts emphasizing cognitive development.

A. Actions of the teacher which show concern with intellectual stimulus or information.

B. Actions of the teacher where the material environment is used to assist in giving knowledge and experience.

II. Contacts emphasizing social development.

A. Actions of giving physical care, protection, or comfort.

B. Personal friendly advances from teacher to child.

C. Actions of the teacher which show concern with promoting social attitudes:

1. by direct means.

2. by example.

III. Management contacts.

A. Observations of the children.

B. Praise and encouragement.

C. Actions of the teacher which are concerned with maintaining discipline and control of the children's behaviour.

IV. Actions of the teacher when not in direct contact with the children of one's own class.

Note.--Adapted from Gardner & Cass, 1965.

Table 14

Categories of Teaching Episodes

I. Teacher approach.

A. Communicative.

1. Verbal or nonverbal.

2. To individual or to group.

3. To a child or to an adult.

B. Non-communicative.

1. Child-centered (preparation of materials).

2. Neutral.

3. Subjective.

4. Silent supervision of group.

II. Teacher's motivating techniques.

A. Encouragement.

B. Discouragement.

C. Management.

Note.--Adapted from Reichenberg-Hackett, 1962.

Table 15

Categories of Teaching Episodes

I. Teacher approach.

A. Non-communicative.

1. Child-centered (preparation of materials).

2. Neutral.

3. Silent supervision.

4. Conversation with other adults.

B. Communicative.

1. To individual child.

2. To subgroup.

3. To group.

II. Teacher motivating techniques.

A. Encouragement.

1. Supporting/extending.

2. Responsive (briefer than supporting/extending).

3. Routine.

4. Approval/nurturance.

B. Teacher direction (initiation).

1. Teacher suggestion.

2. Teacher approval.

C. Guidance.

1. Direct (request for specific behavior).

2. Indirect.

3. Manipulative.

4. Distraction/redirection.

D. Restriction.

Table 15

Categories of Teaching Episodes (Continued)

1. Simple (calling attention to conflict).
2. Firm enforcement of limits.
3. Belittling/disparaging.

III. Neutral activities.

A. Information exchange (with no attempt to influence).

B. Care of physical needs.

IV. Development of verbal skills.

A. Repetitive.

B. Expressive (enables child to express).

C. Interpretive.

D. Informational.

V. Not ascertainable.

A. Teacher-initiated.

B. Child-initiated.

Note.--Adapted from Prescott & Jones, 1967.

Table 16

Categories of Tasks and Classroom Behaviors

I. Tasks.

A. Academic.

B. Non-academic (programmed).

C. Non-task.

II. Child behaviors.

A. On-task.

B. Off-task in the presence of the stimulus for the task.

C. Off-task away from the stimulus for the task.

D. Disruptive behavior.

III. Teacher behaviors.

A. Consequences for disruptive child behaviors.

B. Verbal behavior (other than A).

1. Positive.

2. Negative (contains negation or instruction to stop).

C. Physical contact.

1. Positive.

2. Negative.

Note.--Adapted from Bijou, 1972.

Table 17

Mother-infant Behavior Categories

1. Location (mother to infant).
   a) Face to face.
   b) Within two feet.
   c) More than two feet apart.
2. Physical contact.
   a) Kiss.
   b) Hold.
   c) Active physical contact.
3. Prohibitions.
   a) Verbal prohibition.
   b) Physical prohibition.
   c) Prohibition ratio (prohibition/infant walking or crawling).
4. Maternal vocalization.
5. Keeping infant busy.
   a) Entertaining.
   b) Give object.

Note.--Adapted from Fulkin & Kagan, 1972.

Table 18

Mother and Child Behaviors in a Waiting Room

Mother's Behavior	Child's Behavior
1. Control.	8. General seeking.
2. Suggestion.	9. Question.
3. Information.	10. Demand.
4. Question.	11. Information.
5. Approval.	12. Rejection.
6. Ignoring.	13. Acceptance.
7. Disapproval.	14. Ignoring.
	15. Toy shifts.
Mother's Attention	16. Space shifts.
17. Level 0: no attention.	
18. Level 1: occasional but brief attention.	
19. Level 2: moderate attention.	
20. Level 3: full attention.	

