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The relationship between the extent of teacher use of behavioral objectives and selected variables of the educational environment of elementary classrooms.

Laurence H. Kahn

University of Massachusetts Amherst

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THE RELATIONSHIP BETWEEN THE EXTENT OF TEACHER USE
OF BEHAVIORAL OBJECTIVES AND SELECTED VARIABLES OF
THE EDUCATIONAL ENVIRONMENT OF ELEMENTARY CLASSROOMS

A Dissertation Presented
By
LAURENCE HOWARD KAHN

Submitted to the Graduate School of the
University of Massachusetts in
partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

September 1973

Major Subject: Curriculum and Instruction
THE RELATIONSHIP BETWEEN THE EXTENT OF TEACHER USE OF BEHAVIORAL OBJECTIVES AND SELECTED VARIABLES OF THE EDUCATIONAL ENVIRONMENT OF ELEMENTARY CLASSROOMS

A Dissertation

By

LAURENCE HOWARD KAHN

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September, 1973
Dedicated to my wife,

Jean Rosenberg Kahn
The Relationship Between The Extent of Teacher Use of Behavioral Objectives and Selected Variables of the Educational Environment of Elementary Classrooms (September, 1973)

Laurence Howard Kahn, B.S., Northeastern University

Directed by: Dr. Robert L. Sinclair

ABSTRACT

The central purpose of this study was to determine the relationship between the extent of teacher use of behavioral objectives and selected variables of the educational environment. The following three research objectives were generated for the study based on a review of existing research.

1. To determine to what extent teachers use behavioral objectives in selected elementary classrooms.
2. To describe selected variables of the educational environment in classrooms where behavioral objectives are used.
3. To determine if there is a significant relationship between the extent of teacher use of behavioral objectives and selected variables of the educational environment.

The data for reaching these objectives were gathered from twenty-two teachers and their 535 students in twelve schools of three school systems. Five instruments were used for gathering data; two instruments for describing the educational environment in elementary classrooms and
three for describing the extent to which teachers use behavioral objectives. A classroom edition of the Elementary School Environment Survey (ESES) was used to measure selected aspects of the classroom educational environment. Scores were obtained for the dimensions of Alienation, Humanism, Autonomy, Morale, Opportunism, and Resources. At a time following the administration of the ESES to the student sample, three trained researchers observed consecutively the educational environment of each classroom. Each observer used a checklist consisting of items adapted from the ESES.

The Supervisor Statement of Extent of Teacher Use of Behavioral Objectives, Survey of Extent of Teacher Use of Behavioral Objectives and the Interview Checklist to Determine the Extent of Teacher Use of Behavioral Objectives were used to describe the extent of use of behavioral objectives based on both participant and observer reporting. Questions refer to those attributes of objectives most frequently mentioned in the literature.

On the basis of statistical evidence and the various descriptions of both the extent of teacher use of behavioral objectives and selected variables of the educational environment in elementary classrooms, the three objectives were achieved. The findings of the investigation indicated that there is variance in the use of behavioral objectives by teachers, that selected variables of the educational environment, though less than ideal, seemed not to be damaged by the use of behavioral
objectives, and that there are significant relationships \( p < .05 \) between teacher use of behavioral objectives and selected variables of the educational environment.

Specific findings of the data analysis provided sufficient evidence to warrant the following conclusions:

1. The extent of teacher use of behavioral objectives was significantly related to Alienation \( (-.45, \ p < .018) \), Humanism \( (.61, \ p < .002) \), Morale \( (.37, \ p < .045) \), and Resources \( (.58, \ p < .003) \) in the educational environment as perceived by students.

2. The extent of teacher use of behavioral objectives was significantly related to Alienation \( (-.40, \ p < .034) \), Humanism \( (.55, \ p < .004) \), Autonomy \( (.46, \ p < .017) \), Morale \( (.45, \ p < .019) \), and Resources \( (.61, \ p < .002) \) in the educational environment as perceived by observers.

3. Few teachers (eighteen percent) fully use a behavioral objective approach. Most teachers (eighty-two percent) use units containing objectives, yet, few teachers (eighteen percent) use objectives that are defined in behavioral terms. Many teachers (fifty percent) use pre-tests in the units they teach, yet, few teachers (thirty-two percent) use pre-tests which measure the behaviors stated in the unit's objectives. Most teachers (ninety-six percent) have learning activities stated for each objective, yet, fewer teachers (seventy-seven percent) use alternate learning activities for each objective. Most teachers use post-tests in the units they teach, yet, few teachers (twenty-three percent)
use post-tests which measure the behaviors stated in the unit's objectives. Few teachers (twenty-three percent) use a record keeping procedure characterized by the behavioral objectives approach. All of the teachers (one hundred percent) use a traditional report card with letter grades for reporting student progress to parents.

4. The educational environments in classrooms where behavioral objectives are used contain low levels of Alienation and Opportunism, moderate levels of Humanism, Autonomy and Resources, and moderate to high levels of Morale.

The results of this study, then, support the contention that the extent of teacher use of behavioral objectives is significantly related to selected components of the educational environment. Research of a more experimental nature was recommended as a follow-up to the present investigation. Such experimental study might begin with the findings of the present inquiry, and should examine causal inferences for those relationships found to be significant in the present study. Lastly, it is hoped that the present study will stimulate further investigation into the use of behavioral objectives and the characteristics of educational environment.
ACKNOWLEDGEMENTS

This study was made possible by the assistance and cooperation of many persons. Deep appreciation is extended to Dr. Robert L. Sinclair for serving as Chairman of my various doctoral committees, and for his guidance throughout the doctoral program. Also, appreciation is expressed to Dr. Richard J. Clark, Jr., Dr. Douglas R. Forsyth, and Dr. Robert F. Grose, members of the dissertation committee, for their aid and encouragement.

Special thanks are extended to my friends. Miss Pat Alger, Miss Diane Archer, Mr. John Browne, Mrs. Marie Hartwell, Miss Mary Clark Janis, Mr. Robert London, Mr. Jason Kahn, Miss Kathleen McLain, and Mr. Glenn Ray assisted in gathering data. Mr. Roy Williams contributed insightful comments concerning research procedures. Mr. Frederick deFriesse assisted in programming the diverse data.

Also, special appreciation is extended to the superintendents, principals, teachers, and students participating in the study. It was they who made it possible to gather the data necessary for the completion of the investigation.

The continuing patience and support of my wife and family are acknowledged with gratitude. Without their understanding and sacrifice, this study would not have been possible.
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Chapter 1

The Problem

Introduction

During the last decade, behavioral objectives have become an accepted though controversial part of school curricula. Behavioral objectives are employed in many new and diverse educational enterprises; including large-scale curriculum revisions, planning and evaluation models, federally aided projects and performance contracts.

Though objectives are often cited by proponents and opponents alike as the intrusion of a technical, systematic approach, there is surprisingly little empirical attention given to the effects of objective usage. The very sensibleness of the objective-based approach may have obscured the need for research. Jenkins and Deno agree that research on the use of behavioral objectives is needed. They state that, "the logical arguments for using behavioral objectives, which are compelling, would be enhanced with some empirical data."


Articles published recently are often difficult to distinguish from those written five to ten years ago. In 1960, for example, Goodlad wrote the following statement, which needs no revision twelve years later: "There appear to be no studies establishing an actual relationship between increased clarification of educational objectives and improved discrimination in the selection of educational learning opportunities for the student." This lack of research has hampered the transition of objectives from a popular issue to a practical everyday occurrence in educational programs of all kinds. Developers of educational programs using behavioral objectives often face decisions without precedent and with no empirically-based guidance available.

Further research on behavioral objectives is urgently needed, and the most basic unit of possible research seems to concern objectives and the classroom. If behavioral objectives are to be used in an effective manner, then research must provide direction.

The various aspects of behavioral objectives have only begun to be studied. Some curriculum theorists have defined objectives, others

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have described their use. Some researchers have investigated teachers' skill in recognizing and writing proper behavioral objectives. Others have studied teachers' attitudes toward the use of behavioral objectives and students' differential learning due to the use of this instructional tool. One aspect that seems slighted for investigation is the relationship between behavioral objectives and the educational environment of elementary classrooms.

Research has indicated that classroom environment is affected by teacher behavior. It is logical to assume that the use of behavioral objectives is likely to affect teacher behavior; thus, there is reason to believe that a relationship might exist between the use of behavioral objectives and the educational environment.

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What is the relationship between the use of behavioral objectives and the educational environment of a classroom? Reports from teachers using behavioral objectives offer varied perceptions. On the positive side, some teachers report that behavioral objectives cause the "creation of an effective learning environment," one in which students are "motivated," "learning is more enjoyable," "learning is increased," "the teacher can help individuals more effectively," and the atmosphere appears to be "well organized" and "relaxed." On the negative side, some report that the use of behavioral objectives causes the "creation of a less effective learning environment," one in which "motivation is reduced," "learning is fragmented," "spontaneity is stifled" and "relationships become impersonal."10 The intent of the present study is to describe the educational environment in selected elementary classrooms where teachers use behavioral objectives in an effort to provide guidance for educators who implement a behavioral objective approach in the future.

Purpose of the Study

The present study is designed to achieve three purposes:

1. To determine to what extent teachers use behavioral objectives in selected elementary classrooms.

2. To describe selected variables of the educational environment in classrooms where behavioral objectives are used.

3. To determine if there is a significant relationship between the extent of teacher use of behavioral objectives and selected variables of the educational environment.

Meaning of Educational Environment

Educational environment, as used in this study, includes physical, psychological, social, and intellectual stimuli. "By environment, we mean the conditions, forces and external stimuli which impinge upon the individual."11

John Dewey would have concurred with this definition. He described the environment as:

... the particular medium in which an individual exists which leads him to see and feel one thing rather than another. ... it strengthens some beliefs and weakens others. ... it gradually produces in him a certain system of behavior. ... In brief, the environment consists of those conditions that promote or hinder, stimulate or inhibit, the characteristic of activities of a human being.12

As indicated by Murray, the environment can be seen as providing a stimulus to which individuals both attend and react. This stimulus situation is described as a "potency" or press, and provides an individual with a perception of the complexities of environment. The same environment can be perceived differently by individuals with different needs. Thus, a person's behavior is determined by the dynamic interaction between his unique needs and the environmental press.

Murray provides two classifications of press, Alpha press and Beta press.

In identifying press we have found it convenient to distinguish between (1) the Alpha press, which is the press that actually exists, as far as scientific inquiry can determine it; and (2) the Beta


press, which is the subject's own interpretation of the phenomena that he perceives.13

As conceptualized by Sinclair, and as used in this study, the educational environment of the elementary classroom is described as:

... the conditions, forces, and external stimuli which foster the development of individual characteristics. The environment is recognized as a complex system of situational determinants that exert an influence upon participating individuals. ... This conceptualization of environment is based upon the assumption that behavior is a function of the transactional relationship between the individual and his environment.14

Using the rationale above, Sinclair developed the Elementary School Environment Survey (ESES). The ESES secures the responses of fifth and sixth grade students to eighty true/false items representing the variables of practicality, propriety, community, awareness, and scholarship. A revised form of the Elementary School Environment Survey was developed by Sadker in 1971.15 He used factor analytic procedures to generate six new environment factors—alienation, humanism, autonomy, morale, opportunism, and resources.

The new educational variables are defined as:

Alienation
A high score of this factor demonstrates a feeling of estrangement in the environment. This feeling of alienation could, in fact, lead to destructive acts perpetrated against the school itself.


Environments which score low on this factor reflect the presence of a student body which feels involved in school affairs. A sense of belonging is emphasized in this environment, and sense of belonging is complemented by a concern for students. Students demonstrate their involvement by internalizing school norms in such areas as academic pursuits and obedience to school rules and regulations. The atmosphere is congenial and there is a cohesiveness and a sense of togetherness in this climate.

This factor, then, encompasses environmental characteristics such as the presence or lack of cohesion, concern, and a sense of involvement.

**Humanism**

The items in this factor reflect a concern for the value of the individual. It is a supportive climate that is marked by courtesy.

In addition, this value placed on the individual is carried over to his personal acts of expression, specifically aesthetic expression. This climate demonstrates a concern for creativity, and it is supportive of poetry, music, painting and theatre.

A classroom characterized by this atmosphere is concerned with the integrity of the individual and respect for his cultural and aesthetic expressions.

**Autonomy**

A high score on this factor suggests an environment which supports and encourages student independence. This climate suggests student initiative as well as autonomy. Emphasis on procedures and supervision are minimized. Self-direction rather than the obedience to rules of protocol is important. Individual differences, both in opinion and academic interests are stressed. Another aspect of this environment is that the lines of communication between learners and teachers are open and candid.

This environment affords the student the opportunity to share in the responsibility for his own learning.

**Morale**

The statements in this factor relate to student attitude towards the school. A high score on this factor indicates a friendly and cheerful school environment. This environment may be described as a happy one on which learners and teachers have a warm relationship.

A low score on this factor indicates a negative student attitude towards the school, and suggests poor relations between learners and teachers as well as disruptive student behavior.

This factor is concerned with student attitudes toward the school, and the cooperating behavior which relates to such attitudes.
Opportunism

The items in this factor reflect an environment which is characterized by behavior which adapts to expediency or circumstance. A high score on this factor suggests a climate in which one gains social capital and academic status by behaving in an appropriate manner with important and powerful people. Informal political procedures and the importance of personal relationships are emphasized.

This environment seems to be characterized by entrepreneurial behavior and political maneuvering.

Resources

The items in this factor reflect the number of optional learning opportunities available to and initiated for the students. The emphasis here is in the availability of in-class as well as extra-class resources. Included in this category are such resources as written materials, field trips, television, exhibits and music. The availability of friendliness of the teacher as a supporting service for learning is also included in the dimension. Schools which score high on this factor offer a variety of learning opportunities to learners.

Sinclair's approach includes the use of the participant as a reporter of the school atmosphere. The present study extends the work of Sinclair in that it utilizes the concepts of both Alpha and Beta presses. It has been assumed that individuals act not on the environment as described by an observer, but on their perceptions of the environment. It seems important, nonetheless, to validate reports of the participants against those of observers.

Meaning of Behavioral Objective

Most influential on the wording of objectives has been Mager. His criterion of an acceptable objective is:

Basically, a meaningfully stated objective is one that succeeds in communicating to the reader the writer's instructional intent. It is meaningful to the extent it conveys to others a picture (of what a successful learner will be like) identical to the picture the writer has in mind.


Further defined, the standard for objectives is that they clearly answer the following questions:

1. Does the statement describe what the learner will be doing when he is demonstrating that he has reached the objective?

2. Does the statement describe the important conditions (givens or restrictions, or both) under which the learner will be expected to demonstrate his competence?

3. Does the statement indicate how the learner will be evaluated? Does it describe at least the lower limit of acceptable performance?¹⁸

Numerous writers have reworded the criteria stated above, but in general there is agreement that an objective should contain a measurable student behavior, a context or statement of conditions in which measurement will occur, and an acceptable level of performance.

Significance of the Study

The significance of this study is four-fold. One consideration is the significance of behavioral objectives as a topic of investigation. The behavioral objective approach is viewed as a major reform in American curricula. Yet, there is little research available to assist educational leaders using a behavioral objective approach in their decision-making. The data gathered by this study will provide educators with information to evaluate the effectiveness of this approach and the recommendations will offer direction for the use of behavioral objectives.

Another important feature of the study is that the theoretical base supporting the use of behavioral objectives may be enhanced. The theoretical base describing the use of behavioral objectives is not new

¹⁸ Ibid., p. 52.
to educational literature. As long ago as 1918, Bobbitt offered a behavioral objective approach to curriculum development. Since that time, there has been scant research to suggest whether or not, or how behavioral objectives should be used.

This study has further value in that the research thus far has suggested relationships only between behavioral objectives and differential learning of students. In an era in which man has become aware of the havoc inflicted on his natural environment, it seems particularly appropriate for educators to examine the educational environment. Are behavioral objectives among the pollutants of the classroom's ecology? That we do not know the answer to this question is indicative of the lack of maturity of the field of educational ecology.

Of particular significance is that the present study will offer recommendations for further research. Different educational environments affect children in different ways, and to ignore variance in classroom environment is to limit understanding of behavioral differences in students. Also, differential use of behavioral objectives is likely to affect the nature of the educational environment. To increase understanding of how behavioral objectives influence the educational environment, it is necessary to study how these two dimensions are related.

By studying the relationships between behavioral objectives and the educational environment, this study offers practical significance for the improvement of education. Additionally, this study can be helpful by offering both research to support the theoretical base for the

behavioral objective approach and a description of the nature of the relationship between the educational environment and behavioral objectives.

Procedures

As stated previously, this study is designed to achieve three objectives:

1. To determine to what extent teachers use behavioral objectives in selected elementary classrooms.
2. To describe selected variables of the educational environment in classrooms where behavioral objectives are used.
3. To determine if there is a significant relationship between the extent of teacher use of behavioral objectives and selected variables of the educational environment.

Sample

The sample is drawn from several school systems with different demographic characteristics. The use of selected school systems is intended to provide sufficient data for measuring the variability of extent of use of behavioral objectives both among systems and among the classrooms within a system. Initially, extent of use of behavioral objectives is estimated by an instrument administered to supervisors. This instrument asks the supervisor to rate, on an eleven-point scale, the extent of use of behavioral objectives by each fifth and sixth grade teacher under his supervision. From this larger population (sixty-seven teachers), a stratified sample of twenty-two teachers and their students is drawn. This stratification is based upon the extent of teacher use
of behavioral objectives and utilizes an equal number of teachers scoring in each stratum in order to make the sample more representative of a larger population.

Instrumentation and Analysis

The investigator utilizes five instruments for gathering data; two instruments for describing the educational environment in elementary classrooms and three for describing the extent to which teachers use behavioral objectives. The investigator describes the educational environment of elementary classrooms based on data obtained through the use of both Alpha and Beta presses as defined by Murray.20 The students (Beta press) are administered the Elementary School Environment Survey (ESES) developed by Sinclair and Sadker.21 The ESES secures the responses of fifth and sixth grade students to forty-two true/false items representing the variables of Alienation, Humanism, Autonomy, Morale, Opportunism, and Resources. At a time following the administration of the ESES to the student sample, three trained observers (Alpha press) observe consecutively the educational environment of each classroom. Each observer uses a checklist consisting of items adapted from the ESES.

Descriptive statistics appropriate to the data generated are utilized. Specifically, means are computed to determine the relative levels of a given environment factor in different classrooms. Means are reported in the form of a profile for each classroom. Standard deviations are computed to determine the variance of each factor both within

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20 Murray. Loc. cit.

classrooms and between different classrooms. Additionally, differences between the data obtained from the instruments based on Alpha and Beta presses are reported.

In order to determine the extent of use of behavioral objectives, three instruments are utilized. These instruments describe the extent of use of behavioral objectives based on both observer and participant reports. The first of three instruments designed by the investigator measures the extent of use of behavioral objectives as reported by teachers. Questions refer to those attributes of objectives most frequently mentioned in the literature. The number of items is adjusted where necessary to obtain a balance of topics. Both forced-choice and open-ended questions are used.

The second instrument used to determine the extent of use of behavioral objectives is a checklist administered during an interview with each teacher. During the interview, each teacher is asked to display and explain a recently completed unit of instruction for mathematics. The interviewer reports extent of use of behavioral objectives based on whether or not objectives exist and are stated in behavioral terms, as well as whether pre-tests, learning activities, evaluation, record-keeping and reports of student progress are commensurate with usage as characterized by the behavioral objective approach.

