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ABSTRACT

Data analyses and interpretations presented in this report were obtained from a national data set collected for "A Study of Schooling." Elementary teachers (N=286) responded to a questionnaire asking them to indicate the extent to which they agreed or disagreed with 12 statements of educational beliefs concerning teacher control and student participation. A typology of educational beliefs was developed. Teacher groups were described as "autocrats," "strategists," "laissez-faires," and "democrats." Classroom process variables were selected for comparison with the four teacher belief types from perspectives representing three domains of the classroom curriculum --the instructional (teacher perspective), operational (observer perspective), and experiential (student perspective). The investigation focused on how teacher belief types differed in the preactive behaviors (i.e., goals, intentions, decisions) and their interactive behaviors (i.e., instructional methods, grouping arrangements, use of time, classroom leadership, and affective behavior). Student perceptions were used to assess the classroom learning environment. The findings support the notion that teachers' educational beliefs have a distinct bearing on their teaching behaviors and thereby on their teaching effectiveness. Questions are raised concerning teacher beliefs and their relationship to methods of teacher selection, education, and evaluation. Implications are discussed. Ten pages of references conclude the report. (Author/JD)

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RELATIONSHIPS BETWEEN A TYPOLOGY OF TEACHER EDUCATIONAL BELIEFS AND THREE DOMAINS OF THE ELEMENTARY CLASSROOM CURRICULUM

Patricia A. Bauch

Technical Report No. 34

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A Study of Schooling is based upon the assumption that improving schools requires knowing what is happening in and around them. A comprehensive data-base of contextual information was obtained from students, teachers, administrators, parents and observers at all grade levels in thirty-eight elementary and secondary purposively sampled schools. *It is strongly recommended that readers of any technical report in this series first read Technical Report No. 1 which outlines the details, scope and limitations of the Study as a whole.*

It must be understood that this series of technical reports does not constitute the Study. Some reports are highly specific "molecular" inquiries while others take a more "molar" view across data sources, schooling levels, etc. Some reports are more methodological in nature arising out of issues in data analysis. Many of the reports quite naturally overlap in data analysed and interpretations rendered. Some authors have approached their task as consisting mostly of data description with little discussion beyond the presentation of the data. Others have ventured further into the realm of interpretation and speculation. *It must be further understood that data-based inferences can and do differ among researchers who come at the data from differing points-of-view.* Authors, therefore, are duly acknowledged for each report and are responsible for the material presented therein.

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Chapter I

CONTEXT OF THE PROBLEM AND STATEMENT OF PURPOSE

Introduction

Teachers' educational beliefs--the attitudes and values teachers hold toward children as well as toward various instructional strategies--have been a part of educational research for the last half-century. Specific studies of teacher educational beliefs, however, did not appear until the early 1950s, largely stimulated by the work of Kerlinger and his colleagues and as a part of the interest historically in studying teacher characteristics for the purpose of identifying effective teachers. The extensive and meticulous Teacher Characteristics Study conducted by Ryans (1960) contributed to this momentum and set high standards for research in teacher behavior. More recently, research on teacher decision making has reinforced the importance of teacher beliefs as a potent area of research (Peterson, 1979). These and numerous other studies suggest that teachers' philosophical assumptions function in a way that influences teaching behaviors and student outcomes. This view, however, has gained dubious acceptance in the educational community, although years ago Ralph Tyler (1949) convincingly argued the importance of teachers' value screens in the selection of educational objectives and the organization of learning activities.

This study is a primary analysis of a data set provided by A Study of Schooling, a national research project under the direction of John I. Goodlad. The nature and scope of the available data--including teacher, student, and classroom variables--permitted this author to conduct a

comprehensive exploration of the relationship between teachers' educational beliefs and their teaching behaviors. This was done by first developing a typology of teacher educational belief types. Teachers' behaviors were then examined for each of these types from three perspectives: the teachers', outside observers', and the students'. Insight into teacher characteristics was particularly enriched by the utilization of student data. It was found that teachers' educational beliefs can be used as a guide in predicting classroom processes and outcomes, although relationships among them are complex.

Background and Rationale

It seems reasonable to assume that what people believe to be true has some influence on their behavior. Indeed, research abounds to support the notion that teachers' beliefs are related to a wide array of classroom teaching behaviors. These beliefs and behaviors in turn affect student attitudes and outcomes.

This section will consider four broad areas of research on relationships between teacher educational beliefs and behaviors relevant to this study. It will also consider the contribution each has made toward the understanding of teacher effectiveness. These four areas of teacher-belief research focus on studies relating (1) teachers' philosophical orientations to their classroom teaching styles, (2) teachers' beliefs about students to student outcomes, (3) teachers' beliefs about educational goals or intentions to their classroom teaching practices, and (4) teachers' pedagogical thinking to their instructional decisions.

Numerous studies on teachers' philosophical beliefs conclude that teachers' ideologies influence their classroom teaching styles. For example, Brown (1963) investigated the relationship between teachers' beliefs in Dewey's experimentalist philosophy and actual classroom practices. He found that

> teachers who conceived knowledge as a vital and inseparable part of the active process of inquiry held educational beliefs and used classroom practices that were distinctly different from those teachers who conceived knowledge as something to be acquired for its own sake. . . . Teachers who saw knowledge as inquiring were thorough-going experimentalists who provided situations that were inclined to be open and free, emphasizing participation of the pupils as initiators as well as reactors. Teachers who saw knowledge as acquiring were decidedly non-experimental, providing somewhat restricted or tightly-controlled situations in which pupils participated primarily as respondents to plans and purposes impinging upon them from without. (p. 12)

Additionally, a number of studies conducted by Harvey and his colleagues (1961, 1966, 1968, 1970) indicates that differences in "belief systems" result in differing classroom behaviors. Teachers were classified as abstract or concrete thinkers. More concrete thinkers tend to show more extreme and absolute, less flexible beliefs and attitudes than more abstract thinkers. When these dimensions were used on a teacher observation rating scale, it was found that concrete teachers were less resourceful, more dictatorial, and more punitive than abstract teachers.

Similarly, studies by Willower and his colleagues (1967, 1975) and Dobson et al. (1972) found that teachers who hold a humanistic orientation toward pupil control were less dogmatic, more innovative, fostered more favorable student attitudes, and were more indirect in their

teaching styles in contrast to teachers who held custodial views of pupil control. Willower, Eidell, and Hoy (1967) define these two dimensions as follows: A teacher who has a humanistic orientation toward pupil control desires "a democratic classroom climate with its attendant flexibility in status and rules, open channels of two-way communication, and increased student self-determination." On the other hand, a teacher who has a custodial orientation toward pupil control desires "a highly controlled setting concerned primarily with the maintenance of order. Both power and communication flow downward, and students are expected to accept the decisions of teachers without question" (pp. 5-6).

For the most part, this research on teachers' philosophical views and their classroom teaching practices has been remarkably successful in identifying teachers who hold what has been referred to historically as traditional-progressive type educational beliefs. Most of this research, however, has either relied on teacher-report inventories alone in order to infer teaching styles or has not investigated the differential effects such beliefs and behaviors may have on student outcomes.

While the earlier experimental studies on authoritarian-democratic teaching styles do not strictly qualify as teacher belief studies because they do not examine beliefs directly, they will be presented and discussed here for three reasons: (1) these studies are frequently cited in the educational literature as a basis for inferring teacher educational beliefs, (2) they have contributed toward a more adequate understanding of the relationship between teacher educational beliefs and teaching styles, and (3) thoughtful criticisms of these studies have resulted in the application of more appropriate methodological

approaches in studying relationships between teacher beliefs and behaviors.

The traditional research frequently referred to as authoritarian-democratic studies of teaching builds on the original work of Levin, Lippit, and White (1939). This landmark study of the effects of differing leadership performance on members of boys' clubs gave rise to the authoritarian-democratic-laissez-faire definitions of leadership styles. These concepts, particularly the authoritarian-democratic dichotomy, were repeatedly adopted and modified by educational researchers attempting to identify "effective" teachers. For a number of years they sought to define teaching along a single dimension, substituting such constructs as dominative to integrative (Anderson, 1943), teacher-centered to student-centered (Rogers, 1951), direct to indirect (Flanders, 1965), and so on for authoritarian-democratic.

A representative example of this research was that done by Rian (1969) in Norway. He studied the effects of teacher authoritarian/directivity on students' perceptions of teacher behavior and found no differences in student preferences between authoritarian and democratic teachers. In reporting his own findings and in reviewing a number of authoritarian-democratic studies, he concluded that the effects of different leadership patterns on both student achievement and student satisfaction were inconclusive.

Anderson (1959) analyzed 49 experimental studies in which authoritarian leadership was compared with democratic leadership. He concluded that the authoritarian-democratic juxtaposition did not provide an

adequate conceptualization of leadership behavior because (a) constructs were inconsistently and too broadly defined, (b) most of the research was biased toward the superiority of democratic teaching over authoritarian, and (c) leader warmth or coolness was not a consideration in most of these studies.

Similarly, Dunham (1965) analyzed a number of teacher leadership studies and concluded that the effects of different leadership patterns are dependent upon a number of important situational and student variables. In regard to the effects of different leadership styles, he comments on a study conducted by Fleming (1958) suggesting that the difference in social climate may be found more in a point of view expressed in attitude or intonation rather than in any specific form of words or actions.

Although leadership studies suggest a relationship between types of leader performance and its influence on those being led, there has been no conclusive evidence to demonstrate how differing beliefs have differing effects on students, how a teacher may behave to produce desired effects, nor consistent findings to determine why teachers behave as they do.

While teachers' educational beliefs do appear to be closely related to their teaching styles, a second line of teacher belief research has been very productive in demonstrating the influence of teacher beliefs on their attitudes toward students or student outcomes. This line of research evolved from the controversial Pygmalion study conducted by Rosenthal and Jacobson (1968). This and other similar and more recent

studies (Crano & Mellon, 1978; Rist, 1970) concluded that high teacher expectations produced gains in student achievement.

Similarly, Brophy and Evertson (1976) conducted a large study that included extensive measurement of teachers' beliefs and attitudes as well as classroom behavior and student achievement. They found that teachers who obtained the highest residual achievement from students were teachers who perceived students as capable of learning school work and who viewed themselves as capable of teaching the curriculum.

Numerous reviews of the teacher expectation literature have also concluded that teacher beliefs about student learning have an effect on both affective and cognitive student outcomes (Brophy & Evertson, 1981; Brophy & Good, 1974). In their comprehensive review of studies dealing with the affective responses of both teachers and students, Khan and Weiss (1973) arrived at a similar conclusion. In addition, they argue that social relationships among students as a group and between students and teacher significantly influence the quality of the classroom social climate which, in turn, influences cognitive and affective learning outcomes (Anderson, 1970; Brown, 1960). Similarly, a series of studies by Walberg and his associates (Walberg, 1969a, 1969b; Walberg & Ahlgren, 1970; Walberg & Anderson, 1968) generally support the finding that affective aspects of classroom climate predict both cognitive and affective learning.

