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A PRELIMINARY VALIDATION STUDY OF THE BASIC ASSUMPTION INVENTORY

by

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APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at The University of North Carolina at Greensboro.

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BOBBIE HAYNES ROWLAND. A Preliminary Validation Study of the Basic Assumption Inventory. (1974) Directed by: Dr. Helen Canaday. Pp. 167.

The present study was designed to investigate the validity and reliability of the Basic Assumption Inventory and to further the development of this paper and pencil instrument to provide some measure of the probable teaching behavior of elementary teachers. The instrument was constructed by this researcher utilizing past and current literature statements about child- and/or person-centered environments which, it was believed, were representative of assumptions held by teachers about children's learning and knowledge.

The study group consisted of 100 elementary teachers who were working with pupils in kindergarten through grade six in the Piedmont Region of North Carolina. The test was administered to one-half of the sampled teachers prior to being observed, the other half, following observations. Both groups were rated independently by at least two trained raters on the Classroom Observation Scale as a measure of teaching behavior.

High and low scoring groups, each consisting of 27 per cent of the study group population, were selected on the basis of the total (T) scores on the Classroom Observation Scale. The item-answers for each person in the selected high and low groups were analyzed by employing the statistic chi-square for discriminating ability. Twenty-five items achieved a level of discrimination beyond the .50 level of

probability and were scored twice for each elementary teacher in the study group. The scoring formulas used were simply the total number of correct responses for the first scoring, and the subtraction of the incorrect responses from the correct responses for the second scoring.

The validity of the 25 items as an instrument was determined by correlating Basic Assumption Inventory scores with P, X, Y, Z, and T (total) scores on the Classroom Observation Scale. The correlation coefficients between the characteristic patterns of behavior scores and the Basic Assumption Inventory scores ranged from +.520 to +.588 on the first scoring procedure and from +.529 to +.649 on the second scoring procedure. These correlations were significant beyond the .01 level of confidence. Interrelated correlation coefficients between the subscores of the three patterns of behavior as designated by the Classroom Observation Scale ranged from +.686 to +.965 and were all significant beyond the .01 level of confidence.

The reliability coefficient was calculated utilizing the Kuder-Richardson Formula 21. When calculated on the basis of the second scoring procedure, the obtained figure was .941.

It was concluded that the Basic Assumption Inventory was a valid and reliable instrument for use with the elementary teachersof the selected sample. It was recommended that the instrument be lengthened and that its validity and reliability be investigated with other populations. It was recommended, also, that future investigations of the

instrument incorporate a design to test the fakability aspects of responding. It was suggested that the Basic Assumption Inventory be considered as part of an assessment package for persons who plan to work with young children.

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CHAPTER I

INTRODUCTION

There is continued search for diagnostic experiences and devices which measure essential areas for those engaged in the teaching profession. Recognized as one of these essential areas is the relationship between teacher attitudes and beliefs and actual teaching behavior.

A variety of instruments have appeared in recent years for measuring teacher behavior. Of particular interest has been the search for instruments which make it possible to record observations of teacher behavior in objective, quantifiable form.

One of the earliest attempts to measure teacher behavior was the development of the Minnesota Teacher Inventory (MTAI) developed at the University of Minnesota in the late 1940's. This is a paper and pencil test instrument, developed by Cook, Leeds, and Callis (1952), which purports to provide an indication of pupil-teacher rapport. The Flanders Interaction Analysis System (IA) has received much attention and has been used in researching verbal behavior in the classroom and in teacher education and training programs at both the pre- and in-service levels (Flanders, 1970). This instrument purports

to help the teacher gain self-insight into his real behavior and has been used to measure attitude change (Amidon & Hough, 1967). Another instrument for evaluation of teacher performance is the Classroom Observation Record developed by Ryans in 1960. This instrument identifies three distinct patterns of behavior designated as X, Y, and Z. The pattern X is characterized by kindly, understanding, friendly vs. aloof, egocentric, restricted behavior; the Y pattern by responsible, systematic, business-like vs. evading, unplanned, slipshod teacher behavior; and pattern Z by stimulating, imaginative, surgent vs. dull, routine teacher behavior (Ryans, 1960). An observational technique, in fairly common use today, is the Observation Schedule and Record (OScAR) developed by Medley and Mitzel (1963) in connection with a longitudinal study of graduates of the teacher education programs of the municipal colleges of New York City. This instrument has proven to be of use to the researcher interested in teacher-pupil relationships and requires some judgment on the part of the observer to determine the proper category for a particular behavior. The OScAR relies on a specific time sequence of observation of a relatively large number of behaviors. It, also, has proven to be most popular as an instrument for use in quantifying the behavior of elementary school teachers. The C-H Inventory developed by the Staff of the Fifth Year Program at The University

of North Carolina at Chapel Hill was designed to indicate the behavior and performance of secondary teachers. Smith's (1967) study concluded that the C-H Inventory was a valid and reliable instrument for the prediction of classroom behavior on the part of Associate Teachers at the secondary level.

It is apparent from the literature and research survey that there is a notable lack of any such instrument which has been specifically designed for teachers of elementary aged children which attempts to correlate the role of the teachers with their beliefs about children's learning and knowledge.

The present investigation is seen as a preliminary validation study of an attitude instrument, the Basic Assumption Inventory, designed to help teachers to begin serious reflection on the theoretical implications of their classroom practice.

Background for the Study

The Basic Assumption Inventory was constructed by this researcher to explore the beginning stages of questionnaire development, validation of the questionnaire, and to gain knowledge in attitude survey techniques and practices. The inventory reflects the literature survey which noted a marked increase in published manuscripts during the last five years which focused on child-centered

environments as relating to assumptions about children's learning and knowledge. Barth (1972) presented a series of assumptions in categories which reflect and sum the bulk of the literature and which are the core of the Basic Assumption Inventory items. From the literature survey, 39 items were constructed and then rewritten in reverse form to produce a total of 78 items from which, it was believed, would be given a representation of assumptions held by teachers about children's learning and knowledge (see Appendix A). Pertinent factors considered in formulating the questions were ambiguity, leading and loading questions, unfamiliar terms, confusing and complex wording, and the educational level of the intended population (Anastasi, 1961). Each of the original 39 items was noted in the literature in varying degrees in excess of six times.

The questionnaire was designed, using a Likert-Type Scale, so that the subject could respond to a series of items in agreement or disagreement on an interval scale ranging from strongly agree, agree, uncertain, disagree to strongly disagree. The individual statements were designed as clearly favorable or clearly unfavorable. Statements were distributed in a random order using a random drawing of numbers. In scoring the scale the alternative responses were credited 5, 4, 3, 2, or 1, respectively, from the favorable to the unfavorable end. Therefore, "strongly

agree" with a favorable statement received a score of five as did "strongly disagree" with an unfavorable statement.

The inventory was administered to a pilot sample of 65 graduate students in the Masters of Education program in The College of Human Development and Learning at The University of North Carolina at Charlotte (Rowland, 1973). This population was representative of classroom teachers, administrators, counselors, and other helping professions. Responses were analyzed for discrimination and retention for a second form according to the following criteria:

1. Did the item discriminate between individuals with high total scores and those with low total scores?
2. Was the item ambiguous in meaning, lack clearness, or poorly stated?
3. Did one item duplicate another item?
4. Did the item show a response pattern that was difficult to interpret?

Fifty-two items achieved a level of discrimination as analyzed by use of the statistic chi-square at the .05 level of probability, met the selected retention criteria, and were included in the second form of the Basic Assumption Inventory.

To determine the reliability of the instrument in terms of internal consistency a retest of the inventory was given within two weeks to 49 of the original sample of

65 graduate students. Scoring the 52 retention items a relationship between the variables involved in the study was determined by calculating the reliability coefficient on test and retest scores. The statistic selected was the product moment correlation coefficient. When calculated on the basis of the scores of the 49 retest students, the reliability of the Basic Assumption Inventory was .877.

From the results of the studies of Howard (1964) and Smith (1967), in connection with the Fifth Year Program in Teacher Education at The University of North Carolina at Chapel Hill, it appeared that a modification of Ryans' Classroom Observation Record was a good indication of teaching effectiveness in relation to patterns of behavior which Ryans (1960) had found effective.

To quantify teacher behavior, Howard (1964) utilized his own modification of Ryans' Classroom Observation Record. Ryans' instrument is a semantic-differential type of scale with a seven point differential between opposite descriptive adjectives. There is an accompanying glossary for the Record which defines 22 pairs of adjectives in terms of observable classroom phenomena.

> Howard's modification consisted of the addition of four items relating to pupil behavior and ten items relating to teacher behavior to both the Record and the glossary. The result is a 36 item scale on which the observer rates the teacher (Smith, 1967, p. 4).

This instrument is referred to as the Classroom Observation Scale and its scale and glossary are included in Appendix C. Among the findings of the Howard study was that the pupils of teachers with high final scores on the Classroom Observation Scale made more progress in school achievement [as measured by the pre- and post-administrated Sequential Test of Educational Progress (STEP)] than the students of teachers with low Classroom Observation Scale scores. On the Watson-Glaser Critical Thinking Appraisal for Senior High School students and the Tests of Critical Thinking for Junior High School students those same pupils scored higher also.

Hampton (1966), using the same evaluative instruments utilized by Howard (1964), found a significant change (at the .01 level) in classroom behavior of Associate Teachers during the internship as measured by the Classroom Observation Scale. A similar finding was that of high and low pupil achievement as correlated with high and low final Classroom Observation Scale scores.

Smith (1967) found that responses to the C-H Inventory correlated highly with actual performance of Associate Teachers as a group as measured by the Classroom Observation Scale.

Purpose of the Present Study

The present study was designed to investigate the validity and reliability of the second form of the Basic Assumption Inventory (see Appendix B) and to further the development of this paper and pencil instrument to provide some measure of the probable teaching behavior of elementary teachers. The results of the initial investigation indicated that the Basic Assumption Inventory merited further study and analysis. Therefore, the specific purpose of this study was to evaluate critically the second form of the Basic Assumption Inventory through the following procedures:

1. To identify those items on the Basic Assumption Inventory which discriminate between effective teachers and ineffective teachers as determined on the basis of scores on the Classroom Observation Scale as adapted by Howard (1964) from the research reported by Ryans (1960).
2. To determine the reliability of the instrument in terms of internal consistency.
3. To determine the validity of the instrument in terms of the correlation between scores on the Basic Assumption Inventory and scores on the Classroom Observation Scale.

The Scope and Importance of the Study

The scope of the present study was limited to a selected population of 100 elementary school teachers who

were working with pupils in kindergarten through grade six. The study was designed to determine if certain items on the Basic Assumption Inventory discriminated between good and poor teachers selected by observation. In the event that the items did not discriminate in this way, the study performed an important function of providing essentially negative information. It was anticipated that it might determine certain specific items and approaches to the problem which should be modified or deleted. However, if the study did provide data on items which would discriminate sufficiently well to be of further use, then several important uses for the instrument became apparent:

1. The nature of the discriminating items can serve as highly useful feedback devices for teachers working with elementary aged children. Such information can provide a closer scrutiny of one's own beliefs and teaching activities as a prelude to deeper insight for teachers and greater learning for pupils;
2. The instrument could prove itself useful as a selection criterion to help determine those applicants with whom Teacher Education programs might be more effective;
3. For students already in Teacher Education programs, the Basic Assumption Inventory might be useful as a tool in placement to identify those students who might or might not function effectively in specific clinical settings; and

4. Total school faculties might use the Basic Assumption Inventory to assess their beliefs and then augment their practices to allow the beliefs and practices to become more congruent.

If the validity of the instrument can be established for use with the selected teacher population then the next logical extension is to study the validity of the instrument with other populations. In the event that it does prove valid, many new uses for the inventory as a feedback device, and/or self-screening selection criterion, and a research instrument would become apparent.

Of utmost importance is the need for a recognition of the many changes in the elementary school and the need to gather information that can help teachers increase their own skills regarding the identifying of and measuring of teacher effectiveness. It, therefore, seems that an instrument which reflects both assumptions about children's learning and knowledge is needed in the field of teacher attitude measurement.

Questions to be Answered

The primary questions concerning the Basic Assumption Inventory which were investigated are the following:

1. What items on the Basic Assumption Inventory discriminate between good and poor classroom teachers selected on the basis of scores on the Classroom Observation Scale?

2. What is the reliability coefficient for the selected items on the Basic Assumption Inventory?

3. What is the relationship between scores on the Basic Assumption Inventory and scores on the P scale of the Classroom Observation Scale?

4. What is the relationship between scores on the Basic Assumption Inventory and scores on the X scale of the Classroom Observation Scale?

5. What is the relationship between scores on the Basic Assumption Inventory and scores on the Y scale of the Classroom Observation Scale?

6. What is the relationship between scores on the Basic Assumption Inventory and scores on the Z scale of the Classroom Observation Scale?

7. What is the relationship between scores on the Basic Assumption Inventory and total (T) scores of the Classroom Observation Scale?

The secondary questions concerning interrelationships between scores on the Classroom Observation Scale were:

8. What is the relationship between P scores and X scores on the Classroom Observation Scale?

9. What is the relationship between P scores and Y scores on the Classroom Observation Scale?

10. What is the relationship between P scores and Z scores on the Classroom Observation Scale?

11. What is the relationship between P scores and T scores

on the Classroom Observation Scale?

12. What is the relationship between X scores and Y scores on the Classroom Observation Scale?

13. What is the relationship between X scores and Z scores on the Classroom Observation Scale?

14. What is the relationship between X scores and T scores on the Classroom Observation Scale?

15. What is the relationship between Y scores and Z scores on the Classroom Observation Scale?

16. What is the relationship between Y scores and T scores on the Classroom Observation Scale?

17. What is the relationship between Z scores and T scores on the Classroom Observation Scale?

Definitions of Terms

The following definitions were established for this study:

The Basic Assumption Inventory is defined as the second form of a paper and pencil instrument containing 52 items which, it is believed, are representative of assumptions held by teachers about children's learning and knowledge.

The Classroom Observation Scale is defined as the modified version of Ryans' Classroom Observation Record, described in detail in Chapter II.

A child- or person-centered learning environment is defined as a school setting where there is a mutual interchange

between the child, the world, and the teacher and where the child is the principal agent of his own learning.

The validity of the Basic Assumption Inventory refers to its ability to measure what it purports to measure; namely, teacher behavior in the classroom.

The reliability of the Basic Assumption Inventory refers to the internal consistency of the instrument. It is a statement of the extent to which it measures what it does measure.

Basic Assumptions

A basic assumption is made that the Classroom Observation Scale as adapted and used by the supervisory personnel of the Fifth Year Program at The University of North Carolina at Chapel Hill is a valid and reliable indication of effective classroom teaching behavior and the study is valid only to the extent that this is true.

A further basic assumption is made that the professed attitudes and beliefs of teachers is some indication of the actual classroom behaviors in which these same teachers engage. Any attitude or belief instrument is valid and reliable only to the extent that this assumption actually holds true.

A third basic assumption is made that a paper-and-pencil inventory, if properly constructed, is a reliable and effective method by which to gather evidence of these beliefs.

CHAPTER II

REVIEW OF RELATED LITERATURE

The present study reflects the mounting interest and the many changes in elementary education which have grown out of the pragmatic responses of a great many teachers, agencies, school systems, and teacher education programs to a variety of theories and practices which have combined the insights of past and current thinking. This interest and the changes are backed by a substantial body of theories about the nature of children, the ways in which they grow and learn, the nature of knowledge, and the goals and aims of the educational processes. Historically the writings and works of many early educational theorists offer support for substantial changes which focus on active learning and active teaching as essentials in meeting the needs of children and teachers.

Similarily, many researchers and theorists of today are directing the attention of the educational community to living/learning processes that emphasize trust, freedom of choice, flexibility, and individual responsibility for both the child and the adult. Educational researchers have stressed the importance of the way the teacher's role is conceived and carried out and the underlying

assumptions about children's learning and knowledge that are held by those who are either planning for or are actively involved in this specific helping profession.

The current literature contains developmental theories and reports of demonstrated practices which are reflected by changes and redirections on the elementary school level. The visible changes seem to be associated with specific attitudinal stances on the part of students, parents, teachers, school administrators, university educationists, and many others. One change which deems to be worthy of investigation is the concern for personalized learning and the creating of proper environments to facilitate a variety of learning styles.

Silberman (1970), in surveying American and English schools, reported in detail an analysis of the failures of educational reform and pictured the elementary school as a grim and joyless place preoccupied with order and control. In a more recently published companion volume, Silberman indicated a profound shift in the way Americans think about children and schools. He referred to a distinct change in attitude permeating the atmosphere of dissatisfaction with the status quo in the elementary school (Silberman, 1973). The classroom or setting he described as child- or person-centered reflects the personality and interests of both student and teacher. Here the teacher emphasizes individual learning more than whole-group interaction. The teaching role changes from

teller to facilitator of learning and is a more active and creative role than was conceived in the past. Ideas and/or beliefs that relate to children and the process of learning, and ideas that relate to the perception of self, are instrumental to the development and definition of the teacher's role. The teacher becomes observer, diagnostician, adviser, supporter, and learner - a collaborator in the living/learning process (Silberman, 1973).

Piaget's (1952) theory examined the mechanisms of cognitive development in a context broader than the school and classroom setting. His theory is a stage theory, and he believes that at each developmental level people express their intelligence in consistently differing ways because at each of the stages there are significant differences in schemata which make intelligent behavior possible. The following five factors according to Piaget (1970a) are seen as necessary for cognitive development:

1. Biological factors (particularly maturation)
2. Experiences with physical objects
3. Social factors and interindividual coordination
4. Cultural and educational transmission
5. Equilibration

Kamii (1970) and others (Elkind, 1961; Kohlberg, 1968; Furth, 1970) have explained the implications of his

theory to the teaching of children. It appears imperative that teachers understand that intelligence functions as an integrated whole and develops similarily. Also, an understanding of the theory will help the teacher make a diagnostic interpretation of how a child is thinking in certain situations and aid in the structuring of the environment for children to activate, apply, and extend their schemes. Self-activity is crucial to Piaget's model if equilibrium is to be achieved at a higher level. This activity is seen as activity of the mind and

> . . . when the learner is confronted with data that are fresh and challenging, or that contradict what he has always believed, he is more likely to carry on mental operations to resolve the dissonance and restore equilibrium (Lavatelli et al., 1972, p. 48).