The third instrument designed to determine the extent of use of behavioral objectives is administered to one or more supervisors of the teachers in the sample. The supervisors have had the opportunity to observe the teachers on more than one occasion and are considered to be a valuable data source. The instrument asks the supervisors to rate on an
eleven-point scale the extent of use of behavioral objectives by each teacher under his supervision.

Extent of use of behavioral objectives is reported as a composite score. The composite score describing the extent of teacher use of behavioral objectives is determined by scoring the Supervisor Statement, Teacher Survey, and the Interview Checklist, correlating the scores of the three instruments with each other, and building the composite based on the results of the correlation of the three instruments. The scores which are significantly related ($p < .05$) are standardized. The composite score describing the extent of teacher use of behavioral objectives is determined by adding these z-scores together. Additionally, differences between the data obtained from the three instruments is reported.

Finally, in order to determine if there are significant relationships between the extent of use of behavioral objectives and the educational environment of elementary classrooms, appropriate correlational techniques are employed.

**Delimitations of the Study**

The findings in the present study are considered to be of an exploratory nature and are looked upon as data which will suggest further experimental research. The data should be treated with a level of confidence commensurate with the design and its delimitations should be taken into consideration.

**Instrument Delimitations**

The ESES has been used once only for classroom measurement. Although the changes for the purpose of the present study are minimal,
and although some assessments of reliability and validity are made, the limited sampling suggests that the findings should be viewed as tentative until further studies are made.

The observation checklist accompanying the ESES has never been used before. Presently, questions can be raised concerning its reliability, validity and its direct correlation to the ESES itself.

The instruments designed to measure the extent of use of behavioral objectives are new. There is limited data available to describe their reliability and validity. Thus, the findings related to these instruments must be seen as tentative.

**Cause-Effect Relationships**

The present study does not determine the nature of causal relationships linking the two major variables. This study does, however, provide information which, in conjunction with the results of earlier studies, offers direction for further experimental studies to help determine cause-effect relationships between the extent of teacher use of behavioral objectives and selected variables of the educational environment of elementary classrooms.

**Generalization**

Generalization of the findings in the present study is necessarily qualified by the fact that the schools selected for the sample are all public institutions. No attempt is made to include private schools in the sample. Further, the sample of classrooms is drawn solely from the Western Massachusetts area. Thus, the data obtained from the schools in the sample population is limited to that population.
The following chapters chronicle the investigation. Chapter II considers the concepts and research relevant to the study. Chapter III describes the methodology. The selection of the sample, procedures for collecting and reporting data, and the instruments employed are presented in detail. Chapter IV offers an analysis of the data and discussion of the findings. Chapter V draws conclusions and offers recommendations for further inquiry into the use of behavioral objectives.
CHAPTER II

CONCEPTS AND RELATED RESEARCH

This chapter includes reviews of the concepts and research relevant to the current investigation. The chapter is divided into three sections. The first section offers a review of the literature intended to describe the conceptual base and research related to the behavioral objective approach. The second section describes the conceptual base and research related to educational environment. The third section offers empirical support for the relationship between teacher behavior and the classroom educational environment.

Behavioral Objectives--A Conceptual Base

The behavioral objective approach has held a central position in curriculum study for the past decade. Even though this approach has caused much recent debate, it is hardly new to educational literature. Bobbitt argued in 1918 in The Curriculum:

The central theory is simple. Human life, however varied consists in its performance of specific activities. Education that prepares definitely and adequately for these specific activities is one that prepares for life. However numerous and diverse they may be for any social class, they can be discovered. This requires that one go out into the world of affairs and discover the particulars of which these affairs consist. These will show the abilities, habits, appreciations, and forms of knowledge that men need. These will be the objectives of the curriculum. They will be numerous, definite, and particularized. The curriculum will then be that series of experience which childhood and youth must have by way of attaining those objectives.¹

Bobbitt suggested that we approach curriculum development scientifically: study life carefully to identify needed skills, divide these skills into specific units, organize these units into experiences and provide these experiences to children.

Bobbitt was not alone in the belief that objectives should be stated clearly and specifically. Tyler provided a rationale for the behavioral objective approach to instruction. He presented four questions which should serve as guidelines in developing any curriculum:

1. What educational purposes should the school seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organized?
4. How can we determine whether these purposes are being attained?²

Although Tyler emphasized a curriculum building process, he did speak directly to the wording of objectives. "Since the real purpose of education is not to have the instructor perform certain activities but to bring about significant changes in the students' patterns of behavior, it becomes important to recognize that any statement of the objectives of the school should be a statement of changes to take place in students."³

"The most useful form for stating objectives is to express them in terms which identify both the kind of behavior to be developed in the student and the content, or area of life in which this behavior is to operate."⁴

Tyler, contrary to most recent authors, favored more general objectives

³Ibid., p. 44.
⁴Ibid., p. 46.
rather than specific objectives. "In both the behavioral and content sections of an objective, generality is preferred."\(^5\)

Goodlad expanded Tyler's rationale and cited the need for a conceptual system for working with curriculum. He defined "a curriculum" as a set of intended learnings and "curriculum" as the study of the processes of selecting, justifying and arranging these learnings.\(^6\) A curriculum is the product of a set of decisions in which means are determined. Goodlad called for rationality in curriculum planning, checking the relationships of the means to the ends by both logical and empirical study.

He offered this model for curriculum planning:

1. Selection of values;
2. Formulation of educational aims;
3. Refinement into specific objectives;
4. Selection of learning opportunities;
5. Designation of the organizing centers for learning.

Here Goodlad agreed with Tyler in points 2, 3 and 4, but disagreed in data sources. Tyler would turn to three data sources—society, learners, subject matter specialists—design objectives, and then filter them through philosophical and psychological screens. Goodlad proposed "turning to values as the primary data source in making all subsequent curricular decisions."\(^7\) For him, the decision-making process involved

\(^5\)Ibid., p. 56.


\(^7\)Ibid., p. 27.
more than mere analysis of data; it included the utilization of values
and data, simultaneously.

It seems that teachers do not follow the advice of Tyler or
Goodlad. Often the question posed by the beginning teacher is, "What
shall I do?". Popham and Baker prefer a more functional question—"What
do I want my learners to become?". The first question focuses attention
on the teacher instead of the student and on instructional means rather
than on the results these means are intended to produce. The authors' insistence on use of the second question stems from a recognition of the
need to shift away from merely satisfying the needs of the teacher to
satisfying the needs of the students. Use of the first question is re-
ferred to as a "means-referenced instructional model" and evaluation of
teacher effectiveness within this model is usually done best by an ob-
server drawing inferences concerning instructional competence. Various research instruments have been designed in recent years to obtain data
from classroom observation to make teacher evaluation more objective.
Nevertheless, study of the means employed depicts nothing of the resul-
tant students' learning. Clearly, if the teacher is employed to promote
learning, then evaluation must be in terms of that resultant learning.
A "goal-referenced instructional model," measures effectiveness in terms
of student goals. Thus, "What do I want my learners to become?" becomes
the starting point for curricular decisions. The teacher must decide
what observable behavior his learners should have at the conclusion of
instruction. Popham argued:

8W. James Popham, and Eva L. Baker. Systematic Instruction,
Measurable instructional objectives are designed to counteract what is to me the most serious deficit in American education today, namely, a preoccupation with process without assessment of consequences. Measurable objectives are designed in part to alleviate that particular difficulty. There are at least three realms in which measurable objectives have considerable potential dividends; in curriculum (what goals are selected); in instruction (how to accomplish those goals); and in evaluation (determining whether objectives of the instructional sequence have been realized). 9

From this perspective, a teacher or student can be evaluated in terms of having reached or not having reached specified goals. The curriculum itself can be examined as to the appropriateness of the objectives and the means-ends relationship of those activities designed to reach the objectives. Results of this form of evaluation are much more useful than the results of an evaluation of a teacher's behavior in the classroom. Bloom stated:

Most students (perhaps over ninety percent) can master what we have to teach them and it is the task of instruction to find the means which will enable our students to master the subject under consideration. Our basic task is to determine what we mean by mastery of the subject and to search for the methods and materials which will enable the largest proportion of our students to attain such mastery. 10

To the curriculum writer, "what we mean by mastery" would be signified in terms of measurable student objectives. These statements then become the basis for activities associated with education. Textbooks no longer dictate the student's experiences, but rather they become subordinate to the design of the curriculum. Educational activities then


become the methods by which teachers help learners to attain goals.

Gagne described the importance of defining educational objectives as follows:

Possibly the most fundamental reason of all for the central importance of defining educational objectives is that such definition makes possible the basic distinction between content and method. It is the defining of objectives that brings an essential clarity into the area of curriculum design and enables both educational planners and researchers to bring their practical knowledge to bear on the matter. As an example to the kind of clarification which results from defining content as "descriptions of the expected capabilities of students," the following may be noted. Once objectives have been defined, there is no step in curriculum design that can legitimately be entitled "selecting content." This is because the capabilities of the learner are directly derivable from the objectives themselves, as when from the objective "adds fractions" one derives the content statement "capability of adding fractions." One can select textbooks, motion pictures, laboratory equipment even teachers; but one does not select content.11

Educators persist in forcing students to experience various activities--lectures, discussions, movies, laboratory periods, et cetera--without telling them the reason. Certainly the student would be much more likely to reach the desired learning if the objectives of the activity were given to him. As education is now commonly practiced, the student has to guess how the teacher will test him. "Down with guessing games!" demanded Deterline. "Students should not have to play guessing games about objectives; students should not have difficulty discriminating objectives from instructional clarification content, irrelevant content or enrichment and interest only content."12


Just as the reasons for a behavioral objective approach to instruction are extremely varied, so too are the views concerning the statement of the objective. A hierarchical structure of educational goals was designed by Bloom and his associates and this has served as a framework for many writers of objectives. Bloom wrote:

We are of the opinion that although the objectives and test materials and techniques may be specified in an almost unlimited number of ways, the student behaviors involved in these objectives can be represented by a relatively small number of classes.¹³

Of the cognitive or knowledge domain, Bloom stated:

As the taxonomy is now organized, it contains six major classes:

1:00 Knowledge
2:00 Comprehension
3:00 Application
4:00 Analysis
5:00 Synthesis
6:00 Evaluation¹⁴

In a later volume, Krathwohl, Bloom and Masia designated further categories of affective or attitudinal objectives as follows:

1.0 Receiving
2.0 Responding
3.0 Valuing
4.0 Organization
5.0 Characterization by a value or value complex.¹⁵


¹⁴Ibid., p. 18.

Most recent curriculum writers specify a methodology of curriculum preparation within these affective categories. A third domain, the psychomotor, has been categorized by Harrow but as yet has not had the effect of the earlier volumes.\textsuperscript{16}

Most influential on the definition of objectives has been Mager. His criterion of an acceptable objective is:

Basically, a meaningfully stated objective is one that succeeds in communicating to the reader the writer's instructional intent. It is meaningful to the extent it conveys to others a picture (of what a successful learner will be like) identical to the picture the writer has in mind.\textsuperscript{17}

Further defined, the standard for objectives is that they clearly answer the following questions:

1. Does the statement describe what the learner will be doing when he is demonstrating that he has reached the objective?
2. Does the statement describe the important conditions (givens or restrictions, or both) under which the learner will be expected to demonstrate his competence?
3. Does the statement indicate how the learner will be evaluated? Does it describe at least the lower limit of acceptable performance?\textsuperscript{18}

Numerous writers have reworded this criterion, but in general there is agreement that an objective should contain a measurable student behavior, a context or statement of conditions in which measurement will occur, and an acceptable level of performance.


\textsuperscript{18}Ibid., p. 52.
Yet conflict is in evidence. The following examples of objectives illustrate some of the existing disagreement about the definition of objectives.

1. To write clear and well-organized reports of social studies projects.\footnote{Tyler. \textit{Op. cit.}, p. 30.}

2. Ability to analyze, in a particular work of art, the relationship of materials and means of production to the "elements" and to the organization.\footnote{Bloom. \textit{Op. cit.}, p. 148.}

3. Given a human skeleton, the student must be able to correctly identify by labeling at least forty of the following bones; there will be no penalty for guessing (list of bones inserted here).\footnote{Mager. \textit{Op. cit.}, p. 49.}

4. Deliberately examine a variety of viewpoints on controversial issues with a view to forming opinions about them.\footnote{Krathwohl. \textit{Op. cit.}, p. 181.}

5. To improve the math skills of fourth-grade students in adding unlike fractions, as determined by Gores Test of Fractions, so that out of twenty-five additional problems, eighty percent of the students get at least twenty-one out of twenty-five answers correct.\footnote{H. H. McAshan. \textit{Writing Behavioral Objectives}, (New York: Harper and Row Publishers, 1970), p. 36.}

6. Students will exhibit positive attitudes toward "school" and "teacher" by selecting, from a list of positive and negative adjectives, adjectives having positive connotations as descriptive of these dimensions.\footnote{Attitude Toward School Grade K-12, (Los Angeles, California: Instructional Objective Exchange, 1970), p. 17.}

The writers of each of the preceding statements refer to them as behavioral objectives. Obviously, there is a disagreement extending from...
the general goals such as numbers one and two, to the specific ends of Mager (number three) or McAshan (number five) who requires two evaluation criteria phrases--one for the individual learner and one for the class. There are differences as to proper wording as well as to degree of measurability. Nevertheless, these writers agree that learning objectives should be written in terms of student behavior, and that they be worded in such a way that they can be clearly measured. Mager's requirement, that an objective convey to the reader the precise instructional intent of the writer, is also agreed upon. Ideally, the context of the evaluation, the expected student behavior and the level of performance considered acceptable should be included in the statement of an objective.

Naturally not every one involved with curriculum supports the use of behavioral objectives. In an analysis of the behavioral approach, Eisner stated:

At first view this seems to be a reasonable way to proceed with curriculum construction; one should know where he is headed before embarking on a trip. Yet, while the procedure of first identifying activities is logically defensible, it is not necessarily the most psychologically efficient way to proceed. One can, and teachers often do, identify activities that seem useful, appropriate or rich in educational opportunities and from a consideration of what can be done in class identify the objectives or possible consequences of using these activities.25

Eisner argued in support of what he called "expressive objectives":

Expressive objectives differ considerably from instructional objectives. An expressive objective does not specify the behavior the student is to acquire after having engaged in one or more learning

activities. An expressive objective describes an educational encounter: it identifies a situation in which children are to work, a problem with which they are to cope, a task they are to engage in—but it does not specify what from that encounter, situation, problem, or task they are to learn. An expressive objective provides both the teacher and the student with an invitation to explore, defer or focus on issues that are of peculiar interest or import to the inquirer. An expressive objective is evocative rather than prescriptive.  

Atkin felt that "certain types of innovation, highly desirable ones, are hampered and frustrated by demands for behavioral objectives." He continued:

1. Behavioral objectives assume that we either know or can readily identify the educational objectives for which we strive, and therefore the educational outcomes that result from our program.

2. Instituting behavioral objectives may result in gradual disappearance of worthwhile learning activities.

3. Early articulation of behavioral objectives by the curriculum developer inevitably tends to limit the range of his exploration.

4. It is impractical to pursue all goals thoroughly.

5. Behavioral goals force teachers not to capitalize on opportune moments for effectively teaching. Riveting the teachers' attention to a few behavioral goals provides him with blinders that may limit his range.

6. Behavioral goals imply methods of assessment. But goals are derived from our needs and philosophies. They are not and should not be derived from any measures.

Raths made the point that the specificity as required by behavioral objectives runs counter to teachers' values of humanism and intellectualism.

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MacDonald and Wolfson summarized the criticism as follows:

1. Behavioral objectives are trivial and superficial.
2. The determination of behavioral objectives is usually arbitrary and inappropriate.
3. A statement of behavioral objectives as a guide to teaching is necessarily incomplete and inadequate.
4. The approach is just not helpful to the teachers in the classroom.  

Other arguments have been offered in opposition to a behavioral objective approach. Teachers are threatened by evaluation and students by the threat of being programmed. Many of these anxieties concerning the objective approach are countered by Popham in a paper in which he refutes a number of opposing arguments. Since nearly all arguments either for or against a behavioral objective approach seem to be based primarily on deductive reasoning, there is a great need for empirical data.

Despite the conflicting positions, some essentials are widely agreed upon, and these should be distinguishable. Broad educational goals, derived from a thoroughly considered philosophy of education, should yield more specific student behavioral objectives. These objectives should then be associated with alternative learning activities offering the student more than one route to achieve the objective. Student evaluation must, therefore, be based on attainment of specified


objectives—a pre-determined performance criteria—rather than an evaluation of relative position among peers.

Behavioral Objectives—Related Research

Discussions about objectives abound and can be found in varieties of journals and books. These statements concerning objectives tend to appeal in a logical fashion to many, yet appear to be lacking in guidance for practical application.

Much harder to locate are research studies dealing with actual effects of using behavioral objectives. Eisner specified five areas of needed research concerning the utility of behavioral objectives:

1. The relationship between the way educational objectives are formulated and their quality;
2. The extent to which teachers have objectives;
3. The effect of educational objectives on curriculum planning;
4. The effect of educational objectives on instruction; and
5. The usefulness of educational objectives in facilitating learning.\(^{31}\)

Eisner adds, "Although such questions are complex, they are important objects for empirical attention. When one looks for research on these questions, one soon finds that for the most part they have been neglected."\(^{32}\)

The present study incorporates two of Eisner's suggestions. This investigation extends point number two. It seems more important


\(^{32}\)Ibid.
to discover to what extent teachers "use" objectives than to what extent teachers "have" objectives. Some teachers have instructional units with clearly defined objectives, which may never be used. Also, the study investigates a specific effect of educational objectives on instruction (point number four); that is, the relationship between the extent of use of behavioral objectives and the educational environment of elementary classrooms.

A study by Ammons noted that methods suggested for determining educational objectives tended to be incomplete, non-explicit and ambiguous as to defy validation by empirical means. Perhaps her study's most significant contribution was demonstrating that inquiry about objectives could be conducted. She used objectives developed at high levels within a school system and found no factors which could be related to teachers' usage. Other findings included that "some systems do not have objectives" and the "teachers in this study appear to base their instructional programs on what they customarily have done rather than on the system's educational objectives." 33

More recent studies are of two types: those that try to identify differential learning in students when taught by behaviorally-stated objectives versus more generally-stated objectives; and those that seek to identify differences in teachers' effectiveness when given objectives or operating in a system supporting such use.