Researchers interested in school effects have similarly identified teacher expectations as a key factor. Studies in the United States (Brookover et al., 1979) and in Great Britain (Rutter et al., 1979) found that teachers in high-achieving schools appear to be distinguished

from those in less effective schools by the belief that students can and will learn.[1]

As a concluding example of the studies relating teacher beliefs to student outcomes, the work of Barker Lunn (1967, 1970, 1971) in England on the effects of streaming and nonstreaming in junior schools is important and well-known. Barker Lunn (1967) notes that the teacher's attitude may be the most important variable in determining student outcomes. She adds:

> Teaching method, the ideas which underlie disciplinary systems, the views teachers hold about their children, in short the whole climate of relationships built up by what teachers say and do and what they appear to their pupils to imply may well be the critical factors (in determining student outcomes). (p. 46)

In summarizing the research to date on teacher beliefs and student outcomes, it seems fair to say that this has been the most active and most productively explored area of teaching effectiveness in the past decade (Good, 1981). It appears to be highly supportive of the notion that teacher beliefs can influence behaviors that in turn produce desired effects on student learning. However, this research does not tell us what it is high-expectation teachers do to produce desired effects on students. How do they appropriately communicate to them the expectations they have?

Not only are studies of teachers' beliefs and values considered important in determining their attitudes toward children and their

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[1]It should be noted that the two studies indicated here are correlational and that it could be argued that teachers held higher expectations in some instances because students were already achieving at high levels.

preferences for various classroom teaching styles, but they have been similarly viewed as a basis for teachers' educational goals or intentions. Perhaps the work of Joyce and Weil (1980) on models of teaching is the most basic representation of this third line of research into teacher beliefs. Their development of a theoretical framework to study educational outcomes was postulated on teachers' philosophical views and goal orientations as they pertained to the student and the classroom learning environment. They identified four teaching models or styles based on four distinct goal orientations: information processing, social interaction, personal development, and behavior modification. The four major goal orientations are believed to lead to a variety of teaching styles which promote different kinds of learning. This extensive work was developed on the premise that educational procedures, teaching styles, and teacher classroom behaviors are generated from a general philosophical view about education.

Still other studies have found that teachers' beliefs about important educational goals are related to their reports of their own classroom teaching practices. In studies conducted in England by Ashton et al. (1975) and Bennett (1976), clear relationships were found between teaching style, teachers' aims and opinions about the broad purposes of education, and the aspects of children's development which they considered least and most important in education. The findings of both studies can be summarized in the report given by Ashton et al.:

> Those teachers who considered that the broad purpose of primary education is to equip children with skills and attitudes, which will enable them to fit effectively and competently into society, tended to stress as most important children's intellectual, moral, physical and spiritual

> development; they also tended to choose to work in a more traditional teacher-directed manner with the accent on the acquisition of basic skills and knowledge to specified levels of achievement. Those teachers who considered that the broad purpose of primary education is to develop children's independence and individuality, enabling them to discover their own talents and interests and to arrive at their own enjoyment and attitudes towards society, were markedly inclined to stress as most important the aesthetic and emotional/personal aspects of development; they tended to choose to work in a more progressive, child-centered manner with the accent on inquiry and the acquisition of the basic skills as the children require them and at their own pace. (pp. 55-56)

In addition, Ashton et al. found that the more traditionally oriented teachers tended to be older, more experienced, more established, married teachers whereas the more progressively oriented tended to be the younger, less experienced, less established, single teachers and those with higher qualifications in education.

These studies regarding teachers' beliefs about educational goals and purposes rely on teacher reports about both teacher goals and preferred teaching styles. Few if any of these studies have attempted to relate the educational goals of teachers to the way they actually teach. However, the studies cited here give clear indications about relationships between teachers' beliefs about educational goals and their classroom teaching styles.

The general underlying influence of teacher beliefs on a number of classroom processes as discussed thus far is expressed aptly by Dunkin and Biddle (1974) who among others propose that:

> much of teaching is presumably coping behavior on the part of the teacher and is thus subject to beliefs held by the teacher concerning the curriculum, the nature and objectives of the teaching task, expectations for pupils, and norms concerning appropriate classroom behavior. (p. 412)

They suggest that teacher behavior in the classroom might be predicted by obtaining information about what teachers think about, prefer, and wish to do in the classroom.

Such research, as proposed by Dunkin and Biddle, is presently being conducted on a wide scale. A review and assessment by Shavelson and Stern (1981) on the current progress of research in this fourth area of teacher beliefs indicate a close relationship between teachers' pedagogical thoughts and their instructional decisions. While this research has not yet clarified the precise role of teachers' educational beliefs in the decision-making process, it does rely on a conceptual model that includes beliefs.

Research to date in this area has shown that teachers need to integrate a large amount of information about students available from a variety of sources and combine this information with their own beliefs and purposes, the nature of the instructional task, the constraints of the situation, and so on, in order to select an appropriate instructional strategy (Borko et al., 1979). Shavelson and Stern argue that the missing conceptual link in research on teaching has been one between teachers' intentions and their behaviors. They view a solely behavioral model of teaching as conceptually incomplete since it cannot account for predictive variations in teachers' behavior arising from differences in their goals, judgments, and decisions.

While this promising line of research appears to be successful in identifying important dimensions of classroom teaching activities and has conceded the influence of beliefs, it has not yet focused methodologically on the examination of the precise role teacher beliefs play

in decision making. It may be that an additional conceptual link, that between beliefs and intentions, needs to be the focus for future research into the relationship between teachers' pedagogical thinking and their instructional decisions.

While being aware of the limitations of the foregoing research, results from these studies indicate the following:

1. certain teacher educational beliefs are believed to be basic to specific teaching behaviors and teaching styles, although the way in which students are affected is not generally known;

2. the effects of teacher leadership styles on students appear to be influenced more by teacher belief and attitude than by a specific form of behavior (Dunham, 1965; Fleming, 1958);

3. even though teacher behaviors may not always vary significantly, some literature suggests that students respond differently to teachers whose beliefs, attitudes, or expectations vary (Brophy & Evertson, 1981; Coates, Harvey, & White, 1970; Good, Biddle, & Brophy, 1975, 1976);

4. the affective quality of the classroom teaching environment frequently, but not always, associated with one or another teaching style or belief can either facilitate or interfere with student learnings (Good, Biddle, & Brophy, 1975; Kahn & Weiss, 1973; Ripple, 1965);

5. the kinds of goals and educational purposes teachers have for students influence their teaching style (Ashton et al., 1975; Bennett, 1976 Joyce & Weil, 1980);

6. the way in which teachers think about, judge and plan their teaching, that is, their intentions and decisions, appear to account for much of their behavior (Shavelson & Stern, 1981).

In summary, then, the more recent research on teacher beliefs and teacher behaviors appears very promising in potentially identifying effective teachers. This research has focused on a number of classroom teaching variables in relationship to teachers' beliefs. While none has undertaken the task of examining at once a large array of classroom variables including teacher beliefs, behaviors, and student outcomes,

the results of these studies indicate the importance of continuing to study teacher educational beliefs in order to determine more precisely specific and distinctive features of effective teachers.

Importance of the Study

There appear to be both important theoretical and practical reasons for continuing to study teachers' educational beliefs and their relationships to classroom teaching-learning processes. First, while previous studies of teacher educational beliefs emphasized the relationships between teacher educational beliefs and teacher behavior, few, if any, have examined these relationships in conjunction with the actual classroom experiences students undergo when taught by teachers whose educational beliefs differ. Thus it seems important to determine whether or not student experiences in the classroom, including the conduct of instruction and student attitudes toward classroom processes, would differ when taught by teachers of differing beliefs. Furthermore, for the most part, previous research has viewed teacher belief types narrowly, that is, as either authoritarian or democratic. Rarely has an account been given of the behaviors and student affective outcomes of those teachers who hold mixed beliefs or beliefs other than those described as authoritarian or democratic. It seems important to consider additional belief dimensions.

Second, in view of the differences in student outcomes associated with teacher differences, some of which may be ascribed to beliefs, it seems likely that differences also exist in the way teachers think about, choose, plan, and operationalize their teaching in relationship

to their educational beliefs. An exploration of these possible teaching differences and an analysis of their content among teachers of differing beliefs should provide insight into classroom processes which contribute to differential student outcomes.

Third, the vast amount of teacher, student, and classroom observation data collected in conjunction with this study provided an opportunity for this author to select and test hundreds of classroom variables, of which many were expected to be related to teacher beliefs and behaviors and to student attitudes. Furthermore, these variables are representative of nearly all parts of the classroom curriculum thus permitting the examination of a comprehensive data base in exploring the problem chosen for this study.

Finally, the possible effects of teacher beliefs on student outcomes may suggest an important criterion for the selection, training, and placement of elementary classroom teachers.

Elementary classroom teachers seemed especially appropriate for an investigation of relationships between educational beliefs and classroom processes. In the first place, the pressures of school organizational structures and community responses to the elementary school curriculum can generally be presumed not to be as influential on teachers' decisions and actions as might be expected for secondary classroom teachers. Second, it is commonly believed that elementary teachers view their task as primarily child-oriented while most junior and senior high school teachers appear to be primarily subject-oriented. In addition, an important reason for focusing on elementary classrooms lies in the realization that if teacher educational beliefs are related to their

classroom behaviors, such beliefs may have a significant impact on younger children. Characteristically, young students are more impressionable than older ones. Similarly, early attitudes toward school and learning are generally formed in the elementary school. Thus, studies successful in identifying and describing teacher beliefs and attitudes about the educational process and their relationship to conditions which foster learning can contribute to our knowledge regarding the education of the elementary school child.

Statement of Purpose

The primary purpose of the study reported here, then, was to consider possible relationships between elementary school teachers' educational beliefs and their classroom teaching behaviors from three perspectives: the teachers', outside observers', and the students'. Furthermore, it sought to explore relationships between types of teacher beliefs and students' perceptions of the classroom learning environment. A related purpose was to develop a typology of teacher educational belief types and attempt to clarify the nature of these beliefs from the relevant literature as well as from the data. As a result of consequent analyses, it was hoped that some hypotheses concerning the characteristics of effective teachers might be suggested.

Four specific areas of teacher behavior and classroom life were explored to determine whether teachers holding different beliefs act in similar ways in the classroom teaching situation and whether their students perceive the classroom learning environment differently. These areas were: (1) teacher attitudes toward the goals and functions of

schooling, teaching intentions for students, and teaching decisions made prior to instruction (preactive behaviors); (2) teaching methods, grouping arrangements, and time on instruction (interactive behaviors--perceived and observed); (3) teacher interaction with students in terms of instructional leadership and expressive behaviors (interactive verbal behavior); and (4) student perceptions of the classroom learning environment. It was expected that, in the examination of relationships between these classroom variable sets and teacher belief types, patterns would emerge indicating that distinct teaching practices and student attitudinal differences are related to differing teacher belief types.