Note.--Adapted from Bee, Van Egeren, Streissguth, Nyman, & Leckie, 1969.

Table 19

Categories Descriptive of Mother Behavior

A. Out of contact.

B. Contact.

C. Playing interactively.

D. Teaching (information).

E. Helping.

F. Structurizing.

G. Directing.

1. Command (fear of noncompliance).

2. Directing play (no concern with compliance).

3. Matter-of-fact direction (compliance expected).

4. Firm direction (compliance required).

5. Emotionally toned demand (obedience <u>or else</u>).

H. Interference (scaled 1 to 5, similar to direction).

I. Restriction.

J. Interfering by structurizing.

K. Criticism (scaled 1 to 4, similar to direction).

L. Praise or affection (scaled +1 to +4, submission to enthusiasm).

1. Praise of activity.

2. Reassurance, usually after child's expression of anxiety.

M. Noncooperation (scaled -1 to -4, ignoral to anger).

Note.--Adapted from Bishop, 1951.

Table 20

Home-visit Sequence Analysis Variables

1. Positive outcome.
2. Accepts power conflict with child.
3. Independence training, control.
4. Respects child's decision.
5. Uses reason to obtain compliance.
6. Encourages verbal give and take.
7. Satisfies child.
8. Uses coercive power without reason.
9. Takes initiative in control sequences.

Note.--Adapted from Baumrind & Black, 1967.

Table 21

A Procedure for Patterning Responses of Adults and Children

Subject or Object of the Behavioral Clause	
0 Central Figure (CF)	5 Male child
1 Environment	6 Group, including CF
2 Female adult	7 Group, excluding CF
3 Female child	8 Male adult
4 Item	9 Setting Alert (see text)

Behavioral Predicates	
Environmental contact	18 Informs about culture
00 Ignores	19 Role plays
01 Attends	Food Behavior
02 Establishes contact	20 Gives food (to)
03 Terminates contact	21 Takes or handles food
04 Scans	22 Takes or manipulates food
Information processing	23 Transports food
10 Confirms	24 Disorganizes with food
11 Shows	Manual activities
12 Converses	25 Transfers item
13 Writes or draws	26 Takes or handles item
14 Reads to	27 Manipulates item
15 Corrects or disconfirms	28 Transports item
16 Inquires	29 Throws or rolls item
17 Informs or teaches	

Table 21

APPROACH (Continued)

Behavioral Predicates (Continued)

Negative reinforcement

30 Witholds sanction

31 Shows discomfort

32 Expresses displeasure

33 Criticizes or derogates

34 Expresses hostility

35 Interferes or restricts

36 Resists or rejects

37 Threatens or frightens

38 Assaults

Positive Reinforcement

40 Permits or sanctions

41 Expresses solicitude

42 Expresses pleasure

43 Approves, encourages

44 Expresses affection

45 Facilitates

46 Excuses

47 Bargains, promises

48 Protects, defends

Body activities

50 Increases or accelerates

51 Decreases or retards

52 Perioralizes (non-nutritive oral activity)

53 Acts in situ

54 Adjusts or accommodates

55 Kinesthetizes

56 Locomotes

57 Large muscle activities

58 Rhythmicizes

59 Voids or excretes

Miscellaneous

60 Acts or happens

61 Caretakes

62 Consummates activity

63 Fails

64 Disorganizes

65 Disintegrates emotionally

66 Makes music

Control techniques

70 Suggests

71 Requests

72 Inhibits

73 Forbids

74 Offers

Table 21

APPROACH (Continued)

Qualifiers of the action
0 Ineptly
1 Verbally
2 Involving interpersonal physical contact
3 Intensely
4 In a specified manner, place, or time
5 In a manner, place, or time other than that specified
6 Imitatively
7 In continuation (for longer behavioral units)
8 Complexly (joins two or more units)
9 No information (placeholder when there is no qualifier)
Behavior settings (preceded by setting alert)
Activity identification
Geographic region
Social setting

Note.--Adapted from Caldwell, 1969.