Two similar studies were conducted by Baker and by Jenkins and Deno. Baker provided teachers with behavioral and non-behavioral

objectives for a specific unit of instruction. Jenkins and Deno also provided objectives to three different groups—a teacher only group, a teacher and student group, and a student only group.\footnote{J. R. Jenkins and S. L. Deno. "Influence of Knowledge and Types of Objectives on Subject-Matter Learning," \textit{Journal of Educational Psychology}, 1971, \textbf{62} (1), p. 67.} Student learning was measured and no significant differences were found in either study. Baker also asked the teachers given behavioral objectives in her study to select the test items which directly measured the objectives that they had been given and they were unable to do better than chance level. Discussions of results in both studies postulate that lack of teacher training and practice in using objectives may explain the lack of learning differences. Both studies note the need to study further whether the teachers recognize the value of objectives and use them appropriately. "Even if teachers do understand what behavioral objectives are, one still must assess the extent to which teachers are committed to producing pupil achievement."\footnote{E. L. Baker. "Effects of Student Achievement of Behavioral and Non-Behavioral Objectives," \textit{Journal of Experimental Education}, 1969, \textbf{37} (4), p. 8.} Mager's statement of promoting learning was used as a base for a study by Hastings. Mager said, "If you give each learner a copy of your objective you may not have to do much else."\footnote{Mager. \textit{Op. cit.}, p. 53.} Hastings provided a class of graduate student with a set of prepared objectives and told them to "report back for evaluation of mastery when you feel you are ready."\footnote{Glen R. Hastings. "Independent Learning Based on Behavioral Objectives," \textit{Journal of Educational Research}, 1972, \textbf{65} (9), p. 415.} A control group receiving no objectives was maintained also.
Student learning was measured and it was found that "students who were given a set of behaviorally written instructional objectives and allowed to press forward toward achievement of those objectives independently, did as well as or better than students who were taught in a controlled or instructor oriented setting."  

In another study, Piatt found that seventh graders whose teachers were trained to write behavioral objectives achieved significantly higher scores on subtests of computation and concepts that those whose teachers had no such training.  

Other studies by Popham focusing directly on the teacher compared the performance of experienced teachers with housewives and students, and reported: 

None of these investigations revealed a significant difference favoring the experienced teachers. The investigators concluded that experienced teachers are simply not more experienced at accomplishing prespecified behavior changes in learners. There undoubtedly must be training provided for teachers so they acquire the skills necessary to efficiently achieve such behavior changes.  

Cohen reports a study of the values and perceptions of junior college faculty and students. The three colleges chosen varied in institutional commitment to the use of objectives from strong to none. The pattern of response to the faculty questionnaire suggested that

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38 Ibid.  


few of the instructors at any of the colleges considered objectives useful. 41

In summary, the scant research suggests that specified objectives sometimes do and sometimes do not produce increased student learning, and such research raises questions concerning the role of the teacher. Teachers who were given objectives did not seem to sense their value nor were they committed to using them. When objectives were imposed on an instructional situation, they did not affect the teacher's behavior.

The need for further research concerning the uses and effects of behavioral objectives has been stated repeatedly. The present study will describe the extent to which teachers use behavioral objectives. Further, this study shall add to knowledge about objectives by describing the relationship between the extent of use of behavioral objectives and certain aspects of the educational environment of elementary classrooms.

Educational Environment—a Conceptual Base

The relationship between the individual and his environment has been investigated by a wide range of educators, including Murray,42


Anastasi, Bloom, and Pace and Stern. Given the large amount of time that children spend in the classroom, it seems logical to assume that the classroom environment is an important factor in determining the child's behavior and development.

The theoretical approach to environment in the present study is based on the work of Murray. In constructing his theory of personality, Murray identified two primary influences on human behavior, need and press. Need as defined by Murray, refers to a hypothetical force within an individual which determines his movements toward or away from stimulus situations. Press is essentially the stimulus situation within the total environment to which the individual both attends and reacts and is defined as an aspect of the total environment which helps or hinders the goal-oriented behavior of the individual. This may be classified as either positive or negative, depending on the needs of the individual. The same environment will, therefore, be perceived differently by individuals with different needs. There is a close relationship between the individual and his environment and the individual's behavior


is determined by the dynamic interaction between his unique needs and the environmental press.

The phenomenon of environmental press is classified by Murray into two categories, Alpha press and Beta press. Alpha press is the press that actually exists, as far as scientific inquiry can determine it. Beta press is defined as the subject's own interpretation on the phenomenon that he perceives.\(^\text{48}\) The significance of distinguishing between the two is that measurement of the Alpha press can produce, possibly, a different description of the environment than as assessment of the Beta press; thus, there could be a difference between the analysis of the environment by an "outside" observer and the participating individual's perceptions of that environment.

The present study uses Murray's concepts of both Alpha and Beta press. Although both Alpha and Beta press have advantages peculiar to each, several factors contributed to the selection of both presses. One assumption which speaks to the advantages of using Beta press is that students are the primary concern in education. It seems most appropriate to give their perceptions of the educational environment priority. Secondly, if a primary goal of education is to help change student behavior, given evidence that the individual's perception of his environment is a major determinant of his behavior, it is important that educators be aware of these perceptions. Lastly, while it is important to note that few assessments of the classroom environment have been made using Beta press, it seems important, also, to validate reports of the participants against those of observers. The most noted methods for

\(^{48}\text{Ibid.}, p. 122.$
measuring classroom environments, those of Flanders, Medley and Mitzel, Walberg, and Withall, use Alpha press. This investigation will examine both participant and observer perceptions—what both participants and observers report about the conditions and happenings of the elementary classroom.

Another contributor to the design of this study is Bloom. Bloom attempted to identify an individual's "stable" characteristics and to determine the extent to which these characteristics are stabilized at various ages.

Stable characteristics have three defined elements. First, they are non-reversible. Once an increment of development is added, it cannot be lost. Secondly, the greatest amount of developmental change occurs early, after which stability follows. Finally, basic characteristics are more likely to stable than superficial ones. Bloom has attempted to identify the rate and pattern of the development of human characteristics. In order to meet his objective of identifying critical stages in the development of various characteristics and to determine

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what factors affect this development, he examined the findings of a variety of longitudinal studies. A number of his findings are particularly relevant to the present study.

Bloom places much emphasis on the importance of attending to the environment as it affects the development of certain human characteristics. Many of these characteristics are the concern of elementary schools. Among these are intelligence, personality, and achievement.

Bloom places particular emphasis on the role of environment in affecting the development of these important human characteristics. Bloom is "of the opinion that much of the stability... reported in this work is really a reflection of environmental stability. That is, the stability of a characteristic for a group of individuals may, in fact, be explained by the constancy of their environment over time." 54

The present study has a theoretical relation to Bloom's work because of its emphasis on the impact of early environments on human development. "The evidence presented suggests that early environment is likely to be the significant one for the development of many of these characteristics." 55 Bloom emphasizes just how early several achievement characteristics are developed with the following statement:

We may conclude from our results on general achievement, reading comprehension, and vocabulary development that by age nine (grade three) at least fifty percent of the general achievement pattern at age eighteen (grade twelve) has been developed, whereas at least seventy-five percent of the pattern has been developed by about age thirteen (grade seven). 56

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54 Ibid., p. 223.

55 Ibid., p. 229.

56 Ibid., p. 105.
According to Bloom, the environment of elementary schools is a particularly important area for study for two reasons. First, because environment affects human development. Second, because several characteristics of human development which are influenced by environment are the concern of elementary schools.

Educational Environment—Related Research

The purpose of this section is to present related research which will demonstrate that environment, as the conceptual referents indicate, does in fact affect human development. In particular, studies concerned with relationships between socio-economic background and achievement, and the home environment and achievement are cited.

Separate studies by Hill and Grammatteo and by Shaw have provided evidence that there is a correlation between socio-economic background and achievement. Hill and Grammatteo investigated the relationship of socio-economic status to vocabulary achievement, reading comprehension, arithmetic skills and problem-solving. Utilizing interviews to determine the socio-economic status of the selected third graders, and administering a variety of achievements tests, they found a significant positive correlation between high socio-economic status and success in academic achievement.57

Shaw's study, focusing on a group of fourth through eighth grade students, used the Stanford achievement test to obtain achievement data.

His findings demonstrated a significant positive relationship between high income and achievement scores and suggested a substantial relationship between socio-economic status and achievement.58

The powerful effect of the home environment on children's achievement has been notably supported by the findings of Newman, Freeman and Holzinger. Studying pairs of twins who had been separated in early childhood, they rated a number of individual characteristics and rated environments with respect to educational, social, physical and health conditions. They found a high correlation (+.91) between educational environment and school achievement. Identifying relevant aspects of home conditions, they found a strong correlation between environment and achievement.59

The most comprehensive investigation of the influence of environment on achievement was conducted by Dave. After an extensive review of existing literature, he identified twenty-two environmental variables which affected achievement. Using empirical procedures, including parental interviews, and a variety of achievement tests, he found an overall correlation of +.80 between environmental variables and the achievement battery.60


Taken together, these selected environmental studies provide considerable evidence of the positive relationship between environment and achievement. It is possible to conclude, therefore, that there is considerable evidence that environment has an effect on the development of achievement in human beings, and that the early years are most important in this development. Thus, the examination of elementary school educational environments appears to be virtually a necessity.

The first systematic attempt to characterize environments was at the college level. This approach used the collective perceptions of the students. Pace and Stern used this approach as well as the work of Murray in developing their technique. According to Murray, one's degree of success in dealing with an environment is a function of his personality needs and the environmental press. The College Characteristics Index (CCI) was constructed to measure the environmental press. Its items are concerned with an institution's norms within academic, administrative and social areas. Stern's Activities Index (AI) was constructed to measure personality needs. A wide variety of questions about one's personal activities and desires was included.\(^6^1\)

In analyzing the CCI, Pace selected the items which measured most sharply the differences among fifty colleges selected in a normative sample. Only about half of the CCI items were used. This became the basis for the new instrument, College and University Environment Scales (CUES). CUES has five scales: scholarship, awareness, propriety, community and practicality. Institutions are scored along these scales on the basis of student consensus. Thus institutions are rated in five

environmental areas. As a result, each institution may be represented by an environment profile.\textsuperscript{62}

Several scales to measure environment have been created or adapted for use in elementary schools. One of the more popular instruments is the Organizational Climate Description Questionnaire (OCDQ) developed by Halpin and Croft. By use of a sixty-four item scale, the OCDQ attempts to measure school climate by measuring teacher and principal (administrative) characteristics. Teachers are described along the dimensions of hindrance, esprit, disengagement and intimacy. Principals are measured along the variables of aloofness, thrust, productivity and consideration. By comparing teacher and principal scores, the instrument describes a school as closed, paternal, familiar, controlled, autonomous or open.\textsuperscript{63}

An attempt to bridge the gap between the substantial environmental work performed on the college level, and the scant effort expended on the elementary level was made by Sinclair. Sinclair adopted the approach utilized by Pace on the CUES instrument. The Elementary School Environment Survey (ESES) were developed and administered to students in sixteen elementary schools in California. The questions were concerned with the school as perceived by the students. The items were of an agree-disagree nature, and a two-to-one margin was needed in order to score an item, much like public opinion polling. The items were based


on Pace's college items, but adapted for use in elementary schools.

Sinclair found the five variables labeled Practicality, Community, Awareness, Propriety and Scholarship to be empirically related to the environmental variables identified by Dave and Wolf. 64

Sadker, using ESES data collected from fifty-four elementary schools in Massachusetts, modified the original ESES constructs. Student responses were subjected to several factor analyses to determine the salient environmental dimensions of elementary schools. The new variables include Alienation, Humanism, Autonomy, Morale, Opportunism and Resources. 65

In summary, there is evidence that environment influences the development of human characteristics and that the elementary school years are particularly important for this development. Also, there is evidence from the work of Sinclair and his associates, building on the conceptual and empirical referents discussed earlier, that the ESES measures environmental variables which differentiate significantly among elementary schools and which are likely to influence the development of human characteristics. Sinclair's work has focused on total school educational environment. The present study assumes that there is good reason to expect that the classroom will include the same basic environmental variables.


The Relationship Between Teacher Behavior and the Classroom Educational Environment

Although it is logically assumed that teacher behavior is a significant factor in determining classroom environment, it is important that funded knowledge be examined to determine the empirical support for this assumption. Thus, this section describes the relationship between teacher behavior and the classroom educational environment.

Three separate studies by Medley, Fowler, and Walberg have reported evidence to support the assumption that teacher behavior is an important variable in the classroom. Medley used the Edwards Personal Preference Schedule to measure teacher personality, and used pupil reactions to measure teacher-pupil rapport. He found significant correlations between teachers judged highest in teacher-pupil rapport and a number of teacher behaviors. Fowler employed a number of different measures of teacher personality and behavior. He found positive significant correlations between specific variables as measured by these various instruments and (a) teacher behavior, (b) student behavior, and (c) classroom emotional climate. Walberg administered a battery of personality and attitude tests to a group of thirty-six male Physics teachers and administered a Classroom Climate Inventory to their students. He found significant relationships between teacher needs and behaviors, and the climates of their classrooms.


In summary, there is evidence that teacher behavior is a significant factor in determining classroom environment. Thus, there is reason to believe that a relationship might exist between teacher use of behavioral objectives and the educational environment.

This chapter has reviewed the conceptual base and related research for the behavioral objective approach, the conceptual base and related research for the educational environment, and the relationship between teacher behavior and the classroom educational environment. The next chapter presents the methodology for the present study.
CHAPTER III

METHODOLOGY

This chapter describes the methodology of the present study. Procedures for obtaining the sample of twenty-two elementary school classrooms are outlined. Additionally, descriptions are provided for the demographic characteristics of the selected school systems, the process used for data collection and analysis, as well as the instruments utilized in this study.

Sample and Data Collection

The intention of the investigator was to select classrooms representing considerable variability of use of behavioral objectives. Also, the sampling had to be manageable within the financial constraints of the study. To this end, all school districts within a thirty mile radius of the University of Massachusetts were identified and each of the districts was assigned a number. Using a random sampling procedure, nine of these school districts were selected. Superintendents of these districts were contacted both by mail and phone for purposes of soliciting their participation.\(^1\) The study necessitated obtaining a minimum population of three school districts containing a total of at least sixty fifth and sixth grade teachers in order to select a stratified sample of twenty to thirty classrooms. Three of the nine districts responded

\(^1\)See Appendix A for a copy of the letter sent to Superintendents of Schools.
affirmatively. A supervisor in each system was then asked to estimate the extent of use of behavioral objectives by each teacher under his supervision, utilizing an eleven-point scale. This eleven-point scale is known as the Supervisor Statement of Extent of Teacher Use of Behavioral Objectives. Sixty-seven fifth and sixth grade teachers from the three systems were rated. In order to insure a considerable variability of use of behavioral objectives by teachers, a stratified sample was selected from the population of sixty-seven fifth and sixth grade teachers who were rated by the Supervisor Statement. Utilizing a table of random digits, at least three teachers from each strata (each point on the eleven-point scale) were invited to participate in the study. The ratings of the teachers by the supervisors ranged from two to nine; thus, initially, twenty-four teachers were invited to participate in the study. Since some of the teachers declined the invitation, it became necessary to ask other teachers. The final stratified sample consisted of twenty-two classrooms in twelve schools of three school systems.

Selected demographic characteristics of the three school districts are presented in Table 1. The class sizes are presented in Table 2. The supervisor ratings of extent of teacher use of behavioral objectives utilized for selecting the stratified sample are displayed for the fifth and sixth grade populations of the three systems and for the sample of this study in Table 3.

Principals of the participating schools were contacted and arrangements were made for data collection. Students were scheduled to complete the Elementary School Environment Survey (ESES) and teachers were scheduled to complete the Survey of Extent of Teacher Use of
### TABLE 1

**SCHOOL SYSTEM DEMOGRAPHIC INFORMATION**

<table>
<thead>
<tr>
<th>Code Number</th>
<th>Number of Classrooms Investigated</th>
<th>Approximate Socio-Economic Class&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Number of Pupils in School District&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Per-Pupil Expenditure&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Population of Municipality&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Classification of Municipality&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>6</td>
<td>Middle</td>
<td>1,332</td>
<td>$678.00</td>
<td>2,636</td>
<td>Town</td>
</tr>
<tr>
<td>22</td>
<td>10</td>
<td>Middle</td>
<td>5,890</td>
<td>697.00</td>
<td>29,300</td>
<td>Town</td>
</tr>
<tr>
<td>33</td>
<td>6</td>
<td>Middle</td>
<td>7,083</td>
<td>716.00</td>
<td>32,500</td>
<td>City</td>
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</table>

<sup>2</sup>Town and City Monographs for 1970, U.S. Department of Commerce Publication, PC (1)--C23, Massachusetts.
<table>
<thead>
<tr>
<th>Type of School</th>
<th>School Enrollment</th>
<th>Classroom Number</th>
<th>Student Sample</th>
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</thead>
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<tr>
<td>5,6</td>
<td>192</td>
<td>11111</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11112</td>
<td>13</td>
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<td></td>
<td></td>
<td>11113</td>
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<td></td>
<td></td>
<td>11114</td>
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<td>11115</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11211</td>
<td>24</td>
</tr>
<tr>
<td>K-6</td>
<td>636</td>
<td>22111</td>
<td>28</td>
</tr>
<tr>
<td></td>
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<td>22112</td>
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<td>22113</td>
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<tr>
<td>K-6</td>
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<td>K-6</td>
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<td>26</td>
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<tr>
<td>K-6</td>
<td>227</td>
<td>22212</td>
<td>22</td>
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<tr>
<td>K-6</td>
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<td>21</td>
</tr>
<tr>
<td>K-6</td>
<td>580</td>
<td>22214</td>
<td>26</td>
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<td></td>
<td></td>
<td>22215</td>
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<tr>
<td>K-6</td>
<td>221</td>
<td>33111</td>
<td>17</td>
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<td>K-6</td>
<td>330</td>
<td>33112</td>
<td>20</td>
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<td>422</td>
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<td>30</td>
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<tr>
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</tr>
<tr>
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<td>1</td>
<td>2</td>
</tr>
<tr>
<td>-------</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Frequency for Total Population</strong></td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Frequency for Stratified Sample</strong></td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>
Behavioral Objectives (Teacher Survey) in their classrooms during a forty minute period of the regular school day. Arrangements were made for three observers to gather data describing the educational environment as well as for an interviewer to gather data while each teacher displayed and described a recently completed unit of instruction.

A team of ten graduate students was formed to assist in the data collection process. Two seminars were held to discuss the nature of the study, to insure that the instruments would be administered in a uniform fashion and to prepare members of the team for possible problems that might arise. The first seminar focused on the problem and purpose of the study and on the overall plan for data collection. The second seminar concentrated on the specific processes of administration for each instrument. In order to minimize the contamination of data, each researcher was trained to administer one instrument only. Thus, each researcher never saw the administrator or results of any other instrument. Additionally, no computation or analysis was undertaken until all data had been collected.

After the training, the following procedures were used to administer the student questionnaire:

1. The researcher introduced himself to the class, briefly explained the procedure for the forty minutes, and related the general purpose of the questionnaire.

2. Each student was given a copy of the Elementary School Environment Survey, an optical scanning sheet, and a pencil.

3. Students were asked to read the introductory section silently while the researcher reviewed these directions aloud.

4. The procedure for marking the answer sheet was illustrated on the blackboard and students were assisted in filling in the school and class numbers as well as other biographical information.
5. The researcher emphasized the fact that student names were not being requested and that neither the teacher nor the school was being evaluated. Students were told that there was no time limit for completion of the questionnaire and were encouraged to ask for help with questions they did not understand.

6. As each student finished, the researcher collected the questionnaire and informally checked the answer sheet to make certain that all items were completed and that the school and class numbers were clearly marked.

Procedures used for administering the teacher survey were similar to those above, with exception of steps three and four. It was assumed that the teachers would not need as thorough instructions in marking the answers or understanding the directions.