Therefore, the exploratory questions addressed by this study were: (1) What is the correspondence, if any, between teachers' educational beliefs and their teaching practices? (2) Furthermore, if teachers' beliefs are differentiated on a set of classroom teaching variables, do students' perceptions of these teachers also differ according to teacher belief type? (3) Lastly, what implications for teaching effectiveness and differential student learning experiences are reflected by these variations? Dealing with these questions necessitated addressing several others:

1. How do the activities of teachers with dissimilar educational beliefs differ regarding their teaching intentions and decisions prior to instruction?
2. How do the activities of teachers with dissimilar educational beliefs differ regarding their classroom methods of instruction, grouping arrangments, and use of time?

3. How do the activities of teachers with dissimilar educational beliefs differ regarding some leadership and expressive verbal interactions occurring in the classroom?

4. Do the perceptions of students in classrooms of teachers with dissimilar educational beliefs reflect different patterns of social and affective relationships and learning interactions?

The chapter on research objectives (Chapter III) provides a fuller treatment of these questions and the classroom variables chosen to measure the specific areas of teacher behavior and classroom life included in the questions.

Scope and Limitations

As previously mentioned, this study explored data from three sources--teacher, classroom observer, and students. It included a wide array of classroom teaching variables representing three domains of the elementary classroom curriculum, encompassing teacher attitudes, intentions, decisions, behaviors, and student outcomes. It searched out hypotheses and tested them across multiple data sets that had been methodologically refined and organized for the larger project--A Study of Schooling. While in one sense the study reported here was limited by the available data in that constructs had been previously defined before the present study was conceptualized, it simultaneously benefited from the methodological rigor used in testing and defining those same constructs for the larger study.

Several additional aspects of this study limit it. First, this was not a causal or predictive study, but an exploratory one. Rather than

confirming hypotheses, this study explored an existing data set for hypotheses. This seemed a necessary and important step in light of the large body of data available and the complex nature of the problem as described in this investigation. This also seemed important in light of the recent interest in teachers' perspectives on teaching. This latter research suggests the need to seriously re-examine the underpinnings of teacher thinking and decision making, in part, their educational beliefs, in order to uncover hypotheses. Tukey (1977) characterizes exploratory data analysis as detective in character. It does not intend to evaluate or judge the strength of the evidence, but only to find it. He comments: "Exploratory data analysis can never be the whole story, but nothing else can serve as the foundation stone--as the first step" (in conducting an investigation) (p. 3).

Second, while some speculations are made later about the teaching effectiveness of the various belief groups (Chapters V and VI), it should be borne in mind that this study does not examine achievement data or other outcome variables, with the exception of affective variables and student perceptions. Similarly, it does not examine teaching content or subject matter. However, reasonable speculations were attempted regarding teaching effectiveness and students' classroom experiences. These resulted from the findings revealed by the data as well as from an inference process based on the author's classroom teaching and supervisory experiences and concern for effective classroom learning. This could be construed as a second limitation of the study since the inference process used here is not meant in its formal statistical sense but in a less formal and general sense. It can be argued,

however, that this type of inference can serve to strengthen the findings. Some knowledge is a consequence of plausible inference. Something is plausible, according to Cronbach (1980), "if violations are believed to be so limited in their consequences that the risk of error is acceptable. Of course, this belief may be wrong but every assertion about the real world rests on unverifiable presumptions" (p. 49).

These plausible inferences stem from a belief system that has propositions derived from experience. Some of these propositions are believed strongly; others are held lightly. The statements of this belief system refer to consequential differences among events as a result of the experiences the holder of the belief system has had with the constructs. The fact that the constructs are thought to be significantly different make the constructs of the belief system similar to scientific constructs (Cronbach, 1980, p. 54).

Cronbach urges the reader to see that formal and plausible inference are equally useful, but different. In this regard, the inferences made in this study are the plausible type. This does not limit the speculations made about the findings as much as it enriches them by using the belief system and experiences of the researcher. These experiences and beliefs are based on the writer's own familiarity with teachers in classrooms and with the data set.

Lastly, while the view that beliefs affect behaviors is a commonly held one, it has also been shown that behaviors or repeated practice create new beliefs and/or reinforce existing ones. This investigation seeks only to determine the relationship between some educational beliefs and several teaching behaviors by examining beliefs first, not

to explore the source of teacher educational beliefs. However, it does deal in a theoretical and speculative way with the potential influence of behavioral feedback on changes in belief systems.

Conduct of the Study and Organization of the Report

The conduct of this study and the organization of the final report follow a somewhat non-traditional framework for dissertations. In regard to the former, a typology of teacher education beliefs was developed during the preliminary stages of the study by this researcher and before the specific research questions were generated. Rather than serving entirely as a model for viewing hypotheses or as a perspective on the data, the conceptual framework was also formed by the data. The development of the conceptual framework became a part of the study.

While the conceptual framework proved to be an effective heuristic in the formulation of specific research questions, it was also useful in interpreting findings. Therefore, it seemed necessary to employ its usability in several sections of the dissertation. This has had some influence on the organization of the final report.

The following points regarding the organization of this final report will be of help in guiding the reader:

1. No separate literature review chapter is included since an attempt was made to discuss the relevant literature throughout the dissertation wherever it appeared to be warranted.
2. Therefore, the usual literature review chapter is replaced by the conceptual framework chapter (Chapter II).

3. Chapter III presents the specific research objectives which guided this study and the rationale and literature support for selecting and grouping the classroom variables used in the study.
4. Following the usual methodology chapter (Chapter IV), the results are reported and discussed in Chapter V.
5. The final chapter summarizes the study and discusses the implications of the findings.

Chapter II

CONCEPTUAL FRAMEWORK

Identifying relationships between teachers' educational beliefs and their teaching behavior and the consequent influence of these factors on student perceptions is a problem that has received scattered rather than systematic attention in the educational literature. Therefore, adequate models need to be developed through which a comprehensive understanding of this problem can be obtained. This chapter seeks to outline the perspective used to explore relationships between teachers' educational beliefs and their classroom teaching processes. It provides the theoretical basis and conceptual framework developed for this investigation.

Definition of Concepts

Researchers have shown the necessity of distinguishing between related variables such as beliefs, attitudes, intentions, and behavior (e.g., Fishbein & Ajzen, 1975; Harvey, Hunt, & Schroeder, 1961; Katz, 1960; Osgood, Suci, & Tannenbaum, 1957; Rokeach, 1968; Triandis, 1971). The different meanings ascribed to these terms in the literature have led to inconsistencies in the reporting of research findings (Fishbein & Ajzen, 1975). Therefore, it seems important to define these and related terms about which this study is concerned.

Five major theoretical constructs related to teaching were measured and discussed in this investigation:

> Belief: represents the information a person has linking an object to some attribute or expectancy; is usually in relationship to a dimension of subjective probability or knowledge.

Attitude: a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given stimulus; involves affect and is usually in relationship to bipolar dimensions.

Intention: a special case of beliefs in which the object is always the person and the attribute is always the person's behavior.

Decision: a conscious choice either reflective or immediate involving the recognition by the person of the existence of two or more alternative responses.

Behavior: overt and measurable actions.[1]

These definitions and the proposed relationship of the constructs were derived mainly from the conceptual work of Fishbein and Ajzen (1975). These investigators attempted to develop a conceptual framework which would incorporate and render understandable within a unified and systematic theoretical structure as much of the diverse theoretical and empirical literature in the area of attitudes as possible. Since Fishbein and Ajzen did not include decision among their dimensions, Whitfield's (1975) formulations were used to derive the decision construct included in this study. The rationale and appropriateness for doing this are presented in the next section.

Theoretical Perspective

When teaching is viewed as the relationship between teachers' educational beliefs and classroom teaching-learning processes, the teacher is seen as an active agent with the ability to exercise personal and

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[1]While all questionnaire or verbal responses are also instances of overt actions, such responses are usually used to infer beliefs, attitudes, or intentions and are not regarded as behaviors.

environmental control. A number of assumptions underlie this view. First, it is assumed that most social behavior is volitional, that is, people have the ability to control their own behavior. Barring unforeseen events, including both internal and external constraints, persons should perform those behaviors they have decided to perform.

Second, persons are essentially rational organisms who use available information to make judgments, form evaluations, and arrive at decisions. Although emotional or affective factors may play an important role, evidence to date does not support this view (Fishbein & Ajzen, 1975, p. 215). Rather, the incidence of information processing is based primarily on probabilistic consistency.

Third, it is assumed that people strive to hold correct opinions or beliefs about themselves and their world. Festinger (1954) posited the existence of a drive within persons to determine whether or not their own opinions were "correct" (p. 118). He further argued that when objective, nonsocial means are not available, people test the accuracy of their opinions by comparing them with the opinions of others. It follows, then, that individuals will tend to revise their beliefs as a function of the positive and negative feedback they receive from the social or nonsocial environment.

It can be concluded, then, that most human behavior is learned and is therefore the outcome of conscious and unconscious selective processes at all perceptual levels. Such a notion necessarily reflects the limitations of human reasoning as well as the complexity of the person's total environment. Such a perspective, however, has the potential of being extended to emphasize cognitive processes in relationship to

behavior; for instance, by postulating a linkage system of behavior, this view incorporates adaptive behavior suited to classroom teaching and learning processes. Each successive examination of the proposed dimensions--beliefs, attitudes, intentions, decisions, behaviors--is an attempt to improve educational outcomes in the light of new information. This new information results from reflection on the weighting of selected consequences of the preceding dimensions.

Fishbein and Ajzen assume a causal link between beliefs, formed on the basis of available information, to attitudes, beliefs and attitudes to intentions and intentions to behavior. They do not consider a distinction between intentions and decisions, but Whitfield (1975) suggests a conceptual and causal link between them when he notes "the successful or effective teacher becomes characterized as one who consistently makes sound or appropriate decisions in order to implement a set of desirable intentions concerned with pupils' learning" (p. 8). Since, in dealing with beliefs, this study was concerned primarily with predispositions to behavior rather than with the behavior itself, it seemed desirable to make clear the distinctions between each of the predispositions (i.e., attitudes, intentions, decisions) and behavioral action. This seemed particularly warranted in view of the recent and abundant research on teachers' pedagogical thoughts, judgments, decisions, and behavior. These studies propose a teacher decision-making model and use this perspective from which to define teaching (e.g., Borko et al., 1979; Good, 1981; Shavelson & Stern, 1981; Sutcliffe & Whitfield, 1979). Therefore, in proposing to examine teachers' instructional decisions, it seemed important to identify precisely the sources that influence them.