Throughout the various stages the child must act on his environment and be involved in exploration. Therefore, the phrase that "telling is not teaching" becomes appropriate and the teacher finds it necessary to provide the child with settings and stimuli which will free any given child to realize his capacities in his own time and at his own pace. The child is seen as a young organism and his needs and capacities are quite different from those of adults. A child utilizes his environment to nourish his own growth which adapts and modifies itself to the environment. Piaget has stated that in school, children should be

> . . . allowed a maximum of activity of their own, directed by means of materials which permit their activities to be cognitively useful. In the area of logics - mathematical structures, children have real understanding only of that which they invent themselves, and each time that we try to teach them something too quickly, we keep them from reinventing it themselves (Almy et al., 1966, p. vi).

Gwynn and Chase (1969) described the need for curriculum emphases and efforts designed for educational change as person oriented and incorporating the psychological, sociological, philosophical, physiological, and structures of knowledge determinants which have helped to shape the values and interests of the individual. They make the assumption that early and continuous relationships with a variety of people, learning settings, and conditions and systems of environment are necessary for growth and development. In their work in teacher education they have developed a continuous, overlapping, spiral curriculum model which integrates the four theories of Exploration, Involvement, Commitment, and Universality. Basic to their model is the individual within the experience.

The writers (Gwynn & Chase, 1969) further suggested a wide variety of alternatives and choices which are made available as the individual becomes more aware of self and of the relationship of self with others - Exploration. As needs are met, strengths identified, success experienced, and responsibility assumed, individuals begin to become

critically and creatively involved in situations. Through active participation the prospective helping professional experiences, reacts, and relates. By participating freely in a variety of situations with specific responsibilities, this individual becomes more analytical, more responsive, more concerned, and more productive - Involvement. A natural outgrowth of in-depth involvement is a conscious commitment to an obligation voluntarily assumed. Given ample time and freedom for choice the individual becomes highly motivated, more self-evaluative, more self-directive and capable of concern and caring expression. Ideas and concepts become meaningful and purposeful action is possible - Commitment. As this heightened awareness is developed, a sense of universality becomes apparent and more intensive exploration of the self and environment becomes possible. Synthesis becomes more important than thesis and the individual's value structure is then based upon consistent, relevant beliefs which encompass the needs, rights, and choices of others - Universality.

The teacher is seen as a person who has acquired the certain competencies. This teacher should be

1. A person who demonstrates a commitment to caring attitudes in relation to human growth, development, and learning.
2. A person who has advanced in the process of becoming a self-learner; that is, self initiated learning which includes the integration of learning about one's self.
3. A person who has internalized the liberating concepts from the various disciplines of the

humanities, the creative arts, the natural sciences and mathematics, and the social sciences.
4. A person who has developed a special competency or competencies in some field(s) or activity that he wishes to share with another.
5. A person who demonstrates an understanding and appreciation of integrated knowledge; and who sees relationships, integrates, differentiates, and blends and fuses experience with a tone and spirit of unity.
6. A person who demonstrates attitudes and skills for entering into a living/learning relationship within a wide range of diversity.
7. A person who demonstrates the ability to design, and utilize creative environments for learning.
8. A person who has appreciation and knowledge of contemporary thought, research, and methods of study in human development and learning.
9. A person who feels and understands the integral relationship between living/learning, his role as a facilitator, and the interdependence between people, cultures, communities, and societal institution; a person who perceives the interrelationships.
10. A person who grasps and copes with reality as subjective discovery; one who sees the projection from past and present into the future as relevant only in the continuing development and alteration of individual life-styles (Chase et al., 1974, pp. 46-47).

McCandless (1967), in the second edition of his book focusing on the behavior and development of children, discusses some of the points of view and theories about child-training and educational processes which have been developed by child psychologists and developmentalists. He described two major educational theories - the classical and the progressive - on a philosophical continuum ranging from a focus on subject-matter content, drill, and conventional discipline to one which is pupil-centered, self-

motivating, and develops self discipline. His reference to the continued increase in both the quantity and quality of research and theoretical literature supports the notion that there is need to explore a variety of avenues concerning the interactions between pupils and teachers.

Mead (1970), from her knowledge of societies throughout the world, offered concrete ideas for the task of furthering the development of a society convulsed by its sudden burst into the electronic age. She wrote about the concept of commitment, the relationship of the past and the present, and stated

> In this century, with rising insistence and anguish, there is now a new note: "Can I commit my life to anything? Is there anything in human cultures as they exist today worth saving, worth committing myself to?" We find the suicide of the fortunate and the gifted, the individual who feels no abiding and unquestioning tie with any social form. Just as man is newly faced with the responsibility for not destroying the human race and all living things and for using his accumulated knowledge to build a safe world, so at this moment the individual is freed to stand aside and question, not only his belief in God, his belief in science, or his belief in socialism, but his belief in anything at all (Mead, 1970, p. x).

She stated that the imagination of man must be freed from the past and that there must be developed

> . . . a new kind of communication with those who are most deeply involved with the future - the young who were born in the new world. That is, it depends on the direct participation of those who, up to now, have not had access to

> power and whose nature those in power cannot fully imagine (Mead, 1970, pp. 93-94).

The idea that the young, free to act on their own initiative, can lead the older generation in the direction of the unknown offers education and educators a challenge to become collaborators and co-workers rather than directors or dictators in the search for meaningful answers to complex questions and situations.

Toffler's (1970) study about what happens to people when they are overwhelmed by change can help those who want to understand the social and psychological implications of the technological revolution. His book was intended to do more than present a theory of change; it was also intended to demonstrate a method for coping with change. In focusing on the role for education he described the education of today as "hopeless anachronism (Toffler, 1970, p. 398)." He called for a super-industrial education system which searches for its objectives and methods in the future, rather than the past.

> To create a super-industrial education, therefore, we shall first need to generate successive, alternative images of the future - assumptions about the kinds of jobs, professions, and vocations that may be needed 20 to 50 years in the future; assumptions about the kind of family forms and human relationships that will prevail; the kinds of ethical and moral problems that will arise; the kind of technology that will surround us and the organizational structures with which we must mesh.

> It is only by generating such assumptions, defining, debating, systematizing and continually updating them, that we can deduce the nature of the cognitive and affective skills that the people of tomorrow will need to survive the accelerative thrust (Toffler, 1970, p. 403).

Toffler further emphasized a need for the school curriculum to create widely diversified data offerings, all based on identifiable assumptions about future needs. He suggested that any program of diversification must, therefore, be accompanied by strong efforts to create common reference points among people through a unifying system of skills, skills needed for human communication and social integration. He built a strong case "that the people who must live in super-industrial societies will need new skills in three crucial areas: learning, relating, and choosing (Toffler, 1970, p. 414)."

Barth (1972) encouraged educational practitioners to begin reflecting seriously on the theoretical implications of their practice and to consider the ongoing interplay between theory and practice. He indicated that change in the elementary school should come from teachers, "from the development of their own philosophy and their own pedagogical experience (Barth, 1972, p. xiv)." He defined "open education" as a specific way of thinking about children, about learning, and about knowledge and "open-schools" as those that permit children to learn in a human atmosphere, where they are encouraged to make their own

choices. He analyzed the practices and statements of open educators and developed a taxonomy of assumptions with respect to the nature of learning and the nature of knowledge. The assumptions categorized by Barth (1972) were listed under six headings - motivation, conditions for learning, social learning, intellectual development, evaluation, and knowledge. "The assumptions are hunches, based somewhat on careful study, yet largely upon impressions, gut feelings, emotional responses, and informal observations in classroom (Barth, 1972, p. 56)." It was his hope that in attempting to articulate open educators' assumptions about learning and knowledge that more critical and complete explication would occur. Barth (1972) constructed a role for the teacher which he believes is logically and feasibly consistent with the described assumptions. He sees the teacher as somewhere outside the learning process providing the conditions which will make the child's active exploration of the real world both likely and fruitful. The teacher is encouraged to be "real," expressing feelings and emotions. Process is not so much taught as it is learned as the teacher's concept of knowledge is centered on student's interests and initiative. The teacher is seen as a facilitator of learning who maximizes the likelihood that each child will be fully engaged in meaningful activities.

The facilitator of learning:
1. Respects children as individuals
2. Manages the environment
3. Provides materials
4. Consolidates children's experience through language
5. Provides direct instruction
6. Encourages children's activity
7. Encourages children's independence (Barth, 1972, p. 70).

The ideas, theories, and assumptions of both the early educational theorists and the current researchers and writers coupled with a concern for the development and growth of those associated with the teaching profession suggest a need for a valid index of actual teacher behavior.

Reflecting the lack of agreement of today on what behaviors constitute good teaching, there is continued search for diagnostic experiences and devices which measure essential areas for those engaged in the helping professions. Recognized as one of these essential areas is the relationship between teacher attitudes and beliefs and actual teaching behavior.

Teacher Attitude and Behavior

Measurement Instruments

A variety of instruments has appeared in recent years for measuring teacher attitudes and behaviors. Of particular interest has been the search for instruments which make it possible to assess and record observations of teacher behavior in objective, quantifiable form. The

review of literature focuses on instruments developed for assessing teacher attitudes and those which purport to assess teacher's classroom behaviors, and, therefore, should provide the investigator with answers to the following basic questions:

1. How were the existing instruments developed, and upon what assumptions are they based?
2. What criteria for measuring behavior have been developed, and on what assumptions are they based?
3. How have these various types of instruments been used before, and what results have the researchers reported?

In an attempt to answer these questions, the development of attitude instruments and techniques of classroom observation are reviewed.

Teacher Attitude Instruments

There has been only one instrument in wide use that was developed to measure teacher attitude as it related to the relationship between pupils and teachers in classroom settings. This instrument is the Minnesota Teacher Attitude Inventory (MTAI).

This instrument had its beginning as part of the doctoral research of Leeds (1946) at the University of Minnesota. Initially he proposed to provide some measure of teacher-pupil rapport by way of an inventory. He made

the assumption that although pupil-teacher rapport is only one factor essential to teaching success it is one of the most important (Leeds, 1950). He also made the assumption that an indication of these pupil-teacher rapport factors could be obtained by a suitable paper-and-pencil instrument.

In order to construct a series of inventory items, Leeds surveyed the literature and drew from his own experience appropriate statements which related "to the reaction of teachers to children and pupils and their behavior (Leeds, 1950, p. 3)." A total of 378 opinion statements were written and then rewritten in a different manner, usually in reverse form, and distributed in random order in two test forms.

> The distribution was made in such a way that agreement response to about 50 per cent of the statements would correspond to the same end of an attitude continuum as would disagreement with the other 50 per cent of the statements on the same form of the inventory (Leeds, 1950, p. 5).

The first administration of the inventory was with a selected population of teachers nominated by school principals and identified as especially strong and especially weak based on the "teacher's ability to maintain harmonious relations with pupils (Leeds, 1950, p. 5)." More than 50 schools located in Pennsylvania and Ohio were included in the study and represented general, educational institutions average in philosophy and practice. A broad

spectrum of teachers with respect to grade level, sex, size of school and community, and other factors was included. Each one of the resulting 100 superior and 100 inferior teachers was visited by Leeds on two separate occasions. On the first visit he left Form A of the MTAI with each teacher to be completed at a convenient time, and on the second visit he picked up Form A and left Form B to be completed and returned by mail (Leeds, 1950).

When all copies of the MTAI had been collected each item was analyzed for retention in the final form according to the criteria as follows:

> 1. Was the item adequate in differentiating the two groups of teachers.
> 2. Was the item ambiguous in meaning, lacking in clearness, or poorly stated?
> 3. Did the content of an item duplicate that of another item that had been selected?
> 4. Did the item show a response pattern that was difficult to interpret (Leeds, 1950, p. 10).

Leeds selected the statistic chi-square for the discrimination of items and found it effective provided the other three criteria were satisfied. Utilizing the multiple criteria, 89 per cent of the items selected for the final version of the inventory discriminated at or beyond the .30 level as determined by chi-square. The outcome of this procedure was that 164 of the original 756 items were retained for the final inventory (Leeds, 1950).

The 164 final inventory items were scored using the Kelly formula as Strong had done with his Vocational

Interest Inventory (Strong, 1943). A plus four to a minus four weight was given to responses depending on the differences in the responses of the two criterion groups. A simpler scoring formula was devised which gave a score of plus one to each selected response with a positive weight. This scoring procedure correlated .973 with the results obtained from the more complicated Kelly formula and was adopted as the scoring formula (Leeds, 1950).

Leeds proceeded to validate the final version by administering the inventory to 100 fourth, fifth, and sixth grade teachers in three school systems. The only criteria for teachers selected in this sample was that they be public school teachers in the grades designated (Leeds, 1950).

The scores on the MTAI for these 100 teachers were correlated with three measures of pupil-teacher rapport:

> 1. Ratings by principals. A rating scale was devised on which a principal was to rate each of the teacher-subjects on his staff with reference to relationships with pupils. Ratings were to be obtained for each teacher on the following aspects of this relationship:
>
> (a) Disciplinary ability.
> (b) "Personal" vs. "Subject-Matter" point of view.
> (c) Attitude toward children.
> (d) Understanding of pupil behavior problem.
> (e) Personality adjustment.
> (f) Attitude of pupils toward this teacher.
>
> 2. Classroom observation. The next process in determining the validity of the Inventory involved the writer's observation of the classroom behavior of each of the 100 teachers relative to his relationship with pupils. As an aid in this observation, use was made of Baxter's Rating Scale

> of the Teacher's Personal Effectiveness, modified so as to meet more adequately the needs of the present study . . . .
> 3. Attitudes of pupils. The third phase in determining the validity of the Inventory involved procuring the reactions of pupils to each of the 100 teachers . . . . The measuring device constructed to procure an estimation of the pupils' attitudes toward the teacher took the form of a 50-item questionnaire entitled My Teacher (Leeds, 1950, pp. 14-16).

The results of these correlations were all significant at .01 level. The reliability coefficient as determined by the split-half method and the Spearman-Brown prophecy formula was determined to be .909 when scored by the Kelly formula and .885 when using the simplified scoring method (Leeds, 1950).

Research with an adaptive version of Leeds' basic instrument was continued by Callis (1950) another graduate student at the University of Minnesota. He utilized the inventory devised by Leeds with the addition of 75 additional items which had discriminated at the 10 per cent level or better between the superior and inferior teachers in the original study by Leeds. He tested the susceptibility of the inventory to attempts by the individual to achieve a better score by selecting those responses which the person felt were the desirable ones rather than the ones reflecting his true attitude or opinion. He, also, investigated the changes in teacher-pupil attitudes during college training and teaching experiences as they were

reflected in the scores obtained on the MTAI (Callis, 1950).

Callis (1950) concluded that the instrument was somewhat susceptible to faking but that the MTAI warranted further investigation as to its efficiency in predicting teacher-pupil relations and in the pretraining selection of teachers. A second major conclusion was that there were significant differences in teacher-pupil attitudes among subjects classified by their major curriculum, with the early childhood education major ranking highest as a group and the special field majors ranking lowest as a group (Callis, 1950).

The published form of the MTAI was the product of Leeds (1952) and Callis (1952) and their major professor, Walter W. Cook (1952). This form consisted of 150 items taken from the original Leeds' instrument and the adaptive instrument used in the Callis study. The criteria for the selection of items for inclusion in the published version of the Minnesota Teacher Attitude Inventory were:

> 1. The discriminating power of the item.
> 2. The extent to which item responses are influenced by professional education courses.
> 3. The extent to which item responses are influenced by teaching experience.
> 4. The extent to which the content of the item duplicates that of another item.
> 5. The clearness of the statement.
> 6. The consistency of the response patterns of the superior and inferior teachers (Cook, Leeds, Callis, 1952, p. 13).

Prior to the publication of the final form of the MTAI two further studies were made to establish its validity. Both

used essentially the same procedure of Leeds and produced essentially the same results.

Other Attitude Inventories

Smith (1967) investigated the validity and reliability of a paper-and-pencil inventory referred to as the C-H Inventory. It was developed by the Staff of the Fifth Year Program in Teacher Education at The University of North Carolina at Chapel Hill. The study was designed to provide some measure of the probable teaching behavior of secondary teachers. Previously the use of the MTAI had proven inconsistent in a continuing system of evaluation. The purpose of the study was to determine if the selected 135 items on the prepared inventory would discriminate between good and poor teachers selected by observation. Utilizing Howard's (1964) modification of Ryans' (1960) Classroom Observation Record, Smith correlated C-H Inventory scores with total scores on the Classroom Observation Scale (Howard, 1964) and concluded that the C-H Inventory was a valid and reliable instrument for use with the Fifth Year Program. The results of the investigation indicated that responses to discriminating items did in fact provide an indication of the extent to which secondary teachers engage in the behaviors enumerated on the Classroom Observation Scale. The preliminary research conducted with this C-H Inventory

indicated that it is an instrument worthy of further study, especially with secondary teachers.

Teacher Behavior Instruments

The concept of observed teacher behavior and observational methodology as an index of teaching competence has been criticized for a variety of reasons. Limitations exist in all measurement systems and such limitations must be recognized and reduced whenever possible. Barr (1961) stated that his studies indicated that there are no teacher behaviors which distinguish between good and poor teachers. Medley and Mitzel (1962) implied that individual differences almost prohibit any valid assumptions being made about teacher-pupil interaction.

Overall, however, a variety of observational tools have been developed which provide great promise and have been supported by research as reliable and valid measures of classroom behavior. These observational techniques are based on the assumption that teaching effectiveness is a function of teacher and pupil behavior and interaction. Equally important is the assumption that these behaviors can be gathered to conduct systematic, empirical investigations of the ongoing educational processes (Brandt, 1972a).

A Review of Checklists

A variety of objective data can be obtained by the use of checklists which consist of "category descriptions

for behavior, events, or conditions that can be used to tally or otherwise record symbols standing for the specific types of behaviors or conditions observed (Brandt, 1973, p. 29)." Checklists are useful in direct observations and in processing narrative records. Unless narrative records are processed in some systematic manner, such as rating whatever behaviors are recorded or by categorization, they are not particularly useful (Brandt, 1973).

Checklists take many forms and can be constructed to meet the particular needs of a specific setting. "In recent years hundreds of action checklists have been developed for recording behavior as it occurs in precoded form (Brandt, 1973, p. 30)." Typically, the observer uses a systematized schedule of observation of classroom behaviors to report the things done by teachers and/or pupils. For an action checklist to be useful, behavior must be readily classifiable and the categories making up the checklist must be independently exclusive.

Medley and Mitzel (In Gage, 1963) note that the validity of such measures depends on three conditions:

> 1. A representative sample of the behaviors to be measured must be observed.
> 2. An accurate record of the observed behaviors must be obtained.
> 3. The records must be scored so as to faithfully reflect differences in behavior (Medley & Mitzel in Gage, 1963, p. 250).

The resultant outcomes of the work of many investigations over the past 30 years can be best exemplified by

two checklist methods which are widely used in educational research.