Additionally, the following procedures were used to administer the observation checklist:

1. The observers entered the classroom and sat in a spot that gave them a good view of classroom activities.

2. The observers attempted to keep interruptions to a minimum.

3. The observers responded to each statement, then left the classroom.

Procedures for conducting the interview were as follows:

1. The researcher introduced himself and explained the purpose of the interview.

2. The researcher asked to see a recently completed unit of instruction of mathematics.

3. The researcher asked the teacher to describe her use of each piece of the unit.
4. The interviewer did not show the checklist to the teacher. After the interview, the researcher completed the checklist in a place away from the teacher.

5. On the back of the checklist, the researcher described briefly what the teacher displayed. Most important was the report of the interviewer for each "no" answer recorded on the checklist.

Data were collected from 535 fifth and sixth grade students and twenty-two teachers in twelve elementary schools in three school districts.

Instrumentation

As stated previously, five instruments were administered independently for collecting data; two instruments for describing the educational environment in elementary classrooms and three for describing the extent to which teachers use behavioral objectives. A classroom edition of the Elementary School Environment Survey was used to measure selected aspects of the classroom educational environment. Scores were obtained for the dimensions of Alienation, Humanism, Autonomy, Morale, Opportunism, and Resources. At a time following the administration of the ESES to the student sample, three trained researchers observed consecutively the educational environment of each classroom. Each observer used a checklist consisting of items adapted from the ESES.

The Supervisor Statement of Extent of Teacher Use of Behavioral Objectives, Survey of Extent of Teacher Use of Behavioral Objectives and the Interview Checklist to Determine the Extent of Teacher Use of Behavioral Objectives were used to describe the extent of use of behavioral objectives based on both participant and observer reporting. Each of
these instruments is described in detail in the remainder of this section.

**Elementary School Environment Survey Classroom Edition (ESESC)**

The ESES, originally developed by Sinclair in 1968, was based upon the design used by Pace in the CUES instrument for measuring college environments. The ESES assessed the elementary school environment along the five variables of Propriety, Community, Awareness, Practicality and Scholarship. Using this instrument, Sinclair determined that similarities and differences existed in the educational environment of sixteen California elementary schools.

In an attempt to refine the instrument, Sadker administered the ESES in fifty-four schools in Massachusetts. Sadker used factor analytic techniques to analyze the data which resulted in suggested revisions of the original five environmental variables. The new factors were named Alienation, Humanism, Autonomy, Morale, Opportunism, and Resources. The revised instrument contained forty-two items, including eight that were newly created.

The present study utilizes the revised ESES, but makes a number of minor changes in wording to adapt it for measuring classroom environment. The words "the teacher" are repeatedly substituted for the word

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"teachers," and the word "classroom" or "class" for the word "school." Also, minor changes were made in marking instructions and in the wording of a few questions to provide greater clarity. As finally administered, the instrument is a forty-two item survey of conditions, behaviors and feelings about the classroom educational environment. Students were asked to respond by marking TRUE or FALSE for each statement. The ESES Classroom Edition is included in Appendix B.

An assessment of the reading level of the revised ESES was obtained by Bender. Applying the Lorge Formula for estimating difficulty of reading materials, Bender obtained a Readability Index of 4.47. This indicates that the material is within the reading comprehension of average fourth grade children.5 Lorge cautions that this index should not be considered definitive, "nevertheless, the Lorge formula provides an over-all estimate which should be useful in grading materials."6

Several scoring procedures are available for the ESES. The method used in scoring the original instrument was the "66 plus 33 minus" method. This method consists of assigning a plus one to each item that sixty-six percent of the students answered in the keyed direction, a minus one to each item which thirty-three or less percent of the students answered in the keyed direction, and a zero otherwise. The score of each variable is obtained by summing the item scores for the variable and adding a constant to eliminate negative numbers.


A second scoring procedure has used the percent of students responding to an item in the keyed direction as the item score. The variable score is composed of the means of the item scores that make up a particular variable. This scoring procedure is used in the present study, as it allows for complete utilization of the raw data. The original scoring procedure may cause a loss of important data by assigning a zero to items which are answered in the keyed direction between thirty-three percent and sixty-six percent of the students.

In measuring students' perceptions of the environment, a high degree of consensus among the respondents is desirable, thus it is hoped that there will be a low variance in the distribution of scores within a given classroom, and a high variance in the distribution of scores among classrooms. To obtain a measure of reliability, a one-way analysis of variance was computed between the ESES factors across classrooms. The results of this computation are displayed in Table 4. The F-ratios for Alienation (3.96, p <.05), Humanism (6.07, p <.05), Autonomy (5.49, p <.05), Morale (7.21, p <.05), Opportunism (2.31, p <.01), and Resources, (20.13, p <.05) are significant. This suggests that the mean score for each variable for each classroom is a true indicator of that variable. More simply, this means that the twenty-two classrooms do not have the same score for Alienation, Humanism, etc.

The one-way analysis of variance demonstrates that there is greater variance in the distribution of scores between classrooms than within classrooms. Thus, there is sufficient evidence to indicate that the mean score for each variable is a reliable indication of that variable.

Another means of measuring reliability of the ESES was undertaken by Phillips. He collapsed data across classes and obtained a reliability estimate for each variable and the test as a whole using the Kuder-Richardson Formula 20. Phillips reported their reliability estimates: Alienation .64, Humanism .59, Autonomy .58, Morale .73, Opportunism .34, Resources .54, and the test as a whole .79. Given the stated limitations, the reliability estimates limitations, the reliability estimates are relatively high for Alienation, Autonomy, Morale, Resources, and for total responses. The reliability estimates for Humanism and Opportunism are low and suggest the need for further refinement of these variables.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Source</th>
<th>DF</th>
<th>SS</th>
<th>MSS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alienation</td>
<td>Between</td>
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<td>29399.92</td>
<td>1399.99</td>
<td>3.96*</td>
</tr>
<tr>
<td></td>
<td>Within</td>
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<td>163152.35</td>
<td>353.14</td>
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<td>Total</td>
<td>483</td>
<td>192552.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanism</td>
<td>Between</td>
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<td>56148.54</td>
<td>2673.74</td>
<td>6.07*</td>
</tr>
<tr>
<td></td>
<td>Within</td>
<td>496</td>
<td>218290.56</td>
<td>440.10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
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<td>274439.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy</td>
<td>Between</td>
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<td>45115.84</td>
<td>2148.37</td>
<td>5.49*</td>
</tr>
<tr>
<td></td>
<td>Within</td>
<td>503</td>
<td>196714.91</td>
<td>391.08</td>
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<td></td>
<td>Total</td>
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<td>241830.76</td>
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<tr>
<td>Morale</td>
<td>Between</td>
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<td>2756.19</td>
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<tr>
<td></td>
<td>Within</td>
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<td>195225.20</td>
<td>382.04</td>
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<td></td>
<td>Total</td>
<td>532</td>
<td>253105.23</td>
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</tr>
<tr>
<td>Opportunism</td>
<td>Between</td>
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<td>731.33</td>
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<td></td>
<td>Within</td>
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<td>Total</td>
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<td>Resources</td>
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<td>Within</td>
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<td>Total</td>
<td>525</td>
<td>350336.85</td>
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</tbody>
</table>

*p < .05

**p < .01
The validity of the present form of the ESES is reviewed by means of (a) earlier studies employing the instrument, (b) an examination of the reactions and comments of pupils regarding specific items, (c) a systematic examination of the instrument by the investigator, and (d) a factor analysis of the items.

First, content validity is considered. Sinclair reviewed Pace's analysis of the psychometric properties of the CUES instrument and Pace's conclusion that the substance or content of the measure is representative of the environment being considered. Sinclair showed that the derived items in the ESES were representative of the characteristics of the defined environmental variables.  

Although it may be assumed that content validity may be implied for the ESESC from the original ESES, the investigator has made a systematic effort to analyze the instrument for content validity. After administering the instrument in each classroom, members of the data collection team were consulted and they reported that there were repeated questions and problems regarding the following four items only:

18. Most students in this class are not interested in such things as poetry, music or painting.
21. Students know who the most important people are in this classroom.
27. The teacher seldom takes this class to the library so that students can look up information.
31. Many students in this class do not behave while they are on the playground.

Given the threat to content validity posed by the difficulty students had in understanding the meaning of each of these items, all four are excluded from the analysis of the data. Further systematic examination of the instrument by Bender and McKay led them to believe that the items reflected the appropriate environmental variables with the exception of the following item: "Most of the teachers in this school are unfriendly." Thus, to strengthen the construct of the Morale and Resources factor, this item was associated with Morale rather than with the Resources variable. Based on these conclusions, the similar item in the present study, Number 17, is included in the Morale scale.

Support for the construct validity of the ESES was provided by a factor analytic study conducted by Sadker. Two analyses were performed. One factor analysis concerned itself with individual student responses. In the second analysis, each school was treated as an independent subject. A generalized Harris-Kaiser program was used to perform an oblique axes analysis, in addition to an orthogonal axes analysis of the VARIMAX program. After his analysis, Sadker suggested revisions of the original five environment variables. The new factors were named Alienation, Humanism, Morale, Autonomy, Opportunism, and Resources.

In order to gather data which is likely to be helpful in further refinement of the instrument and which will provide further evidence concerning construct validity, a principal component factor analysis was performed. Three problems were faced in this attempt. First, the

previous analysis involved two separate populations, students who completed form A and students who completed form B of the original ESES. These groups were considered by Sadker in separate factor analyses, and the findings were combined to suggest the six new environmental factors. The present factor analysis differs from Sadker's in that data were obtained from a single population of students. A second difference concerns the number of items included in the analysis. In factor analytic studies, it is mathematically desirable to have a sample at least twice as large as the number of variables. Since this was not possible in the current analysis, spurious results may have occurred in the factor loadings. The third problem concerns the wording of the items. The words "the teacher" are repeatedly substituted for the word "teachers" and the word "classroom" or "class" for the word "school." Although these changes in wording are minor, they may cause spurious results in the factor loadings.

As in Sadker's study, an orthogonal axes analysis of the VARIMAX program was performed. The factor matrix derived from this program served as input to a generalized Harris-Kaiser oblique analysis. The factor loadings and communality values resulting from the factor analysis of data gathered from the sample in this study did not correspond with results obtained by Sadker. This is due largely to a sample that was too small for a factor analysis, and the changes in wording of the items. Thus, it seems reasonable to assume that the factor analysis conducted in the present study may be invalid.

Given the results of the factor analyses conducted by Sadker, it may be assumed that the classroom edition of the ESES had construct
validity at a level of confidence that permits its use for research purposes, but not at a level of confidence that permits one to interpret findings without taking into consideration the fact that the validity could be strengthened and needs further examination. As Cronbach has noted, "... construct validity is established through a long-continued interplay between observation, reason and imagination." Further refinement of the ESES is needed, and continued collection of evidence is necessary if construct validity is to be established.

Elementary School Environment Survey
Observation Checklist (ESES O)

The ESES Observation Checklist is essentially the same instrument as the ESES Classroom Edition. The present study makes a number of minor changes in the format in order to adapt the ESES for use as an observation checklist. The same items and factors were used in order to maintain the validity and reliability of the original ESES.

However, several items, which the investigator judged to be difficult to observe, were excluded from use. They are:

--Students in this classroom sometimes make plans to do something bad to the school.

--Most students in this class are not interested in such things as poetry, music or painting.

--If students are unhappy in this class, the teacher will call their parents.

--Students in this classroom are very quick to tell the teacher about things that should be changed.

--Many of the students in this classroom say that they do not like the rules made by the teacher.

---

---Many students in this class do not behave while they are on the playground.

---Students in this classroom will have it easier if the teacher knows them well.

---One way to get good grades in this classroom is to be nice to the teacher.

---Students know who the most important people are in this classroom.

---Students in this classroom often take field trips to interesting places.

Also, minor changes were made in instructions and in marking responses. The observers were given the opportunity to respond with more than a simple TRUE or FALSE. The observers were instructed to respond to each item as follows:

For each statement, indicate the extent of evidence which you observe as support for the statement. In the blanks provided, insert the number of the comment which best describes what you observe.

1 -- Strong evidence that the statement is true.
2 -- Weak evidence that the statement is true.
3 -- No evidence that the statement is either true or false.
4 -- Weak evidence that the statement is false.
5 -- Strong evidence that the statement is false.

As finally administered, the instrument is a thirty-two item survey of conditions, behaviors and feelings about the classroom educational environment. The ESES Observation Checklist is included in Appendix C.

At a time following the administration of the ESESC to the student sample, three trained researchers observed consecutively the educational environment of each classroom. Total observation time was approximately one hour per classroom. The ESES Observation Checklist was scored in the same manner as the ESES Classroom Edition.

Although it is assumed that validity may be implied for the ESESO from the ESESC, a systematic effort has been made to analyze the
instrument for content validity. After administering the instrument in each classroom, members of the data collection team reviewed evident problems and discovered that the following five items generated appreciable misunderstanding:

5. Students do not get any special favors in this classroom.

13. The teacher takes this class to the library so that students can look up information.

16. Students in this classroom do not work on projects by themselves.

17. The teacher does not talk to students about concerts, plays and museums.

23. Most students in this class do not like to get into any kind of argument.

It should be noted that item thirteen is the same as one of the items excluded from the analysis of the ESES Classroom Edition. Given the threat to content validity posed by the difficulty observers had in understanding the meaning of each of these items, they are all excluded from the analysis of the data. Also, for reasons described earlier, the following item is associated with the Morale variable rather than the Resources variable:

8. The teacher in this classroom is unfriendly.

Additionally, resultant differences between the data obtained from the ESESC and the ESES0 were determined. In order to determine if the differences between student and observer perceptions of the educational environment were significant, supporting Murray's distinction between Alpha and Beta presses, a t-test was conducted. The t-test was applied to the mean scores for each variable across classrooms. The t-values, presented in Table 5, indicate that there is a significant (p<.025) difference between the mean scores for each variable. The
| Table 5: T-Test Results Conducted on the ESESCL and ESSES by Variable |
|-----------|--------|----------------|---------|----------------|-----------------|-----------------|
| Variable  | Number of Cases | Mean | Standard Deviation | T Value | Degrees of Freedom | 2-Tail Prob. |
| ESESCL    |                  |      |                    |         |                  |                |
| Alienation| 22               | 30.25| 8.23               | 1.44    | 21               | .023           |
| ESESCL    |                  | 28.45| 8.05               |         |                  |                |
| Humanism  | 22               | 55.23| 11.11              | -4.90   | 21               | .000           |
| ESESCL    |                  | 67.89| 9.94               |         |                  |                |
| Autonomy  | 22               | 52.35| 9.32               | 3.94    | 21               | .001           |
| ESESCL    |                  | 39.77| 18.76              |         |                  |                |
| Morale    | 22               | 63.93| 10.79              | -3.01   | 21               | .003           |
| ESESCL    |                  | 73.49| 14.59              |         |                  |                |
| Opportunism| 22              | 35.64| 5.50               | -8.48   | 21               | .000           |
| ESESCL    |                  | 53.96| 9.45               |         |                  |                |
| Resources | 22               | 59.95| 18.58              | 2.57    | 21               | .013           |
| ESESCL    |                  | 50.00| 15.35              |         |                  |                |
differences are such that the students perceived more Alienation, Autonomy and Resources, and less Humanism, Morale and Opportunism than the observers. Thus, it seems reasonable to assume that Murray's distinction between Alpha and Beta presses is warranted.

Further, the scores of the ESESC and ESESO variables were correlated so that the nature of the differences between the student and observer perceptions of the educational environment could be better understood. The results, displayed in Table 6, indicate that there is a significant positive correlation between the Alienation (.59, p < .004), Autonomy (.62, p < .002), and Resource (.44, p < .041) scores on the ESESC and the ESESO. This suggests that as the students perceived greater amounts of Alienation, Autonomy and Resources, the observers also perceived greater amounts of Alienation, Autonomy and Resources.

**Supervisor Statement of Extent of Teacher Use of Behavioral Objectives (Supervisor Statement)**

Because supervisors have had the opportunity to observe the teachers on more than one occasion, they are considered a valuable data source for this study. One Curriculum Coordinator and eight Principals were asked to rate, on an eleven-point scale, the extent of use of behavioral objectives by each teacher under his supervision. Those teachers who received the highest rating were considered to be those who use behavioral objectives to the greatest extent. Results of the administration of this instrument were utilized to select the stratified sample. A copy of this instrument is included in Appendix E.
TABLE 6

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE EESCC AND EESCO BY VARIABLE

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation Coefficient</th>
<th>2-Tail Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>EESCC Alienation EESCO</td>
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<td>.004</td>
</tr>
<tr>
<td>EESCC Humanism EESCO</td>
<td>.309</td>
<td>.162</td>
</tr>
<tr>
<td>EESCC Autonomy EESCO</td>
<td>.622</td>
<td>.002</td>
</tr>
<tr>
<td>EESCC Morale EESCO</td>
<td>.336</td>
<td>.126</td>
</tr>
<tr>
<td>EESCC Opportunism EESCO</td>
<td>-.067</td>
<td>.767</td>
</tr>
<tr>
<td>EESCC Resources EESCO</td>
<td>.439</td>
<td>.041</td>
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</table>
Survey of Extent of Teacher Use of Behavioral Objectives (Teacher Survey)

This instrument was used to measure the extent of use of behavioral objectives as reported by teachers. Questions refer to those attributes of objectives most frequently mentioned in the literature—whether or not objectives exist and are stated in behavioral terms, as well as whether pre-tests, learning activities, evaluation, record keeping and reports of student progress are commensurate with usage as characterized by the behavioral objective approach.

Both multiple-choice and open-ended questions were used. Multiple-choice items were scored on a scale of one to four. Open-ended items were scored by comparing all responses with each other and then assigning a score of zero through three to each response. Scores were totalled enabling the investigator to describe teachers who receive the highest score as those who use behavioral objectives to the greatest extent. A copy of this instrument is included in Appendix F.

Interview Checklist to Determine the Extent of Teacher Use of Behavioral Objective: (Interview Checklist)

This checklist was administered during an interview with each teacher. During the interview, each teacher was asked to display and explain a recently completed unit of instruction for mathematics. Four of the teachers in this study do not teach mathematics—they displayed and explained a unit for language arts. This instrument reports extent of use of behavioral objectives based on whether or not objectives exist and are stated in behavioral terms, as well as whether pre-tests, learning activities, evaluation, record keeping and reports of student progress
are commensurate with usage as characterized by the behavioral objective approach. In order to score responses, the interviewer checked each item on the checklist as "yes" or "no." Teachers who receive the most "yes" answers are considered to be those who use behavioral objectives to the greatest extent. A copy of this instrument is included in Appendix H.

To assure that the items used in the three instruments designed to measure the extent of teacher use of behavioral objectives were valid and reflected common expectations for teachers who use objectives, the items were presented to three experts. These persons, who have demonstrated a sound knowledge of the behavioral objective approach, as judged by the investigator, are:

1. The Director of the Center for Educational Research,
2. The Coordinator of the National Evaluation Training Service, and
3. The Coordinator of the Learning Systems Development Program, all located at the University of Massachusetts, Amherst. Items were presented in list form, with instructions to separate those items related to the use of behavioral objectives from those that were not. All items judged acceptable by a two to one margin were utilized. Suggestions involving wording and format were used to further refine the items before presentation to the teacher sample.