In summary, then, a conceptual framework is proposed in which beliefs are the foundation. They serve as the underpinnings of behavior or activity. In addition, three intervening dimensions--attitudes, intentions, and decisions--are viewed as related to one another and are similarly influenced by beliefs, which in turn influence behavior. The linking process proposed by Fishbein and Ajzen is cyclical in nature since the performance of behavior may provide new information that again influences beliefs. Thus, a causal chain is produced (see Figure 1).[2]

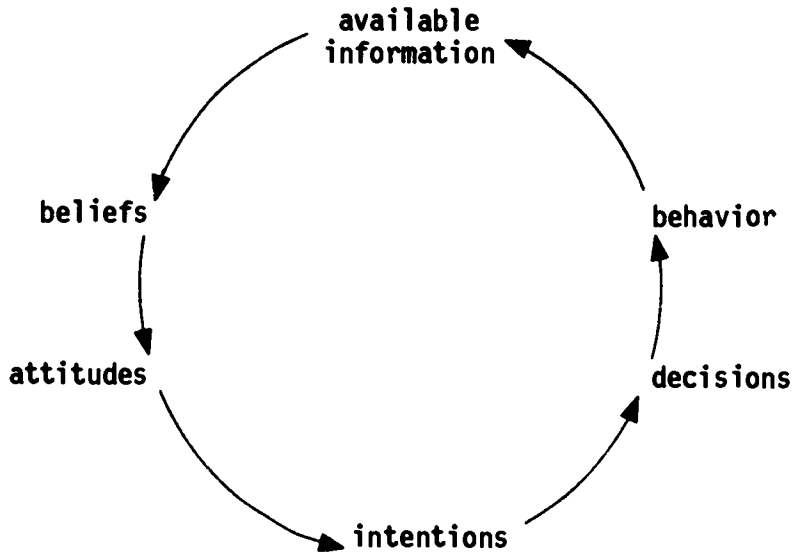

Figure 1: Relationships between Beliefs, Attitudes, Intentions, Decisions, Behavior, and Available Information

[2]While it will be remembered that this was not a causal study, the perspective or conceptual framework proposed here suggests the possibility of causal relationships. Given the exploratory nature of this study, however, only hypotheses for further exploration can be proposed.

Typology

A typology of teacher beliefs seemed conceptually and methodologically well-suited for an investigation of relationships between teachers' educational beliefs and classroom processes. Teachers can be classified as types when they adhere to a set of common beliefs regarding educational processes. A typology is generally defined as a classification based on types; a type refers to a group of individuals having qualities in common that distinguish them as an identifiable class or subgroup within a class.

The development of useful and precise teacher-types models is clearly needed for both educational research and practice. Those developed to date are characterized by a certain vagueness, diffusiveness of reference, and diversity. They lack precise meanings. This is particularly the case with those based on the authoritarian-democratic studies mentioned earlier and somewhat the case with those relying on research on teaching styles (see Chapter I). Clearly these studies have not viewed the teacher in terms of beliefs first. A typology of teacher belief types could offer a way of organizing groups based on what it is teachers <u>want</u> to do. Such a re-focused perspective could result in school policies that would facilitate beliefs rather than examining behaviors first without considering the context within which teachers are required to function, frequently contrary to their beliefs. It follows, then, that it might not be as important for every potentially effective teacher to learn some predetermined set of teaching behaviors as it is for them to acquire some common set of beliefs. Furthermore, awareness of teacher belief types may add more realism to expectations

of teache s by principals and other administrators and reduce some of the dissatisfaction arising over concerns regarding teacher placement and teacher development. It is also likely that such an awareness could contribute to a reduction in teacher burn-out arising from a conflict between beliefs and behavior.

For purposes of this study, then, teachers were classified according to four types on the basis of their educational beliefs. These four types were labeled "autocrats," "strategists," "laissez-faires," and "democrats." The following section describes these types and the dimensions on which they were defined.

Educational Beliefs Dimensions

This study focused on two specific dimensions of educational beliefs: (1) teacher discipline and control and (2) student participation in decision making regarding classroom activities. These dimensions were derived from a set of questions originally developed by Kerlinger (1959) to identify "traditional" and "progressive" teacher educational beliefs along a single continuum. These questions, among others, were later used by Wehling and Charters (1969) to specify the topical units that comprise the multidimensional domains of classroom beliefs expressed by teachers about the teaching-learning process. These were: Subject Matter Emphasis, Personal Adjustment Ideology, Student Autonomy Versus Teacher Direction, Emotional Disengagement, Consideration of Student Viewpoint, Classroom Order, Student Challenge, and Integrative Learning.

In regard to this present study, a number of Kerlinger's items had been previously selected from the work of Wehling and Charters (1969) and also from that of Bishop (1972) to develop the Teacher Educational Beliefs Inventory used in A Study of Schooling. The results of cluster analysis indicated four distinct topical units or belief dimensions--Basic Subjects and Skills Emphasis, Student Concern, Teacher Discipline and Control, and Student Participation. The latter two dimensions were chosen for the study reported here.

The scores obtained on the Teacher Control and Student Participation Subscales by the 286 elementary classroom teachers who participated in the present study became the criteria by which the four teacher groups were formed. As a result of the scores obtained by the teachers, although the distributions on both scales were negatively skewed, four separate groups of teacher belief-types could be identified according to these two ideological orientations. The methodology chapter (Chapter IV) lists the questionnaire items associated with each dimension and provides more precise methodological details concerning the sample and the nature of its distribution across types. The following is a brief description of the two dimensions used to classify teacher types. They are based on the items found in each scale.

Teacher Discipline and Control. The best learning situation is one in which there is a high degree of order and decorum in the classroom. This dimension expresses the teacher's belief in conducting the class according to established rules and procedures, quick punishment for those who depart from rules, and the elimination of nonsense, noise, and distractions. Furthermore, to assure maximum learning, the teacher

rather than the student must be the one to guide and direct the flow of instructional events. In a sense, it appears to reflect a fundamental personality disposition in teachers rather than a purely instrumental belief regarding instructional practices.

Student Participation. Students will be motivated to do better work when they are accorded substantial autonomy and freedom from teacher direction. This dimension reflects the teacher's belief in promoting student initiative and participation in the choice of learning activities. Furthermore, student discipline and behavior problems will be lessened when students are involved in the planning and evaluation of their own progress. In a sense, it expresses the amount of faith the teacher has in students and their capacity for spontaneous learning.

Teacher Belief Types

Discussions of teacher types usually divide teachers into two groups, desirable and undesirable according to a particular philosophy of education. Such categories as the following have been used: autocratic-democratic, friendly-strict, dominative-integrative, formal-informal, traditional-modern, conservative-progressive, and humanistic-custodial. This study found such two-fold classifications inadequate. The data revealed that two types, namely strategists and laissez-faires, regarded both belief dimensions simultaneously as favorable or unfavorable respectively. In contrast, autocrats and democrats regarded these dimensions in a bipolar fashion. That is, autocrats scored "high" on Teacher Discipline and Control and "low" on Student Participation.

Democrats scored in the reverse. A description of these four ideal types follows.

Autocrats. These teachers appear to prefer a high degree of classroom order and control and direct teacher guidance in the flow of learning activities since they scored high on the Teacher Control Subscale of the Educational Beliefs Inventory. These teachers also appear to somewhat reject beliefs about student autonomy and decision making regarding classroom activities since they scored low on the Student Participation Subscale. These teachers could be characterized as "autocratic" in type, that is, they appear to view their teaching role as directive and authoritative with little emphasis on student initiative, participation, and responsibility.

Strategists. These teachers appear to prefer a high degree of classroom order and control and direct teacher guidance in the flow of learning activities since they also scored high on the Teacher Control Subscale. But, they similarly scored high on the Student Participation Subscale, indicating that they believe in a high degree of student autonomy and decision making as well. These teachers could be characterized as "negotiative" in type, that is, they appear to value joint or negotiated responsibility regarding learning activities with greater emphasis on student initiative and independence than autocratic teachers while at the same time not wishing to relinquish their role as direct guide. However, they also prefer a controlled learning environment, but could be presumed to highly value student involvement in planning and in maintaining an ordered learning environment.

Laissez-Faires. These teachers appear to somewhat reject the notion of a structured classroom environment and direct teacher guidance over the flow of learning activities since they scored low on the Teacher Control Subscale. But, they similarly scored low on the Student Participation Subscale indicating that they do not value highly student autonomy nor student involvement in decision making regarding classroom activities. No presumptions can be made about what these teachers do believe about how instruction must proceed in the classroom for learning to occur. Their "low" scores simply indicate a relative absence of agreement regarding the particular dimensions offered in the Educational Beliefs Inventory. In relationship to the two domains being investigated here, then, these teachers could be characterized as "laissez-faire" in type regarding teacher control and student participation.

Democrats. These teachers appear to prefer a low degree of classroom structure and indirect teacher guidance in the flow of classroom learning activities since they scored low on the Teacher Control Subscale. These teachers also appear to prefer a high degree of student autonomy and decision making regarding classroom activities since they scored high on the Student Participation Subscale. These teachers could be characterized as "democratic" in type since they appear to value student autonomy, independence, and decision making over their own direct guidance and control of the classroom.

These four teacher belief types formed the typology of educational beliefs. The typology became the beliefs component of the conceptual framework used to study relationships between teacher educational beliefs and classroom teaching behaviors (see Figure 2).

The effectiveness of the Teacher Educational Beliefs Inventory in identifying the four groups of teacher belief types suggested the possibility that teaching behaviors might be similarly differentiated and related to beliefs. It will be recalled that the primary purpose of this study was to consider the possible relationships between elementary school teachers' educational beliefs and their classroom teaching behaviors. It became necessary, then, to find a way to conceptualize

Teacher Control Belief	Student Participation Belief: Low	Student Participation Belief: High
High	Autocrats	Strategists
Low	Laissez-Faires	Democrats

Figure 2: Teacher Educational Beliefs Typology

teacher behavior and to organize the vast amount of classroom data available for measuring these behaviors. Since this study also considered relationships between types of teacher beliefs and students' perceptions of the classroom learning environment, it appeared logically consistent and desirable to identify a number of domains of the classroom curriculum under which these various behaviors and perceptions could be grouped and studied. Components of a curriculum model developed by staff members from A Study of School seemed well-suited for this

purpose. Accordingly, the model was modified by this writer and adopted as the curricular component of the conceptual framework developed for the study reported here. The following section explains this model and offers justification for its modification and use in investigating relationships between beliefs and behavior.

Domains of the Classroom Curriculum

Goodlad, Klein, and Tye (1979) have defined and described five "domains" of the classroom curriculum. Specifically, these domains are derived from the perspectives and contributions of the several groups who affect or are affected by the school curriculum. These groups, the curricular area or domain in which they are involved, and the curricular label and definition assigned to each domain by Goodlad, Klein, and Tye, are given below:

1. Ideal Curriculum - the most productive and appropriate learning situation that is possible; a state of affairs considered to be highly desirable. Data source: subject matter specialists and curriculum specialists with unlimited resources who are able to utilize the best available knowledge from their fields.
2. Formal Curriculum - a written set of intended learnings for students developed in relation to a set of curricular components by those other than the classroom teacher. Data source: legislative decrees, opinions of significant school and community leaders, local school curricular emphases, state or district policies, and textbook and materials adoptions.