The Flanders Interaction Analysis System (IA) has been used in two ways by groups of educators during the past decade. It has been used extensively in researching verbal behavior in the classroom. It has also been used in teacher education and training programs at both pre- and in-service levels. The system is based on the rationale that most of what goes on in a classroom is verbal and that there is value in studying this verbal interaction to develop and test hypotheses of teacher influence (Flanders, 1966).

> The Flanders' technique (Flanders, 1970) consists of ten categories of verbal behavior which can be identified by the observer from either taped or a live lesson. The first seven categories are "teacher talk," these being divided into direct and indirect influence. Categories 8 and 9 are "student talk," and Category 10 is "silence or confusion (Bowen, 1973, p. 56)."

The use of this technique requires specially trained observers who follow a two-step procedure:

1. Notations are made approximately every three seconds for a total of 20 to 25 notations per minute; and
2. Numbers are placed on a matrix in sequential pairs in such a way that each number is entered twice, once as the first and once as the second number in the pair.

The Flanders Interaction Analysis System is described as follows:

Teacher Talk	Response	1. Accepts feeling. Accepts and clarifies an attitude or the feeling tone of a pupil in a nonthreatening manner. Feelings may be positive or negative. Predicting and recalling feelings are included. 2. Praises or encourages. Praises or encourages pupil action or behavior. Jokes that release tension, but not at the expense of another individual; nodding head, and saying "Um hm?" or "go on" are included. 3. Accepts or uses ideas of pupils. Clarifying, building, or developing ideas suggested by a pupil. Teacher extensions of pupil ideas are included but as the teacher brings more of his own ideas into play, shift to category five.
		4. Asks questions. Asking to question about content or procedure, based on teacher ideas, with the intent that a pupil will answer.
	Initiation	5. Lecturing. Giving facts or opinions about content or procedures; expressing his own ideas, giving his own explanation, or citing an authority other than a pupil. 6. Giving directions. Directions, commands, or orders to which a pupil is expected to comply. 7. Criticizing or justifying authority. Statements intended to change pupil behavior from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.

Pupil Talk	Response	8. Pupil-talk-response. Talk by pupils in response to teacher. Teacher initiates the contact or solicits pupil statement or structures the situation. Freedom to express own ideas is limited.
	Initiation	9. Pupil-talk-initiation. Talk by pupils which they initiate. Expressing own ideas; initiating a new topic; freedom to develop opinions and a line of thought, like asking thoughtful questions; going beyond the existing structure.
Silence		10. Silence or confusion. Pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

Note: There is no scale implied by these numbers. Each number is classificatory; it designates a particular kind of communication event. To write these numbers down during observation is to enumerate, not to judge a position on a scale. (Bowen, 1973, p. 57).

Two pilot studies (Flanders, 1965), one in Minnesota and one in New Zealand, were made utilizing the same procedure.

> First, a parent population of classes at a particular grade level and subject matter was identified within an urban area. Second, a sample of about 39 classes was drawn at random and a student-attitude inventory was administered in all these classrooms. The attitude inventory was arbitrarily keyed so that high scores indicated more constructive and desirable reactions to the teaching situations. Third, the three to five classes scoring the highest total class averages and a similar number of classes scoring the lowest class averages were selected for six to eight hours of observation by means of interaction analysis. Fourth, the composite observation data for the top and bottom groups were compared in order to study the differences in patterns of teacher influence (Flanders, 1965, p. 49).

The conclusions of these two studies indicated that the classes of teachers who engaged in a high percentage of indirect talk scored higher on the attitude inventory. Investigation of the relationships between patterns of teacher influence and the attitudes of pupils toward their teachers and schoolwork resulted in

> . . . the teachers of classes that scored high on liking the teacher, motivation, fair rewards and punishment, lack of anxiety, and independence used more indirect influence, while the teachers of classes that scored low used less indirect influence (Flanders, 1965, p. 64).

Having devised an instrument that appeared to measure and distinguish patterns of teacher influence, his next step was to study the relationship between student achievement and patterns of teacher influence (Flanders, 1965). In this study three hypotheses were tested:

> 1. Indirect teacher influence increases learning when a student's perception of the goal is confused and ambiguous.
> 2. Direct teacher influence increases learning when a student's perception of the goal is clear and acceptable.
> 3. Direct teacher influence restricts learning when a student's perception of the goal is ambiguous (Flanders, 1965, p. 109).

Each of the three hypotheses received substantial support. Flanders' continued research led to teacher-use of the instrument as an important tool to analyze their own verbal teaching behavior and to help to identify their strengths and weaknesses (Bowen, 1968).

The greatest strength of the checklist technique seems to be that its use, and the relationship of data to pupil achievement, is not bound to such variables as subject matter, geographic location, or grade level. Its weakness is the laborious and time consuming process required both in observer training and actual observation to achieve results good enough to employ in research. The fact that the instrument samples only one specific facet of behavior-verbal interaction is cause for question in analyzing the complex nature of teacher-pupil interaction (Smith, 1967).

Medley and Mitzel (1958) developed the Observation Schedule and Record (OScAR) in connection with a longitudinal study of graduates of the Teacher Education Program of the municipal colleges of New York City. This instrument was based on the earlier work of Withall (1949) with three basic changes.

1. The scales were redefined in simpler terms to increase observer accuracy and to lower the observer training requirements.
2. The OScAR was designed for use by a single observer in the interest of economy of time and in an effort to increase the data available from a given number of observations.
3. The observing process and the scoring process were separated to allow the observer to devote full attention

to both tasks (Medley & Mitzel, 1958).

The procedure for using the OScAR is as follows:

> The observer making a visit to a classroom arrives at- or near-a prescheduled time, so it is usually not necessary for him to greet the teacher or class when he arrives. Instead, he tries to enter and take a seat at the back of the room as unobtrusively as possible. He first notes the time and the number of pupils present in the spaces at the upper left corner of the "front" of a specially printed 5 x 8 card. Then he starts his stopwatch and begins to record behaviors on the front of the card by checking as many of the items in the Activity Section as describe what he sees.
>
> The Activity Section consists of 44 activities likely to be observed in a classroom, such as "teacher works with individual pupil," "pupil writes or manipulates at his seat," "pupil laughs." Varying numbers of the Activity items may be checked, according to how many different kinds of activities are going on at one time.
>
> The observer then concentrates on the Grouping Section. The Grouping Section lists four sizes of groups from "at least half of class in group with teacher" and "at least half of class in group without teacher" to "pupil as individual." In Column I he checks each type of administrative group (i.e., group apparently set up by the teacher) that he can detect in the class and each type of social group he observes - a social group being defined as one in which there is pupil-pupil or pupil-teacher interaction.
>
> Next the observer checks the type of instructional materials being used, in the Materials Section, which lists various learning aids and materials such as blackboard, audio aid, text or workbook. All through this initial period, the observer keeps alert for any type of activity, grouping, or material not already checked, and checks the appropriate item for each one as it occurs. No item on this side of the card is checked more than once during this time, however. Items in the Signs Section (which consists of items considered symptomatic of classroom climate, like "teacher shows affection for pupil" and "pupil

> moves freely") are marked with a plus sign if and when they are observed. At the end of five minutes the observer briefly considers each item in this section not already marked, and marks it either plus or zero.
>
> As soon as he has done this, the observer stops his watch and turns the card over. In the Subject Section, which lists the 10 most common subject areas, he checks in Column I whichever of the 10 areas of instructional activities has received most attention during the five minutes just ended.
>
> The observer then starts his stopwatch again and begins to tally each statement the teacher makes in one of five categories: Pupil-Supportive, Problem-Structuring, Miscellaneous, Directive, Reproving. He makes a tally in Column II of the Expressive Behavior Section in the line corresponding to the category in which each statement is classified.
>
> At the same time, he watches for changes of expression on the teacher's face, such as smiles, frowns, and scowls, and for expressive gestures such as nods, threatening glances, and body movements. Each time he observes a look or gesture which he judges to express approval of or affection for a pupil, the observer makes a tally in Column II after Item K1; each time he observes a look or gesture which he judges to be hostile or reproving, he makes a tally after K7.
>
> This continues for a second period of five minutes. At the end the observer stops his watch again and fills out Column II in the Subject Section just as he filled out Column I at the end of the first five-minute period. He then turns the card over, starts his stopwatch again, and proceeds as in the first period for five minutes more, except that he uses Column II rather than Column I. This alternation of sides of the card is continued until six five-minute periods of observations are completed (Medley & Mitzel, 1958, pp. 86-87).

Medley and Mitzel (1958) defined three dimensions of teacher behavior, that the OScAR technique was sensitive to, in a study of 46 elementary school teachers who

were observed in 588 half-hour visits. These dimensions were classified as: emotional climate, referring to the amount of hostility observed; verbal emphasis, describing the verbal or traditional classroom activities; and social structure, depicting the pupil-initiated activity.

Some studies which have utilized the OScAR have showed a low positive correlation between scores on the MTAI and emotional climate scores on the OScAR (Bowers & Soar, 1961). Morrison and Medley and Klein (Medley & Mitzel, In Gage, 1963) have showed a low positive correlation between pupil-teacher rapport and the OScAR. Gordon (1966), using the OScAR to assess the emotional climate created by interns in an elementary training program in schools in Florida, concluded that while the schedule itself was a useful tool there were problems in its utilization. Problems that included the difference in observers, comparison of interns with practicing teachers, and situational variables. Gordon (1966) was also of the opinion that the dimension, emotional climate, was too broad and suffered from lack of a scoring system which allows comparisons between studies.

The OScAR has been used with student teachers (Schueler, Gold, & Mitzel, 1962) and full-time first year intern teachers in their own public school classrooms (Medley & Hill, 1969) on both the elementary and secondary

levels. These studies illustrated that the instrument provided specific diagnostic information indicating how a teacher should behave in order to score high on any one dimension.

Therefore, the instrument has proven to be useful to a degree for investigating teacher-pupil relationships. It requires some judgment on the part of the observer to determine the proper category for a specific behavior, and it relies on a set time sequence of observation of a relatively large number of behaviors. Finally, OScAR has proven to be popular with researchers for use in quantifying the behavior of all school level teachers.

A Review of Rating Techniques

"By far the most widely used form of behavioral data is the rating. A rating represents an estimate of the degree to which a particular characteristic is manifest (Brandt, 1973, p. 23)." A rating scale represents a continuum from complete absence to complete presence of a given trait.

Rating scales take many forms and are used in a variety of ways. This data gathering technique differs from the checklist approach in that in the latter the observer functions as a recorder of the number of times a given act takes place. Using a rating technique, the observer concentrates on the situation, and, while he must

be alert to notice certain specific behaviors, he seeks to view behavior more in the context of the total classroom situation (Smith, 1967). Typically, the recording of the rating is done after the observation rather than during it. This is one point which has caused widespread criticism of rating techniques. For scientific purposes, their validity is often highly questionable and frequently they reflect more about the subjective state of the rater than the true nature of the ratee (Brandt, 1973). Despite these disparaging remarks many important human characteristics need to be evaluated, and ratings represent the best method available (Brandt, 1973).

One of the early pioneers in the development of objective rating scales was Baxter (1938) whose scale was the basis for Leeds' observer ratings in the original work on the MTAI (Leeds, 1950). This fact demonstrated the limited advancement in this area over a 20 year period.

No significant studies seem to have published comprehensive rating scales until the major work of Ryans in the late 1950's. Ryans' research, over a six year period, was conducted under the auspices of the American Council on Education and focused on teacher characteristics.

The Teacher Characteristics Study identified three objectives of research:

> 1. The identification and analysis of some of the patterns of classroom behavior, attitudes, view points, and intellectual and emotional qualities which may characterize teachers.
> 2. The development of paper-and-pencil instruments suitable for the estimation of certain patterns of classroom behavior and personal qualities of teachers.
> 3. The comparison of characteristics of various groups of teachers (Ryans, 1960, pp. 9-10).

Ryans developed the Classroom Observation Record instrument in order to better identify patterns of teacher's behavior. The approach used to develop this instrument is summarized in the following manner:

> Through (1) a review of the literature on the organization of human personality and on traits hypothesized to be desirable for teachers, (2) assembly of reports of "critical incidents" observed in the classroom performance of teachers and subsequent determination of relevant first order teacher behavior dimensions, (3) the assessment, with respect to such dimensions, of the classroom behavior of large numbers of elementary and secondary school teachers, and (4) statistical analysis of the teacher behavior assessments, the Teacher Characteristic Study identified three major clusters of observable teacher behaviors which were accorded primary attention throughout the research and which served as criteria in the efforts of the Study to determine correlates of teacher behavior in the classroom. These three principal dimensions, or criteria, of teacher classroom behavior were:
>
> TCS Pattern X_o: understanding, friendly vs. aloof, egocentric, restricted teacher behavior
>
> TCS Pattern Y_o: responsible, business like, systematic vs. evading, unplanned, slipshod teacher behavior
>
> TCS Pattern Z_o: stimulating, imaginative, surgent or enthusiastic vs. dull routine teacher behavior (Ryans, 1960, p. 77).

The original form contained 46 dimensions of behavior and was separated into two forms for elementary and secondary level observations. Through factor analysis and experience these two forms were refined to a single form for all grade levels. The refined form contained 26 dimensions of behavior on a bipolar scale and an accompanying glossary which provided examples of specific behaviors contributing to the polar description (Ryans, 1960). These dimensions were selected by the criteria as follows:

> The limiting conditions applied in selecting the dimensions to be included in the Classroom Observation Record were (1) the trait should be capable of identification in terms of observable teacher behavior or observable pupil behavior; (2) the trait should be capable of description, and of observation, in terms of specific behavior (rather than some generalization or abstraction); (3) the traits included should be mutually exclusive, at least, insofar as possible; (4) insofar as possible, the traits included should be equally applicable to teachers in different kinds of school situations - social studies, arithmetic, group activities, and so on; (5) the traits included should be stated in terms for which the meanings are uniform to a high degree (there should be common understanding of the definitions of those traits named or terms employed); and (6) the traits included should be ones that the general agreement of educators and empirically derived evidence confirm: they should be traits that both logical and empirical evidence agree are associated with teaching (Ryans, 1953, p. 384).

The actual purpose for the Classroom Observation Record was to serve as a criterion by which the investigators could determine the validity of paper-and-pencil

tests as predictors of patterns of teacher behavior. Therefore, many of the findings of the study are based on responses to these tests rather than upon direct observation (Ryans, 1953).

Important to this study is that the findings of Ryans' (1953) research do provide a reliable and valid means of assessing the identified patterns of behavior, and that he and his associates have produced a valid instrument for the assessing of the behavioral patterns of teachers. It is a simple instrument and requires a minimum amount of observer training. Ryans (1953) suggested for future investigation the study of relationships between the Classroom Observation Record and other test instruments.

Summary

The roles of the teacher, the pupil, the classroom, and the school have attracted the attention of researchers and writers for centuries. With the evolution of educational concepts in the context of the economic, political, and religious beliefs of the times have come significant theories as to ideas and practices which have been directed toward a better understanding of teacher-pupil relationships and interactions. A variety of techniques and instruments has been developed to assess this interaction and to provide some measure of teacher effectiveness.

It seems apparent from the literature review that there is a notable lack of any such instrument which has been specifically designed for teachers of elementary aged children which attempts to correlate the role of the teachers with their beliefs about children's learning and knowledge. It appears that research is needed which would help to construct a role for teachers which is logically and feasibly consistent with their beliefs. An essential problem of teacher-training institutions is

> . . . how can teachers be prepared to be both successful practitioners (as judged by those in the schools) and successful agents of educational change (as judged by educational critics within and without the institution) (Barth, 1972, p. 208)?

At this time there are growing descriptive and anecdotal data available which focus on child- or person-centered learning environments and classrooms. The limitation is in the lack of hard evidence in theory or in practice which reflects the assumptions and/or beliefs concerning development and learning which are at the root of decisions concerning what to do with the children for whom educators are responsible.

The sheer complexity of the school environment defies an easy analysis and demands precise steps in developing ways for self-screening and evaluation which enhance the individual's knowledge of his attitudes and the implications for his actual teaching behavior. All

of the efforts to develop and validate instruments and associated methodologies for collecting descriptive data and assessing teacher attitudes and behaviors share common problems:

1. The highly complex matrix of many important and interacting variables in the classroom;
2. The shortcomings of even well-constructed measurement devices for assessing the full range of educational outcomes;
3. The identification of a unit appropriate for classifying activities;
4. The classification of a unit that captures the characteristics of each activity that are deemed important;
5. The drawing of reliable time samples;
6. The summarization of masses of information in some meaningful form;
7. The limiting vocabulary used to describe accurately the observed behavior and activities;
8. The complex phenomenon of teacher behavior;
9. The geographic and personality differences which become apparent in the study of teacher effectiveness;
10. The impossible separation of teacher behavior from both the goals the teacher holds and the values of both teachers and pupils; and
11. The need for sufficient training in the selected research technique.

Overall, however, the techniques developed for gathering evidence and the current emphasis in the study of teacher effectiveness provide such great promises as:

1. It is possible to measure some aspects of what goes on between pupil and teacher with sufficient precision despite the complexities of classroom phenomena (Medley, 1973);
2. There is a trend to conduct systematic, empirical investigations of ongoing educational processes (Brandt, 1973);
3. "Many studies are producing results which indicate that it may be possible to identify good teaching when such teaching is described in specific rather then general terms (Smith, 1967, p. 47)";
4. There is a trend toward a greater and more intelligent use of observation in supervisory practice and school research (Brandt & Perkins, 1973);
5. There is a trend toward making a value judgment about what is good teaching in terms other than subject matter achievement (Smith, 1967); and

> 6. Progress is being made in the identification of some of the facets of the complex of teaching. Ryans' determination of patterns of behavior as well as Flanders' work in studying the relationship between verbal activity and teaching effectiveness are leading the way in this respect (Smith, 1967, pp. 47-48).

The scientific study of teacher effectiveness has come about in part to counterbalance

> . . . (a) a very strong emphasis upon laboratory research in the behavioral sciences which underlie educational theory, and (b) an almost exclusive dependence on standardized tests, questionnaires, and poorly designed rating scales for evaluating school programs (Brandt & Perkins, 1973, p. 83).

The suggestion is not to disregard either laboratory research or testing programs, but to emphasize the assessments and observations of the interaction of pupils and teachers in order to increase the scope of understanding of the critical dimensions of school life. Automatic data processing capabilities are making it possible to increase the complexity of experimental design and to produce results that have far more reaching application (Smith, 1967). With this increase in the probability of obtaining meaningful results and the prevalent need for helping teachers to construct a role which is logically and feasibly consistent with their beliefs, it appears that the promising aspects of the theories, thoughts, opinions, and studies described herein will be further developed and be translated into solid educational improvements.