Further validity (concurrent) was determined as the result of field testing the three instruments. Fifteen teachers believed to use behavioral objectives were included in the field trials. These fifteen teachers were not members of the school systems involved in the actual study. In addition to establishing validity, field test data were used
to study the range of item response, to test instructions and procedural
details, and to identify ambiguous items.

The three sets of scores for the field test sample were corre-
lated using the Pearson product-moment technique. These coefficients,
presented in Table 7, suggest that the scores for the Teacher Question-
naire are significantly related to the scores of the Supervisor Statement
(.74) and the Interview Checklist (.76). Further, the scores of the
Supervisor Statement are significantly related to the scores of Interview
Checklist (.87). Thus, it is reasonable to assume that these three in-
struments have considerable concurrent validity, and that they may be
used with a reasonable level of confidence.

Table 7

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE TEACHER
SURVEY, INTERVIEW CHECKLIST, AND SUPERVISOR STATEMENT,
USED TO DETERMINE THE EXTENT OF TEACHER USE OF
BEHAVIORAL OBJECTIVES

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Teacher Survey</th>
<th>Interview Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview Checklist</td>
<td></td>
<td>.76</td>
</tr>
</tbody>
</table>

| Supervisor Statement | .74 | .87 |
Following the administration of these three instruments to the sample in this study, a measure of reliability was obtained using the Kuder-Richardson Formula 20. The reliabilities, presented in Table 8, are relatively high for both the Teacher Questionnaire (.82) and the Interview Checklist (.84). No reliability estimate was determined for the Supervisor Statement as it is a single-item instrument.

**TABLE 8**

KUDER-RICHARDSON (20) RELIABILITY ESTIMATES FOR THE TEACHER SURVEY, INTERVIEW CHECKLIST, AND SUPERVISOR STATEMENT, USED TO DETERMINE THE EXTENT OF TEACHER USE OF BEHAVIORAL OBJECTIVES

<table>
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<td>Teacher Survey</td>
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</tr>
<tr>
<td>Interview Checklist</td>
<td>.84</td>
</tr>
<tr>
<td>Supervisor Statement</td>
<td>None</td>
</tr>
</tbody>
</table>

Extent of use of behavioral objectives is reported as a composite score. A composite score is used because perceptions of many individuals tend to provide descriptions that are closer to reality than the perception of a single individual. The composite score used to determine the extent of teacher use of behavioral objectives is intended to be based on both participant and observer reporting; that is, the reports of teachers, supervisors and interviewers.

The composite score was determined by scoring each instrument, correlating the scores of the instruments with each other, and building
the composite based on the results of the correlations of the three instruments. The correlation coefficients for the three sets of scores are displayed in Table 9. These coefficients suggest that the scores for the Teacher Survey are not significantly related to the scores of the Supervisor Statement (.30) or the Interview Checklist (.27).

**TABLE 9**

**PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE TEACHER SURVEY, INTERVIEW CHECKLIST, AND SUPERVISOR STATEMENT, USED TO DETERMINE THE EXTENT OF TEACHER USE OF BEHAVIORAL OBJECTIVES**

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Teacher Survey</th>
<th>Interview Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview Checklist</td>
<td>.27</td>
<td></td>
</tr>
<tr>
<td>Supervisor Statement</td>
<td>.30</td>
<td>.92</td>
</tr>
</tbody>
</table>

Examination of the responses of individual teachers supports the lack of relationship between the Teacher Survey and the Supervisor Statement or the Interview Checklist. For example, teacher A reported using pre-tests all the time. Yet, the interviewer reported that pre-tests did not exist for the unit that teacher A displayed. This consistent gap between what teachers perceived about their own use of behavioral objectives and their real use of behavioral objectives provides further evidence that the teacher survey cannot be interpreted at a level of
confidence as a measurement of the extent of teacher use of behavioral objectives. The investigator assumes that because the scores of the Supervisor Statement and the Interview Checklist are significantly related (.92), that they are more valid measures of the extent of teacher use of behavioral objectives than the Teacher Survey. Thus, the composite score describing the extent of teacher use of behavioral objectives was determined by standardizing the scores of the Supervisor Statement and the Interview Checklist and then adding these z-scores together.

In summary, each of the five instruments employed in the present study has adequate reliability and four have adequate validity to permit further use in empirical studies. At the present time, questions may be raised concerning the validity of the teacher survey. At the same time, construct validity has not been fully established for any of the instruments. Thus, interpretation of the results of the present study must take into consideration the limitations of the instrumentation and the findings should be viewed at a level of confidence commensurate with the exploratory nature of this study.

The results of the ESC and ESES0 were summarized in terms of variable scores for each classroom. The results of the extent of teacher use of behavioral objectives instruments were summarized in terms of scores for each teacher. The relationships between the educational environments of elementary classrooms and the extent of teacher use of behavioral objectives were determined by employing appropriate correlational techniques. Several correlations were computed using the demographic data, the composite scores for the extent of teacher use of behavioral objectives, and the variable scores for the EESC and ESES0. The next chapter offers an analysis of the data and a discussion of the findings.
CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

This chapter describes the analysis and interpretation of data obtained in the present study. The organization of the chapter is based on the three research objectives stated in Chapter I:

1. To determine to what extent behavioral objectives are used in selected elementary classrooms.

2. To describe selected variables of the educational environment in classrooms where behavioral objectives are used.

3. To determine if there is a significant relationship between the extent of teacher use of behavioral objectives and selected variables of the educational environment.

The results obtained for each of the five instruments utilized in this study are described in detail. Included are composite descriptions of both the extent of teacher use of behavioral objectives and selected variables of the educational environment in classrooms where behavioral objectives are used.

The Extent of Teacher Use of Behavioral Objectives in Selected Elementary Classrooms

Three instruments were used for collecting data describing the extent to which teachers use behavioral objectives. Results obtained for each of these instruments as they relate to accomplishing research objective number 1 are described in detail in this first section.
Supervisor Statement of Extent of Teacher Use of Behavioral Objectives (Supervisor Statement)

Because supervisors have the opportunity to observe the teachers on more than one occasion, they are considered to be a valuable data source for determining the extent of teacher use of behavioral objectives. One Curriculum Coordinator and eight Principals were asked to rate, on an eleven-point scale, the extent of use of behavioral objectives by each teacher under his supervision. Those teachers who received the highest score were considered to be those who used behavioral objectives to the greatest extent. Results of the administration of the Supervisor Statement, presented in Table 10, were utilized to select a stratified sample so as to insure a considerable variability of use of behavioral objectives by teachers in the present study.

The supervisor ratings range from zero to nine on the eleven-point scale. The mode of ratings is four; that is, twenty-five of the sixty-seven teachers rated received a score of four. The distribution of all ratings approaches a nearly normal distribution. Further, this distribution of the supervisors' ratings suggest that teachers vary in their use of behavioral objectives. It is difficult to interpret what this uneven use means based on the results of the Supervisor Statement alone, as it is a one-item instrument. The results, however, of the Survey of Extent of Teacher Use of Behavioral Objectives and the Interview Checklist to Determine the Extent of Teacher Use of Behavioral Objectives offer evidence in detail that there is indeed variance in the use of behavioral objectives; uneven use of pre-tests, learning activities, evaluation, record keeping and reporting of student progress. Additionally, there is a significant positive correlation (.92, p < .001)
<table>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<td>7</td>
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<td>3</td>
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<td>67</td>
</tr>
<tr>
<td>Frequency for Total Population</td>
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<td>0</td>
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<td>3</td>
<td>4</td>
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<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>22</td>
</tr>
</tbody>
</table>

TABLE 10

SUPERVISOR RATINGS OF THE EXTENT OF TEACHER USE OF BEHAVIORAL OBJECTIVES
between the Supervisor Statement and the Interview Checklist which supports further the perceptions of the supervisors.

Survey of Extent of Teacher Use of Behavioral Objectives (Teacher Survey)

The Survey of Extent of Teacher Use of Behavioral Objectives (Teacher Survey) was used to measure the extent of use of behavioral objectives as reported by teachers. Questions refer to those attributes of objectives most frequently mentioned in the literature. Both multiple-choice and open-ended questions were used. Multiple-choice questions were scored on a scale of one to four. Open-ended questions were scored by comparing all responses with each other and then assigning a score of zero through three to each response. Scores were totalled enabling the investigator to describe teachers who receive the highest score as those who use behavioral objectives to the greatest extent.

A composite of teachers' reports describing their own use of behavioral objectives looks like this. Sixty-four percent of the teachers stated that they use objectives defined in behavioral terms. Thirty-two percent use pre-tests for all or many of these objectives. Eighty-two percent of the teachers reported that their learning activities are designed to meet stated objectives. Eighty-seven percent reported that they use post-tests for all or many of these objectives and ninety-one percent stated that their post-tests match the objectives. Fourteen percent of the teachers use a record keeping procedure which records student performance in terms of accomplishment of objectives. One hundred percent

1 For an item by item report of the results of the Teacher Survey, see Appendix G.
of the teachers reported that they rely on the use of traditional report cards with letter grades for reporting student progress to parents.

Ninety-one percent of the teachers stated that more than half of the objectives they use are part of the cognitive domain. Supplementary this, fifty-nine percent of the teachers reported that less than one quarter of the objectives they use are part of the affective domain. Further, ninety-five percent of the teachers stated that less than one quarter of the objectives they use are part of the psychomotor domain.

Teachers seem to use behavioral objectives most when teaching math or science, and least when teaching language arts, social studies, health or humanistic education. The reasons most often given for this use are: (1) "it is easier to state objectives for math and/or science," and (2) "teachers are expected to use them when teaching math or science." When asked to state the subject matter disciplines in which behavioral objectives seem to work best, teachers most often cited math or science, "because these subject matter disciplines lend themselves to the use of behavioral objectives."

The results of the Teacher Survey offer evidence that there is uneven use of behavioral objectives. Most teachers seem to use behavioral objectives defined in behavioral terms, use learning activities designed to meet stated objectives, and use post-tests for all of these objectives. Fewer teachers use pre-tests for their objectives or use a record keeping procedure which records student performance in terms of accomplishing objectives. No teachers seem to report progress of individual students to parents in terms of specified learning objectives. Thus, the results of the Teacher Survey support the results of the Supervisor Statement: there
is uneven use among teachers of pre-tests, learning activities, evaluation, record keeping and reporting of student progress as characterized by the behavioral objective approach.

**Interview Checklist to Determine the Extent of Teacher Use of Behavioral Objectives (Interview Checklist)**

The Interview Checklist to Determine the Extent of Teacher Use of Behavioral Objectives was administered during an interview with each teacher. During the interview, each teacher was asked to display and explain the use of a recently completed unit of instruction for mathematics. The interviewer reported the extent of teacher use of objectives, pre-tests, learning activities, evaluation, record keeping and reporting of student progress as characterized by the behavioral objective approach. In order to score responses, the interviewer checked each item of the checklist as "yes" or "no." Teachers who received the most "yes" answers were considered to be those who use behavioral objectives to the greatest extent.

A composite of interview reports describing the extent of teacher use of behavioral objectives is as follows.² Eighty-two percent of the teachers in this sample use units containing objectives, yet, only eighteen percent of the teachers define objectives in behavioral terms; that is, stating what the learner is expected to do, how well the learner is expected to achieve, and under what circumstances the learner's performance will be evaluated. Fifty percent use pre-tests in the units, yet, only thirty-two percent use pre-tests which measure the behaviors stated

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²For an item by item report of the results of the Interview Checklist, see Appendix I.
in the unit's objectives. Ninety-six percent have learning activities stated for each objective, and seventy-seven percent use alternate learning activities for each objective. Ninety-six percent use post-tests in the units, yet, only twenty-three percent of the teachers use post-tests which measure the behaviors stated in the unit's objectives. Twenty-three percent of the teachers use a record keeping procedure characterized by the behavioral objective approach. The procedure most often employed was a checklist using the students' names on one axis and the number of each objective on the other axis. As each student completed an objective, it was checked off. One hundred percent of the teachers use a traditional report card with letter grades for reporting student progress to parents.

Of all teachers, only eighteen percent indicated they were utilizing a full behavioral objective approach; that is, teaching units that contained objectives stated in behavioral terms, using pre-tests and post-tests which measure the behaviors stated in the unit's objectives, and keeping records of which objectives were accomplished by each student. The remaining eighty-two percent seemed to utilize parts of the behavioral objective approach. These two groups of teachers displayed distinct manners of using behavioral objectives. Each manner is described below.

Those using the behavioral objective approach to the greatest extent defined objectives for each student for the entire school year. After some form of needs assessment, the teacher defined X number of objectives for each student to accomplish. The student was informed that these were the objectives he was expected to accomplish during the
remainder of the school year. Each objective was stated in precise behavioral terms: each stated what the learner is expected to do, how well the learner is expected to achieve, and under what circumstances the learner's performance was to be evaluated. The students were tested every month. These tests were designed to measure student performance toward meeting each objective defined by the teacher. The post-test scores also served as pre-test scores for the next instructional unit. Thus, after each test, the student was aware of which objectives he had met, and which objectives he had not yet met. Records of each student's accomplishments were kept by use of a checklist. As the student met objective, that objective was checked off and the date of evaluation was noted. The teachers in this group used a traditional report card with letter grades for reporting student progress to parents. This means that parents were not informed of student progress based on reports of accomplishment for each objective. Rather, student progress was reported as a letter grade for each subject; e.g., Mathematics A, Reading B, etc.

The second group of teachers relied on objectives stated in teacher manuals. Some objectives were stated in terms of what the student was expected to do, and some were stated in terms of what the teacher was expected to do. All objectives were not stated in precise behavioral terms; most stated what the learner was expected to do, but did not state how well the learner was expected to achieve, or under what circumstances the learner's performance was to be evaluated. The teachers often used pre-tests and post-tests outlined in the teacher manuals, yet, these tests did not measure the same behaviors. The pre-test asked for a simple computation; e.g. simplify $2/4$. The post-test defined a word
problem; e.g. what part of the pie did Johnny eat if the pie had eight pieces and Johnny ate four? Many varied learning activities were used by each teacher, but it was not clear whether or not they were alternate learning activities based on each student's needs. Record keeping was accomplished largely by keeping quiz scores in "class record" or "rank" books. Each teacher in this group used a traditional report card with letter grades for reporting student progress to parents.

Supervisor, teacher and interview responses were transferred from the questionnaires to computer cards. Items were scored and added in order to obtain scores for each teacher for each instrument. The scores for each teacher for the Supervisor Statement, Teacher Survey and Interview Checklist are displayed in Table 11. Included are means and standard deviations across classes.

The scores for each of the three instruments designed to determine the extent of teacher use of behavioral objectives display a considerable range. The Supervisor Statement scores range from two to nine on an eleven-point scale. The Teacher Survey scores range from twenty-nine to sixty-six on a scale from zero to one hundred. The Interview Checklist scores range from one to nine on a ten-point scale. These ranges of scores further suggest uneven use of behavioral objectives by teachers.

Considering the findings presented in the various descriptions for each instrument, it is appropriate to state that there is variance in the use of behavioral objectives by teachers. Specific findings of the data analysis provide sufficient evidence to describe this uneven use as follows:
<table>
<thead>
<tr>
<th>Classroom</th>
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<th>Teacher Survey</th>
<th>Interview Checklist</th>
</tr>
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<td></td>
<td>4.95</td>
<td>2.39</td>
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<td></td>
</tr>
</tbody>
</table>
1. Few teachers (eighteen percent) fully use a behavioral objective approach.

2. Most teachers (eighty-two percent) use units containing objectives, yet, few teachers (eighteen percent) use objectives that are defined in behavioral terms; what the learner is expected to do, how well the learner is expected to achieve the objective, and under what circumstances the learner's performance will be evaluated.

3. Many teachers (fifty percent) use pre-tests in the units they teach, yet, few teachers (thirty-two percent) use pre-tests which measure the behaviors stated in the unit's objectives.

4. Most teachers (ninety-six percent) have learning activities stated for each objective, yet, fewer teachers (seventy-seven percent) use alternate learning activities for each objective.

5. Most teachers use post-tests in the units they teach, yet, few teachers (twenty-three percent) use post-tests which measure the behaviors stated in the unit's objectives.

6. Few teachers (twenty-three percent) use a record keeping procedure which allows for records of each student's accomplishment of each objective.

7. None of the teachers report progress of individual students to their parents in terms of specific learning objectives. All teachers in this sample use a traditional report card with letter grades for reporting student progress to parents.

On the basis of statistical evidence and the various descriptions of the extent of teacher use of behavioral objectives, research objective number 1 has been achieved.
A Description of Selected Variables of the Educational Environment in Classrooms Where Behavioral Objectives Are Used

Two instruments were used for collecting data describing selected variables of the educational environment—the Elementary School Environment Survey Classroom Edition (EESc) and the Elementary School Environment Survey Observation Checklist (EESCO). Results obtained for each of these instruments as they relate to accomplishing research objective number 2 are described in detail in the remainder of this section.

Elementary School Environment Survey Classroom Edition (EESc)

Student responses to the six factors assessed by the EESc were transferred from optical scanning sheets to computer cards. The percentage of keyed student responses was determined for each item, classroom by classroom. Items were then grouped according to each factor designation. Next, individual item scores within each factor designation were averaged to obtain variable scores for each classroom. This procedure provided a percentage score for all classrooms for each environment variable; thus, each variable score represents the percentage of responding students who perceived the classroom educational environment in the keyed direction. The six environmental scores for each classroom are depicted in Table 12. Included are means and standard deviations for each variable.

Despite the considerable variance in extent of teacher use of behavioral objectives across classrooms, all sampled classrooms using behavioral objectives are examined together. The mean percentage scores
<table>
<thead>
<tr>
<th>Classroom Number</th>
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<th>Factor Autonomy</th>
<th>Morale</th>
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for Alienation (30.31) and Opportunism (35.51) suggest that there are relatively low levels of Alienation and Opportunism in classrooms where behavioral objectives are used. The mean percentage scores for Humanism (55.36), Autonomy (52.07), Morale (62.82), and Resources (51.54) are higher than those for Alienation and Opportunism. These scores suggest that moderate levels of Humanism, Autonomy, Morale, and Resources are found in classrooms where behavioral objectives are used.

Elementary School Environment Survey Observation Checklist (ESESO)

Observer responses to the six factors assessed by the ESESO were transferred from answer sheets to computer cards. The percentage of keyed observer responses was determined for each item, classroom by classroom. Items were then grouped according to factor designation. Next, individual item scores within each factor designation were averaged to obtain variable scores for each classroom. This procedure provided a percentage score for all classrooms for each environmental variable; thus, each variable score represents the percentage of responses by three observers who perceived the classroom educational environment in the keyed direction. The six environmental scores for each classroom are depicted in Table 13. Included are means and standard deviations for each variable.

Despite the considerable variance in extent of teacher use of behavioral objectives across classrooms, all sampled classrooms using behavioral objectives are examined together. The mean percentage scores for Alienation (26.45) and Autonomy (39.77) suggest that there are relatively low levels of Alienation and Autonomy in classrooms where
### TABLE 13

**ELEMENTARY SCHOOL ENVIRONMENT SURVEY OBSERVATION CHECKLIST SCORES BY VARIABLE BY CLASSROOM**

<table>
<thead>
<tr>
<th>Classroom Number</th>
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<th>Factor</th>
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<td>58.33</td>
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</table>

| MEAN | 26.4 | 67.90 | 39.77 | 73.48 | 55.97 | 50.00 |
| S.D.  | 8.05 | 9.84  | 18.76 | 14.59 | 9.45  | 15.35 |
behavioral objectives are used. The mean percentage scores for Humanism (67.90), Opportunism (55.97), and Resources (50.00) are higher than those for Alienation and Autonomy. These scores suggest that moderate levels of Humanism, Opportunism, and Resources are found in classrooms where behavioral objectives are used. The mean percentage score for Morale (73.48) suggests that there is a relatively high level of Morale in classrooms where behavioral objectives are used.