3. Instructional Curriculum - teachers' perceptions of the curriculum they are offering to their own students. Data source: the classroom teacher.

4. Operational Curriculum - observers' perceptions of the curriculum which is actually being taught or implemented in the classroom. Data source: outside observers.

5. Experiential Curriculum - the curriculum students perceive being offered to them and the actual experiences or student outcomes that result.[3]

For the purpose of specifying teacher behavior and for organizing and analyzing the data being used in this study, then, three of these five domains were adopted from this model--the instructional curriculum (representing teacher perceptions), the operational curriculum (representing observer perceptions), and the experiential curriculum (representing student perceptions). These domains and their respective data sources were incorporated into the conceptual framework. They define teacher curriculum behavior as it was conceived for this study (see Figure 3).

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[3]For a more complete definition and description of these domains, see Goodlad, Klein, and Tye, "The Domains of Curriculum and Their Study," in John I. Goodlad and Associates, Curriculum Inquiry: The Study of Curriculum Practice (New York: McGraw-Hill Book Company, 1979).

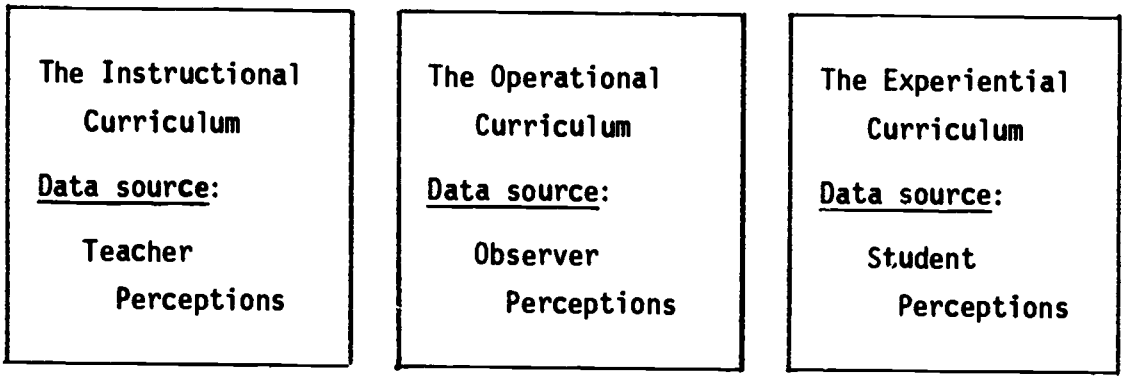

Figure 3: Three Domains of the Classroom Curriculum

The curricular component of the conceptual framework utilized for this study embodied a number of assumptions and attributes. First, when teacher classroom behaviors are viewed by several data sources (i.e., teacher, observer, students) in contrast to a single source, a more complete picture of the classroom curriculum can be obtained than could otherwise be had. Berliner (1979) suggests the need to study aspects of teaching from different perspectives so that intercorrelations can be made from what is often very imprecise and imperfect measures. Such intercorrelations are needed in order to begin to understand a construct, such as classroom affect, that is often glibly used, but is difficult or even impossible to clearly define. Likewise, Bronfenbrenner (1976) and Tikunoff (1979) have spoken of the need to include the perceptions of the participants in an event in order to establish "phenomenological validity."

Second, the following definition of curriculum is assumed: Curriculum is those activities, contents, processes, values, and structural arrangements as intended for, emphasized in , or experienced in the

school and classroom for purposes of fulfilling the educative function of schooling."[4] Embodied in this definition is the notion that at least three perspectives are brought to bear on the teaching-learning situation: (1) that of the teacher, (2) that of the outside observer, and (3) that of the student. Each perspective implies a "different" view of curriculum:

1. the instructional or perceived curriculum (teacher view)
2. the operational or implemented curriclum (observer view)
3. the experienced curriculum (student view)

Third, within the curricular domains selected for this study, at least two distinct aspects of classroom teaching behavior could be identified and described: preactive and interactive teaching behavior. Preactive behavior includes teachers' attitudes toward the goals and functions of schooling, their intentions for student learnings, and their preactive decisions regarding planning and teaching. Interactive teaching behavior refers to teacher-student interactions and classroom structural arrangements. These behaviors will be described and discussed in Chapter III where the specific research objectives selected for this study are presented.

Lastly, non-cognitive student outcomes represented by student views and attitudes were assumed to be a valid measure of the influence of teaching behavior on student classroom experiences which could be

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[4]Excluding the words "contents" and "values," this definition of curriculum was developed by John I. Goodlad and A Study of Schooling staff members (Minutes of Staff Meeting, March 31, 1978). This writer added these words so that the definition might appear more consistent with the scope of this study.

ascribed to teachers' educational beliefs. The relationship of non-cognitive outcomes to cognitive ones is becoming increasingly well documented in the literature, as previously discussed in Chapter I. For purposes of this study, the construct under which these non-cognitive outcomes were explored has been termed "the classroom learning environment."

The conceptual framework also incorporates the specific data sources used in exploring the multivariate structure of the relationship between each teacher belief type and the classroom process variables from each of the three curricular domains: the instructional, the operational, and the experiential curriculum. Teachers' Educational Beliefs were explored utilizing data from the Teacher Educational Beliefs Inventory. Teachers' preactive behaviors were explored from teacher-report inventories and the teacher interview schedule. Teachers' interactive behaviors were examined from both teacher-report inventories (interactive structuring behavior--perceived) as well as from observers' schedules (interactive structuring behavior--observed). Observers' schedules were also used to explore classroom interactive verbal behavior. Lastly, student-report inventories were used to assess the classroom learning environment. The conceptual framework as discussed is illustrated in Figure 4.

Three critical but often neglected aspects of educational research were thus incorporated into the conceptual model or framework developed for this study: (1) the centrality of beliefs in considering teacher behavior, (2) the examination of data simultaneously across several curricular domains or fields representing a large array of teaching-

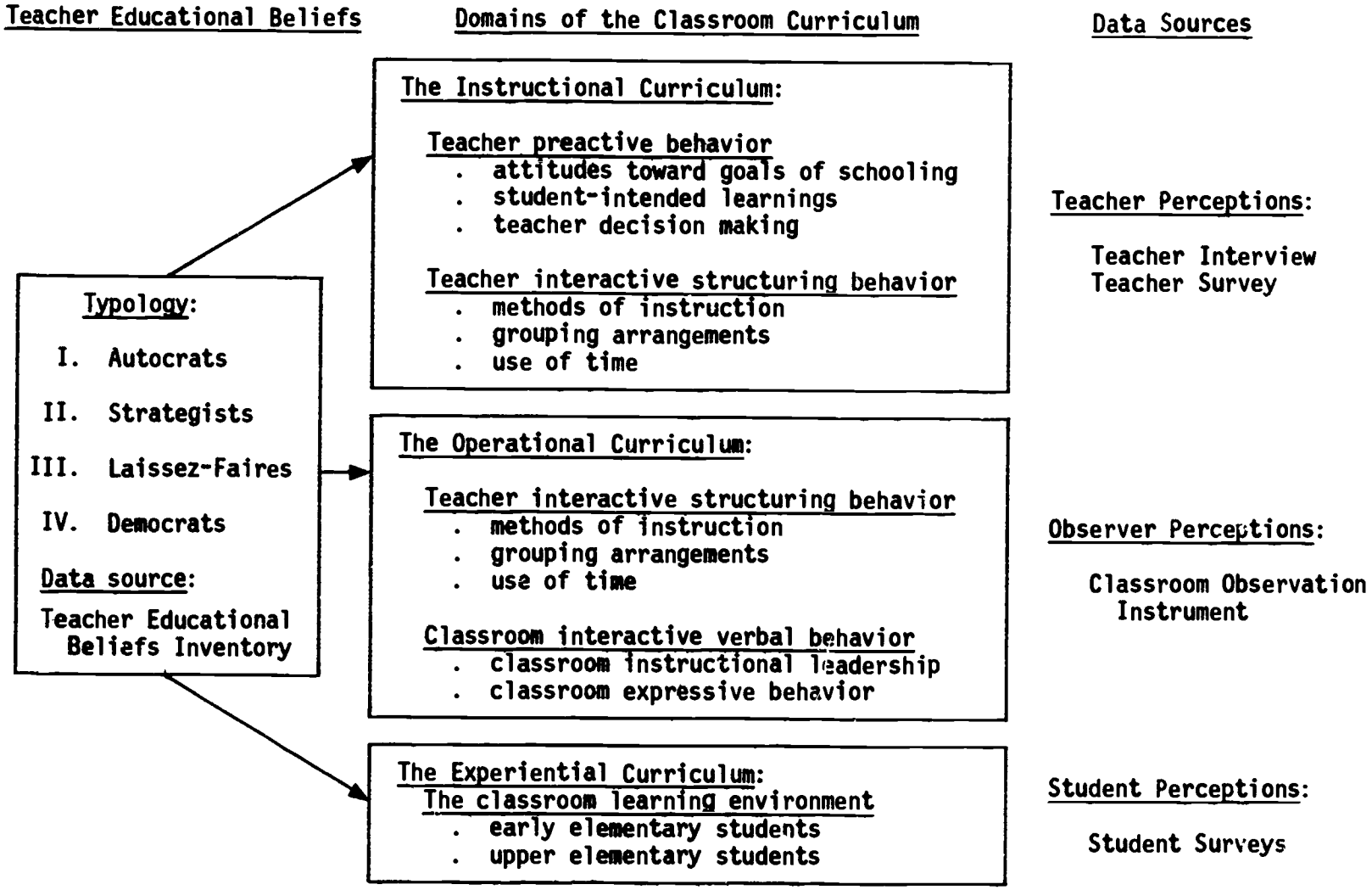

Figure 4: Conceptual Framework for a Study of Relationships Between a Typology of Teacher Educational Beliefs and Three Domains of the Elementary Classroom Curriculum

learning variables, and (3) the simultaneous exploration of data from various perspectives or data sources.

With respect to the conceptual framework, two guidelines were followed in formulating the research objectives described in the next chapter and in choosing the specific classroom process variables to be studied:

1. the extent to which the research objectives were related to the conceptual framework, in terms of both beliefs and behaviors, and
2. the extent to which the specific classroom process variables seemed most likely to be related to the set of beliefs under investigation.

It should be noted that an additional criterion was also used in the selection of classroom process variables. The inclusion of some variables seemed justified because they are thought to produce desired effects on students.

In summary, then, this chapter outlined and presented the theoretical perspective used in exploring the problem under investigation. This perspective emphasizes the centrality of teacher educational beliefs in defining the teaching-learning process. Further, this chapter described and illustrated a typology of teacher educational belief types and suggested a way in which the classroom process variables used in this study could be organized and related to the typology. Thus, the conceptual framework developed for studying relationships between teacher educational beliefs and elementary classroom processes included two major components: a beliefs component and a curricular component.