Table 22

Methods in Nursery Schools

	WPA	University
Verbal		
Positive command	46	18
Information	26	46
Question	18	30
Positive suggestion	9	42
Positive request	3	1
Physical		
Assistance	32	32
Petting and fondling	15	4
Guidance	11	16
Compulsion	9	1
Physical-verbal		
Example	21	22
Encouragement	21	32
Disapproval	7	2

Note.--Adapted from Landreth, Gardner, Eckhardt, & Prugh, 1943.

Table 23

Behaviors Received by Five Young Children

	Baby	1-yr	2-yr	3-yr	4-yr
Control techniques	5	15	25	18	10
Caretakes	10	5	5	2	0
Body activities	25	3	2	1	0
Miscellaneous	0	0	0	0	2
Makes music	0	10	0	2	0
Positive reinforcement	15	18	15	12	18
Negative reinforcement	1	1	3	4	5
Manual activities	5	5	8	8	5
Food behavior	0	1	0	0	0
Informs	30	35	35	45	48
Attends	12	6	2	6	6
Ignores	0	0	1	1	3

Note.--Adapted from Caldwell, 1969.

Table 24

Pre-School Project Task Scale--Time Distribution

Task	Time Spent 1As (N=10)	1Cs (N=3)	2As (N=9)	2Cs (N=4)
Social				
Please		1.0		1.0
Cooperate	1.0	1.0	3.0	1.0
Procure service			2.0	2.3
Achieve social contact	1.6	3.2	1.5	2.8
Manitain social contact	2.5	2.0	3.0	3.4
Provide information			0.8	
Converse				
Dominate/Lead				
Assert self		1.5	1.6	2.0
Annoy				0.8
Avoid unpleasant circumstances				
Nonsocial				
Mastery	6.0	4.0	10.2	5.2
Explore	9.0	10.0	4.0	6.2
Gain information--visual	21.0	17.0	13.0	10.5
Gain information--visual + audio	6.2	4.2	12.0	5.0

Table 24

Task Scale (Continued)

	Time Spent			
Task	1As	1Cs	2As	2Cs
Prepare for activity	1.0	1.5	1.0	0.5
Construct product				
Imitate				
Pretend/Role play				
Restore order	1.0		1.0	0.5
Non-task	10.2	13.0	5.0	10.0
Pass time		9.5	2.0	1.0
Procure object	2.3	1.8	1.0	1.5
Ease discomfort				1.2

Note.--Reprinted from White, 1971.

Table 25.

Distribution of Adult Activities in Head Start Classes

Activity	%
Non-instructional	3
Reading	4
Writing	0
Directing	4
Singing, dancing, dramatizing	1
Talking, listening	35
Routine	27
Directed instruction	27

Note.--Adapted from Montgomery County Public Schools, Department of Research, 1968.

Table 26

Distribution of Episodes, Audiences, and Lessons in Day-care Centers

Episodes	%
Guidance	25
Encouragement	20
Direction	14
Neutral	14
Restriction	7
Non-communicative	20
Audiences	
Individual	77
Entire group	15
Subgroup of two or more	8
Lessons	
Physical skills	5
Social skills	10
Intellectual attainment	9
Self-responsibility	12
Observer can't decide	3
Lessons	39
No lessons taught	61

Note.--Adapted from Prescott & Jones, 1967.

Table 27

Factor Analysis of Observer Rating Form Data

I.	Stimulating the child's cognitive and perceptual development.
II.	Providing warmth and supportiveness to the child.
III.	Showing respect for the child.
IV.	Stimulating motor skills and psychological support.
V.	Teacher showing dependency need.
VI.	(Unnamed.)
VII.	Encouraging perceptual growth and motor control.
VIII.	Communicating a middle-class orientation.
IX.	(Unnamed.)