CHAPTER III

METHODS OF PROCEDURE

The design of the studies seeking to validate instruments for measuring classroom behavior follow relatively established procedures.

Essential to the validation process of the Basic Assumption Inventory was the information pertaining to the initial construction of items. Pertinent literature, encompassing past and current thinking about assumptions concerning the nature of children's learning and knowledge, was reviewed to obtain an adequate sampling of attitudes. Utilizing information from the literature survey 39 items were constructed. The items were then rewritten in reverse form to produce a total of 78 items which represented the sampled attitudes (see Appendix A).

A questionnaire, distributing the 78 items in a random order using a random drawing of numbers, was designed and administered to a pilot group of 65 graduate students in the Masters of Education program in the College of Human Development and Learning at The University of North Carolina at Charlotte (Rowland, 1973). Chi-squares were computed to determine the items which discriminated between individuals with high total scores and those with

low total scores. Fifty-two items achieved a level of discrimination at the .05 level of probability and were the items which made up the present form of the Basic Assumption Inventory. The pilot study is discussed in detail in Chapter I and the original questionnaire can be found in Appendix A.

Design of the Study

The Sample

The study group consisted of 100 elementary teachers representing the North Carolina certification levels of early childhood and intermediate education (grades K-6, N = 100). The group was heterogenous in nature in that no attempt was made to control such factors as age, sex, marital and parental status, nationality, or training and experience. Fifty subjects were selected from both the Gaston County School System and the Rutherford County School System.

Gaston County was a thriving industrial area in the Piedmont Region of North Carolina. Although industry had become more diversified over the past 20 years, the textile industry or some related component was the major source of income for its 143,000 inhabitants. The public school system of Gaston County was the third largest system in the state and had an enrollment of 33,500 pupils in 55 schools. There were 36 elementary schools in the system

ranging in size from 200 to 920 pupils. Three Gaston County elementary schools were selected to participate in the present study.

School A served over 600 pupils in grades one through six. Approximately 30 per cent of the students were black, the majority of which lived in federal housing projects. The physical plant was old, and in order to house the increasing enrollment two double trailers and four single ones were presently in use. The children were heterogeneously assigned to classrooms and participated in a variety of program designs which included teaming, multi-aging, self-contained settings, and blocking for children with learning disabilities. A majority of the parents were employed in the textile industry. The economic status of the families ranged from average to below average, and in over half of the families both parents were employed.

School B served a rural and semi-urban population of over 600 pupils in grades one through six. Over 50 per cent of the boys and girls were part of a free lunch program for indigent children and 56 per cent were from broken or fatherless homes. This school was very active in constructive, community involvement and utilized various service and social agencies to enrich its offerings to pupils and their families.

School C was located in one of the oldest towns in Gaston County and was the smallest school in the sample.

There were 263 pupils in grades kindergarten through six. Approximately 75 per cent of both parents of each family were employed. The majority of the parents had limited formal education and expressed, through support of the school program, interest in the instructional aspect of the program.

Rutherford County is located along the western edge of the Piedmont Region of North Carolina. Three principal towns, Rutherfordton, Spindale, and Forest City, made up the sprawling urban core of the county. The population was approximately 50,000 and the textile industry accounted for roughly 35 per cent of total employment. The voters of the county had been supportive, bond-wise and through special tax levies, to the public school system and its administrators. There appeared to be strong interest in more adequate music, art, and physical education programs for elementary school students and in establishing public school kindergarten programs for all five year old boys and girls. Three Rutherford County elementary schools were selected for the present study.

School D was located in the center of Rutherford County and served a student body of 666 in kindergarten through grade three. For the previous three years School D had been a part of the State-wide demonstration kindergarten program and, therefore, had been influential in

pace-setting and program development in early childhood education. The parents were engaged in a variety of industry and business activities such as textiles, furniture manufacturing, apparel goods, government functions, trade activities, and service with manufacturing accounting for approximately 50 per cent of the total employment.

School E, in the same area as School D, had 550 pupils and 16 teachers in grades four through six. This school received pupils who had participated in School D's program, and there had been little effort to coordinate both programs as to procedures, plans, or follow-up. The parents were engaged in essentially the same occupations and had approximately the same economic status and interests as the parents in School D.

School F had 584 pupils and served the elementary school levels of kindergarten through grade six. The parents, residing in this small town of approximately 3,000 population, were employed also in some type of industrial work with a large percentage of both parents working.

The subjects of the sample, therefore, were the total number of teachers, excluding those teachers designated as special educators, in three elementary schools in both Gaston and Rutherford Counties. The schools were suggested for the study by supervising personnel of both school systems. Each principal was visited and asked to

cooperate in the study by securing the permission of his total faculty to be included in the study.

Collection of Data

Each teacher was administered the Basic Assumption Inventory (see Appendix B). Responses to the Basic Assumption Inventory were obtained on one-half of the sample (selected by a random drawing of numbers) during the month of January, 1974, prior to classroom observations. The other half of the sample was administered the Basic Assumption Inventory during the first week in March, 1974, after classroom observations had been made.

All teachers in the sample were observed, rated, and scored by University of North Carolina at Charlotte personnel using the Classroom Observation Scale (see Appendix C and discussions in Chapters I and II) during the month of February, 1974. In each case a minimum of two independent ratings were made by the trained observers. Prior to the classroom observations, rater training sessions were conducted by Smith and Chase, who had utilized the Classroom Observation Scale in previous research at The University of North Carolina at Chapel Hill. An interrated reliability coefficient of .820 was maintained throughout the study as calculated by the Kuder-Richardson formula:

formula:

$$r = \frac{k}{k-1}\left[1 - \frac{\Sigma o_i^2}{p_t^2}\right]$$

where:

r = reliability coefficient

k = number of raters

Σo_i^2 = sum of variances for all raters

p_t^2 = sum of variances for all observations (Ebel, 1972).

This researcher observed approximately 50 per cent of the sample.

Treatment of the Data

Item Analysis

In order to determine which of the 52 items on the present form of the Basic Assumption Inventory discriminated between those making high overall scores and those making low overall scores on the Classroom Observation Scale the following procedures for item analysis were used:

1. Two groups were drawn from the total sample. These two groups consisted of those making the highest total scores and those making the lowest total scores on the Classroom Observation Scale. Utilizing Cureton's (1957) upper and lower 27 per cent rule for normal distribution each group contained 27 per cent of the total sample.

2. Once the members of these two groups were determined their answer sheets were tallied to provide data for the following paradigm:

	Number Who Answer SA	Number Who Answer A	Number Who Answer U	Number Who Answer D	Number Who Answer SD	Number Who Answer NR
High Criterion Group						
Low Criterion Group						

3. The item-answers for each person in the selected high and low groups were analyzed utilizing the statistic chi-square to determine if the actual frequencies differed from those expected by chance. This was accomplished in the calculation by using the following formula:

$$x^2 = \frac{N}{N_A}\left[\frac{a_1^2}{N_1} + \frac{a_2^2}{N_2} + \frac{a_3^2}{N_3} + \frac{a_4^2}{N_4} + \frac{a_5^2}{N_5} + \frac{a_6^2}{N_6}\right] + \frac{N}{N_B}\left[\frac{b_1^2}{N_1} + \frac{b_2^2}{N_2} + \frac{b_3^2}{N_3} + \frac{b_4^2}{N_4} + \frac{b_5^2}{N_5} + \frac{b_6^2}{N_6}\right] - N$$

where:

x^2 = Chi-square

N = Total number of responses

N_A = Number in high criterion group

N_B = Number in low criterion group

$a_1 \ldots a_6$ = Number in high criterion group selecting specific response

$b_1 \ldots b_6$ = Number in low criterion group selecting specific response

$N_1 \ldots N_6$ = Total selecting specific response (Spiegel, 1961).

The resulting value of chi-square was then compared to the tabled value for five degrees of freedom to determine the statistical significance of the frequency of the various choices.

Scoring of the Basic Assumption Inventory

Two scoring keys were constructed using the results of item analysis. The answers selected by the high group which were significantly different from the low group answers were scored as correct, and the answers selected by the low group which were significantly different from the high group answers were scored as incorrect. One scoring key contained only correct responses; the second scoring key the incorrect responses. Each answer sheet from the study group was scored twice; first by counting the number of correct items designated by the constructed scoring key of correct responses; and then by subtracting the incorrect items, as designated by the constructed scoring key of incorrect responses, from the correct items.

Determination of the Reliability Coefficient of the Inventory

The value of a reliability coefficient calculated by the split-halves method may vary with the criterion for the arbitrary splitting into halves of the test. The approach developed by Richardson and Kuder (1939) and called the method of rational equivalence was designed to avoid this problem. This method of calculation assures the researcher that the resulting coefficient is a slight underestimate of the "true" value and that it cannot be an overestimate.

The Kuder-Richardson Formula 21 as simplified in Guilford (1965) was selected to determine an estimate of reliability. The K-R Formula 21 gives a slightly smaller value of r_{tt} than the K-R Formula 20, but its advantage of simplicity and its close approximation were considered for selection and is as follows:

$$r_{tt} = \frac{n\sigma_t^2 - \bar{R}\bar{W}}{(n-1\ \sigma_t^2)}$$

where:

r_{tt} = the reliability coefficient

n = the number of items in the test

σ_t^2 = the variance

$\bar{R}$ = the average number of right responses

$\bar{w}$ = the average number of wrong responses (Guilford, 1965, pp. 460-461).

This treatment provided an index of internal consistency for the Basic Assumption Inventory.

Correlation of the Basic Assumption Inventory Data

Basic Assumption Inventory scores were correlated with X, Y, Z, P, and T scores on the Classroom Observation Scale to determine the relationships which occurred between them. Further calculations were made to determine the interrelationships between scales on the Classroom Observation Scale. The statistic selected was the product moment correlation coefficient which was calculated by the following formula:

$$r = \frac{\Sigma XY - \frac{(\Sigma X)(\Sigma Y)}{n}}{\sqrt{(\Sigma X^2 - \frac{(\Sigma X)^2}{n})(\Sigma Y^2 - \frac{(\Sigma Y)^2}{n})}}$$

where:

r = the correlation coefficient

ΣXY = the sum of the cross products of an individual's scores on the two variables

ΣX = the sum of the scores on criterion X

ΣY = the sum of the scores on criterion Y

ΣX^2 = the sum of the squared scores on criterion X

Σy^2 = the sum of the squared scores on criterion Y

$(\Sigma X)^2$ = the square of the sum of the scores on criterion X

$(\Sigma y)^2$ = the square of the sum of the scores on criterion Y

n = the number of pairs of scores (Edwards, 1964, p. 147).

These data and their statistical treatments are summarized in the tables in Appendix D.

CHAPTER IV

ANALYSIS OF DATA RELATED TO THE RELIABILITY AND VALIDITY OF THE BASIC ASSUMPTION INVENTORY

The present study was designed to determine which of the statements on the second form of the Basic Assumption Inventory would discriminate between good and poor teachers selected on the basis of scores on the Classroom Observation Scale. The data analyses were conducted in three phases. The first phase consisted of an item analysis of the entire instrument to select the discriminating items. The second phase was the investigation of these items to classroom performance, and the third and final phase was an investigation of the interrelationships between the designated categories of the Classroom Observation Scale. Seventeen questions were posed which the study sought to answer and which served as guides for the collection and treatment of the data.

The primary questions concerning the Basic Assumption Inventory were:

Question 1. What items on the Basic Assumption Inventory discriminatedbetween good and poor classroom teachers selected on the basis of scores on the Classroom Observation

Scale?

For the item analysis the upper and lower 27 per cent of the total population of 100 elementary teachers were selected. The answer sheets from each individual were analyzed to determine the number of each group who selected either strongly agree, agree, uncertain, disagree, strongly disagree, or no response on each item. These totals were then analyzed by use of the statistic chi-square to determine the probability of the difference in numbers of each group selecting a particular answer occurring by chance. The .50 level of probability was selected as the level of discrimination necessary for inclusion in the items selected for final scoring. Twenty-five items achieved this level of discrimination. These remaining items, the discriminating answers, the value of chi-square, and the level of significance are listed in Table 1. All 52 items, the totals of each criterion group for each possible response, the value of chi-square, and the level of significance for each item are listed in Appendix D, Table 2.

On the basis of the item analysis two scoring keys were constructed designating the answers selected by the high group of teachers which were significantly different from the low group answers as correct answers. The answers selected by the low group of teachers which were

TABLE 1

Basic Assumption Items Selected on the Basis of Item Analysis Data

Item	Discriminating Answer Correct	Incorrect	x^2	Level of Significance
Growth, development, and learning constitute interdependent and continuing processes.	SA	A	4.88	.50
Children will be likely to learn if they are given considerable choice in the selection of materials they wish to work with.	SA	A	6.08	.30
Adults should make the decisions as to the selection of adequate choices for children's learning.	D	*	5.09	.50

TABLE 1 (continued)

Basic Assumption Items Selected on the Basis of Item Analysis Data

Item	Discriminating Answer Correct	Incorrect	x^2	Level of Significance
Learning must be imposed upon children.	*	SA A	7.25	.25
Children learn best through teacher directed activities.	SD D	U	10.28	.10
Children are not competent to make significant decisions concerning their own learning.	SD	*	7.04	.25
Verbal abstractions should precede direct experiences with objects and ideas.	SD	*	7.00	.25

TABLE 1 (continued)

Basic Assumption Items Selected on the Basis of Item Analysis Data

Item	Discriminating Answer Correct	Incorrect	x^2	Level of Significance
The ultimate purpose of education is the acquisition of knowledge.	D	*	5.40	.40
Learning is best assessed through pencil and paper tests.	SD	D	7.92	.25
Children will explore their environment without adult intervention.	SA	A	6.64	.25
Given the opportunity, children will choose to				

TABLE 1 (continued)

Basic Assumption Items Selected on the

Basis of item Analysis Data

Item	Discriminating Answer Correct	Incorrect	x^2	Level of Significance
engage in activities which will be of high interest to them.	U D	SA	4.72	.50
Play and work are distinctively different as modes of learning in early childhood.	SD	D	5.80	.40
Children have the competence to make significant decisions concerning their own learning.	SA	*	7.76	.25
Children come to understand the world through active play.	SA A	D	8.44	.25

TABLE 1 (continued)

Basic Assumption Items Selected on the Basis of Item Analysis Data

Item	Discriminating Answer Correct	Incorrect	x^2	Level of Significance
The final test of an education is what a man is.	A		4.44	.50
Exploratory behavior is self perpetuating.	U	SA A	4.44	.50
Learning does not require active involvement and fun.	SD	D	9.64	.10
Knowledge is acquired through abstract and hypothetical experiences followed by the concrete.	SD	A	6.36	.25

TABLE 1 (continued)

Basic Assumption Items Selected on the

Basis of Item Analysis Data

Item	Discriminating Answer Correct	Incorrect	x^2	Level of Significance
All learning is passive.	SD D	*	10.40	.10
The final test of an education is what a man knows.	D	*	4.80	.50
Knowledge can be divided into separate categories or "disciplines."	D	A	8.88	.25
When a child learns something which is important to him, he prefers to keep it to himself.	SD	D	5.36	.40
Play is not distinguished from work as the				

TABLE 1 (continued)

Basic Assumption Items Selected on the Basis of Item Analysis Data

Item	Discriminating Answer Correct	Incorrect	x^2	Level of Significance
predominant mode of learning in early childhood.	D	*	6.12	.30
Curiosity is a learned activity.	SD	*	4.44	.50
Children learn best by listening.	SD	D	5.32	.40

significantly different from the high group answers were scored as incorrect. The answer sheets of the entire study population were then scored utilizing the constructed scoring keys. The scoring formula used was simply the total number of correct responses for the first scoring, and the subtraction of the incorrect responses from the correct responses for the second scoring. The scores for each individual are listed in Appendix D, Table 3. The correct scores ranged from 2 to 17 with a mean of 8.72 and a standard deviation of 3.49. The incorrect scores ranged from 2 to 10 with a mean of 6.16 and a standard deviation of 2.27. The correct scores less the incorrect scores ranged from -7 to 13 with a mean of 2.56 and a standard deviation of 5.37.

Question 2. What is the reliability coefficient for the selected items on the Basic Assumption Inventory?

Utilizing the Kuder-Richardson Formula 21 the reliability coefficient as reported in Appendix D, Table 4, was calculated as .941. This correlation was based on the data obtained by the second scoring of the inventory which subtracted the incorrect responses from the correct responses. It indicated very positively that the Basic Assumption Inventory merited continued consideration as an instrument for the measurement of teacher beliefs, assumptions, and behaviors.

Question 3. What is the relationship between scores on the Basic Assumption Inventory and scores on the P scale of the Classroom Observation Scale?

The scores on these two scales correlated +.520 utilizing the first scoring procedure and +.529 utilizing the second scoring procedure, which is statistically significant beyond the .01 level of confidence. This correlation indicated that teachers who score high on the selected items of the Basic Assumption Inventory also tend to produce behavior in their pupils which can be characterized as responsible, initiating, and creating.

Question 4. What is the relationship between scores on the Basic Assumption Inventory and the X scale on the Classroom Observation Scale?

The correlation coefficient of +.536 (first scoring procedure) and +.560 (second scoring procedure), significant beyond the .01 level of confidence, indicated a positive relationship between the two variables. From this data it was interpreted to mean that the teacher who is characterized by the description "understanding and friendly" also tends to score high on the Basic Assumption Inventory.

Question 5. What is the relationship between scores on the Basic Assumption Inventory and the Y scale on the Classroom Observation Scale?

A positive correlation coefficient of .523 (first scoring procedure) and .553 (second scoring procedure), significant beyond the .01 level, was indicative of the fact that teachers who score high on the Basic Assumption Inventory also engage in responsible, business-like, systematic classroom behavior.

Question 6. What is the relationship between the scores on the Basic Assumption Inventory and the scores on the Z scale of the Classroom Observation Scale?

The Z scale behavioral characteristics described as stimulating, imaginative, and enthusiastic showed a positive correlation of .592 (first scoring procedure) and .599 (second scoring procedure), significant beyond the .01 level, with teachers scoring high on the Basic Assumption Inventory.

Question 7. What is the relationship between the scores on the Basic Assumption Inventory and the total (T) scores on the Classroom Observation Scale?

The T score was computed by adding and averaging the scores of the other four scales; therefore, it was expected that the correlation between this score and the Basic Assumption Inventory scores would fall between the highest and lowest correlations calculated for any single scale. This expectation was realized with a correlation coefficient of +.588 (first scoring procedure) and +.649 (second scoring procedure) which was significant at

the .01 level of confidence. If the descriptive terms of the Classroom Observation Scale are accepted as being descriptive of those characteristics exhibited by an effective teacher, the Basic Assumption Inventory is capable of identifying, on the basis of responses to certain written statements, those elementary teachers who will exhibit these characteristics at the time of testing. This relationship is not absolute but occurs frequently enough to provide one indication of expected behavior which can be of value for a teacher's self-analysis and observation and analysis by others.