In addition, the conceptual framework included the specific data sources from the three curricular domains used to explore relationships between teacher belief types and classroom process variables. These domains were: the instructional, the operational, and the experiential curriculum.

Lastly, this chapter suggested the importance of the framework for educational research and described how it had been utilized in generating the research objectives and in selecting the classroom process variables to be studied.

Chapter III

RESEARCH OBJECTIVES AND RATIONALE

This chapter provides a context for viewing classroom experiences and student outcomes other than achievement test scores in determining teacher effectiveness. This was deemed necessary since one of the exploratory questions in the study reported here addressed the implications the findings may have for teacher effectiveness and consequently for student learning experiences in the classroom. The chapter also presents the research objectives, their rationale, and the specific questions that served as postulates in examining the data.

Context for Viewing Teacher Effectiveness

Until recently, research on teaching has taken a narrow view of the potential effects of schooling. It has relied heavily on academic achievement as a major criterion for determining teaching effectiveness, while neglecting non-cognitive effects. One type of effort, known as the input-output research model and exemplified by the work of Coleman (1966), failed to find relationships between school resources and the level of school achievement. Similarly, this model has relied almost exclusively on the aggregation of data at the school or district level, thus empirically ignoring classroom events. As Jencks (1972) has aptly commented:

> We have ignored not only attributes and values but the internal life of schools. We have been preoccupied with the effects of schooling, especially those effects that might be expected to persist into adulthood. This has led us to adopt a "factory" metaphor, in which schools are

> seen primarily as places that alter the characteristics of their alumni. Our research has convinced us that this is the wrong way to think about schools. The long-term effects of schooling seem much less significant to us than they did when we began our work, and the internal life of the schools seems correspondingly more important. (p. 13)

Jencks suggests that input-output research has focused primarily on a limited set of "measurable" outcomes such as achievement test scores in order to determine effective teaching. This has been done at the expense of attempting to assess the attitudes, values, and character structure of classroom life.

In an attempt to study teaching effectiveness directly, the process-product research model has been used extensively to seek to identify critical teaching factors associated with achievement. Unfortunately, this model has suffered from various limitations. First, studies often have been confined to the investigation of one independent variable without considering other components that affect classroom teaching. Averch et al. (1972), in their review of several such studies, determined conclusively that no single instructional method could be shown to obtain superior results over another.

Second, the cumulative results of process-product research have failed to yield meaningful, measurable criteria by which teaching ability can be judged (Gage, 1963; Mitzel, 1960). Mitzel observes that "No standards exist which are commonly agreed upon as the criteria of teaching effectiveness" (1960, p. 1481). Lastly, there has been a paucity of conceptual and theoretical work on teaching and instruction to guide the selection of teacher effectiveness variables. However, despite these limitations, this research has indicated that certain

classroom variables are consistently associated with effective teaching and learning even though it still is not clear how teacher effectiveness occurs.

In a similar vein, contextual studies have been unable to determine a single set of procedures that assumes learning for all children in all situations (Schalock, 1979). Yet, as Good, Biddle, and Brophy (1975) point out, teachers teaching similar students do have different effects on student performance. Even when the differences are known, what is less clear is how teacher differences operate to affect student outcomes.

For the most part, both process-product and contextual studies, by focusing on achievement outcomes, have failed to yield significant results in determining specific and distinctive features of effective classroom teachers.

As Getzels and Jackson (1963) have noted, there are a number of problems in the search for characteristics of effective teachers. The first problem lies in choosing relevant dimensions of teacher characteristics to study, namely the dimensions most predictive of teacher behavior: attitudes, values, beliefs about the educational process, conceptual systems, or demographic variables. Second, there is a problem in choosing instruments to assess these dimensions. Dunkin and Biddle (1974) noted that most self-report inventories up to that time were not developed with "knowledge of the processes of teaching in mind" (p. 412). In addition, ratings of teachers by observers, principals, or students were often considered invalid. As a result, neither self-report inventories nor ratings have been considered very accurate in

predicting teacher behavior. A third problem lies in the choice of acceptable criteria of effectiveness. The invalidity and unreliability of ratings have made them less desirable as criteria. While achievement and classroom behavior have been used as criteria, both appear to be questionable when used alone in determining effectiveness while ignoring context variables. The fourth problem Getzels and Jackson mention is the limitation of treating all teachers, young and old, male and female, elementary and secondary, as a single group. Important contextual variations due to the subject matter taught, the school climate, student characteristics, and conditions in the community are similarly ignored.

These problems and the discouraging results of many teacher effectiveness studies have contributed to an over-reliance on achievement outcomes in viewing the teaching-learning process.

A number of ethnographic studies of the internal life of classrooms has contributed thoughtful insights into the sociological dimensions of the classroom teaching-learning experience and consequently for teacher effectiveness. For example, Henry (1963) emphasizes the oppressiveness of school and classroom structures which substitute personal or individual goals for group ideals. Children are reduced to a common definition so as to better organize large numbers of them. Jackson (1968) reflects on the containment aspect of school life while highlighting two classroom themes--"embarrassment" and "boredom." Similarly, Kounin's (1970) work on classroom management emphasizes the collective properties of classrooms. He describes teachers as employing such techniques as "withitness," "overlapping," "smoothness," and "momentum" in managing classroom groups. In his study of teaching behaviors and classroom task

org..nization, Bossert (1979) concluded that teachers' behaviors are shaped by the instructional task. For example, large group recitations elicit more "authoritarian type" behavior from the teacher than do small projects or discussions.

The above findings, along with those from similar studies, emphasize the non-cognitive aspects of classroom life. As suggested by Jencks, the long-term psychological and sociological effects of schooling may have a greater impact on student learning than the immediate results of achievement tests frequently used to determine teaching effectiveness.

It is hoped, then, that the findings and implications of the current study might contribute toward a broader understanding of teacher effectiveness as a result of having examined multiple areas of teacher behavior and classroom life. While this study cannot provide the detailed descriptions of classroom life as demonstrated by ethnographic studies, it does seek, as they do, to be comprehensive in exploring non-cognitive factors related to student experiences. It also seeks to overcome some of the limitations of the input-output and process-product research models by probing the classroom experience while at the same time seeking to identify an interdependent set of critical teaching factors thought to be related to teachers' educational beliefs.

Thus, it will be recalled that a related purpose of this study was to develop hypotheses concerning the characteristics of effective teachers. To that end, the following exploratory question was proposed: What implications for teaching effectiveness and differential student

learning experiences are reflected by variations in teachers' educational beliefs?

The specific questions formulated for this study were explored under four broader research objectives intended to (1) differentiate teaching practices and student perceptions by teacher educational beliefs and (2) determine the consequent implications for teaching effectiveness. It became important, then, to identify several critical dimensions of classroom life representing teaching practices/behaviors and student perceptions/experiences. The following dimensions were chosen: teacher preactive behavior, teacher interactive structuring behavior, classroom interactive verbal behavior, and the classroom learning environment. The following section identifies and characterizes something of the nature of the teacher behavior constructs chosen for this study.

Preactive and Interactive Teaching Behavior

In his incisive overview of teaching, Jackson (1966) distinguishes between preactive and interactive teaching behavior in the following manner.

Teacher Preactive Behavior

Preactive behavior refers to those activities in which the teacher engages that are preparatory for and/or preliminary to actual classroom instruction, such as preparing lesson plans and arranging furniture, equipment, and materials in the classroom. Furthermore, it refers to teacher behavior that is relevant to the teaching task but presumably

takes place prior to teaching. Specifically, this includes such activities as setting goals, defining objectives, developing lesson plans, and considering decisions regarding such things as individualized instruction, methods of evaluation, and so on.

Preactive behavior is considered to be reflective and deliberative and influenced by, among other things, a teacher's educational beliefs regarding the teaching-learning process and the type of atmosphere in which the teacher believes it can most effectively occur. Teachers would appear to have a portion of personal control over much of their preactive behaviors, that is, they can choose or decide from a number of alternatives as to how they wish to conduct their classes.

Teacher Interactive Behavior

In contrast to preactive behaviors, interactive teaching behavior occurs in the classroom setting while students are present for instruction. Interactive behavior refers to those activities which occur vis-a-vis the students in the give-and-take of daily classroom events. The teacher conducts, directs, manages, and/or controls such learning activities as lectures, demonstrations, class discussions, student reports, or small group projects. Grouping patterns, the way in which materials are assigned and used, and how classroom instructional time is distributed are also parts of a teacher's interactive behavior.

Interactive teaching also refers to the verbal interactions teachers have with students while they are structuring or organizing activities, giving or receiving information, and providing feedback. Teachers ask questions, acknowledge, praise, reprimand, and correct

student responses, and sometimes make use of humor and life experiences in teaching a lesson. They also encourage students to take initiative or to ask questions when they are teaching a lesson.

There is some question regarding the extent to which teachers are deliberate or spontaneous in regard to their interactive teaching behaviors. In the classroom setting, teachers are considered to be the predominant focus and presumed instigator in the organization of activities and assignments. Any student focus or initiative regarding instruction is presumed to be "permitted," nurtured, or pursued by the teacher; that is, such focus or initiative is at the teacher's discretion.

Jackson (1966, p. 14), however, estimates that elementary classroom teachers engage in over 1,000 daily exchanges with students. He observed that when the whole class is present, most of the exchanges in which teachers and students engage last for only a few seconds; rarely does one last uninterruptedly for more than one minute. Many of these behaviors are dictated by such things as student disturbances, requests, and other unexpected behaviors. His study, those of Kounin (1970), and others suggest that a good deal of teacher planning is subject to the influence of the rapidity of changing events which characterize daily classroom interactions between teachers and students. For this reason, Jackson argues that interactive teaching behavior is less deliberate and more spontaneous than preactive teaching behavior.

While it might well be argued as Jackson has done that interactive behavior is less deliberative and more spontaneous than preactive behavior, recent research suggests an opposite view. Teachers are reluctant to interrupt the flow of classroom activity by changing previously

planned and practiced routines, activities, and behaviors (cf. Abelson, 1976--teachers' plans serve as mental scripts for their interactive teaching behavior; cf. Joyce, 1978-1979; McNair, 1978-1979; McNair & Joyce, 1978-1979--teachers tend to make minor adjustments in routines and not major revisions when a problem or unexpected event arises). Similarly, even though classroom disruptions or other conditions may interrupt a teacher's planned activity, it has been found that teachers consider no more than two alternatives under such circumstances (MacKay, 1977; Morine-Dershimer & Vallance, 1975). Teachers tend to carry out well-established routines even when they judge lessons to be problematic (Peterson & Clark, 1978).

While teachers may be more spontaneous and less deliberative in their interactive than in their preactive behavior, the extent to which this could be documented and argued is unclear since it has been shown that a certain inflexibility characterizes most classroom events.