In order to characterize selected variables of the educational environment in classrooms where behavioral objectives are used, the investigator has referred to the ideal educational environment postulated by McKay. McKay stated:

...the ideal climate requires consideration of the needs and motivations of those working and learning within the school. A desirable educational environment would be one which would be likely to foster the growth and development of its' students.  

The environment, which McKay described, represents the desirable direction toward which elementary classrooms should strive. The desirable directions include low scores for Alienation and Opportunism, and high scores for Humanism, Autonomy, Morale, and Resources.  

Considering the findings presented in the various descriptions for the EESCC and EESO, and McKay's descriptions of the ideal educational environment, it is appropriate to describe the educational environment of elementary classrooms where behavioral objectives are used as follows.


4Ibid.
Alienation: The low scores on this factor reflect the presence of a student body which feels involved in classroom affairs. Students demonstrate their involvement by internalizing classroom norms in academic pursuits and obedience to classroom rules and regulations. The atmosphere is congenial and there is a cohesiveness and a sense of togetherness in this climate.

This factor, then, encompasses environmental characteristics such as the presence of cohesion, concern and a sense of involvement. The relatively low scores for this variable are desirable.

Humanism: The classroom scores for this variable reflect a moderate concern for the value of the individual. It is a fairly supportive climate that is marked by a reasonable level of courtesy.

In addition, this value placed on the individual is carried over to his personal acts of expression, specifically aesthetic expression. This climate demonstrates a concern for creativity, and it is supportive of poetry, music, painting, and theater. A classroom characterized by this atmosphere is concerned with the integrity of the individual and respect for his cultural and aesthetic expression.

It is desirable that environments possess a high score for this variable. Reflective of a concern for the integrity and value of the individual, classrooms must support and inspire creativity in the personal acts of individual students. Thus, the scores for this variable ideally could be higher in classrooms where behavioral objectives are used, than the moderate levels reported here.
Autonomy: The moderate scores for this variable reflect an environment which is fairly supportive of student independence. This climate suggests student initiative as well as autonomy.

It is desirable for a classroom to receive a high score on this variable. It is important that educational environments support and encourage the opportunity for students to share in the responsibility for their own learning. It is likewise crucial that sufficient opportunities exist for maturity to be developed through sufficient interaction with teachers and other adults. Thus, the scores for this variable ideally could be higher than the moderate levels reported here in classrooms where behavioral objectives are used.

Morale: The statements contained in this variable relate to student attitudes towards the classroom. The moderately high scores for this variable indicate a friendly and cheerful classroom environment. This environment may be described as a happy one in which learners and teachers have a warm relationship. The moderately high scores for this factor are desirable.

Opportunism: The items contained in this variable reflect an environment which is characterized by behavior which adapts to expediency or circumstance. The low to moderate scores for this variable suggest a climate in which one does not gain much social capital and/or academic status by behaving in an appropriate manner with important and powerful people.

We need classrooms which foster honesty and straight-forward behavior, unclouded by the entrepreneurial activity and political maneuvering characteristic of higher scores for this variable.
Thus, the low to moderate scores for this variable are desirable. Resources: The items in this variable reflect the number of optional learning opportunities available to and initiated for the students. The emphasis here is in the availability of in-class as well as extra-class resources. Included in this category are such resources as written materials, field trips, television, exhibits and music. The availability of friendliness of the teacher as a supporting service for learning is also included in this variable.

Classrooms should score high on this variable. The moderate scores on this variable suggest that the variety of learning activities offered to learners is less than desirable for an ideal educational environment.

Another way of describing selected variables of the educational environment of elementary classrooms in which behavioral objectives are used is to isolate five classrooms in which teachers display greatest extent of use of behavioral objectives and five classrooms in which teachers display least extent of use of behavioral objectives. Following the isolation, profiles for each variable of the educational environment were constructed for each classroom displaying high and low use of behavioral objectives. An examination of classroom profiles is a useful way to analyze the similarities and differences between educational environments across all variables for both greatest and least extent of use of behavioral objectives. It places the variables in context with each other, and provides a visual presentation of the data.

Inspection of these profiles, depicted in Figures 1 through 12, reveals the following:
1. Figures 1 and 2 suggest that classrooms in which behavioral objectives are used to the greatest extent tend to contain lower levels of Alienation than classrooms in which behavioral objectives are used to the least extent.

2. Figures 3 and 4 suggest that classrooms in which behavioral objectives are used to the greatest extent tend to contain higher levels of Humanism than classrooms in which behavioral objectives are used to the least extent.

3. Figures 5 and 6 suggest that classrooms in which behavioral objectives are used to the greatest extent tend to contain higher levels of Autonomy than classrooms in which behavioral objectives are used to the least extent.

4. Figures 7 and 8 suggest that classrooms in which behavioral objectives are used to the greatest extent tend to contain higher levels of Morale than classrooms in which behavioral objectives are used to the least extent.

5. Figures 9 and 10 suggest that classrooms in which behavioral objectives are used to the greatest extent tend to contain higher levels of Opportunism than classrooms in which behavioral objectives are used to the least extent.

6. Figures 11 and 12 suggest that classrooms in which behavioral objectives are used to the greatest extent tend to contain higher levels of Resources than classrooms in which behavioral objectives are used to the least extent.

In order to summarize these data, two additional profiles were constructed. These profiles, depicted in Figures 13 and 14, compare the
mean scores for the selected variables of the educational environment in the five classrooms in which teachers display the greatest use of behavioral objectives and the five classrooms in which teachers display the least use of behavioral objectives. These data suggest that classrooms in which behavioral objectives are used to the greatest extent, tend to contain lower levels of Alienation, and higher levels of Humanism, Autonomy, Morale, Opportunism, and Resources than classrooms in which behavioral objectives are used to the least extent.

Findings suggest that the educational environment in elementary classrooms is not damaged by the use of behavioral objectives. Further, these findings counter criticism offered in opposition to a behavioral objective approach, particularly that criticism which implies that the use of behavioral objectives may result in a less human, mechanical, educational environment.

On the basis of statistical evidence and the various descriptions of selected variables of the educational environment in elementary classrooms in which behavioral objectives are used, research objective number 2 has been achieved.

Relationships Between the Extent of Teacher Use of Behavioral Objectives and Selected Variables of the Educational Environment

Specific bivariate relationships were tested to determine if research objective number 3 was accomplished by obtaining Pearson product-moment correlations between the composite score describing the extent of teacher use of behavioral objectives and selected variables of the educational environment. As stated previously, the composite score describing the extent of teacher use of behavioral objectives was determined
Figure 1

A Comparison of Alienation Scores in the Educational Environment of Classrooms in Which Teachers Display Greatest Use of Behavioral Objectives

Figure 2

A Comparison of Alienation Scores in the Educational Environment of Classrooms in Which Teachers Display Least Use of Behavioral Objectives
Figure 3

A Comparison of Humanism Scores in the Educational Environment of Classrooms in Which Teachers Display Greatest Use of Behavioral Objectives

![Bar chart showing humanism scores in different classrooms](image)

Figure 4

A Comparison of Humanism Scores in the Educational Environment of Classrooms in Which Teachers Display Least Use of Behavioral Objectives

![Bar chart showing humanism scores in different classrooms](image)
Figure 5
A Comparison of Autonomy Scores in the Educational Environment of Classrooms in Which Teachers Display Greatest Use of Behavioral Objectives

Figure 6
A Comparison of Autonomy Scores in the Educational Environment of Classrooms in Which Teachers Display Least Use of Behavioral Objectives
Figure 7

A Comparison of Morale Scores in the Educational Environment of Classrooms in Which Teachers Display Greatest Use of Behavioral Objectives

Figure 8

A Comparison of Morale Scores in the Educational Environment of Classrooms in Which Teachers Display Least Use of Behavioral Objectives
Figure 9

A Comparison of Opportunism Scores in the Educational Environment of Classrooms in Which Teachers Display Greatest Use of Behavioral Objectives

Figure 10

A Comparison of Opportunism Scores in the Educational Environment of Classrooms in Which Teachers Display Least Use of Behavioral Objectives

ESESC  ESES0
Figure 11

A Comparison of Resource Scores in the Educational Environment of Classrooms in Which Teachers Display Greatest Use of Behavioral Objectives

Figure 12

A Comparison of Resource Scores in the Educational Environment of Classrooms in Which Teachers Display Least Use of Behavioral Objectives
Figure 13

A Comparison of Mean ESESC Scores in Classrooms Where Teachers Display Greatest and Least Use of Behavioral Objectives

Figure 14

A Comparison of Mean ESES0 Scores in Classrooms Where Teachers Display Greatest and Least Use of Behavioral Objectives

Greatest Use of Behavioral Objectives

Least Use of Behavioral Objectives
by scoring the Supervisor Statement, Teacher Survey, and the Interview Checklist, correlating the scores of the three instruments with each other, and building the composite based on the results of the correlations of the three instruments. The composite score describing the extent of teacher use of behavioral objectives was determined by standardizing the scores of the Supervisor Statement and the Interview Checklist and then adding these z-scores together. This composite is known as Composite 101 (one part Supervisor Statement, no inclusion of the Teacher Survey, one part Interview Checklist). The educational environments of elementary classrooms were described based on the perceptions of two separate groups—students and observers. The environment variables for each group were correlated separately with the behavioral objective variables.

The Pearson product-moment correlations and significance levels for the ESESC scores and the behavioral objective scores are presented in Table 14. Inspection reveals that four of the six possible relationships between the extent of use of behavioral objectives and selected variables of the educational environment of elementary classrooms as perceived by students were significant (p < .05). Humanism (.61, p < .002), Morale (.37, p < .045), and Resources (.59, p < .003) scores were found to be positively related to the extent of teacher use of behavioral objective scores. The Alienation (-.45, p < .018) score was found to be negatively related to the extent of teacher use of behavioral objective scores.

The Pearson product-moment correlations and significance levels for the ESES0 scores and the behavioral objective scores are presented
in Table 15. Inspection reveals that five of the six possible relationships between the extent of teacher use of behavioral objectives and selected variables of the educational environment of elementary classrooms as perceived by observers were significant (p < .05). Humanism (.55, p < .004), Autonomy (.46, p < .017), Morale (.45, p < .019), and Resources (.61, p < .002) scores were found to be positively related to the extent of teacher use of behavioral objective scores. The Alienation score (-.40, p < .034) was found to be negatively related to the extent of teacher use of behavioral objective scores.

These relationships suggest that as the extent of teacher use of behavioral objectives increases, the level of Alienation decreases, and the levels of Humanism, Autonomy, Morale, and Resources increase in the educational environment of elementary classrooms. Thus, on the basis of statistical evidence, significant relationships between the extent of teacher use of behavioral objectives and selected variables of the educational environment have been found and research objective number 3 has been achieved.

Since correlational techniques are concerned only with the degree of relation of two variables, it is not possible to suggest cause and effect inferences from the bivariate findings reported above. For example, the finding of a significant negative relation between the behavioral objective scores and the Alienation scores, does not enable us to conclude that the increased teacher use of behavioral objectives causes students and observers to perceive decreased amounts of Alienation in the educational environment. The correlational findings, however, do provide indications of useful starting points for experimental research into
### TABLE 14

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE ESESC VARIABLES AND THE BEHAVIORAL OBJECTIVE VARIABLES*

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<th>Extent of Teacher Use of Behavioral Objectives (Comp. 1-0-1)</th>
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</tr>
<tr>
<td></td>
<td>.018</td>
<td>.002</td>
<td>.106</td>
<td>.045</td>
<td>.235</td>
<td>.003</td>
</tr>
</tbody>
</table>

### TABLE 15

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE ESESO VARIABLES AND THE BEHAVIORAL OBJECTIVE VARIABLES*

<table>
<thead>
<tr>
<th>Extent of Teacher Use of Behavioral Objectives (Comp. 1-0-1)</th>
<th>Alienation</th>
<th>Humanism</th>
<th>Factor Autonomy</th>
<th>Morale</th>
<th>Opportunism</th>
<th>Resources</th>
</tr>
</thead>
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<tr>
<td></td>
<td>-.398</td>
<td>.554</td>
<td>.455</td>
<td>.448</td>
<td>.145</td>
<td>.613</td>
</tr>
<tr>
<td></td>
<td>.034</td>
<td>.004</td>
<td>.017</td>
<td>.019</td>
<td>.260</td>
<td>.002</td>
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</table>

*Two values are reported for each relationship: The first value is the Pearson r; the second value is the significance level p for a two-tailed test.
possible causal relationships. For school personnel, it should be particularly useful to know that it is possible to examine classroom conditions such as Alienation, Humanism, Morale, etc., and that these features are significantly related to the extent of teacher use of behavioral objectives.
CHAPTER V

SUMMARY AND IMPLICATIONS FOR FURTHER RESEARCH

The purposes of this chapter are to summarize the findings of this research and to identify significant additional areas of research suggested by this study.

Summary

The central purpose of this study was to determine the relationship between the extent of teacher use of behavioral objectives and selected variables of the educational environment of elementary classrooms. The following three research objectives were generated for the study based on a review of existing research:

1. To determine to what extent teachers use behavioral objectives in selected elementary classrooms.

2. To describe selected variables of the educational environment in classrooms where behavioral objectives are used.

3. To determine if there is a significant relationship between the extent of teacher use of behavioral objectives and selected variables of the educational environment.

The data for reaching these objectives were gathered from twenty-two teachers and their 535 students in twelve schools of three school systems. Five instruments were used for gathering data; two instruments for describing the educational environment of elementary classrooms and and three for describing the extent to which teachers use behavioral
objectives. A classroom edition of the Elementary School Environment Survey (ESES) was used to measure selected aspects of the classroom educational environment. Scores were obtained for the dimensions of Alienation, Humanism, Autonomy, Morale, Opportunism, and Resources. At a time following the administration of the ESES to the student sample, three trained researchers observed consecutively the educational environment of each classroom. Each observer used a checklist consisting of items adapted from the ESES.

The Supervisor Statement of Extent of Teacher Use of Behavioral Objectives, Survey of Extent of Teacher Use of Behavioral Objectives and the Interview Checklist to Determine the Extent of Teacher Use of Behavioral Objectives were used to describe the extent of teacher use of behavioral objectives based on both participant and observer reporting. Questions refer to those attributes of objectives most frequently mentioned in the literature. The number of items were adjusted where necessary to obtain a balance of topics. Both forced-choice and open-ended questions were used.

On the basis of statistical evidence and the various descriptions of both the extent of teacher use of behavioral objectives and selected variables of the educational environment in elementary classrooms, the three research objectives were achieved. The findings of the investigation indicated that there is variance in the use of behavioral objectives by teachers, that selected variables of the educational environment, though less than ideal, seemed not to be damaged by the use of behavioral objectives, and that there is a significant relationship (p < .05) between teacher use of behavioral objectives and selected variables of the
educational environment. Specific findings of the data analysis provided sufficient evidence to warrant the following conclusions:

1. The students' perceptions of Alienation \((r = -0.453, p < 0.018)\) in the educational environment were significantly related negatively to the extent of teacher use of behavioral objectives.

2. The students' perceptions of Humanism \((r = 0.610, p < 0.002)\), Morale \((r = 0.370, p < 0.045)\), and Resources \((r = 0.585, p < 0.003)\) in the educational environment were significantly related positively to the extent of teacher use of behavioral objectives.

3. The observers' perceptions of Alienation \((r = -0.398, p < 0.034)\) in the educational environment were significantly related negatively to the extent of teacher use of behavioral objectives.

4. The observers' perceptions of Humanism \((r = 0.554, p < 0.004)\), Autonomy \((r = 0.455, p < 0.017)\), Morale \((r = 0.448, p < 0.019)\), and Resources \((r = 0.613, p < 0.002)\) in the educational environment were significantly related positively to the extent of teacher use of behavioral objectives.

5. Few teachers (eight percent) fully use a behavioral objective approach.

6. Most teachers (eighty-two percent) use units containing objectives, yet, few teachers (eighteen percent) use objectives that are defined in behavioral terms; what the learner is expected to do, how well the learner is expected to achieve the objective, and under what conditions the learner's performance will be evaluated.
7. Many teachers (fifty percent) use pre-tests in the units they teach, yet, few teachers (thirty-two percent) use pre-tests which measure the behaviors stated in the unit's objectives.

8. Most teachers (ninety-six percent) have learning activities stated for each objective, yet fewer teachers (seventy-seven percent) use alternate learning activities for each objective.

9. Most teachers use post-tests in the units they teach, yet, few teachers (twenty-three percent) use post-tests which measure the behaviors stated in the unit's objectives.

10. Few teachers (twenty-three percent) use a record keeping procedure commensurate with the behavioral objective approach.

11. All of the teachers (one hundred percent) use a traditional report card with letter grades for reporting student progress to parents.

12. The educational environments in classrooms where behavioral objectives are used contain low levels of both Alienation and Opportunism.

13. The educational environments in classrooms where behavioral objectives are used contain moderate levels of Humanism, Autonomy and Resources.

14. There is a moderate to high level of Morale in the educational environment in classrooms where behavioral objectives are used.

Implications for Further Research

Conduction of the present study has revealed the need for further investigation into (1) the use of behavioral objectives by teachers,
(2) the educational environment of elementary classrooms, and (3) the relationship between the use of behavioral objectives and the educational environment of elementary classrooms. Studies that would extend the meaning of this research to educators are discussed in the remainder of this section.

Use of Behavioral Objectives

In the midst of recent charges of educational crisis, the teacher has emerged bearing the brunt of critics. As the person in direct contact with students, the teacher is held responsible for what happens behind the classroom door. The teacher is the one to be accused if Johnny does not learn to read, add, etc.

Too often, teachers design their activities based on "What shall I do?". More important is the question, "What do I want my learners to become?". With this question as a base for curricular decisions, the teacher can decide what educational purposes she is trying to attain, what educational experiences can be provided that are likely to attain these purposes, and how can she determine whether these purposes are attained. From this basic curriculum guideline, several research questions arise regarding the goal-setting behavior and the instructional behavior of teachers for determining the resultant behavior (learning) of students. For example, how do we train teachers to develop meaningful objectives based on the needs of individual students? How do we train teachers to provide appropriate learning experiences that are likely to help individual students attain stated objectives? How do we train teachers to evaluate students in terms of resultant learning? Clearly, teachers should be employed to promote behavior changes in
students. Further research must be conducted to determine means of training teachers to develop appropriate behavior patterns for determining resultant behavior changes (learning) in students.

In Chapter II, several examples illustrating existing disagreement regarding the definition of objectives were presented. Some objectives were stated as a general goal. Others were extremely specific in regard to measurability. Yet the author of each statement considered it to be a behavioral objective. Research could be conducted to determine ways of clarifying the definition and meaning of behavioral objectives. Further, the level of specificity seems to generate much disagreement. Research is needed to study various levels of specificity and how each level might influence classroom conditions. For example, should behavioral objectives have a higher degree of specificity for different subject-matter disciplines? Is a level of specificity more appropriate for the cognitive domain than the affective domain?