The correlation coefficients between the Basic Assumption Inventory and the Classroom Observation Scale are summarized as follows:

	Classroom Observation Scale					
	P	X	Y	Z	T	
Basic Assumption Inventory	.520	.536	.523	.592	.588	(first scoring procedure)
	.529	.560	.553	.599	.649	(second scoring procedure)

Secondary questions concerning the interrelationships between scales on the Classroom Observation Scale were the following:

Question 8. What is the relationship between P scores and X scores on the Classroom Observation Scale?

A positive correlation coefficient of .953 between scores on these two scales indicated that teachers who are described as understanding and friendly have students who are alert, confident, creative, and intrinsically motivated. These ratings were obtained well into the 1973-74 school year, and it seemed valid to assume that they were indicative of the style and role of the teacher rather than a result of chance.

Question 9. What is the relationship between P scores and Y scores on the Classroom Observation Scale?

Data in Appendix D, Table 7, indicated a correlation coefficient of +.686 calculated between scores on these two scales. The teachers in this study who were responsible, systematic, and engaged in business-like behavior tended to have students who were alert, responsible, confident, and initiating. This correlation coefficient was the lowest correlation between pupil oriented behavior and any of the three patterns of teacher behavior identified by the Classroom Observation Scale. The teachers in this sample seemed to engage least in the patterns of behavior described by the Y scale as compared to the other two scales.

Question 10. What is the relationship between P scores and Z scores on the Classroom Observation Scale?

The correlation coefficient of +.899 between these two variables indicated that teachers who engage in critical

thinking and who are pragmatic and stimulating help students to learn to behave in responsible, confident, and initiating ways.

Question 11. What is the relationship between P scores and T scores on the Classroom Observation Scale.

Information in Appendix D, Table 7, showed a correlation coefficient between two variables of +.923. This value was significant at the .01 level of confidence and was indicative of the interrelatedness of the three patterns of teacher behavior as related to pupil-oriented behavior consisting of alertness, responsible action, initiating acts, and intrinsic motivation.

Question 12. What is the relationship between X scores and Y scores on the Classroom Observation Scale?

The correlation coefficient of +.965 indicated that teachers in this study who were democratic, fair, and understanding were also those who behaved in responsible, systematic, and integrated ways. This correlation was significant beyond the .01 level of confidence.

Question 13. What is the relationship between X scores and Z scores on the Classroom Observation Scale?

There was a significant ($p > .01$) positive relationship between scores obtained for these two patterns of classroom behavior. The correlation coefficient calculated for these two variables was +.940.

Question 14. What is the relationship between the X scores and the total (T) scores on the Classroom Observation Scale?

The correlation coefficient of +.948 obtained between these two variables suggested a close relationship between liberal, responsive, and understanding teacher behavior characteristics and the total score for the Classroom Observation Scale. This high relationship had been affected by the fact that the X scale contributed 10/36 of the total score, and, therefore, the correlation coefficient may have been increased somewhat, due to computation procedures.

Question 15. What is the relationship between the Y scores and the Z scores on the Classroom Observation Scale?

There was a positive relationship between responsible, business-like behavior and stimulating, imaginative, enthusiastic behavior on the part of the teachers. The correlation coefficient calculated between these two scales is reported in Appendix D, Table 7, and had a value of +.753 ($p > .01$).

Question 16. What is the relationship between the Y scores and the total (T) scores on the Classroom Observation Scale?

Only five scores comprised the Y scale on the Classroom Observation Scale. A positive correlation coefficient of .875 was obtained for the Y variable denoting the presence of responsible, business-like behavior to the total (T) scores which represented the three patterns of teacher behavior.

Question 17. What is the relationship between Z scores and the total (T) scores on the Classroom Observation Scale?

The Z scores made up the largest single contribution to the total score (13/36) and, therefore, the high correlation coefficient of +.952 was to be expected. The correlation between these two scores was also one of the highest of the intercorrelations between any of the scales of the Classroom Observation Scale.

A significant difference did not exist between the correlation coefficients calculated for the interrelationships of the scales of the Classroom Observation Scale; therefore, no discernible pattern of behavior was detected in the study group as a whole. The summary of these intercorrelations is as follows:

	Classroom Observation Scale					
	P	X	Y	Z	T	
Basic Assumption Inventory	.520	.536	.523	.592	.588	(first scoring procedure)
	.529	.560	.553	.599	.649	(second scoring procedure)
P		.953	.686	.899	.923	
X			.965	.940	.948	
Y				.753	.875	
Z					.952	
T						

(All correlation coefficients were significant beyond the .01 level of confidence.)

Summary

The findings of the gathered and analyzed data in this study which are of primary importance were the following:

1. There were 25 items on the Basic Assumption Inventory which are capable of discriminating between effective and ineffective teachers selected on the basis of scores on the Classroom Observation Scale;

2. In constructing the scoring key for the Basic Assumption Inventory it was discovered that correct responses as well as correct-less-incorrect responses produced positive correlation coefficients between the Basic Assumption

Inventory and the Classroom Observation Scale which were significant beyond the .01 level of confidence;

3. The Basic Assumption Inventory correlated with all scales of the Classroom Observation Scale beyond the .01 level of confidence;

4. When calculated on the basis of the correct-less-incorrect scores of the 100 elementary teachers in the study group, the reliability of the Basic Assumption Inventory as determined by the Kuder-Richardson Formula 21 was .941; and

5. Three distinct patterns of teaching behavior, as determined by Ryans' research, were the patterns of behavior grouped together to obtain the scores X, Y, and Z on the Classroom Observation Scale. The elementary teachers in the study group, when considered as a group, did not reveal any distinct pattern of behavior. Correlation coefficients calculated between the three patterns ranged from +.686 to +.965 and all were significant beyond the .01 level of confidence. It is noted further that the differences between the means of the scores of the elementary teacher group on any given pattern and any other pattern were not statistically significant.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

For centuries much focus has been placed upon the role of the teacher. A variety of techniques, methods, and philosophies have been presented, studied, and evaluated in order to identify a congruence of attitudes and/or beliefs about children's learning and knowledge with actual teaching behavior. Historically the teacher has been described as the single, most important agent in the learning process, and a variety of research has been investigated to distinguish between effective and ineffective teaching. The problem of evaluating the effectiveness of teachers is as crucial today as it was in the times of the early educational theorists.

Review of Literature Related to Techniques and Instruments for Teacher Assessment

Instruments which have been developed to gather meaningful and relevant data for this problem have not in many instances made the contributions which they were expected to make. In such a case it is often desirable to design and build new instruments which reflect the continued research findings and which offer opportunity for

intensive self-examination and a more thorough questioning and evaluation process for educators.

One of the earliest instruments for assessing teacher attitudes was the Minnesota Teacher Attitude Inventory. This instrument was developed and refined by Cook, Leeds, and Callis (1952) at the University of Minnesota. Among the experimental uses for the instrument which have been investigated are the following:

1. the selection of student teachers (Fuller, 1951);
2. studies of relationships between factors in teaching (Getzels & Jackson, 1963);
3. evaluation of various types of teaching training programs (Getzels & Jackson, 1963);
4. correlation studies with other personality measures (Getzels & Jackson, 1963); and
5. identification of those likely to leave teaching (Sorenson, 1966).

Research, attempting to use the MTAI to predict teacher effectiveness, has not produced consistent results and has not, in some instances, supported its validity for use with varied populations.

Smith (1967) investigated the validity and reliability of the C-H Inventory, another attitude inventory, and concluded that it was a valid and reliable instrument for use with secondary teachers. The results of Smith's investigation indicated that responses to

discriminating items did in fact provide an indication of the extent to which secondary teachers engaged in the behaviors enumerated on the Classroom Observation Scale.

A variety of observational techniques and tools have been developed based on the assumption that teacher effectiveness is a function of the interaction of teacher and pupil behavior. Two primary methods for assessing and quantifying observed classroom behavior are checklists and rating technqiues.

A checklist consists of category descriptions for behavior, events, or conditions which are tallied in some form as data are gathered for specific types of behavior or conditions observed. Checklists take many forms and can be constructed to meet the particular needs of a specific setting. Two checklist methods which are used widely in educational research are the Flanders Interaction Analysis System, developed by Flanders (1966) at the Universities of Minnesota and Michigan, and the Observation Schedule and Record (OScAR), developed by Medley and Mitzel (1958) in connection with a longitudinal study of graduates of the Teacher Education Program of the municipal colleges of New York City.

The Flanders' system deals only with the verbal interaction between teacher and pupils. This technique consists of 10 categories of verbal behavior into which the observer must classify all verbal statements made in

the classroom. The first seven categories are "teacher talk" and are divided into two types direct and indirect influence. Categories 8 and 9 are "student talk," and category 10 is "silence or confusion." This technique has been used in researching pupil-teacher relationships and in in-service education programs. Interaction analysis seems to be independent of such factors as subject matter, geographic location, or grade level. It is a laborious and time consuming process and requires extensive observer training and actual observation to achieve results good enough to employ in research.

The OScAR is designed for a single observer to visit a classroom and record which of 44 possible activities take place in the classroom in a five-minute period of time. The observer noted the type and frequency of statements the teacher made as well as the type of materials which were being used in the class. The data were gathered on six five-minute cycles of activity and provided a fairly large sample of varying activities and methods of instruction. The instrument has proven to be useful, to a degree, for investigating teacher-pupil relationships on all school levels. It requires some judgment on the part of the observer to determine the proper category for a specific behavior.

Rating techniques are differentiated from check-list techniques in that they require the observer to

record after the observation is made rather than during it. The observer concentrates on the situation and seeks to view behavior in the context of the total classroom situation. This type technique has been questioned as to its validity; however, rating scales appear to be as valid in the evaluation of total behavior as methods which tally specific behaviors. This is accomplished by defining the rating scale in terms of observable classroom behavior and requiring the observer to remember for a short period which behaviors have taken place and which have not.

Ryans (1960) developed the Classroom Observation Record as part of a study investigating the characteristics of teachers for the American Council on Education. It was a semantic differential type rating scale in which the observer was asked to rate the teacher at some point on a continuum between two opposed adjectives. The record was accompanied by a glossary which described each of the pole adjectives in terms of observable classroom behaviors. Ryans was able to isolate three patterns of observable classroom behavior which he identified as follows:

1. Pattern X_O - where the teacher engaged in behaviors which were characterized as understanding and friendly as opposed to aloof, egocentric, and restricted;
2. Pattern Y_O - where the teacher was observed in responsible, business-like, systematic behavior rather

than evading, unplanned, and slipshod behavior; and 3. Pattern Z_o - where the teacher was stimulating, imaginative, and enthusiastic as opposed to dull and routine. A distinct advantage of Ryans' instrument was its simplicity of use and the minimum amount of training required for the observers who were to do the rating.

Design of the Study

The major purpose of this investigation was to validate a measuring instrument, the Basic Assumption Inventory, which would gauge the attitudes of teachers about children's learning and knowledge and serve to differentiate those teachers who were described as effective from those who were not.

The study involved 100 elementary school teachers in two counties in the Piedmont Region of North Carolina. The teachers were observed, rated, and scored utilizing the Classroom Observation Record and administered the Basic Assumption Inventory to determine if, in fact, there was any relationship between any of the items on the Basic Assumption Inventory and actual classroom behavior.

Analysis of the Data

The first step in the analysis of the data was the determination of items on the inventory which discriminated between effective and ineffective teachers as selected on the basis of total scores on the Classroom Observation

Scale. The replies, of the top and bottom 27 per cent of the sample, on each of the 52 inventory questions were tallied; and the statistic chi-square was utilized to determine if any differences in the replies of the two groups occurred other than by chance. The second step in the analysis was the scoring of all answer sheets from the total study group on the basis of the items which the item analysis had shown to be discriminating between the high and low groups. A third step was the determination of the reliability of the inventory as determined by the Kuder-Richardson Formula 21.

The validity of the inventory was determined by calculating correlation coefficients between the scores on the Basic Assumption Inventory, each of the patterns of behavior identified by Ryans, the pupil behavior score, and the total score on the Classroom Observation Scale.

Conclusions

The study sought to determine the validity of the Basic Assumption Inventory as an indicator of teacher behavior. The underlying hypothesis was that if a teacher achieved a high score on this inventory then the same teacher engaged in behaviors in the classroom which were deemed to be effective on the basis of past research. The study was limited to a regional population of public school teachers in six elementary schools. The conclusions

which can be drawn from this preliminary investigation were the following:

1. The findings of this investigation suggested that responses to the 25 items on the Basic Assumption Inventory served as an indication of the extent to which teachers engaged in the behaviors enumerated on the Classroom Observation Scale;

2. Although the Basic Assumption Inventory correlated highly with the actual performance of the elementary teachers as a group, there were several cases in which teachers with relatively low Classroom Observation Scale scores scored relatively high on the Basic Assumption Inventory (see Appendix D, Table 3). This fact indicated that the Basic Assumption Inventory did provide an indication of the teaching behavior to be expected; and, at the same time, demonstrated the need for a comprehensive battery of information about an individual in making decisions concerning a particular person;

3. The correlations between observed behavior and correct responses on the Basic Assumption Inventory were significant beyond the .01 level of confidence; however, the reliability as calculated with the Kuder-Richardson Formula 21 of .568 was low. The correlations between observed behavior and second scores derived by subtracting the incorrect responses from the correct responses were slightly, but not significantly, higher than those obtained

from the first scoring method while the reliability obtained was .941. These results made the second scoring procedure the preferred one, and indicated the importance of incorrect responses in predicting teacher effectiveness;

4. The findings supported the notion that items selected from past and current literature did, in fact, reflect teachers' assumptions about children's learning and knowledge; and

5. The primary finding of this study was that the Basic Assumption Inventory was an instrument which was both valid and reliable for the prediction of classroom behavior on the part of elementary teachers, of whom the study group was a representative sample.

Recommendations

The preliminary research with the Basic Assumption Inventory indicated that it is an instrument which merits further study. It was intended that the present research be preliminary in nature and that further refinement and design be incorporated in the search for an attitudinal instrument for elementary teachers which considers assumptions held about children's learning and knowledge to be of primary importance in defining the role of the teacher. Furthermore, the items of the inventory, reflecting past and current thinking, were not seen as final, absolute statements but as evolving considerations which should be reflective of ongoing research and, therefore, subject

to thorough analysis, reevaluation, and continuous testing. As a result of this study the following recommendations were made:

1. The present study determined that the 25 items which discriminatedbetween high and low groups selected on the basis of actual classroom behavior are a valid and reliable correlate of teaching behavior. It would appear, however, that a longer inventory, which retains the degree of reliability achieved, would be a more powerful predictor of teacher behavior. The investigator suggests that additional items be constructed and validated to increase the length of the Basic Assumption Inventory;

2. Due to the fact that the Basic Assumption Inventory has been found to be valid for use with a selected sample of elementary teachers in the Piedmont Region of North Carolina, it is recommended that it be administered to other elementary teachers to substantiate further its validity and reliability;

3. In view of research findings on fakability, which were a part of the development of the MTAI, as related to the effect of an individual's knowledge of the type of teaching personality for which the researcher is looking, it appears probable that the Basic Assumption Inventory would be subject to attempts to "fake good." It is recommended that any research related to further refinement of the inventory be structured to investigate the

fakability of the instrument;

4. Further research is needed to lead to a more refined instrument and a greater knowledge of its measurement possibilities; and

5. The field of Child Development has the need for taking into account a teacher's personal effectiveness in a classroom setting in an objective manner. The Basic Assumption Inventory could be administered to Child Development degree candidates prior to and upon completion of degree requirements in order to provide some measure of probable prediction of teaching competence and effectiveness. It is recommended that the inventory be considered as part of an assessment package for persons who plan to work with young children.

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APPENDIX A

PILOT STUDY MATERIALS

ASSUMPTION STATEMENTS

Thirty-nine statements, reflecting the literature survey and Barth's (1972) assumptions about children's learning, were composed and are listed as item (a). The original thirty-nine statements written in reverse form constituted the remaining items and are listed as item (b). Random numbers assigned to each item are listed under the appropriate heading.

Assumption Statements			Random Number
1.	(a)	Children are innately curious.	28
	(b)	Curiosity is a learned activity.	77
2.	(a)	Children will explore their environment without adult intervention.	35
	(b)	Children need to be directed in the exploration of their environment.	61
3.	(a)	Exploratory behavior is self-perpetuating.	62
	(b)	Exploratory behavior can be initiated through external force.	32
4.	(a)	The child will display natural exploratory behavior if he is not threatened.	52
	(b)	Failure, rejection, and shame will help the unmotivated child to display exploratory behavior.	69

Assumption Statements			Random Number
5.	(a)	Confidence in self is highly related to capacity for learning.	56
	(b)	A capacity for learning is separate from confidence in self.	44
6.	(a)	Confidence in self is highly related to making important choices affecting one's learning.	13
	(b)	Making choices affecting one's learning is not highly related to confidence in self.	27
7.	(a)	Action exploration in a rich environment, offering a wide array of manipulative materials, will facilitate children's learning.	73
	(b)	Children learn best through teacher directed activities.	24
8.	(a)	Play is not distinguished from work as the predominant mode of learning in early childhood.	75
	(b)	Play and work are distinctively different as modes of learning in early childhood.	40
9.	(a)	Children have the competence to make significant decisions concerning their own learning.	50

Assumption Statements			Random Number
	(b)	Children are not competent to make significant decisions concerning their own learning.	25
10.	(a)	Children have the right to make significant decisions concerning their own learning.	12
	(b)	Only the adult has the right to make significant decisions concerning the child's learning.	19
11.	(a)	Children will be likely to learn if they are given considerable choice in the selection of materials they wish to work with.	18
	(b)	Making choices in the selection of materials to work with is not highly correlated with learning.	65
12.	(a)	Given the opportunity, children will choose to engage in activities which will be of high interest to them.	37
	(b)	Given the opportunity, children will choose to engage in activities which carry high teacher approval.	15

Assumption Statements			Random Number
13.	(a)	If a child is fully involved in and is having fun with an activity, learning is taking place.	53
	(b)	Learning does require active involvement and fun.	63
14.	(a)	When two (2) or more children are interested in exploring the same problem or same materials, they will often choose to collaborate in some way.	9
	(b)	Children would rather work alone in exploring a problem or materials.	41
15.	(a)	When a child learns something which is important to him, he will wish to share it with others.	14
	(b)	When a child learns something which is important to him, he prefers to keep it to himself.	74
16.	(a)	Concept formation proceeds very slowly.	6
	(b)	Concept formation happens rapidly and in a fixed situation.	68

Assumption Statements			Random Number
17.	(a)	Children learn and develop intellectually at their own rate.	54
	(b)	The rate of learning and developing intellectually is the same for all children.	4
18.	(a)	Children learn and develop intellectually in their own style.	45
	(b)	There is a universal style of learning for all children.	31
19.	(a)	Children pass through similar stages of intellectual development, each in his own way and at his own rate and in his own time.	29
	(b)	Children pass through similar stages of intellectual development, in the same ways, at the same rate, and in the same time.	11
20.	(a)	Verbal abstractions should follow direct experienceswith objects and ideas.	20
	(b)	Verbal abstractions should precede direct experiences with objects and ideas.	26

Assumption Statements			Random Number
21.	(a)	The preferred source of verification for a child's solution to a problem comes through the materials he is working with.	16
	(b)	The adult is the preferred source of verification for a child's solution to a problem.	38
22.	(a)	Failure is a necessary part of the learning process.	47
	(b)	Failure is to be avoided in the learning process.	42
23.	(a)	Those qualities of a person's learning which can be carefully measured are not necessarily the most important.	46
	(b)	The most important aspects of a person's learning can be carefully measured.	36
24.	(a)	Learning is best assessed intuitively, by direct observation.	2
	(b)	Learning is best assessed through pencil and paper tests.	