Teacher Structural and Verbal Behavior

Given the lack of understanding regarding the extent to which teachers are able to exercise control over classroom activities and events, it seemed useful and necessary in examining relationships between teachers' educational beliefs and the various classroom processes to further distinguish teacher interactive behavior as verbal or structural. From the foregoing description of interactive teaching behavior, it would appear that such behavior could readily be categorized as either primarily structural (i.e., utilization of instructional methods, grouping arrangements, and learning time) or primarily verbal

(i.e., verbal exchanges between teachers and students denoting leadership and expressive behavior). It may be that while classroom structural arrangements may remain in place under changing circumstances, verbal interactions may be more spontaneous and less deliberative depending on changing circumstances. For example, if a particular learning activity were proceeding as intended, a teacher might spontaneously permit greater teacher-student or student-student interactions than if the activity became problematic. It seemed important, then, to determine the extent to which teachers' educational beliefs were related to each type of interactive behavior separately rather than assuming that both were similarly affected. Therefore, the research objectives presented here treat separately interactive teaching behavior that is primarily structural from interactive teacher behavior that is primarily verbal.

Research Objectives

As previously mentioned, the research objectives grew out of a concern regarding relationships between teachers' educational beliefs, their teaching practices, and the consequent effect of these on student experiences in the classroom. The formulation of the specific questions was guided by the conceptual framework in which teacher behavior was viewed as preactive (i.e., attitudes, intentions, decisions) and interactive (i.e., structural and verbal behavior). This framework also included the classroom learning environment construct as a measure of student experience (see Chapter II, Figure 4, p. 39).

The specific research questions embodied all aspects of the conceptual framework previously discussed. Furthermore, the research questions incorporated variables identified by previous studies to be consistently correlated with gains in student achievement and/or student attitudes thought to represent conducive classroom learning environments. In many cases, these variables also appeared to be associated with differing teaching styles and/or teaching personality types.

Objective 1: Teacher Beliefs and Preactive Teaching Behavior

The first research objective sought to explore the relationship between teachers' educational beliefs and teacher preactive teaching behavior regarding the following sets of variables: teachers' attitudes toward the goals or functions of schooling, the intended learnings they have for their students, and the bases upon which they make instructional decisions. These are thought to be associated with teachers' educational beliefs. Bush (1954) found that teachers high on control primarily sought to develop intellectual skills while teachers' whose classroom control was defined as flexible and indirect primarily sought to develop personal and social growth in students.

The numerous literature reviews conducted recently regarding teacher preactive behavior (i.e., thinking, planning, and decision making) not only reflect the current research interest in this area, but also suggest the important role played in these processes by teachers' educational beliefs (Clark & Yinger, 1979; Doyle, 1979; Shavelson, 1976; Shavelson & Stern, 1981; Shulman & Elstein, 1975). Furthermore, these areas are considered as critical matters for research (Bussis,

Chittenden, & Amarel, 1976; Clark, 1978-1979; Gage, 1978) because of the extent to which it is thought that beliefs influence these thinking processes and thereby influence teaching behavior. For example, it seems likely that teachers with high scores on student participation and decision making would prefer to emphasize students' interests and abilities as a guide to curriculum planning over other sources such as textbooks and commercially prepared materials. On the contrary, teachers low on this belief dimension could be expected to be more constraining regarding curriculum planning by emphasizing an already established curriculum over special interests on the part of students. If such differential thinking does exist, some teacher belief types might be found to be too narrow in their conceptions regarding educational goals and teaching intentions. Furthermore, they may unknowingly inhibit effective student participation and involvement. In this way, some groups of students may not have as many opportunities to participate positively in the classroom learning experience. Therefore, the first objective of this study was to explore the following research question and its consequent implications for teaching effectiveness:

> How do the activities of teachers with dissimilar educational beliefs differ regarding their teaching intentions and decisions prior to instruction (preactive behaviors)?
>
> If there is a difference, will this reflect a limiting of exposure to a comprehensive set of curriculum expectations and attempts at inhibiting individual student initiative and participation in the learning experience?

These questions were explored by seeking the following information from the collected data: Do teachers with dissimilar educational beliefs view differently the goals of schooling and prefer similar or

dissimilar learning and behavioral goals for their students? Likewise, do they perceive differently the bases upon which their own teaching decisions are made regarding influences on teacher planning and judgments made about student progress? In other words, do they use different criteria in decision making?

Objective 2: Teacher Beliefs and Interactive Structuring Behavior

The second research objective sought to explore the relationship between teacher beliefs and teacher interactive structuring behavior regarding the following three sets of variables: methods of instruction, grouping arrangements, and use of time. These interactive structuring behaviors were viewed from the perspective of teachers as well as from those of classroom observers. These also are thought to be associated with teachers' educational beliefs. Gage (1978) argues that teachers need to fall back upon general principles and guidelines regarding how they will cope with the otherwise overwhelming abundance of problematic situations or occasions for decision making which confront a teacher moment by moment during a school day. It would seem reasonable to assume, then, that the way in which teachers decide to organize and implement their teaching tasks and are observed to carry them out, is similarly influenced by the educational beliefs they hold about the role of the teacher, the role of the student, and the proper ends and means of teaching.

Some instructional methods associated with effective teaching are known to require a greater degree of student participation and decision making than others. In their several reviews of research on effective

teaching behaviors and instructional practices, Rosenshine and Furst (1971, 1973) and Rosenshine (1978) identified numerous teaching variables that had consistently strong positive correlations with student achievement. Of these, the following were investigated in this project: (1) teacher frequency in the provision of a diverse array of learning opportunities, including (a) multiple teaching methods and materials (as opposed to an emphasis on conventional activities, routine tasks, or repeated use of the same type of learning materials), and (b) multiple levels of cognitive discourse (as opposed to heavy concentration at one level of discourse), (2) the percentage of time teachers individualized instruction using a variety of teaching methods; (3) the frequency of interactive instructional activities (as opposed to those requiring little or no pupil-to-pupil or teacher-to-pupil interaction); (4) open-ended questioning rather than frequent lecturing; (5) media utilization; (6) teacher monitoring; (7) frequency of teacher corrective feedback; (8) grouping patterns; and (9) time on task including percentage of class time spent on instruction and expected time on homework. It was posited that if these teaching behaviors were differentially practiced among teacher belief types, it could be concluded that the students of some teacher types would be less likely to be exposed to the most effective instructional practices. It was hypothesized that teachers high on student participation and decision making would utilize a more diverse array of positive and effective teaching practices in their choice and use of instructional methods and grouping arrangements while teachers high on control would use less. On the contrary, teachers high on control might use instructional time more efficiently than those high on

student participation if it appears that they utilize a less complex teaching pattern. Thus, the second objective of the study was to explore the following research question and its consequent implication for teaching effectiveness:

> How do the activities of teachers with dissimilar educational beliefs differ regarding their classroom methods of instruction, grouping arrangements and use of time (interactive structuring behavior--perceived and observed)?
>
> If some teaching behaviors are differentially practiced among teacher belief types, does it result in less exposure to the most positive, effective, and efficient teaching practices for some students?

These questions were explored by seeking the following information from the collected data: Do methods of instruction differ among teacher belief types? Do grouping arrangements or learning group size used for instruction differ among teacher belief types? Does the use of instructional time differ among teacher belief types?

Objective 3: Teacher Beliefs and Classroom Interactive Verbal Behavior

The third research objective sought to explore the relationship between teacher beliefs and classroom interactive verbal behavior regarding the following two sets of variables: classroom leadership and classroom expressive behavior. A study of teachers' interactive behaviors in the classroom including teaching methods, grouping arrangements, and use of time appeared to be incomplete without also considering leadership and expressive factors. Studies investigating teachers' educational beliefs and their classroom teaching styles indicate that the differentiation of beliefs among teachers tends to depend on the extent to which teachers emphasize the emotional or psychological over

the intellectual components of learning. This includes the degree to which teachers involve students in directing and initiating learning activities or dominate classroom interactions as well as the emotional tone conveyed by the teacher. For this study, these interactions were predominantly verbal.

Verbal behaviors necessarily produce emotional overtones which can be rated negative, positive, or neutral. These overtones tend to foster or discourage positive teacher-student and student-peer relationships. Similarly, emotional overtones are produced and positive relationships are affected by the extent to which teachers permit student participation.

In regard to the third research objective, then, it would seem likely that teachers holding dissimilar educational beliefs would be characterized by different leadership and expressive styles as they interact with students. Teachers with high control beliefs could be expected to dominate classroom activities to a greater degree than those who score low on control. It is commonly believed that teachers who dominate classroom activities as well as demonstrate greater curricular constraint are less acknowledging, affirming, and affective with their students. While this cannot be logically assumed, many studies have consistently found such an association. In their extensive review of studies dealing with individual differences in teachers and students, Brophy and Good (1974) conclude that

> Certain general traits which appear to be universally or almost universally associated with effectiveness include a democratic as opposed to an authoritarian leadership style . . . teacher warmth and enthusiasm, and an abstract rather than a concrete belief system or conceptual style. (p. 268)

If these associations between beliefs and behaviors do obtain, then the affective quality of some classroom learning environments might be greatly impaired dependent on what teachers believe about teaching and learning. As a result, the third objective of this study was to explore the following research question and its consequent implication for teaching effectiveness:

> How do the activities of teachers with dissimilar educational beliefs differ regarding some leadership and expressive verbal interactions occurring in the classroom (interactive verbal behavior)?
>
> If there is a difference, does it result in differential opportunities for students to experience an encouraging, supportive and warm learning environment?

These questions were explored by seeking the following information from the collected data: Do leadership behaviors differ among teacher belief types regarding their verbal interactions related to directing and initiating classroom activities? How do teacher-student expressive behaviors differ among teacher belief types regarding teacher praise and positive/negative/neutral affective interactions?

Objective 4: Teacher Beliefs and the Classroom Learning Environment

The fourth objective of this study was to explore the relationship between teacher beliefs and the classroom learning environment regarding (a) classroom social and affective relationships and (b) students' perceptions of various other classroom learning interactions.

Looking at the effects of teacher classroom behaviors on student perceptions is another way of measuring the affective tone of the classroom learning environment. Not only does this study report teachers' interactive classroom behaviors from the viewpoint of

observers as just described, it also reports student views of classroom interaction.

Students stand at a superior vantage point in the classroom because it is their perception that makes the difference in learning. As Fielder's (1975) pioneering paper on classroom interaction shows, students' perceptions of their own influences on the class, not observers' estimates of the same, predict academic gains. A number of studies indicate that student perceptions of their own involvement and of classroom social relationships have an effect on achievement. Moos and Moos (1978) found that achievement was greater for classes that students rated high in involvement and affiliation. Anderson (1970) and Walberg (1971) report a positive relationship between cognitive learning and those classes students perceive as cohesive (the presence of peer friendships) and satisfying (students enjoy their class work). Conversely, these same researchers report negative relationships between achievement and those classes perceived as exhibiting student apathy, friction, cliquishness, and favoritism. Walberg (1977) maintains that certain student perceptions of the social environment optimize other learnings, some of which cannot presently be measured.