The present study has concerned itself with the specific behaviors exhibited by a teacher who uses behavioral objectives. Additional research might be beneficial in finding methods for determining the extent of teacher use of behavioral objectives other than those utilized in the present investigation. Another study might concern itself with discovering if there are certain types of teacher behavior that are dictated by a teacher's use of behavioral objectives. For instance, are teachers who use behavioral objectives more responsive to student needs? Are teachers who use behavioral objectives less capable of coping with emerging classroom problems?
Another important issue well worth pursuing concerns the appropriate use of behavioral objectives. Are behavioral objectives more appropriate and useful in some subject matter disciplines than in others? Are they equally appropriate for cognitive, affective and psychomotor development? Are they equally appropriate for both lower and higher order objectives as characterized by Bloom? Further, are there learning activities of value in and of themselves which should be made available to students even though specific behavioral objectives cannot be stated in advance?

This study has shown that record keeping of individual student progress by way of behavioral objectives has been limited. Prior to the advent of behavioral objectives, grouping of units and the like into courses was familiar and has been taken for granted. Now with subtargets made visible in the form of objectives, there should be an interesting set of challenges in recording the student’s mastery of the various objectives. What sort of recording is going to be made at the level of mastery of individual objectives? How will the record of accomplishment be maintained in the student file so that counselors, teachers, colleges and employers may know exactly what has been mastered by the individual student?

The selection of behavioral objectives has been left to either the textbook publishers or the teachers. The selection of objectives by students has apparently not been explored fully. Future studies might explore ways in which students might make contributions to determine (1) the objectives themselves, (2) the particular learning activities to reach those objectives, and (3) ways in which students might best be evaluated in terms of his progress towards the objectives.
Educational Environment

In Chapter III, concern was expressed about the validity and reliability of instruments used in this study. A study should be conducted of psychometric properties of the Elementary School Environment Survey when adapted for the classroom. Such a study could perform an item analysis utilizing both the student and classroom as the experimental unit, examine the effect of slight word changes in certain items, and consider the issue of reliability of the subtests included in the instrument. Additional factor analysis is also warranted as an important phase of continuing research on the ESES.

Procedures should be developed for obtaining environmental perceptions of students enrolled in grades lower than five and six. Also urgently needed is educational environment research at the secondary level. Such studies should provide further understanding about the dynamics of the environment at different stages of a student's schooling.

The ESES seems adequate for obtaining information regarding the classroom educational environment. It is likely that various procedures for the collection of evidence about the educational environment could be further developed for studying the characteristics of classroom atmosphere. The observation method utilized in this study, for example, might be refined and additional interview techniques might be explored in the hope of providing valuable environmental information. More ways to gather information about environments will result in greater understanding of the characteristics of the classroom atmosphere.

Another important consideration for additional research regards the stability and change of educational environments. The present
investigation has provided a measure of the environment at a single point in time. It is likely that environmental features will vary from hour to hour, day to day, and year to year. Considerable research is needed to determine the influence of these environmental fluctuations on both cognitive and affective areas of student development.

Further research questions arise regarding the interaction between classroom environment and student behavior. For example, what particular environment is appropriate for bringing about desired changes in children? Or, how do we determine if certain environments help or hinder student learning? Will a major change in environment result in corresponding changes in student characteristics? What are the times in a child's development when environmental intervention will result in the greatest amount of change? These questions are related to differences in environments and students. Further research much be done to determine the relevance of such questions for understanding the educational impact the elementary classroom environment has on the learner.

The present study focused on the relationship between the extent of teacher use of behavioral objectives and selected variables of the classroom environment. Variables other than the use of behavioral objectives can influence classroom atmosphere. Additional research is needed to identify important independent variables. For example, does class use or type of educational program affect the climate of classrooms? Not until we better know what factors influence the classroom environment will we be able to generate specific conditions that foster learning or eliminate conditions that hinder learning.
Relationships Between the Use of Behavioral Objectives and the Educational Environment

As regards to the results of the present study, several directions for research seem appropriate. It should be noted that the purposes of this study were exploratory. The results of this study have revealed certain relationships between the extent of teacher use of behavioral objectives and the educational environment of elementary classrooms. Further research should refine the present research design and replicate the study. Additionally, the replication might define with greater precision the relationships explored.

The determination of correlational relationships between selected phenomena is a useful prelude to experimental research. The significant relationships discovered in the present study should be used in further research of a more experimental nature. It is hoped that research could be designed to test the causal relationships between the selected variables of Alienation, Humanism, Autonomy, Morale, and Resources in the educational environment and the extent of teacher use of behavioral objectives.

As school implement behavioral objectives (as well as other curricular changes), careful determination of varying effects on educational environments seems necessary. In order to maintain a perspective of environmental conditions throughout the adoption and implementation of attempts at educational change, a longitudinal study could be employed. One purpose of such a study would be to provide continuous feedback concerning the effects of change on the environment in individual classrooms. Another use of a longitudinal study would be to guide direction for future change.
It is hoped that the present study will stimulate further investigation into the use of behavioral objectives and the characteristics of educational environment. It is here that research should enable educators to understand the diverse and complex effects of undertaking curricula change.
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APPENDIX A

LETTER TO SUPERINTENDENTS OF SCHOOLS
Mr. John Smith
Superintendent of Schools
Amherst Regional School District
Amherst, Massachusetts  01050

Dear Mr. Smith:

I am a doctoral candidate at the University of Massachusetts in the final stages of my program. Presently, I am drawing a sample and collecting data for my dissertation. One of my advisors, Bob Sinclair, suggested that you might be interested in supporting this study.

The dissertation is intended to study the relationship between the extent of teacher use of behavioral objectives and the educational environment of elementary classrooms. Thus, the study has three purposes:

1. To determine to what extent behavioral objectives are used in selected elementary classrooms.

2. To describe selected variables of the educational environment where behavioral objectives are used.

3. To determine if there is a significant relationship between the extent of use of behavioral objectives and selected variables of the educational environment.

Please find enclosed a brief but expanded description of the proposed study so that you might gain a clearer perspective. This description contains an introduction, the purpose of the study, a description of the procedures including sampling, instrumentation and analysis, and time involvement. Please note the time involvement for your system. Approximately five to ten classrooms will be utilized from each system supporting the study to make up the entire sample.

Additionally, these qualifications will be adhered to strictly:

1. Confidentiality of teachers will be protected.

2. Time and operational details will be arranged in concert with the wishes of building principals.
I would like to include your School District as part of the sample. Please advise me of this possibility. Time is becoming increasingly important, and, if convenient, I would appreciate an early response.

Sincerely,

Laurence Howard Kahn
549-3952

Enclosure
A. Introduction

During the last decade, behavioral objectives have become an accepted though controversial part of school curricula. Behavioral objectives have been employed in many new and diverse educational enterprises; including large-scale curriculum revisions, planning and evaluation models, federally aided projects and performance contracts.

Though objectives are often cited by proponents and opponents alike as the intrusion of technical, systematic approach, there is surprisingly little empirical attention given to the effects of objective usage. The very sensibleness of the objective-based approach may have obscured the need for research. Jenkins and Deno agree that research on the use of behavioral objectives is needed.

Further research on behavioral objectives is urgently needed, and the most basic unit of possible research seems to concern objectives and the classroom. If behavioral objectives are to be used in an effective manner, then research must provide direction.

The various aspects of behavioral objectives have only begun to be studied. Some curriculum theorists have defined objectives, others have described their use. Some researchers have investigated teachers' skill in recognizing and writing proper behavioral objectives. Others have studied teachers' attitudes toward the use of behavioral objectives and students' differential learning due to the use of this instructional tool. One aspect that seems slighted for investigation is the relationship between behavioral objectives and the educational environment of elementary classrooms.

Research has indicated that classroom environment is affected by teachers' behavior. It is logical to assume that the use of behavioral objectives is likely to affect teacher behavior; thus, there is reason to believe that relationships might exist between the use of behavioral objectives and the educational environment.

B. Purpose of the Study

The present study is designed to achieve three purposes:

1. To determine to what extent behavioral objectives are used in selected elementary classrooms.

2. To describe selected variables of the educational environment in classrooms where behavioral objectives are used.

3. To determine if there is a significant relationship between the extent of use of behavioral objectives and selected variables of the educational environment.
Meaning of educational environment: Educational environment is defined as "the conditions, forces and external stimuli which exert an influence on the individual. The environment is conceived to be a complex system of situational determinants fostering the development of individual characteristics. The determinants may be factors of social, physical and intellectual significance." This conceptualization of environment, developed by Sinclair (1968) is based on an earlier assumption by Murray (1938) that behavior is a function of the transactional relationship between the individual and his environment.

Building on this environmental rationale, Sinclair defined and measured five environmental variables that exist and differentiate among elementary schools. His Elementary School Environment Survey (ESES) was designed to measure the manifestations of each variable in elementary schools. Sadker (1971) cooperating with Sinclair, further refined the meaning of educational environment to include six new factors: alienation, humanism, autonomy, morale, opportunism, and resources.

Meaning of behavioral objective: Most influential on the wording of objectives has been Mager. His criterion of an acceptable objective is: "Basically, a meaningfully stated objective is one that succeeds in communication to the reader the writer's instructional intent. It is meaningful to the extent it conveys to others a picture (of what a successful learner will be like) identical to the picture the writer has in mind."

Further defined, the standard of objectives is that they clearly answer the following questions:

1. Does the statement describe what the learner will be doing when he is demonstrating that he has reached the objective?

2. Does the statement describe the important conditions (givens of restrictions, or both) under which the learner will be expected to demonstrate his competence?

3. Does the statement indicate how the learner will be evaluated? Does it describe at least the lower limit of acceptable performance?

Numerous writers have reworded the criteria stated above, but in general, there is agreement that an objective should contain a measurable student behavior, a context or statement of conditions in which measurement will occur, and an acceptable level of performance.

C. Procedures--Sample

In order to meet the three objectives stated in the purpose of the study, a sample, instruments and data analysis have been considered.
The sample will be drawn from several school systems with different demographic characteristics. The use of several school systems is intended to provide sufficient data for measuring the variability of extent of use of behavioral objectives both among systems and among the classrooms within a system. Initially, extent of use of behavioral objectives will be estimated by an instrument administered to supervisors. This instrument, developed through a pilot study, will ask the supervisor to rate, on an eleven-point scale, the extent of use of behavioral objectives by each fifth and sixth grade teacher under his supervision. From this larger population (approximately sixty teachers), a stratified sample of twenty to thirty teachers and students will be drawn. This stratification will be based upon the extent of teacher use of behavioral objectives and will utilize an equal number of teachers from each stratum in order to make the sample more representative of a larger population.

**Instrumentation and Analysis.** The investigator has considered five instruments for use in gathering data; two instruments for describing the educational environment in elementary classrooms and three for describing the extent to which teachers use behavioral objectives. The investigator will describe the educational environment of elementary classrooms based on data obtained through the use of both Alpha and Beta presses as defined by Murray. The students (as Beta press) will be administered the ESES developed by Sinclair and Sadker. The present study makes minor changes based on both past research findings by McKay (1971) and the need to adapt the instrument to measure classroom educational environments. Past studies have shown the instrument to be high in reliability and in both content and construct validity. At a time following the administration of the ESES to the student sample, three trained observers (as Alpha press) will observe consecutively the educational environment of each classroom. Each observer will use a checklist consisting of items adapted from the ESES.

In order to determine the extent of use of behavioral objectives, three instruments will be utilized by the investigator. These instruments will describe the extent of use of behavioral objectives based on both observer and participant reporting. The first of three instruments designed by the investigator will measure the extent of use of behavioral objectives as reported by teachers. Questions refer to those attributes of objectives most frequently mentioned in the literature. The number of items will be adjusted where necessary to obtain a balance of topics. Both forced-choice and open-ended questions will be used.

The second instrument to be used to determine the extent of use of behavioral objectives will be a checklist administered during an interview with each teacher. During the interview, each teacher will be asked to display and explain a recently completed unit of use of behavioral objectives based on whether or not objectives exist and are stated in behavioral terms, as well as whether or
not pre-tests, learning activities, evaluation, record keeping, and reports of students' progress are commensurate with usage as characterized by the behavioral objective approach. In order to score responses, the interviewer will check each item on the checklist as "yes" or "no." Teachers who receive the most "yes" answers will be considered those who use objectives to the greatest extent.

The third instrument designed to determine the extent of use of behavioral objectives will be administered to one or more supervisors of the teachers in the sample. The supervisors have had the opportunity to observe the teachers on more than one occasion and can be considered a valuable data source. The instrument will ask the supervisor to rate on an eleven-point scale the extent of use of behavioral objectives by each teacher under his supervision. Those teachers who receive the highest score will be considered those who use behavioral objectives to the greatest extent.

Finally, in order to determine if there are significant relationships between the extent of use of behavioral objectives and the educational environment of elementary classrooms, appropriate correlational techniques will be employed.

Time involved. First, a supervisor will be asked to rate each teacher under his supervision. This will require less than one hour's time. Next, students will be administered the ESES and teachers will be administered the teacher report of extent of use of behavioral objectives within a single hour on a single day. In addition, one hour will be needed by trained teams for on-site observations to gather data describing the educational environment. Beyond this, the teachers will be asked to allow a brief (less than one hour) interview to display and describe a recently completed unit of instruction.

This is intended to involve one supervisor, five to ten fifth and sixth grade teachers and their students from your system. Data collection will take place between March 12th and April 13th, 1973.
APPENDIX B

ELEMENTARY SCHOOL ENVIRONMENT SURVEY
(CLASSROOM EDITION)
We are interested in your ideas about your classroom. You know a lot about the classroom because you spend a good part of your time in school working and learning there. We are asking you to be a reporter and tell your thoughts about your classroom.

Please understand that this is not a test, and there are no right or wrong answers. In fact, we do not even ask your name. We simply want your honest ideas about your class. Thank you for helping us.

Please read each item carefully and answer in terms of how well the statement describes your classroom. Please mark your response to each item clearly on the answer sheet provided. Use pencil only. Erase completely to change answers.

Marking Answers to Biographical Information (Use Items 1-8 on the answer sheet)

1-3. Fill in the school number as directed by the proctor.

4-5. Fill in the class number as directed by the proctor.

6. Sex: 1 Girl
   2 Boy

7. Grade: 1 Fifth
   2 Sixth
   3 Ungraded

8. Please indicate how long you have been in this class:
   1 Since school in September
   2 I entered the class after September but before January
   3 I entered the class after January

Marking Answers to Sentences

There are forty-two sentences about classrooms in this booklet. You are to mark each sentence TRUE or FALSE. When you think a sentence correctly describes your classroom, mark that sentence TRUE by filling in space number 1 on the answer sheet. In other words, blacken in space number 1 if you think the sentence tells the way things usually are in your
classroom, what happens or might happen there, or the way people usually act or feel.

Fill in space number 2 on the answer sheet if the sentence is FALSE or is not the way things usually are in your classroom, is not what happens or might happen there, or is not the way people usually act or feel.

The following sample shows how to mark a sentence:
Sample sentence: 

Homework in this class is very easy.  

In this example, the student marked box number 1 on the answer sheet to show that homework in this class is very easy. In other words, the student reported that the sentence was TRUE.

Now you are ready to mark each of the forty-two sentences in the booklet. It is important to remember that the sentences are about your classroom.

Think about each sentence carefully and answer as honestly as you can. Take your time and mark only one space for each sentence. Make sure all sentences are marked.

Find sentence 9 below and space number 9 on the answer sheet and begin.

9. Students in this classroom are very quick to tell the teacher about things that should be changed.

10. Students almost always wait to be called on before speaking in this classroom.

11. Students do not pay much attention to classroom rules and regulations.

12. Students often tell the teacher what they would like to study.

13. Students may take books or other materials from the shelves without the permission of the teacher.

- TURN TO THE NEXT PAGE PLEASE -
14. Students do not get any special favors in this classroom.
15. Many students like to stay around after the class is over.
16. The teacher in this classroom tries extra hard to help students.
17. The teacher in this classroom is unfriendly.
18. Most students in this class are not interested in such things as poetry, music, or painting.
19. Students often work in small groups of about three or four students without the teacher.
20. One way to get good grades in this classroom is to be nice to the teacher.
21. Students know who the most important people are in this classroom.
22. Students in this classroom often interrupt while someone else is talking.
23. This class teaches students to be polite.
24. Many students in this classroom help each other with their classwork.
25. Most students in this classroom take a lot of care about their school work.
26. Students in this classroom have many chances to help other students.
27. The teacher seldom takes this class to the library so that students can look up information.
28. This classroom has very few exhibits and pictures for students to look at.
29. Many of the students in this classroom say that they do not like the rules made by the teacher.
30. Students in this classroom know when they can get away with doing something wrong.
31. Many students in this class do not behave while they are on the playground.
32. Students in this classroom do not work on projects by themselves.

- TURN TO THE NEXT PAGE PLEASE -
33. The teacher does not talk to students about concerts, plays and museums.

34. Many students in this classroom get into trouble with the teacher.

35. The teacher is too busy to talk to students about their problems or to give them extra help.

36. It is difficult for students in this classroom to get the teacher to like them.

37. Students in this classroom sometimes make plans to do something bad to the school.

38. Students in this classroom often take field trips to interesting places.

39. The teacher in this classroom usually checks to make sure that students finish their school work.

40. Most students in this class do not like to get into any kind of argument.

41. This classroom seems to be an unfriendly place.

42. In this classroom students have many chances to listen to music.

43. Many of the students in this class are unhappy about the class.

44. The students in this classroom feel like they are one big family.

45. Sometimes students in this classroom watch lessons on television.

46. When students do something wrong in this classroom, they usually get caught.

47. The teacher in this classroom watches the students closely when they work to make sure there are no mistakes.

48. The teacher in this classroom cares about the problems that students are having.

49. If students are unhappy in this class, the teacher will call their parents.

50. Students in this classroom will have it easier if the teacher knows them well.

END

THANK YOU
APPENDIX C

ELEMENTARY SCHOOL ENVIRONMENT SURVEY
(OBSERVATION CHECKLIST)
ELEMENTARY SCHOOL ENVIRONMENT SURVEY

OBSERVATION CHECKLIST

For each statement, indicate the extent of evidence which you observe as support for the statement. In the blanks provided, insert the number of the comment which best describes what you observe.

1 -- Strong evidence that the statement is true.
2 -- Weak evidence that the statement is true.
3 -- No evidence that the statement is either true or false.
4 -- Weak evidence that the statement is false.
5 -- Strong evidence that the statement is false.

Please use one of the above numbers for each statement. It is important that you respond to each item.

__(1)__ Students wait to be called on before speaking in this classroom.

__(2)__ Students do not pay much attention to classroom rules and regulations.

__(3)__ Students tell the teacher what they would like to study.

__(4)__ Students may take books or other materials from the shelves without the permission of the teacher.

__(5)__ Students do not get any special favors in this classroom.

__(6)__ Many students like to stay around after the class is over.

__(7)__ The teacher in this classroom tries extra hard to help students.

__(8)__ The teacher in this classroom is unfriendly.

__(9)__ Students work in small groups of about three or four students without the teacher.

__(10)__ Students in this classroom often interrupt while someone else is talking.

__(11)__ This class teaches students to be polite.

__(12)__ Students in this classroom have chances to help other students.

__(13)__ The teacher takes this class to the library so that students can look up information.

__(14)__ This classroom has very few exhibits and pictures for students to look at.
1 -- Strong evidence that the statement is true.
2 -- Weak evidence that the statement is true.
3 -- No evidence that the statement is either true or false.
4 -- Weak evidence that the statement is false.
5 -- Strong evidence that the statement is false.