Assumption Statements			Random Number
25.	(a)	The best measure of a child's work is his work.	70
	(b)	The best measure of a child's work is done with achievement type tests.	10
26.	(a)	Children basically want to learn.	1
	(b)	Learning must be imposed upon children.	23
27.	(a)	The best way of evaluating the effect of the school experience on the child is to observe him over a long period of time.	49
	(b)	The best way of evaluating the effect of the school experience on the child is to test him over a long period of time with a standardized battery of tests.	8
28.	(a)	The final test of an education is what a man <u>is</u>.	58
	(b)	The final test of an education is what a man <u>knows</u>.	71
29.	(a)	Knowledge is a function of one's personal integration of experience and therefore does not fall into	

Assumption Statements			Random Number
		neatly separate categories or "disciplines."	48
	(b)	Knowledge can be divided into separate categories or "disciplines."	72
30.	(a)	Little or no knowledge exists which is essential for everyone to acquire.	55
	(b)	There is a fixed body of knowledge which is essential for everyone to acquire.	60
31.	(a)	It is impossible that an individual may learn and possess knowledge of a phenomenon and yet be unable to display it publicly.	67
	(b)	If an individual learns and possesses knowledge of a phenomenon he will be able to display it publicly.	17
32.	(a)	Growth, development, and learning constitute interdependent and continuing processes.	3
	(b)	Growth, development, and learning constitute independent processes.	39
33.	(a)	Children learn by interacting with people and with their environment.	5

Assumption Statements			Random Number
	(b)	All learning is passive.	66
34.	(a)	Each child has his own interest, rate, and time for learning.	21
	(b)	Children can be expected to be interested in the same thing at the same moment and for the same length of time.	76
35.	(a)	If you give children a setting where they can make sensible choices, they will in all probability make adequate choices.	57
	(b)	Adults should make the decisions as to the selection of adequate choices for children's learning.	22
36.	(a)	The ultimate purpose of education is threefold - to learn how to learn, to learn how to make choices, and to learn how to relate.	34
	(b)	Ultimate purpose of education is the acquisition of knowledge.	30
37.	(a)	Knowledge is acquired through a sequence of concrete experiences followed by the abstract.	59

Assumption Statements			Random Number
	(b)	Knowledge is acquired through abstract and hypothetical experiences followed by the concrete.	64
38.	(a)	Children come to understand the world through active play.	51
	(b)	Active play does not help develop the child's understanding of the world.	7
39.	(a)	Children learn best by doing.	43
	(b)	Children learn best by listening.	78

Name

Position: Classroom Teacher _____
Administrator _____
Counselor _____
Other _____

Grade Level: Pre-School _____
Early Childhood (K-3) ____
Intermediate (4-6) ____
Junior High (7-9) ____
Secondary (10-12) ____
Other (12+) ____

Years of Experience _____

Do you consider your environment a child-centered one? ____

BASIC ASSUMPTION INVENTORY

This inventory consists of 78 statements designed to assess your assumptions concerning children's learning and knowledge. The following statements represent assumptions held by many persons. There is disagreement, so there are no right or wrong answers.

Read each statement carefully and circle the phrase that best expresses your assumption about the statement. Please answer every statement. There is no time limit, but work as rapidly as you can.

If you STRONGLY AGREE, circle " SA "

If you AGREE, circle " A "

If you are UNDECIDED or UNCERTAIN, circle " U "

If you DISAGREE, circle " D "

If you STRONGLY DISAGREE, circle " SD "

---

1. Children basically want to learn.

SA A U D SD

2. Learning is best assessed intuitively, by direct observation.

SA A U D SD

3. Growth, development, and learning constitute interdependent and continuing processes.

SA A U D SD

4. The rate of learning and developing intellectually is the same for all children.

SA A U D SD

5. Children learn by interacting with people and with their environment.

SA A U D SD

6. Concept formation proceeds very slowly.

SA A U D SD

7. Active play does not help develop the child's understanding of the world.

SA A U D SD

8. The best way to evaluate the effect of the school experience on the child is to test him over a long period of time with a standardized battery of tests.

SA A U D SD

9. When two or more children are interested in exploring the same problem or same materials, they will often choose to collaborate in some way.

SA A U D SD

10. The best measure of a child's work is done with achievement tests.

SA A U D SD

11. Children pass through similar stages of intellectual development, in the same ways, at the same rate, and in the same time.

SA A U D SD

12. Children have the right to make significant decisions concerning their own learning.

SA A U D SD

13. Confidence in self is highly related to making important choices affecting one's learning.

SA A U D SD

14. When a child learns something which is important to him, he will wish to share it with others.

SA A U D SD

15. Given the opportunity, children will chose to engage in activities which carry high teacher approval.

SA A U D SD

16. The preferred source of verification for a child's solution to a problem comes through the materials he is working with.

SA A U D SD

17. If an individual learns and possesses knowledge of a phenomenon he will be able to display it publicly.

SA A U D SD

18. Children will be likely to learn if they are given considerable choice in the selection of materials they wish to work with.

SA A U D SD

19. Only the adult has the right to make significant decisions concerning the child's learning.

SA A U D SD

20. Verbal abstractions should follow direct expereinces with objects and ideas.

SA A U D SD

21. Each child has his own interest, rate, and time for learning.

SA A U D SD

22. Adults should make the decisions as to the selection of adequate Choices for children's learning.

SA A U D SD

23. Learning must be imposed upon children.

SA A U D SD

24. Children learn best through teacher directed activities.

SA A U D SD

25. Children are not competent to make significant decisions concerning their own learning.

SA A U D SD

26. Verbal abstractions should precede direct experiences with objects and ideas.

SA A D U SD

27. Making choices affecting one's learning is not highly related to confidence in self.

SA A U D SD

28. Children are innately curious.

SA A U D SD

29. Children pass through similar stages of intellectual development, each in his own way and at his own rate and in his own time.

SA A U D SD

30. The ultimate purpose of education is the acquisition of knowledge.

SA A U D SD

31. There is a universal style of learning for all children.

SA A U D SD

32. Exploratory behavior can be initiated through external force.

SA A U D SD

33. Learning is best assessed through pencil and paper tests.

SA A U D SD

34. The Ultimate purpose of education is three-fold, to learn how to learn, to learn how to make choices, and to learn how to relate.

SA A U D SD

35. Children will explore their environment without adult intervention.

SA A U D SD

36. The most important aspects of a person's learning can be carefully measured.

SA A U D SD

37. Given the opportunity, children will choose to engage in activities which will be of high interest to them.

SA A U D SD

38. The adult is the preferred source of verification for a child's solution to a problem.

SA A U D SD

39. Growth, development, and learning constitute independent processes.

SA A U D SD

40. Play and work are distinctively different as modes of learning in early childhood.

SA A U D SD

41. Children would rather work alone in exploring a problem or materials.

SA A U D SD

42. Failure is to be avoided in the learning process.

SA A U D SD

43. Children learn best by doing.

SA A U D SD

44. A capacity for learning is separate from confidence in self.

SA A U D SD

45. Children learn and develop intellectually in their own style.

SA A U D SD

46. Those qualities of a person's learning which can be carefully measured are not necessarily the most important.

SA A U D SD

47. Failure is a necessary part of the learning process.

SA A U D SD

48. Knowledge is a function of one's personal integration of experience and therefore does not fall into neatly separate categories or "disciplines".

SA A U D SD

49. The best way of evaluating the effect of the school experience on the child is to observe him over a long period of time.

SA A U D SD

50 Children have the competence to make significant decisions concerning their own learning.

SA A U D SD

51. Children come to understand the world through active play.

SA A U D SD

52. The child will display natural exploratory behavior if he is not threatened.

SA A U D SD

53. If a child is fully involved in and is having fun with an activity, learning is taking place.

SA A U D SD

54. Children learn and develop intellectually at their own rate.

SA A U D SD

55. Little or no knowledge exists which is essential for everyone to acquire.

SA A U D SD

56. Confidence in self is highly related to capacity for learning.

SA A U D SD

57. If you give children a setting where they can make sensible choices, they will in all probability make adequate choices.

SA A U D SD

58. The final test of an education is what a man <u>is</u>.

SA A U D SD

59. Knowledge is acquired through a sequence of concrete experiences followed by abstract.

SA A U D SD

60. There is a fixed body of knowledge which is essential for everyone to acquire.

SA A U D SD

61. Children need to be directed in the exploration of their environment.

SA A U D SD

62. Exploratory behavior is self-perpetuating.

SA A U D SD

63. Learning does not require active involvement and fun.

SA A U D SD

64. Knowledge is acquired through abstract and hypothetical experiences followed by the concrete.

SA A U D SD

65. Making choices in the selection of materials to work with is not highly correlated with learning.

SA A U D SD

66. All learning is passive.

SA A U D SD

67. It is possible that an individual may learn and possess knowledge of a phenomenon and yet be unable to display it publicly.

SA A U D SD

68. Concept formation happens rapidly and in a fixed situation.

SA A U D SD

69. Failure, rejection, and shame will help the unmotivated child to display exploratory behavior.

SA A U D SD

70. The best measure of a child's work is his work.

SA A U D SD

71. The final test of an education is what a man knows.

SA A U D SD

72. Knowledge can be divided into separate categories or "disciplines".

SA A U D SD

73. Active exploration in a rich environment, offering a wide array of manipulative materials, will facilitate children's learning.

SA A U D SD

74. When a child learns something which is important to him, he prefers to keep it to himself.

SA A U D SD

75. Play is not distinguished from work as the predominant mode of learning in early childhood.

SA A U D SD

76. Children can be expected to be interested in the same thing at the same moment and for the same length of time.

SA A U D SD

77. Curiosity is a learned activity.

SA A U D SD

78. Children learn best by listening.

SA A U D SD

APPENDIX B

BASIC ASSUMPTION INVENTORY

AND ANSWER SHEET

BASIC ASSUMPTION

INVENTORY

BASIC ASSUMPTION INVENTORY

Directions

This inventory consists of fifty-two (52) statements designed to assess your assumptions concerning children's learning and knowledge. The following statements represent assumptions held by many persons. There is disagreement, so there are no right or wrong answers.

Read each statement carefully and select the phrase that best expresses your assumption about the statement. Then mark your answer on the space provided on the answer sheet. Please do not mark this booklet. Please answer every statement. There is no time limit, but work as rapidly as you can.

If you STRONGLY AGREE, blacken space "SA"

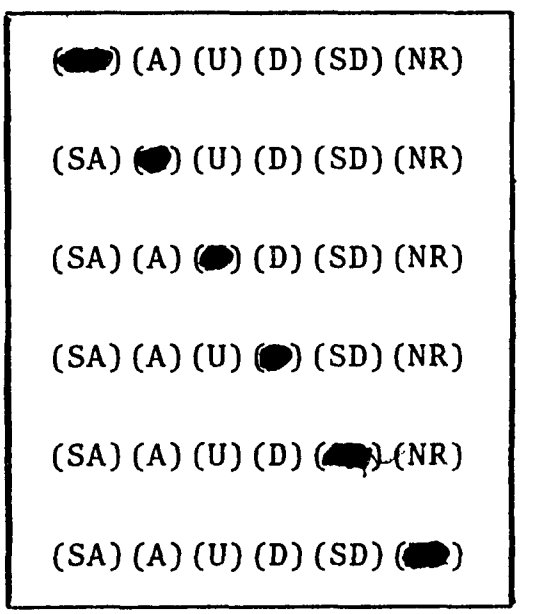
If you AGREE, blacken space "A"

If you are UNDECIDED or UNCERTAIN, blacken space "U"

If you DISAGREE, blacken space "D"

If you STRONGLY DISAGREE, blacken space "SD"

If you have NO RESPONSE, blacken space "NR"



SA - Strongly agree
A - Agree
U - Undecided
D - Disagree
SD - Strongly disagree
NR - No response

---

1. Growth, development, and learning constitute interdependent and continuing processes.
2. Children learn by interacting with people and with their environment.
3. Active play does not help develop the child's understanding of the world.
4. The best measure of a child's work is done with achievement tests.
5. Children have the right to make significant decisions concerning their own learning.
6. Confidence in self is highly related to making important choices affecting one's learning.
7. When a child learns something which is important to him, he will wish to share it with others.
8. Children will be likely to learn if they are given considerable choice in the selection of materials they wish to work with.
9. Only the adult has the right to make significant decisions concerning the child's learning.
10. Each child has his own interest, rate, and time for learning.
11. Adults should make the decisions as to the selection of adequate choices for children's learning.
12. Learning must be imposed upon children.
13. Children learn best through teacher directed activities.
14. Children are not competent to make significant decisions concerning their own learning.
15. Verbal abstractions should precede direct experiences with objects and ideas.
16. Making choices affecting one's learning is not highly related to confidence in self.
17. Children are innately curious.
18. Children pass through similar stages of intellectual development, each in his own way and at his own rate and in his own time.
19. The ultimate purpose of education is the acquisition of knowledge.
20. There is a universal style of learning for all children.
21. Learning is best assessed through pencil and paper tests.

SA - Strongly agree
A - Agree
U - Undecided
D - Disagree
SD - Strongly disagree
NR - No response

22. The ultimate purpose of education is three-fold, to learn how to learn, to learn how to make choices, and to learn how to relate.

23. Children will explore their environment without adult intervention.

24. The most important aspects of a person's learning can be carefully measured.

25. Given the opportunity, children will choose to engage in activities which will be of high interest to them.

26. The adult is the preferred source of verification for a child's solution to a problem.

27. Growth, development, and learning constitute independent processes.

28. Play and work are distinctively different as modes of learning in early childhood.

29. A capacity for learning is separate from confidence in self.

30. Children learn and develop intellectually in their own style.

31. Those qualities of a person's learning which can be carefully measured are not necessarily the most important.

32. Knowledge is a function of one's personal integration of experience and therefore does not fall into neatly separated categories or "disciplines."

33. Children have the competence to make significant decisions concerning their own learning.

34. Children come to understand the world through active play.

35. The child will display natural exploratory behavior if he is not threatened.

36. Children learn and develop intellectually at their own rate.

37. Confidence in self is highly related to capacity for learning.

38. The final test of an education is what a man <u>is</u>.

39. Exploratory behavior is self perpetuating.

40. Learning does not require active involvement and fun.

41. Knowledge is acquired through abstract and hypothetical experiences followed by the concrete.

42. Making choices in the selection of materials to work with is not highly correlated with learning.

SA - Strongly agree	U - Undecided	SD - Strongly disagree
A - Agree	D - Disagree	NR - No response

43. All learning is passive.

44. Failure, rejection, and shame will help the unmotivated child to display exploratory behavior.

45. The final test of an education is what a man knows.

46. Knowledge can be divided into separate categories or "disciplines."

47. Active exploration in a rich environment, offering a wide array of manipulative materials, will facilitate children's learning.

48. When a child learns something which is important to him, he prefers to keep it to himself.

49. Play is not distinguished from work as the predominant mode of learning in early childhood.

50. Children can be expected to be interested in the same thing at the same moment and for the same length of time.

51. Curiosity is a learned activity.

52. Children learn best by listening.

Name _____
Last First

College and Class
or
School and Position _____

Score

BASIC ASSUMPTION INVENTORY

Now teaching grade___ or multi-level grades___ thru___. Male___ Female___ Date_____

Number of years teaching Pre-school____ Early Childhood (K-3)____ Intermediate (4-6)____
Junior High (7-9)____ Secondary (10-12)_____ Other (12+)_____

1 (SA) (A) (U) (D) (SD) (NR)
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APPENDIX C

CLASSROOM OBSERVATION SCALE

AND GLOSSARY

CLASSROOM OBSERVATION SCALE[1]

Teacher _____ Sex ___ Grade level ____ Date _____

School _____ City _____ Observer _____

PUPIL ORIENTED BEHAVIOR

1.	Apathetic	1 2 3 4 5 6 7 N	Alert
2.	Obstructive	1 2 3 4 5 6 7 N	Responsible
3.	Uncertain	1 2 3 4 5 6 7 N	Confident
4.	Dependent	1 2 3 4 5 6 7 N	Initiating
5.	Unimaginative	1 2 3 4 5 6 7 N	Creative
6.	Extrinsic	1 2 3 4 5 6 7 N	Intrinsic
7.	Unexact	1 2 3 4 5 6 7 N	Thorough
8.	Narrow	1 2 3 4 5 6 7 N	Broad

TEACHER ORIENTED BEHAVIOR

9.	Defensive	1 2 3 4 5 6 7 N	Liberal
10.	Partial	1 2 3 4 5 6 7 N	Fair
11.	Autocratic	1 2 3 4 5 6 7 N	Democratic
12.	Aloof	1 2 3 4 5 6 7 N	Responsive
13.	Restricted	1 2 3 4 5 6 7 N	Understanding
14.	Harsh	1 2 3 4 5 6 7 N	Kindly
15.	Erratic	1 2 3 4 5 6 7 N	Steady
16.	Excitable	1 2 3 4 5 6 7 N	Poised

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[1]Adapted with permission, "Classroom Observation Record," David G. Ryans, Characteristics of Teachers, Washington, D. C.: American Council on Education, 1960.