Note.--Adapted from Pierce-Jones,1966.

Table 28

Factor Analyses of Process Measures in Follow Through Classes

Florida Climate and Control System

I. Strong control.

II. Pupil free choice vs. no choice.

III. Teacher-pupil supportive behavior.

IV. Nonverbal gentle control.

V. Gentle control.

VI. Work without the teacher.

VII. Pupil negative affect.

VIII. Teacher attention in a task setting.

IX. Teacher positive affect (bubbly).

Teacher Practices Observation Record

I. Convergent teaching.

II. Experimental teaching.

III. Teacher discourages exploration.

IV. Undifferentiated teaching.

V. Pupil free choice vs. teacher-structurec activity.

VI. (Unnamed.)

VII. Exploration of ideas vs. textbook teaching.

Reciprocal Categories System

I. Varied pupil-initiated interaction vs. response to teacher

II. Teacher response and amplification.

III. Drill.

IV. Teacher direction and criticism vs. teacher indirect.

Table 28

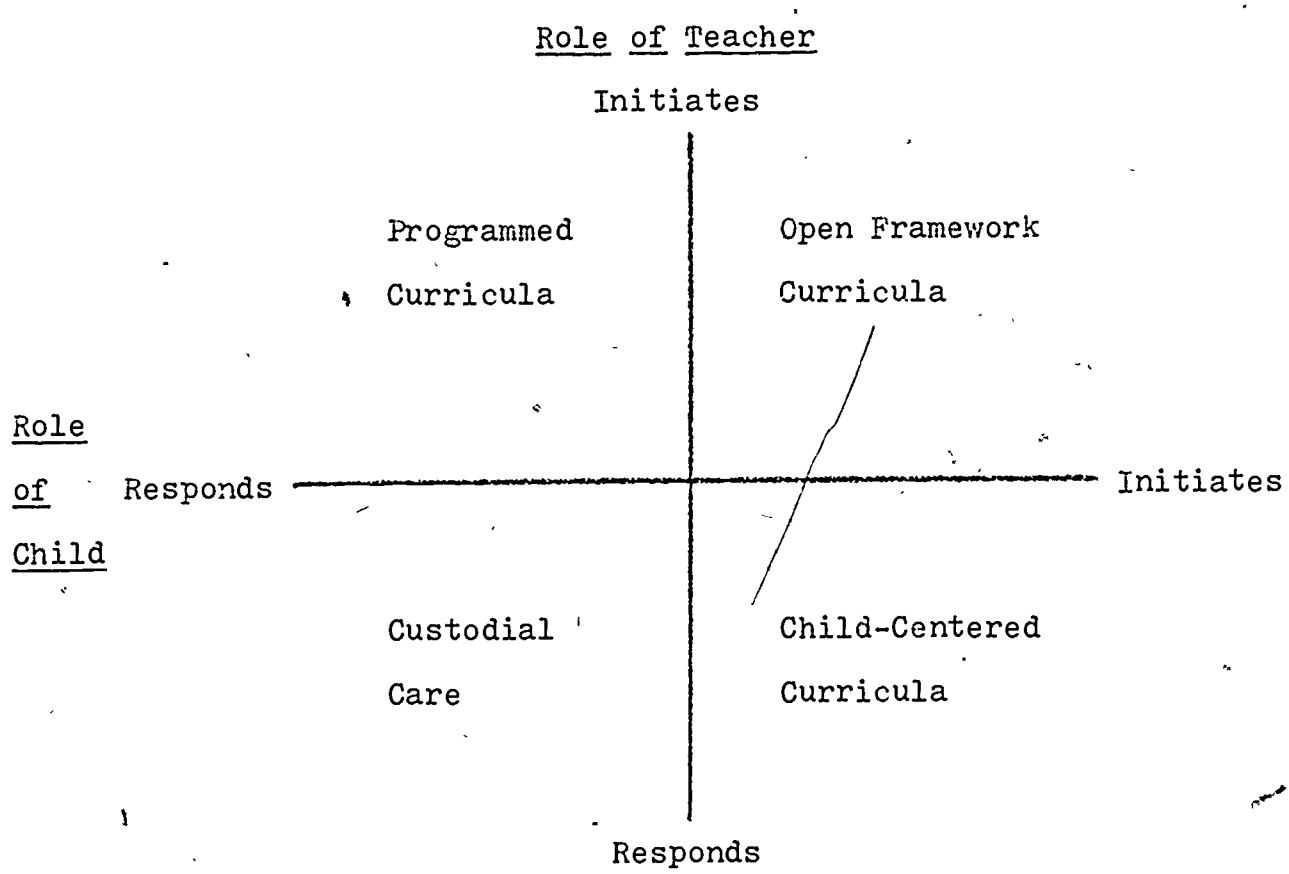
Follow Through Factor Analyses (Continued)