---

(15) Students in this classroom know when they can get away with doing something wrong.
(16) Students in this classroom do not work on projects by themselves.
(17) The teacher does not talk to students about concerts, plays and museums.
(18) Many students in this classroom get into trouble with the teacher.
(19) The teacher is too busy to talk to students about their problems or to give them extra help.
(20) It is difficult for students in this classroom to get the teacher to like them.
(21) Many students in this classroom help each other with their classwork.
(22) The teacher in this classroom usually checks to make sure that students finish their schoolwork.
(23) Most students in this class do not like to get into any kind of argument.
(24) This classroom seems to be an unfriendly place.
(25) In this classroom students have many chances to listen to music.
(26) Many of the students in this class are unhappy about the class.
(27) The students in this classroom feel like they are one big happy family.
(28) Students in this classroom watch lessons on television.
(29) When students do something wrong in this classroom, they usually get caught.
(30) The teacher in this classroom watches the students closely when they work to make sure there are no mistakes.
(31) The teacher in this classroom cares about the problems that students are having.
(32) Most students in this classroom take a lot of care about their schoolwork.
APPENDIX D

GROUPING OF ESES ITEMS BY FACTOR
GROUPING OF ESES ITEMS BY FACTOR

Classroom Edition

<table>
<thead>
<tr>
<th>Factor</th>
<th>Values</th>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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Observation Checklist

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<td>----------, 7(True), ----------, 10(False), 11(True), 17(False), 12(True).</td>
</tr>
<tr>
<td>Autonomy</td>
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</tr>
<tr>
<td>Morale</td>
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</tr>
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<td>Opportunism</td>
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</tr>
<tr>
<td>Resources</td>
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</tr>
</tbody>
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APPENDIX E

SUPERVISOR STATEMENT OF EXTENT
OF TEACHER USE OF BEHAVIORAL OBJECTIVES
SUPERVISOR STATEMENT

OF

EXTENT OF TEACHER USE OF BEHAVIORAL OBJECTIVES

Below are the names of the teachers under your supervision. Please indicate the extent to which each uses behavioral objectives in his/her teaching. A score of 10 indicates that teacher "A" utilizes the behavioral objective approach all the time, in every aspect of his/her teaching. A score of 0 indicates that teacher "A" does not utilize the behavioral objective approach at all in any aspect of his/her teaching.

Place an X on the line above the score you give to each teacher. Try not to give everyone the same score. Try to differentiate between teacher's use of behavioral objectives. It is important that you rate each teacher.
APPENDIX F

SURVEY OF EXTENT OF TEACHER USE OF BEHAVIORAL OBJECTIVES
SURVEY OF EXTENT OF TEACHER USE
OF BEHAVIORAL OBJECTIVES

We are interested in determining to what extent you use behavioral objectives. The items in this questionnaire describe typical activities that occur when teachers use behavioral objectives.

Please understand that this is not a test. There are no right or wrong answers. In fact, we do not even ask your name. We simply want your honest descriptions about your use of behavioral objectives. Thank you for helping us.

Biographical Information (Items 1-9)

___(1) Fill in the school and class number as directed by the proctor.
___(2) Sex:
1. Male
2. Female

___(3) Age:
1. 20-29
2. 30-39
3. 40-49
4. 50-59
5. 60 or over

___(4) Years of experience in education:
1. 0-3
2. 4-9
3. 10-19
4. 20-29
5. 30 or over

___(5) Type of classroom:
1. Contained
2. Open
Extent of Use of Behavioral Objectives (Items 10-40)

For each statement, indicate the extent to which you perform the activity described by each statement. In the blanks provided, insert the number of the comment which best describes the extent to which you perform the activity described by each statement. It is important that you respond to each item.

**__(10)__** How often do you tell your students what constitutes the minimum level of acceptable performance?

1. I tell them all the time.
2. I often tell them.
3. I seldom tell them.
4. I never tell them.

**__(11)__** How many of your learning activities are designed to help students meet stated objectives?

1. All of them are designed in this way.
2. Many of them are designed in this way.
3. A few of them are designed in this way.
4. None of them are designed in this way.

**__(12)__** How many of the objectives you use are a part of the cognitive domain?

1. Less than 50%.
2. Between 50% and 75%.
3. Between 75% and 90%.
4. Between 90% and 100%.

**__(13)__** For how many of your stated objectives do you use pre-tests?

1. I use pre-tests for all of them.
2. I use pre-tests for many of them.
3. I use pre-tests for a few of them.
4. I use pre-tests for none of them.

**__(14)__** Even though you don't pre-specify all learning outcomes, how often do your students know precisely what is expected of them?

1. I pre-specify all learning outcomes.
2. They usually know what is expected of them.
3. They know only when I've told them what is expected of them.
4. They usually don't know what is expected of them.
15 How many of your stated objectives are designed for use with post-tests?
   1. All of them are designed this way.
   2. Many of them are designed this way.
   3. A few of them are designed this way.
   4. None of them are designed this way.

16 How many of the objectives you use are a part of the affective domain?
   1. Between 0% and 10%.
   2. Between 10% and 25%.
   3. Between 25% and 50%.
   4. More than 50%.

17 How many times do you test each student to see if he has met each objective?
   1. Zero.
   2. Once only.
   3. Twice, if he did not meet the objective the first time.
   4. As many times as it takes until he has met the objective.

18 How much of what you teach specifies the behavior the student is to acquire after having engaged in one or more learning activities?
   1. All of what I teach specifies this behavior.
   2. Much of what I teach specifies this behavior.
   3. Some of what I teach specifies this behavior.
   4. A little of what I teach specifies this behavior.

19 How many of your post-tests match your stated objectives?
   1. All of them match.
   2. Many of them match, but a few do not.
   3. A few of them match, but many do not.
   4. None of them match.

20 How many of the objectives you use are a part of the psychomotor domain?
   1. Between 0% and 5%.
   2. Between 5% and 10%.
   3. Between 10% and 25%.
   4. More than 25%.
(21) How many of your learning objectives are stated non-behaviorally?

1. All of them are stated this way.
2. Many of them are stated this way.
3. A few of them are stated this way.
4. None of them are stated this way.

(22) How often do you consciously include cognitive, affective and psychomotor goals in your teaching?

1. I always include all three types of goals.
2. I often include all three types of goals.
3. I seldom include all three types of goals.
4. I never include all three types of goals.

(23) How many of your lessons are evaluated in terms of their helping students to reach stated objectives?

1. All of them are evaluated in this way.
2. Many of them are evaluated in this way.
3. A few of them are evaluated in this way.
4. None of them are evaluated in this way.

(24) How often do you tell your students precisely what is expected of them?

1. I always tell them.
2. I often tell them.
3. I seldom tell them.
4. I never tell them.

(25) How many of the objectives you use describe an educational encounter (a situation in which children are to work, a problem with which they are to cope or a task in which they are to engage) but do not specify what from that encounter they are to learn?

1. All of them describe an educational encounter in this way.
2. Many of them describe an educational encounter in this way.
3. A few of them describe an educational encounter in this way.
4. None of them describe an educational encounter in this way.
In this section you will find open-ended questions. Please answer them briefly. One or two sentences should be adequate. If you need more space, feel free to use the back of the previous page for your answer.

(26) Describe the steps you take to build an instructional unit.

(27) Describe how you manage record keeping of each student's progress.

(28) Describe how you inform the parents of your students exactly what their children have learned.

(29) Describe what took place yesterday in mathematics.

(30) Toward what goal were you teaching the activity mentioned in the previous question?
In what subject matter discipline(s) do you use behavioral objectives the most?

In each blank provided, insert the number of the comment which best describes the extent to which you use behavioral objectives.

1. I use behavioral objectives all the time in this subject.
2. I use behavioral objectives often in this subject.
3. I seldom use behavioral objectives in this subject.
4. I never use behavioral objectives in this subject.

___(31) Language Arts ___(32) Mathematics ___(33) Science ___(34) Social Studies

___(35) Health ___(36) Humanistic Education ___(37) Other (please specify)

Why do you use behavioral objectives more in the subjects to which you assigned comment 1 or 2 than those to which you assigned comment 3 or 4? If you assigned comments 1 or 2 only or comments 3 or 4 only, would you explain why? (see previous question)

In which subject matter discipline(s) do behavioral objectives work the best? Check those that apply.

___ Language Arts ___ Health
___ Mathematics ___ Humanistic Education
___ Science ___ Other (please specify)
___ Social Studies ___

Why do behavioral objectives seem to work better in some subjects (see those that you checked in question 39) than in others (note those that you did not check in question 39)? If you checked them all, or if you checked none, would you explain why?

THANK YOU FOR YOUR ASSISTANCE.
APPENDIX G

AN ITEM BY ITEM REPORT OF THE RESULTS OF THE TEACHER SURVEY
SURVEY OF EXTENT OF TEACHER USE OF BEHAVIORAL OBJECTIVES

We are interested in determining to what extent you use behavioral objectives. The items in this questionnaire describe typical activities that occur when teachers use behavioral objectives.

Please understand that this is not a test. There are no right or wrong answers. In fact, we do not even ask your name. We simply want your honest descriptions about your use of behavioral objectives. Thank you for helping us.

Biographical Information (Items 1-9)

(1) Fill in the school and class number as directed by the proctor.

(2) Sex:
1. Male 64%
2. Female 36%

(3) Age:
1. 20-29 55%
2. 30-39 18%
3. 40-49 27%
4. 50-59 0%
5. 60 or over 0%

(4) Years of experience in education:
1. 0-3 27%
2. 4-9 50%
3. 10-19 18%
4. 20-29 5%
5. 30 or over 0%

(5) Type of classroom:
1. Contained 82%
2. Open 18%
Extent of Use of Behavioral Objectives (Items 10-40)

For each statement, indicate the extent to which you perform the activity described by each statement. In the blanks provided, insert the number of the comment which best describes the extent to which you perform the activity described by each statement. It is important that you respond to each item.

___(10) How often do you tell your students what constitutes the minimum level of acceptable performance?

1. I tell them all the time. 9%
2. I often tell them. 55%
3. I seldom tell them. 36%
4. I never tell them. 0%

___(11) How many of your learning activities are designed to help students meet stated objectives?

1. All of them are designed in this way. 5%
2. Many of them are designed in this way. 77%
3. A few of them are designed in this way. 13%
4. None of them are designed in this way. 5%

___(12) How many of the objectives you use are a part of the cognitive domain?

1. Less than 50%. 9%
2. Between 50% and 75%. 68%
3. Between 75% and 90%. 23%
4. Between 90% and 100%. 0%

___(13) For how many of your stated objectives do you use pre-tests?

1. I use pre-tests for all of them. 0%
2. I use pre-tests for many of them. 32%
3. I use pre-tests for a few of them. 59%
4. I use pre-tests for none of them. 9%

___(14) Even though you don't pre-specify all learning outcomes, how often do your students know precisely what is expected of them?

1. I pre-specify all learning outcomes. 4%
2. They usually know what is expected of them. 82%
3. They know only when I've told them what is expected of them. 9%
4. They usually don't know what is expected of them. 5%
(15) How many of your stated objectives are designed for use with post-tests?

1. All of them are designed this way. 23%
2. Many of them are designed this way. 67%
3. A few of them are designed this way. 5%
4. None of them are designed this way. 5%

(16) How many of the objectives you use are a part of the affective domain?

1. Between 0% and 10%. 18%
2. Between 10% and 25%. 41%
3. Between 25% and 50%. 41%
4. More than 50%. 0%

(17) How many times do you test each student to see if he has met each objective?

1. Zero. 9%
2. Once only. 5%
3. Twice, if he did not meet the objective the first time. 41%
4. As many times as it takes until he has met the objective. 45%

(18) How much of what you teach specifies the behavior the student is to acquire after having engaged in one or more learning activities?

1. All of what I teach specifies this behavior. 0%
2. Much of what I teach specifies this behavior. 55%
3. Some of what I teach specifies this behavior. 32%
4. A little of what I teach specifies this behavior. 13%

(19) How many of your post-tests match your stated objectives?

1. All of them match. 23%
2. Many of them match, but a few do not. 67%
3. A few of them match, but many do not. 5%
4. None of them match. 5%

(20) How many of the objectives you use are a part of the psychomotor domain?

1. Between 0% and 5%. 27%
2. Between 5% and 10%. 36%
3. Between 10% and 25%. 23%
4. More than 25%. 14%
(21) How many of your learning objectives are stated non-behaviorally?

1. All of them are stated this way. 5%
2. Many of them are stated this way. 32%
3. A few of them are stated this way. 50%
4. None of them are stated this way. 13%

(22) How often do you consciously include cognitive, affective and psychomotor goals in your teaching?

1. I always include all three types of goals. 5%
2. I often include all three types of goals. 36%
3. I seldom include all three types of goals. 46%
4. I never include all three types of goals. 9%

(23) How many of your lessons are evaluated in terms of their helping students to reach stated objectives?

1. All of them are evaluated in this way. 14%
2. Many of them are evaluated in this way. 64%
3. A few of them are evaluated in this way. 18%
4. None of them are evaluated in this way. 4%

(24) How often do you tell your students precisely what is expected of them?

1. I always tell them. 14%
2. I often tell them. 77%
3. I seldom tell them. 9%
4. I never tell them. 0%

(25) How many of the objectives you use describe an educational encounter (A situation in which children are to work, a problem with which they are to cope or a task in which they are to engage) but do not specify what from that encounter they are to learn?

1. All of them describe an educational encounter in this way. 0%
2. Many of them describe an educational encounter in this way. 23%
3. A few of them describe an educational encounter in this way. 68%
4. None of them describe an educational encounter in this way. 9%
In this section, you will find open-ended questions. Please answer them briefly. One or two sentences should be adequate. If you need more space, feel free to use the back of the previous page for your answers.

(26) Describe the steps you take to build an instructional unit.

32% reported writing objectives, pre-tests, learning activities, and post-tests; 50% reported following the text or teacher manuals; 18% offered no answer.

(27) Describe how you manage record keeping of each student's progress.

73% reported keeping a record book with test scores; 14% reported keeping charts listing the progress of each student on each objective; and 13% reported with great difficulty.

(28) Describe how you inform the parents of your students exactly what their children have learned.

100% of the teachers reported that they rely on the use of traditional report cards with letter grades. 27% of these teachers reported that they augment the information sent to parents via the report card with face to face parent conferences. It is unclear exactly what additional information is presented to parents at these conferences.

(29) Describe what took place yesterday in mathematics.

Descriptions of various learning activities were used as answers for this item.

(30) Toward what goal were you teaching the activity mentioned in the previous question?

9% described a specific behavioral objective; 23% described a general goal; 68% answered in a fashion that could be defined as neither a general goal nor a behavioral objective.

(31-37) In what subject matter discipline(s) do you use behavioral objectives the most?

73% reported using behavioral objectives all the time or often in mathematics; 64% reported using behavioral objectives all the time or often in science, whereas 59% reported using behavioral objectives seldom or never in
language arts; 55% reported using behavioral objectives seldom or never in social studies; 82% reported using behavioral objectives seldom or never in health; and 86% reported using behavioral objectives seldom or never in humanistic education.

(38) Why do you use behavioral objectives more in the subjects to which you assigned comment 1 or 2 than those to which you assigned comment 3 or 4? If you assigned comments 1 or 2 only or comments 3 or 4 only, would you explain why? (see previous question)

32% reported that "I'm expected to use them in math and/or science," 32% reported that it is easier to state objectives for math and/or science; 18% stated that they teach only math or science; and 18% offered no answer.

(39) In which subject matter discipline(s) do behavioral objectives work the best? Check those that apply.

11% Language Arts
39% Mathematics
30% Science
20% Social Studies
0% Health
0% Humanistic Education
0% Other (please specify)

(40) Why do behavioral objectives seem to work better in some subjects (see those that you checked in question 39) than in others (note those that you did not check in question 39)? If you checked them all, or if you checked none, would you explain why?

55%—math and science lend themselves to the use of behavioral objectives; 9%—some subjects do not lend themselves to the use of behavioral objectives; 9%—behavioral objectives work well in all subjects; 27%—no answer.

THANK YOU FOR YOUR ASSISTANCE.
APPENDIX H

INTERVIEW CHECKLIST TO DETERMINE
EXTENT OF TEACHER USE OF BEHAVIORAL OBJECTIVES
## INTERVIEW CHECKLIST TO DETERMINE

### EXTENT OF TEACHER USE OF BEHAVIORAL OBJECTIVES

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<td>1. Are objectives for the unit stated?</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2. Are objectives stated in behavioral terms?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Do they state WHAT the learner is expected to do?</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>b. Do they state HOW WELL the learner is expected to achieve the objective?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Do they make clear UNDER WHAT CIRCUMSTANCES the learner's performance will be evaluated?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Are pre-tests included in the unit?</td>
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<tr>
<td>4. Do pre-tests measure behaviors stated in the unit's objectives?</td>
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<tr>
<td>5. Are learning activities stated for each objective?</td>
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<tr>
<td>6. Are alternate learning activities stated for each objective?</td>
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<tr>
<td>7. Are post-tests included in the unit?</td>
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<tr>
<td>8. Do post-tests measure behaviors stated in the unit's objectives?</td>
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<tr>
<td>9. Does the teacher keep records of individual students in terms of accomplishment of specific learning objectives?</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>10. Does the teacher report progress of individual students to their parents in terms of specific learning objectives?</td>
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COMMENTS ON BACK
APPENDIX I

AN ITEM BY ITEM REPORT OF THE RESULTS OF THE INTERVIEW CHECKLIST
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<td>18%</td>
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<td>2. Are objectives stated in behavioral terms?</td>
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<td>82%</td>
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<tr>
<td>3. Do they state WHAT the learner is expected to do?</td>
<td>68%</td>
<td>32%</td>
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<td>4. Do they state HOW WELL the learner is expected to achieve the objective?</td>
<td>18%</td>
<td>82%</td>
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<td>5. Do they make clear UNDER WHAT CIRCUMSTANCES the learner's performance will be evaluated?</td>
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<td>82%</td>
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<td>3. Are pre-tests included in the unit?</td>
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<td>6. Are alternate learning activities stated for each objective?</td>
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<td>7. Are post-tests included in the unit?</td>
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<td>9. Does the teacher keep records of individual students in terms of accomplishment of specific learning objectives?</td>
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<td>77%</td>
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<td>10. Does the teacher report progress of individual students to their parents in terms of specific learning objectives?</td>
<td>0%</td>
<td>100%</td>
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APPENDIX J

CORRELATION MATRIX BETWEEN ESESC VARIABLES,
ESESO VARIABLES, BEHAVIORAL OBJECTIVE VARIABLES,
AND DEMOGRAPHIC FEATURES
### Correlation Matrix for Continuous Variables

#### Behavioral Objective Variables

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*The values are reported for each relationship: The first value is the Pearson r; the second value is the significance level p for two-tailed test.*