17.	Uncertain	1	2	3	4	5	6	7	N	Confident
18.	Pessimistic	1	2	3	4	5	6	7	N	Optimistic
19.	Unimpressive	1	2	3	4	5	6	7	N	Attractive
20.	Evading	1	2	3	4	5	6	7	N	Responsible
21.	Disorganized	1	2	3	4	5	6	7	N	Systematic
22.	Immature	1	2	3	4	5	6	7	N	Integrated
23.	Unprofessional	1	2	3	4	5	6	7	N	Professional
24.	Discontinuous	1	2	3	4	5	6	7	N	Integrated
25.	Inert facts	1	2	3	4	5	6	7	N	Conceptualization
26.	Inhibited thinking	1	2	3	4	5	6	7	N	Critical thinking
27.	Unimaginative	1	2	3	4	5	6	7	N	Creative
28.	Agnostic	1	2	3	4	5	6	7	N	Pragmatic
29.	Mass	1	2	3	4	5	6	7	N	Individual
30.	Dull	1	2	3	4	5	6	7	N	Stimulating
31.	Apathetic	1	2	3	4	5	6	7	N	Alert
32.	Inflexible	1	2	3	4	5	6	7	N	Adaptable
33.	Narrow	1	2	3	4	5	6	7	N	Broad
34.	Verbose	1	2	3	4	5	6	7	N	Succinct
35.	Highly structured	1	2	3	4	5	6	7	N	Cooperative Planning
36.	Indecisive	1	2	3	4	5	6	7	N	Decisive

GLOSSARY[1]

(To be used with Classroom Observation Scale)

PUPIL ORIENTED BEHAVIORS

1. Apathetic-Alert

Apathetic	Alert
1. Listless	1. Appeared anxious to recite and participate
2. Bored-acting	2. Watched teacher attentively
3. Entered into activities half-heartedly	3. Worked concentratedly
4. Restless	4. Seemed to respond eagerly
5. Attention wandered	5. Prompt and ready to take part in activities when they begin
6. Slow in getting under way	

2. Obstructive-Responsible

Obstructive	Responsible
1. Rude to one another and/or to teacher	1. Courteous, cooperative, friendly with each other and with teacher
2. Interrupting; demanding attention; disturbing	2. Completed assignments without complaining or unhappiness
3. Obstinate; sullen	3. Controlled voices
4. Refusal to participate	4. Received help and criticism attentively
5. Quarrelsome; irritable	5. Asked for help when needed
6. Engaged in name-calling and/or tattling	6. Orderly without specific directions from teacher

3. Uncertain-Confident

Uncertain	Confident
1. Seemed afraid to try; unsure	1. Seemed anxious to try new problems or activities
2. Hesitant; restrained	

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[1]Adapted with permission, "Classroom Observation Record," David G. Ryans, Characteristics of Teachers, Washington, D. C.: American Council on Education, 1960.

3. Appeared embarrassed
4. Frequent display of nervous habits, nail-biting, etc.
5. Appeared shy and timid
6. Hesitant and/or stammering speech
7. Inhibited

2. Undeterred by mistakes
3. Volunteered to recite
4. Entered freely into activities
5. Appeared relaxed
6. Spoke with assurance
7. Free

4. Dependent-Initiating

Dependent	Initiating
1. Relied on teacher for explicit directions	1. Volunteered ideas and suggestions
2. Showed little ability to work things out for selves	2. Showed resourcefulness
3. Unable to proceed when initiative called for	3. Took lead willingly
4. Appeared reluctant to take lead or to accept responsibility	4. Assumed responsibilities without evasion

5. Unimaginative-Creative

Unimaginative	Creative
1. Dependent upon routine procedures for solution or problems	1. Finds unique solutions to problems
2. Relies on memory and recall	2. Shows originality in use of materials
3. Sees in isolation	3. Resourcefulness in use of idea presented
4. Relies heavily on the tangible	4. Perceives cause-effect
5. Recalls and communicates in rote	5. Internalizes and expresses relationships
	6. Relates new ideas with old ideas
	7. Sees new relationships and meanings for old ideas

6. Extrinsic-Intrinsic Motivation

Extrinsic	Intrinsic
1. Responds only to threat of punishment	1. Shows evidence of outside activities related to the class
2. Interested mainly in immediate results	

3. Responds only to instructions from the teacher
4. Motivated by grade received, course completed
5. Learning limited to the classroom
6. Looks for reward before pursuing work

2. Pursues work beyond immediate assignment
3. Verbalizes interest and enthusiasm
4. Self-directing
5. Wide range of reading and ideas
6. Grades become secondary to self fulfillment
7. Plans and directs experiences with purpose

7. Unexact-Thorough

Unexact	Thorough
1. Work is incomplete	1. Painstaking attitude toward problem
2. Haphazard attitude	2. Deliberate and precise
3. Written work is messy and unorganized	3. Organized and neat
4. Easily satisfied by incomplete data	4. Unsatisfied to a degree by available information
5. Indiscriminate in use and presentation of materials	5. Persistent
	6. Continuous in plans and experiences

8. Narrow-Broad

Narrow	Broad
1. Accepts one source of authoritative data which concurs with his opinion	1. Reads widely, well versed in many aspects
2. Restricts application of knowledge to specific class	2. Integrates knowledge from other subject matter areas
3. Preconceived judgments	3. Reserves judgment
4. Disturbed by conflicting opinions	4. Considers several different opinions
5. Rejects authoritative data different from his opinions	5. Analyzes conflicting opinions

TEACHER ORIENTED BEHAVIORS

9. Defensive-Liberal

Defensive	Liberal
1. Resents any form of criticism directed toward him	1. Profits from constructive criticism
2. Must present personal point of view before hearing others	2. Actively seeks advice of other teachers
3. Highly opinionated	3. Shows willingness to listen to a pupil's point of view
	4. Analyzes issues, seeks solutions; self-evaluative

10. Partial-Fair

Partial	Fair
1. Repeatedly slighted a pupil	1. Treated all pupils approximately equally
2. Corrected or criticized certain pupils repeatedly	2. In case of controversy pupil allowed to explain his side
3. Repeatedly gave a pupil special advantages	3. Distributed attention to many pupils
4. Gave most attention to one or few pupils	4. Rotated leadership impartially
5. Showed prejudice (favorable or unfavorable) toward some social, racial, or religious groups	5. Based criticism or praise on factual evidence, not hearsay
6. Expressed suspicion of motives of a pupil	

11. Autocratic-Democratic

Autocratic	Democratic
1. Told pupils each step to take	1. Guided pupils without being mandatory
2. Intolerate of pupils' ideas	2. Exchanged ideas with pupils
3. Mandatory in giving directions; orders to be obeyed at once	3. Encouraged (asked for) pupil opinion
4. Interrupted pupils although their discussion was relevant	4. Encouraged pupils to make own decisions
	5. Entered into activities without dominating

12. Aloof-Responsive

Aloof	Responsive
1. Stiff and formal in relations with pupils	1. Approachable to all pupils
2. Apart; removed from class activity	2. Participated in class activity
3. Condescending to pupils	3. Responded to reasonable requests and/or questions
4. Routine and subject matter only concern; pupils as persons ignored	4. Spoke to pupils as equals
5. Referred to pupil as "this child" or "that child"	5. Commended effort
	6. Gave encouragement

13. Restricted-Understanding

Restricted	Understanding
1. Recognized only academic accomplishments of pupils; no concern for personal problems	1. Showed awareness of a pupil's personal emotional problems and needs
2. Completely unsympathetic with a pupil's failure at a task	2. Was tolerant of error on part of pupil
3. Called attention only to very good or very poor work	3. Patient with a pupil beyond ordinary limits of patience
4. Was impatient with a pupil	4. Showed what appeared to be a sincere understanding with a pupil's viewpoint

14. Harsh-Kindly

Harsh	Kindly
1. Hypercritical; fault-finding	1. Is always pleasant, helpful and friendly to pupils
2. Cross; curt	2. Gave a pupil a deserved compliment
3. Depreciated pupil's efforts; was sarcastic	3. Found good things in pupils to call attention to
4. Scolded a great deal	4. Seemed to show sincere concern for a pupil's personal problem
5. Lost temper	
6. Used threats	
7. Permitted pupils to laugh at mistakes of others	

5. Showed affection without being demonstrative
6. Disengaged self from a pupil without bluntness

15. Erratic-Steady

Erratic	Steady
1. Impulsive; uncontrolled; temperamental; unsteady	1. Calm; controlled
2. Course of action easily swayed by circumstances of the moment	2. Maintained progress toward objective
3. Inconsistent	3. Stable, consistent, predictable

16. Excitable-Poised

Excitable	Poised
1. Easily disturbed and upset; flustered by classroom activities; spoke rapidly using many words and gestures	1. Seemed at ease at all times
2. Was "jumpy"; nervous	2. Unruffled by situation that developed in classroom; dignified without being stiff or formal
	3. Unhurried in class activities; spoke quietly and slowly
	4. Successfully diverted attention from a stress situation in classroom

17. Uncertain-Confident

Uncertain	Confident
1. Seemed unsure of self; faltering, hesitant	1. Seemed sure of self; self-confident in relations with pupils
2. Appeared timid and shy	2. Undisturbed and unembarrassed by mistakes and/or criticism
3. Appeared artificial, seemed to cover up, over compensate	
4. Disturbed and embarrassed by mistakes and/or criticism	

18. Pessimistic-Optimistic

Pessimistic	Optimistic
1. Depressed; unhappy	1. Cheerful; good-natured
2. Skeptical	2. Genial
3. Called attention to potential "bad"	3. Joked with pupils on occasion
4. Expressed hopelessness of "education today," the school system, or fellow educators	4. Emphasized potential "good"
5. Noted mistakes; ignored good points	5. Looked on bright side; spoke optimistically of the future
6. Frowned a great deal; had unpleasant facial expression	6. Called attention to good points; emphasized the positive

19. Unimpressive-Attractive

Unimpressive	Attractive
1. Untidy or sloppily dressed	1. Clean and neat
2. Inappropriately dressed	2. Well-groomed; dress showed good taste
3. Drab, colorless	3. Posture and bearing attractive
4. Posture and bearing unattractive	4. Free from distracting personal habits
5. Possessed distracting personal habits	5. Plainly audible speech; good expression; agreeable voice tone; good inflection
6. Mumbled; inaudible speech; limited expression; disagreeable voice tone; poor inflection	

20. Evading-Responsible

Evading	Responsible
1. Avoided responsibility; disinclined to make decisions	1. Assumed responsibility; made decisions as required
2. "Passed the buck" to class, to other teachers, etc.	2. Conscientious
3. Left learning to pupil, failing to give adequate help	3. Punctual
4. Let a difficult situation get out of control	4. Painstaking; careful
	5. Suggested aids to learning
	6. Controlled a difficult situation
	7. Gave definite directions

5. Assignments and directions indefinite
6. No insistence on either individual or group standards
7. Inattentive with pupils
8. Cursory
8. Called attention to standards of quality
9. Attentive to class
10. Thorough

21. Disorganized-Systematic

Disorganized	Systematic
1. No plan for classwork	1. Evidence of a planned though flexible procedure
2. Unprepared	2. Well prepared
3. Objectives not apparent; undecided as to next step	3. Careful in planning with pupils
4. Wasted time	4. Systematic about procedure of class
5. Explanations not to the point	5. Provided reasonable explanations
6. Easily distracted from matter at hand	6. Held discussion together; objectives apparent

22. Immature-Integrated

Immature	Integrated
1. Appeared naive in approach to classroom situations	1. Maintained class as center of activity; kept self out of spotlight; referred to class's activities, not own
2. Self-pitying; complaining; demanding	2. Emotionally well controlled
3. Boastful; conceited	

23. Unprofessional-Professional

Unprofessional	Professional
1. Casts disparaging remarks about colleagues	1. Shows willingness to assume extra responsibilities
2. Has a defensive attitude	2. Cooperatively resolves professional conflicts with other teachers in private
3. Resents having extra-duty assignments	
4. Resents having to attend and participate in pro-	

fessional meetings and workshops 5. Leaves for home at end of regular school day 6. Considers teaching a secondary function	3. Takes full advantage of educational opportunities 4. Gives of his after-school time willingly to help students 5. Considers teaching a primary function

24. Discontinuous-Integrated

Discontinuous	Integrated
1. Classroom pattern lacks unity 2. Knowledge is divorced from meaningful application 3. Isolated assignments and unrelated series of experiences 4. Relies on unrelated "busy-work"	1. Emphasis on the integration of knowledge with other subject-matter areas 2. Emphasis on application of knowledge 3. Open-ended, related series of experiences 4. Blends the image or ideas with the object or the concrete

25. Inert-Conceptualization

Inert facts	Conceptualization
1. Every student expected to memorize a pre-determined set of facts in isolation 2. Drawing of generalizations of secondary importance 3. Application of knowledge is limited	1. A specific set of facts considered of secondary importance 2. Instruction geared to the drawing of broad generalizations 3. Facts are unified to present the unity of many ideas

26. Inhibited-Critical

Inhibited thinking	Critical thinking
1. Approaches problems without prior or planned thoughts 2. Emphasis on a one-solution approach to problem 3. Teacher and/or text is main source of authority	1. Student shows prior thought before acting 2. Student sees cause-effect relationships 3. Problem presented to class possesses open-endedness 4. Students are self-

4. Avoids novel or untested procedures

directing and teacher serves as guide and resource

27. Unimaginative-Creative

Unimaginative	Creative
1. Reliant upon textbook	1. Uses a variety of sources for information
2. Elicits the regurgitation of facts	2. Promotes the development of broad generalizations
3. Runs a teacher-centered class, pupil initiative repressed	3. Promotes pupil-centered experiences
4. Highly formal routine	4. Uses unique devices and materials
5. Follows same pattern and routine daily	5. Imaginative and able to work with students on a spontaneous basis
6. Avoids related interruptions	6. Resourceful in relating classroom experiences to personal experiences of pupils

28. Agnostic-Pragmatic

Agnostic	Pragmatic
1. Opportunistic, jumps helter-skelter from one method to another	1. Has willingness to try a variety of methods which possess possibilities
2. Shows inconsistencies in his teaching	2. Is willing to give a new method a chance to work
3. Lack of purpose	3. Discards out-dated methodology
	4. Seeks new ideas and evaluation for ideas

29. Mass-Individual

Mass	Individual
1. Teacher assumes a "middle-of-the-road" approach to teaching	1. Diagnostic tests administered and individual "guidance" given
2. Inflexible grouping on the basis of I.Q., etc.	2. Grouping is flexible

3. Mass assignments
4. Conformity emphasized
5. Evaluated entire class as a big group as an end

on the basis of specific "needs"
3. Individual differences encouraged and promoted
4. Evaluation is regarded as a diagnostic procedure for benefit of pupils
5. Differentiated assignments

30. Dull-Stimulating

Dull	Stimulating
1. Uninteresting, monotonous explanations	1. Highly interesting presentation; got and held attention without being flashy
2. Assignments provided little or no motivation	2. Clever and witty, though not smart-alecky or wisecracking
3. Failed to provide challenge	3. Enthusiastic; animated
4. Lacked animation	4. Assignments challenging
5. Failed to capitalize on pupil interest	5. Took advantage of pupil interests
6. Pedantic, boring	6. Brought lesson successfully to a climax
7. Lacked enthusiasm; bored-acting	7. Seemed to provoke thinking

31. Apathetic-Alert

Apathetic	Alert
1. Seemed listless; languid; lacked enthusiasm	1. Appeared buoyant; wide-awake; enthusiastic about activity of the moment
2. Seemed bored by pupils	2. Kept constructively busy
3. Passive in response to pupils	3. Gave attention to, and seemed interested in, what was going on in class
4. Seemed preoccupied	4. Prompt to "pick up" class when pupils' attention showed signs of lagging
5. Attention seemed to wander	
6. Sat in chair most of time; took no active part in class activities	

32. Inflexible-Adaptable

Inflexible	Adaptable
1. Rigid in conforming to routine	1. Flexible in adapting explanations
2. Made no attempt to adapt materials to individual pupils	2. Individualized materials for pupils as required; adapted activities to pupils
3. Appeared incapable of modifying explanation or activities to meet particular classroom situations	3. Took advantage of pupils' questions to further clarify ideas
4. Impatient with interruptions and digressions	4. Met an unusual classroom situation competently

33. Narrow-Broad

Narrow	Broad
1. Presentation strongly suggested limited background in subject or material; lack of scholarship	1. Presentation suggested good background in subject; good scholarship suggested
2. Did not depart from text	2. Drew examples and explanations from various sources and related fields
3. Failed to enrich discussions with illustrations from related areas	3. Showed evidence of broad cultural background in science, art, literature, history, etc.
4. Showed little evidence of breadth of cultural background in such areas as science, arts, literature, and history	4. Gave satisfying, complete, and accurate answers to questions
5. Answer to pupils' questions incomplete or inaccurate	5. Was constructively critical in approach to subject matter
6. Noncritical approach to subject	

34. Verbose-Succinct

Verbose	Succinct
1. Teacher attempts to answer every question whether he knows answer or not	1. Teacher explanations are clear and to the point
2. Explanations of teacher are evasive and "wordy"	2. Teacher admits readily not knowing an answer

3. Explanations are disorganized
4. Teacher must speak first and "tells the answer"

3. Teacher attempts to pull together ideas or generalizations
4. Teacher seeks answers, related ideas and problem from pupils before "telling answers"

35. Highly Structured-Cooperative

Highly Structured	Cooperative Planning
1. Objectives of class are pre-determined by teacher	1. Teacher makes individual plans with each student
2. Subject-matter oriented	2. Student-oriented
3. Each student on the same page at the same time in the same book	3. Students working individually or in small groups on problems consistent with their "needs"
4. Avoid pupil opinions or suggestions	4. Seeks pupil opinions and suggestions

36. Indecisive-Decisive

Indecisive	Decisive
1. Class seems uncertain as to the direction in which they are going	1. Objectives clearly defined and re-emphasized from time to time
2. Teacher allows discussions to expand out of proportion	2. Teacher encourages student to use a "scientific" approach to problem solving
3. Teacher allows pupils to "filibuster"	3. Self-evaluation is encouraged
4. Assignments are "left hanging"	4. Maintains balance in guiding pupils to central theme of class

APPENDIX D

TABLES

TABLE 2

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	x^2	p
1. Growth, development, and learning constitute interdependent and continuing processes.	21	5	0	0	0	1	15	12	0	0	0	0	4.88	.50
2. Children learn by interacting with people and with their environment.	21	6	0	0	0	0	16	11	0	0	0	0	2.16	.90
3. Active play does not help develop the child's understanding of the world.	0	0	1	10	16	0	0	1	0	12	14	0	2.32	.90
4. The best measure of a child's work is done with achievement tests.	0	0	0	9	18	0	0	0	1	10	16	0	1.16	.95

TABLE 2 (continued)