Reciprocal Categories System (Continued)
V. Extended teacher talk.
VI. Pupil talk.
VIII. Supportive pupil interaction in accepting climate.
Bloom's Taxonomy of Cognitive Objectives
I. Memory.
II. Applying previous learning.
III. Reading.
IV. Naming.
V. Academic skills.
VI. (Unnamed.)
VII. Classification.
VIII. Information giving and receiving.
Global Ratings
I. Informal vs. formal classroom organization.
II. Climate.
III. Structured learning: without vs. with teacher.
IV. Percentage nonwhite.
V. Time vs. space.
VI. Unstructured vs. structured time.

Note.--Adapted from Soar, 1972.

Figure 1

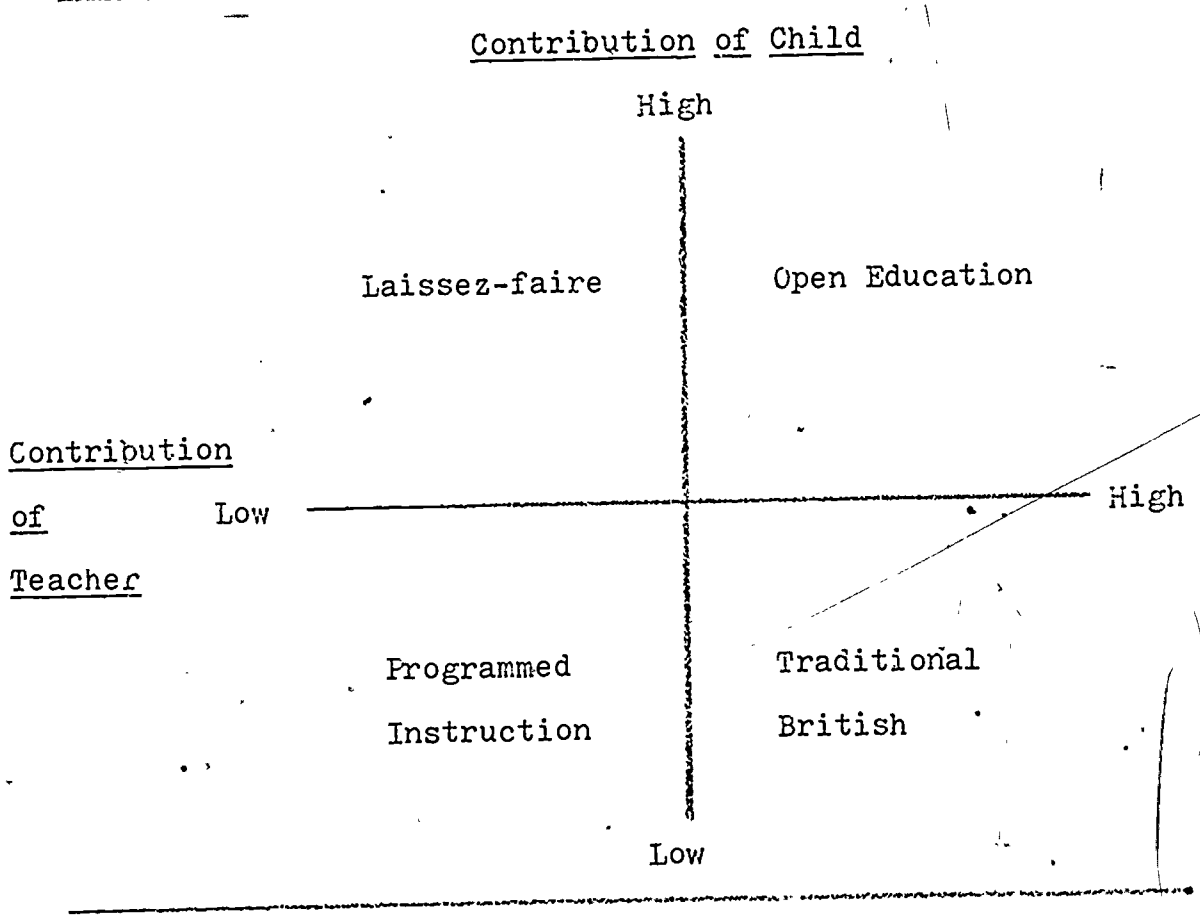
Preschool Curricula Models



Note.--Reprinted from Weikart, 1971.

Figure 2

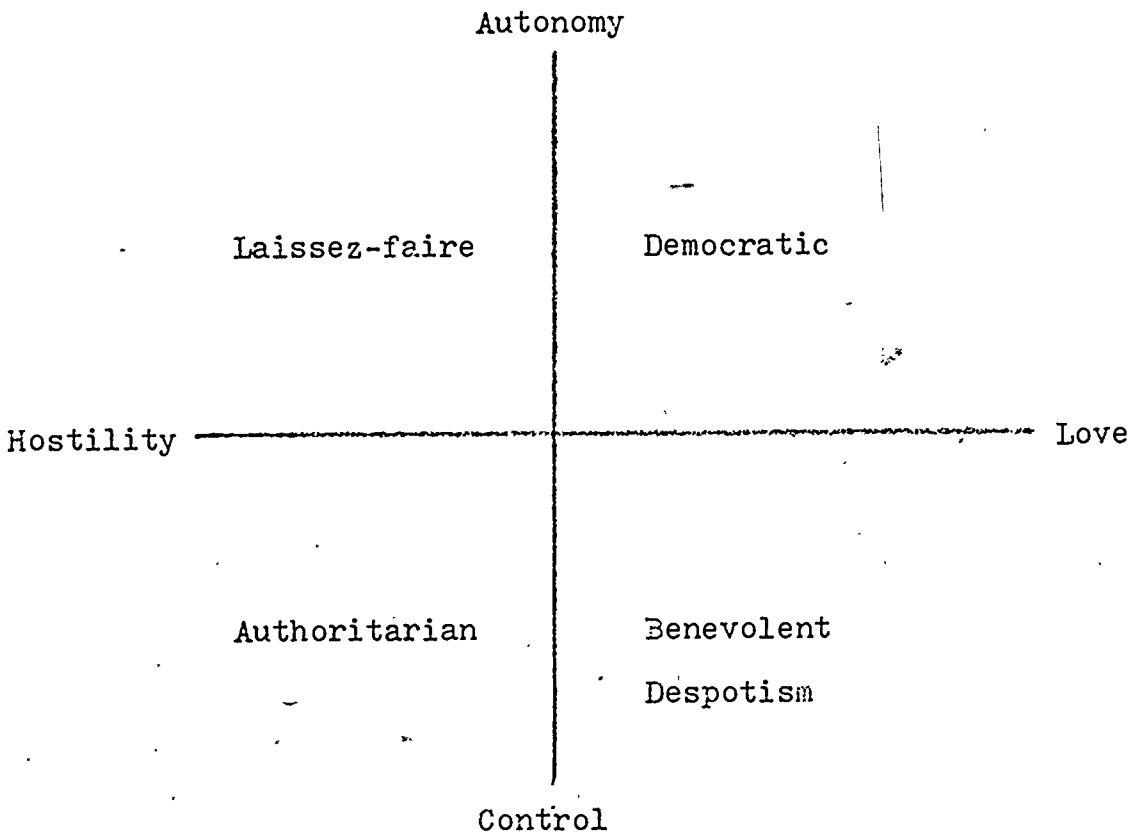
Approaches to Curriculum



Note.--Reprinted from Bussis & Chittenden, 1970.

Figure 3

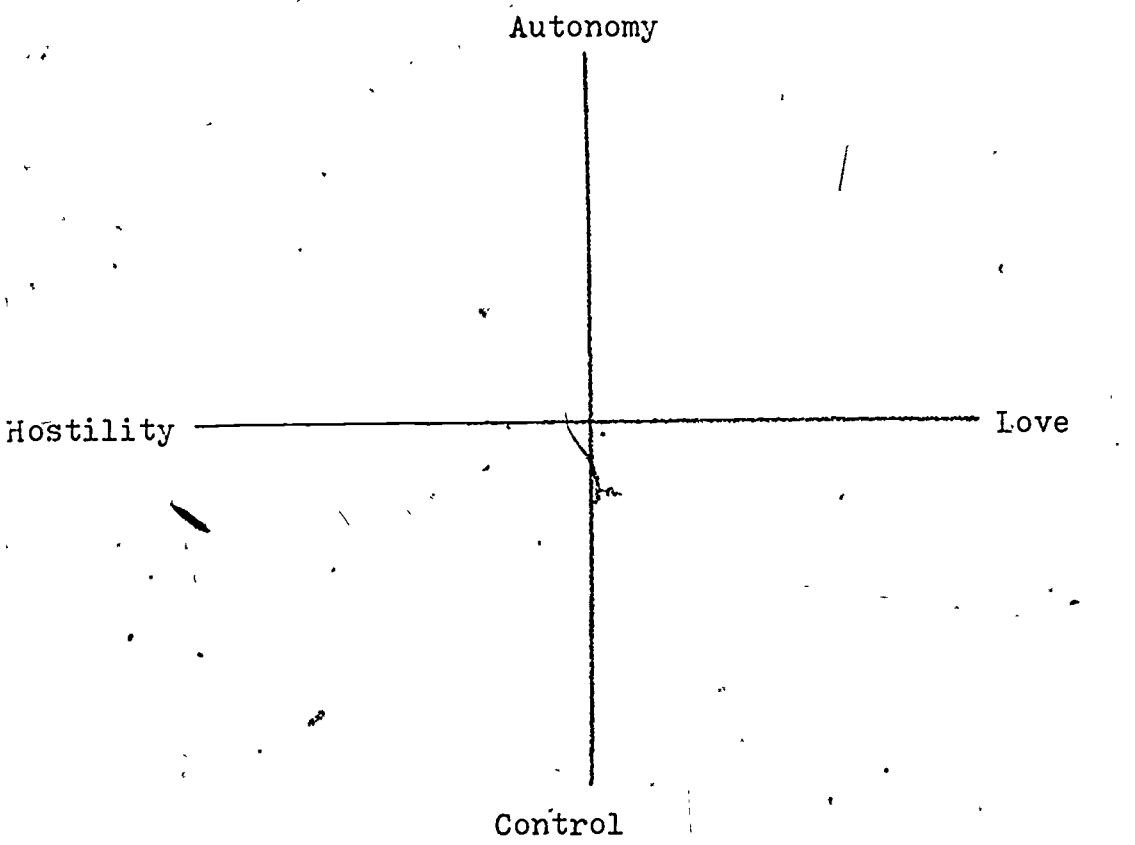
Circumplex Model of Teachers' Behavior



Note.--Reprinted from Anastasiow, 1969.

Figure 4

Circumflex Model of Maternal Behavior



Note.--Adapted from Schaefer, 1959.