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	x^2	p
5. Children have the right to make significant decisions concerning their own learning.	8	17	1	1	0	0	5	15	2	4	0	1	3.92	.80
6. Confidence in self is highly related to making important choices affecting one's learning.	14	13	0	0	0	0	11	15	0	0	0	1	1.52	.95
7. When a child learns something which is important to him, he will wish to share it with others.	17	10	0	0	0	0	10	16	1	0	0	0	4.20	.70

TABLE 2 (continued)

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	x^2	p
8. Children will be likely to learn if they are given considerable choice in the selection of materials they wish to work with.	11	13	2	1	0	0	4	19	4	0	0	0	6.08	.30
9. Only the adult has the right to make significant decisions concerning the child's learning.	0	0	1	15	11	0	0	1	2	19	5	0	4.04	.70
10. Each child has his own interest, rate, and time for learning.	18	9	0	0	0	0	19	8	0	0	0	0	0.08	.99

TABLE 2 (continued)

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	x^2	p
11. Adults should make the decisions as to the selection of adequate choices for children's learning.	1	7	2	12	2	3	2	11	3	6	4	1	5.09	.50
12. Learning must be imposed upon children.	0	0	6	14	7	0	1	5	3	12	6	0	7.24	.30
13. Children learn best through teacher directed activities.	2	5	0	15	5	0	2	5	6	10	2	2	10.28	.10
14. Children are not competent to make significant decisions concerning their own learning.	0	0	1	19	7	0	0	3	2	17	3	2	7.04	.30

TABLE 2 (continued)

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	x^2	p
15. Verbal abstractions should precede direct experiences with objects and ideas.	1	8	0	10	8	0	1	8	1	13	2	2	7.00	.30
16. Making choices affecting one's learning is not highly related to confidence in self.	0	0	2	18	7	0	0	0	3	14	10	0	1.24	.95
17. Children are innately curious.	14	12	0	1	0	0	12	15	0	0	0	0	1.48	.95
18. Children pass through similar stages of intellectual development, each in his own way and at his														

TABLE 2 (continued)

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	x^2	p
own rate and in his own time.	15	12	0	0	0	0	11	16	0	0	0	0	1.16	.95
19. The ultimate purpose of education is the acquisition of knowledge.	0	6	3	15	3	0	2	5	1	12	6	1	5.40	.40
20. There is a universal style of learning for all children.	1	3	1	11	11	0	0	2	1	14	9	1	2.76	.80
21. Learning is best assessed through pencil and paper tests.	0	0	0	7	20	0	1	0	2	12	11	1	7.92	.20

TABLE 2 (continued)

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	χ^2	p
22. The ultimate purpose of education is three-fold, to learn how to learn, to learn how to make choices, and to learn how to relate.	4	20	2	1	0	0	8	17	2	0	0	0	2.56	.80
23. Children will explore their environment without adult intervention.	7	18	1	1	0	0	1	25	0	1	0	0	6.64	.30
24. The most important aspects of a person's learning can be carefully measured.	0	2	1	16	8	0	1	2	4	16	4	0	4.12	.70

TABLE 2 (continued)

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	x^2	p
25. Given the opportunity, children will choose to engage in activities which will be of high interest to them.	9	14	2	2	0	0	13	14	0	0	0	0	4.72	.50
26. The adult is the preferred source of verification for a child's solution to a problem.	0	7	4	15	1	0	0	6	5	12	3	1	2.52	.80
27. Growth, development, and learning constitute independent processes.	1	12	2	8	4	0	2	12	1	9	2	1	2.36	.80

TABLE 2 (continued)

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	x^2	p
28. Play and work are distinctively different as modes of learning in early childhood.	1	2	0	14	9	1	1	5	0	18	3	0	5.80	.40
29. A capacity for learning is separate from confidence in self.	0	3	1	19	4	0	1	2	1	16	7	0	2.24	.90
30. Children learn and develop intellectually in their own style.	6	20	0	1	0	0	5	20	1	1	0	0	1.08	.98
31. Those qualities of a person's learning which can be carefully measured are														

TABLE 2 (continued)

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	x^2	p
not necessarily the most important.	10	16	0	1	0	0	8	17	0	1	1	0	1.28	.95
32. Knowledge is a function of one's personal integration of experience and therefore does not fall into neatly separated categories or "disciplines."	5	13	6	2	0	1	3	14	5	2	0	3	1.64	.90
33. Children have the competence to make significant decisions concerning their own learning.	6	15	3	3	0	0	1	13	5	5	2	1	7.76	.20

TABLE 2 (continued)

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	x^2	p
34. Children come to understand the world through active play.	7	18	2	0	0	0	5	16	0	4	0	2	8.44	.20
35. The child will display natural exploratory behavior if he is not threatened.	8	19	0	0	0	0	5	20	0	1	0	1	2.72	.80
36. Children learn and develop intellectually at their own rate.	12	15	0	0	0	0	11	15	1	0	0	0	1.04	.98
37. Confidence in self is highly related to capacity for learning.	11	14	1	1	0	0	11	14	2	0	0	0	1.32	.95

TABLE 2 (continued)

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	x^2	p
38. The final test of an education is what a man is.	6	14	2	2	2	1	8	8	6	3	1	1	4.44	.50
39. Exploratory behavior is self perpetuating.	3	13	7	1	0	0	4	16	2	3	0	2	4.44	.50
40. Learning does not require active involvement and fun.	1	1	0	5	20	0	0	2	0	15	10	0	9.64	.10
41. Knowledge is acquired through abstract and hypothetical experiences followed by the concrete.	0	6	4	8	9	0	0	12	3	6	4	2	6.36	.30
42. Making choices in the selection of materials to work														

TABLE 2 (continued)

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	x^2	p
with is not highly correlated with learning.	0	1	1	18	6	1	0	1	1	15	9	1	.99	.99
43. All learning is passive.	0	1	1	11	14	0	1	0	6	9	8	3	10.40	.10
44. Failure, rejection, and shame will help the unmotivated child to display exploratory behavior.	1	3	0	8	15	0	3	3	0	7	14	0	1.12	.98
45. The final test of an education is what a man knows.	0	1	2	18	6	0	1	3	2	13	6	2	4.80	.50
46. Knowledge can be divided into separate categories														

TABLE 2 (continued)

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	x^2	p
or "disciplines."	0	4	6	16	1	0	1	9	3	9	3	2	8.88	.20
47. Active exploration in a rich environment, offering a wide array of manipulative materials, will facilitate children's learning.	14	13	0	0	0	0	11	14	1	1	0	0	2.40	.80
48. When a child learns something which is important to him, he prefers to keep it to himself.	0	0	0	11	16	0	0	1	0	18	8	0	5.36	.40
49. Play is not distinguished from work as the predom-														

TABLE 2 (continued)

Summary of Item Analysis Data on Basic Assumption Inventory

Item	High Criterion Group SA	A	U	D	SD	NR	Low Criterion Group SA	A	U	D	SD	NR	x^2	p
inant mode of learning in early childhood.	8	12	2	5	0	0	5	16	3	1	1	1	6.12	.30
50. Children can be expected to be interested in the same thing at the same moment and for the same length of time.	0	0	0	5	22	0	1	0	0	9	17	0	2.80	.80
51. Curiosity is a learned activity.	2	0	1	13	10	1	3	3	1	15	5	0	4.44	.50
52. Children learn best by listening	0	1	1	14	11	0	1	0	2	19	5	0	5.32	.40

TABLE 3

Scores of Elementary Teachers on the Classroom Observation Scale and the Basic Assumption Inventory

Elementary Teacher	Classroom Observation Scale P	X	Y	Z	T	Basic Assumption Inventory Correct Responses	Incorrect Responses	Correct Less Incorrect Responses
1	5.87	5.60	5.50	5.48	5.61	14	2	12
2	5.53	5.50	5.50	5.48	5.50	11	4	7
3	5.00	5.45	5.13	4.87	5.11	12	2	10
4	5.20	5.80	5.63	4.72	5.34	8	5	3
5	4.71	5.30	5.43	4.67	5.03	12	6	6
6	5.86	4.60	5.50	4.50	5.11	14	5	9
7	5.17	5.25	5.25	4.39	5.01	7	8	- 1
8	4.85	5.10	5.63	4.60	5.04	11	5	6
9	5.40	5.35	5.00	5.21	5.24	13	3	10
10	5.17	5.50	5.50	5.19	5.34	11	4	7
11	5.13	5.70	5.88	4.83	5.38	13	1	12
12	4.71	5.85	5.63	5.26	5.36	9	7	2
13	5.19	5.40	5.22	5.44	5.31	14	2	12
14	4.71	6.16	5.88	5.05	5.45	7	8	- 1
15	4.67	5.05	5.22	5.04	5.00	11	7	4
16	5.13	5.45	5.29	5.35	5.30	12	3	9
17	5.29	6.05	6.11	5.44	5.72	14	5	9
18	5.23	5.55	5.50	5.05	5.33	10	5	5
19	5.46	5.80	5.38	5.04	5.42	6	8	- 2
20	5.93	5.90	5.88	5.77	5.87	12	3	9
21	5.53	5.90	5.63	5.46	5.63	15	4	11
22	4.47	5.35	5.38	4.92	5.03	11	5	6
23	6.00	6.35	6.13	6.08	6.14	16	3	13

TABLE 3 (continued)

Scores of Elementary Teachers on the Classroom Observation Scale and the Basic Assumption Inventory

Elementary Teacher	Classroom Observation Scale P	X	Y	Z	T	Basic Assumption Inventory Correct Responses	Incorrect Responses	Correct Less Incorrect Responses
24	5.15	5.50	5.13	5.00	5.19	11	6	5
25	6.07	6.00	6.40	5.69	6.04	17	4	13
26	5.60	5.85	5.63	5.32	5.60	13	4	9
27	5.60	5.85	5.50	5.32	5.57	12	5	7
28	3.17	3.58	4.29	2.58	3.40	3	10	- 7
29	3.85	4.35	4.50	3.57	4.07	6	6	0
30	4.14	4.30	4.38	3.54	4.08	4	5	- 1
31	3.69	3.20	3.63	3.75	3.56	5	8	- 3
32	3.00	3.70	4.50	3.29	3.23	7	8	- 1
33	3.29	3.68	4.50	3.54	3.75	13	4	9
34	3.42	3.79	4.29	2.83	3.58	11	6	5
35	3.67	4.32	4.38	3.33	3.92	7	9	- 2
36	3.00	4.42	4.38	2.83	3.66	4	6	- 2
37	4.00	3.55	3.57	3.13	3.56	5	11	- 6
38	3.23	4.16	4.57	2.71	3.67	7	9	- 2
39	4.29	3.60	4.25	3.92	4.01	7	7	0
40	3.86	4.05	4.00	3.64	3.89	10	8	2
41	3.53	3.15	3.63	2.65	3.24	4	10	- 6
42	3.43	3.94	4.38	3.46	3.80	3	6	- 3
43	3.75	4.40	4.75	3.43	4.08	6	8	- 2
44	3.92	4.00	4.83	3.00	3.94	3	10	- 7
45	3.60	4.00	3.50	2.92	3.50	3	10	- 7

TABLE 3 (continued)

Scores of Elementary Teachers on the Classroom Observation Scale and the Basic Assumption Inventory

Elementary Teacher	Classroom Observation Scale P	X	Y	Z	T	Basic Assumption Inventory Correct Responses	Incorrect Responses	Correct Less Incorrect Responses
46	4.14	4.10	3.88	3.61	3.93	4	8	- 4
47	3.85	3.75	3.88	3.52	3.75	2	9	- 7
48	3.00	3.00	4.13	2.81	3.23	7	5	2
49	3.75	4.00	4.71	3.63	4.02	8	9	- 1
50	3.60	4.65	4.88	2.86	4.00	10	4	6
51	3.47	4.50	4.63	3.68	4.07	14	5	9
52	2.79	3.25	3.11	2.95	3.02	5	9	- 4
53	3.00	3.37	3.63	2.92	3.23	9	7	2
54	2.73	2.84	3.29	2.48	2.83	4	8	- 4
55	4.56	4.65	4.63	4.35	4.55	6	6	0
56	5.19	4.75	5.13	4.77	4.96	10	4	6
57	5.00	4.55	5.13	4.64	4.83	15	3	12
58	4.64	4.70	4.63	4.04	4.50	2	7	- 5
59	4.94	4.15	4.38	3.77	4.31	10	5	5
60	4.47	4.45	4.57	3.56	4.26	5	8	- 3
61	4.25	4.05	4.37	4.15	4.21	9	6	3
62	4.20	4.75	4.75	4.17	4.47	9	6	3
63	4.50	4.60	4.25	3.83	4.29	9	4	5
64	4.47	4.60	4.63	4.29	4.50	15	3	12
65	4.88	5.00	4.88	4.73	4.87	5	9	- 4
66	3.75	4.79	5.50	3.48	4.38	9	7	2
67	3.75	4.95	5.63	4.13	4.61	9	6	3

TABLE 3 (continued)

Scores of Elementary Teachers on the Classroom Observation Scale and the Basic Assumption Inventory

Elementary Teacher	Classroom Observation Scale P	X	Y	Z	T	Basic Assumption Inventory Correct Responses	Incorrect Responses	Correct Less Incorrect Responses
68	4.38	5.32	5.75	4.42	4.96	11	4	7
69	4.83	4.80	5.25	4.52	4.85	9	6	3
70	5.08	5.00	5.14	4.46	4.92	10	7	3
71	5.06	4.80	4.75	4.58	4.80	10	8	2
72	4.27	4.85	5.00	4.44	4.64	6	9	- 3
73	3.93	4.55	4.75	3.64	4.22	10	4	6
74	4.93	5.05	5.00	4.71	4.92	8	6	2
75	4.69	5.05	4.50	4.43	4.67	11	5	6
76	4.50	4.85	5.38	4.05	4.69	6	4	2
77	4.30	4.95	5.38	4.00	4.66	11	8	3
78	4.77	4.95	4.88	4.27	4.72	8	8	0
79	4.38	5.00	4.50	4.09	4.49	5	10	- 5
80	4.50	4.95	4.88	4.24	4.64	9	6	3
81	4.13	5.28	5.75	4.46	4.90	5	7	- 2
82	4.69	3.95	4.63	4.08	4.34	8	7	1
83	4.63	5.20	4.88	4.74	4.86	12	3	9
84	4.08	4.65	5.25	3.57	4.39	6	5	1
85	4.23	4.63	4.50	3.64	4.25	8	5	3
86	4.08	4.05	5.00	3.33	4.12	7	7	0
87	4.08	4.85	5.00	3.61	4.39	10	8	2
88	4.46	5.15	5.13	4.26	4.75	6	4	2
89	4.08	5.10	5.25	3.52	4.49	13	2	11
90	5.00	5.00	5.00	4.64	4.91	10	8	2
91	4.93	4.75	4.25	4.23	4.54	5	10	- 5

TABLE 3 (continued)

Scores of Elementary Teachers on the Classroom Observation Scale and the Basic Assumption Inventory

Elementary Teacher	Classroom Observation Scale P	X	Y	Z	T	Basic Assumption Inventory Correct Responses	Incorrect Responses	Correct Less Incorrect Responses
92	4.79	4.90	4.88	4.75	4.83	8	7	1
93	4.21	4.30	4.63	4.05	4.30	10	4	6
94	4.64	5.20	5.25	4.70	4.95	8	8	0
95	4.69	5.20	4.25	4.04	4.54	13	4	9
96	4.93	4.95	4.86	3.96	4.67	7	5	2
97	4.25	3.95	5.13	3.56	4.22	3	9	- 6
98	5.44	4.75	4.88	4.64	4.93	8	9	- 1
99	3.75	4.80	5.25	3.66	4.37	7	8	- 1
100	4.53	4.55	4.88	4.13	4.52	4	8	- 4
Mean	4.46	4.74	4.89	4.17	4.56	8.72	6.16	2.56
Standard Deviation	.77	.76	.65	.82	.70	3.49	2.27	5.37

TABLE 4

Summary of Data for Computing the Reliability Coefficient for the Basic Assumption Inventory

N	Variance	$\bar{R}$	$\bar{W}$	r_{tt}
24	12.18	8.72	15.28	.568[1]
39	28.85	2.56	36.44	.941[2]

[1]First scoring procedure.

[2]Second scoring procedure.

TABLE 5

Summary of Data for Calculating Correlation Coefficients Between the Basic Assumption Inventory[1] and the Classroom Observation Scale

Variable	Sum of Squares	Sum of Cross Products	n	r
BAI[1]	8827			
		4028.95	100	.520*
P	2044.85			
BAI[1]	8827			
		4279.51	100	.536*
X	2304.91			
BAI[1]	8827			
		4382.77	100	.523*
Y	2429.04			
BAI[1]	8827			
		3809.72	100	.592*
Z	1806.93			
BAI[1]	8827			
		4122.77	100	.588*
T	2127.28			

*Significant beyond the .01 level of confidence.

[1]Correlations based on correct response scores on Basic Assumption Inventory.

TABLE 6

Summary of Data for Calculating Correlation Coefficients Between the Basic Assumption Inventory[2] and the Classroom Observation Scale

Variable	Sum of Squares	Sum of Cross Products	n	r
BAI[2]	1256			
		5814.12	100	.529*
P	2044.85			
BAI[2]	1256			
		6181.06	100	.560*
X	2304.91			
BAI[2]	1256			
		6327.60	100	.553*
Y	2429.04			
BAI[2]	1256			
		5501.51	100	.599*
Z	1806.93			
BAI[2]	1256			
		5968.48	100	.649*
T	2127.28			

*Significant beyond the .01 level of confidence.

[2]Correlations based on correct responses less incorrect response scores on Basic Assumption Inventory.

TABLE 7

Summary of Data for Calculating Correlation Coefficients Between Scales on the Classroom Observation Scale

Variable	Sum of Squares	Sum of Cross Products	n	r
P	2044.85	2168.08	100	.953*
X	2304.91			
P	2044.85	2211.40	100	.686*
Y	2429.04			
P	2044.85	1915.36	100	.899*
Z	1806.93			
P	2044.85	2081.10	100	.923*
T	2127.28			
X	2304.91	2363.62	100	.965*
Y	2429.04			
X	2304.91	2035.72	100	.940*
Z	1806.93			
X	2304.91	2211.51	100	.948*
T	2127.28			
Y	2429.04	2077.77	100	.753*
Z	1806.93			

*Significant beyond the .01 level of confidence.

TABLE 7 (continued)

Summary of Data for Calculating Correlation Coefficients Between Scales on the Classroom Observation Scale

Variables	Sum of Squares	Sum of Cross Products	n	r
$\underline{Y}$	2429.04	2267.04	100	.875*
$\underline{T}$	2127.28			
$\underline{Z}$	1806.93	1956.07	100	.952*
$\underline{T}$	2127.28			

*Significant beyond the .01 level of confidence.