Reviews of the literature on these and other affective factors indicate a high correspondence between affective and cognitive learning. It could be argued that it is the interactive behavior of students with teachers which has the greatest influence on classroom learning, especially at the elementary school level where students are primarily taught by a single teacher. These interactions provide the affective tone of the classroom learning environment, perhaps even more so than

classroom organizational structures provide it. It may be that the greatest disparity between elementary school classrooms lies in the affective quality of the learning environment.

It is highly likely, therefore, that students will respond more positively to the learning task when teachers exhibit behaviors and/or create a classrrom atmosphere conducive to student learning. These behaviors are known to reflect teacher personality and in particular beliefs teachers hold about the teaching-learning process. Therefore, it seemed necessary as well as useful to investigate students' perceptions of the classroom learning environment in seeking to determine relationships between teachers' educational beliefs and classroom processes.

Thus, the fourth and final research objective deals with students' perceptions of the classroom learning environment, or the experiential curriculum. To some extent this curricular domain overlaps with the interactive operational curriculum as previously discussed. Both have in common emotional or affective elements arising from classroom transactions. The interactive operational curriculum refers to the learning environment as seen through the eyes of classroom observers while the experiential curriculum derives its definition and meaning from the perceptions of students.

It would seem that students would perceive differently those teachers whose behaviors are influenced by dissimilar belief systems. Likewise, they could be expected to experience a different kind of classroom environment in terms of social relationships and learning interactions if, indeed, beliefs influence behaviors which in turn foster certain

perceptions among students. It has been argued by Harvey and his colleagues (1961, 1966, 1968, 1970) that the classroom atmosphere produced by the behavior of the teacher is heavily influenced by the nature of the teacher's educational beliefs. If this is so, it would seem important to know what teaching behaviors, if any, influence students' perceptions of the classroom learning environment and whether or not these perceptions reflect conditions conducive to a favorable learning environment.

Therefore, the fourth objective of this study was to explore the following research question and its consequent implication for teacher effectiveness:

> Do the perceptions of students in classrooms of teachers with dissimilar educational beliefs reflect different patterns of social and affective relationships and learning interactions?
>
> If some classroom environments are differentially perceived by students, does this result in greater or lesser chances that some children will feel positively affiliated with the educational process?

These questions were explored by seeking the following information from the collected data: How do classroom social and affective relationships and learning interactions including student affect, peer esteem, and student cooperation and competitiveness differ among classes taught by teachers of dissimilar educational beliefs? Do interactions related to the way in which the learning task is perceived, including student opportunities for choice and decision making, differ for these same classes? Are there differences in the way early elementary and upper elementary students view similar teacher types?

In summary, then, this chapter presented a context for viewing teacher effectiveness and set forth the main objectives of this study by juxtaposing the four research questions alongside their consequent propositions concerning effective teaching. Broadly speaking, the research questions for all the variables were viewed generically: What is the relationship between the teacher educational belief typology and the classroom process variables in each subset? Alternatively, to what extent do the variables in each subset differentiate the groups of teachers defining the typology? More specifically, however, this study sought to explore the similarities and differences in the attitudes and behaviors of teachers who ascribe to different value systems regarding teaching and learning. Thus, a further question was raised regarding the kinds of experiences students may have when taught by teachers whose educational beliefs differ.

Chapter IV

METHODOLOGY

A comprehensive investigation into the complex teaching and learning processes that comprise the day-to-day experiences of students in elementary classrooms of teachers holding dissimilar educational beliefs requires either the collection of or access to an extensive body of data concerning a large and diverse sample of classes. While the collection of data on such a wide range of variables about a large sample would have been neither physically nor financially possible for a single researcher, an analysis of data already collected proved well suited for the investigation of this problem. The data used in this study were collected by researchers working in a national research project, A Study of Schooling, under the direction of John I. Goodlad.[1]

The author, a member of the A Study of Schooling staff, has been involved in various aspects and phases of the project since spring 1977. This permitted a long familiarity with the data and an opportunity to explore a number of possible approaches to a study of teachers' educational beliefs as well as identification, exploration, and testing of numerous classroom variables important for this study. The available data pool contains several hundred items representing classroom instructional and attitudinal measures of teachers', observers', and students'

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[1]Detailed information on A Study of Schooling can be found in the series of four sequential articles published in the Phi Delta Kappan. The first in this series by Goodlad, Sirotnik, and Overman (1979) includes a conceptual overview, the sample design, and the types of data collected.

viewpoints. In addition, numerous technical reports produced by members of the A Study of Schooling staff guided and facilitated parts of this study. Where appropriate, these reports are cited.

This chapter will present a description of the sample from which the data were obtained as well as the methodology utilized in this particular investigation. This includes instrumentation, selection, and description of variables and method of analysis.

Sample and Procedures

The data collection phase of A Study of Schooling was conducted during the spring and fall semesters of 1977 in seven states located in the following geographic areas of the nation: Northwest, Southwest, Southeast, North Central, Mid Central, and South Central. The sample included 38 schools selected in "triples." A triple consisted of a senior high school, a feeder junior high or middle school, and a feeder elementary school. Schools were selected in triples so that the entire span of pre-collegiate schooling could be studied in a single district and community. In one district grades 7 through 12 were taught in one school. Thus, the total school sample resulted in 13 high schools, 12 junior high or middle schools, and 13 elementary schools.

A purposive sample of the nation's schools was obtained by selecting triples with dirferent combinations of the following characteristics: school size, economic level, racial composition, location (urban-suburban-rural), and region of the country. (A description of the elementary school sample used in this particular study of teacher educational beliefs is found in Table 1.)

Table 1

Demographic Characteristics of the 13 Elementary Schools

School*	Size**	Economic Status	Ethnicity	Location
Atwater	Small	Middle	White	Suburban
Bradford	Medium	Low/Middle	White	Suburban
Crestview	Medium	Low/Middle	White	Suburban
Dennison	Very Small	Middle	White	Rural
Euclid	Small	Middle	White	Rural
Fairfield	Very Large	Low/Middle	Mexican-Am./ White	Rural
Laurel	Medium	Low	Black/White	Rural
Manchester	Medium	Middle	Black	Urban
Newport	Large	Low	Mixed	Urban
Palisades	Small	Upper/Middle	Black/White	Urban
Rosemont	Medium	Low	Mexican-American	Urban
Vista	Large	Middle	White	Suburban
Woodlake	Medium	Middle	White	Suburban

* These are fictitious names

** Very Large = 900 students
Large = 700-900 students
Medium = 500-699 students
Small = 300-499 students
Very Small = 300 students

In all, questionnaire data were obtained from 13,719 secondary and 3,444 elementary students, 1,064 secondary and 286 elementary teachers, 8,624 parents, all school administrators, non-teaching professionals, district personnel, and community agencies and organizations. Data were also gathered through classroom observations and teacher interviews. Finally, all teachers in each school, besides completing a questionnaire, were asked to submit a comprehensive package of curriculum materials (topics, skills, textbooks, materials, tests) used in their classes.

A sample of classes from each school was selected for the purpose of obtaining additional data. At the secondary levels, classes were selected randomly within a framework representative of the courses offered by the school. Generally, 48 classes at the senior high school level and 36 at the junior high level were observed for three periods of approximately 50 minutes each. At the elementary level, two classes were randomly selected for sampling from each grade in each school. If a school had only one or two classes of each grade, all classes were observed, surveyed, and their teachers interviewed. These classes were observed for three days each. This plan resulted in observation data from 895 secondary and 129 elementary classrooms. All students in these sampled classes were administered questionnaires and all their teachers were interviewed. It should be noted that classroom observations were completed prior to the questionnairing and interviewing phases of the data collection.

The sample for this study of relationships between teachers' educational beliefs and classroom processes was drawn from the 286 elementary

teachers included in A Study of Schooling. The scores they obtained on a set of teacher educational belief items became the selection criteria for this study. The remainder of this section on sampling and data collection will focus on these teachers and the data sources used for investigating relationships between teacher educational beliefs and classroom processes.

The teacher survey used in A Study of Schooling included a Teacher Educational Beliefs Inventory composed of the following scales: Teacher Discipline and Control, Basic Subjects and Skills Emphasis, Student Concern, and Student Participation.[2] Two of these scales, Teacher Discipline and Control and Student Participation, were selected for this study to classify teachers according to a typology of belief orientations expected to differentiate teachers' classroom behaviors (cf. Chapter II). The items comprising the two scales are as follows:

Teacher Discipline and Control

- Good teacher-student relations are enhanced when it is clear that the teacher, not the students, is in charge of classroom activities.
- There is too great an emphasis on keeping order in most classrooms.
- An orderly classroom is the major prerequisite to effective teaching.
- Students must be kept busy or they soon get into trouble.
- Students need and should have more supervision than they usually get.

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[2]For additional information on the development of these items and scales, see Sirotnik, K. A., Instrument Development and Psychometric Analysis of Major Scales Utilized in A Study of Schooling. A Study of Schooling Technical Report No. 4. Los Angeles: University of California, 1979. Also, for an extensive analysis and discussion of the scores obtained by both secondary and elementary teachers on all dimensions of the Teachers' Educational Beliefs Scale see Wright, D. P., Teachers' Educational Beliefs. A Study of Schooling Technical Report No. 14, 1980.

- o In the interest of good discipline, students who repeatedly disrupt the class must be firmly punished.
- o Proper control of a class is amply demonstrated when the students work quietly while the teacher is out of the room.

Student Participation

- o Student initiation and participation in planning classroom activities are essential to the maintenance of an effective classroom atmosphere.
- o When students are allowed to participate in the choice of activities, discipline problems are generally averted.
- o When given a choice of activities, most students select what is best for them.
- o Student motivation is greatest when students can gauge their own progress rather than depending on regular evaluation by the teacher.
- o Students are motivated to do better work when they feel free to move around the room while class is in session.

Responses were coded as follows: strongly agree = 6, moderately agree = 5, mildly agree = 4, mildly disagree = 3, moderately disagree = 2, strongly disagree = 1.

Scores for all 286 elementary teachers on these two scales were arrayed on a scattergram (see Figure 5). Their mean scores on the Teacher Discipline and Control Scale and the Student Participation Scale were 4.37 and 4.07 respectively, with a possible range of individual scores from one to six. In order to obtain teachers for this study with relatively different ideological orientations, those cases close to the mean on both scales, 104 teachers, were excluded. The remaining 182 or 64 percent of the teachers were thus classified as follows:

Teacher Belief Type		Control Score	Participation Score
I	Autocrats	4.60 - 6.00 (high)	1.00 - 3.90 (low)
II	Strategists	4.60 - 6.00 (high)	4.23 - 6.00 (high)
III	Laissez-Faires	1.00 - 4.15 (low)	1.00 - 3.90 (low)
IV	Democrats	1.00 - 4.15 (low)	4.23 - 6.00 (high)

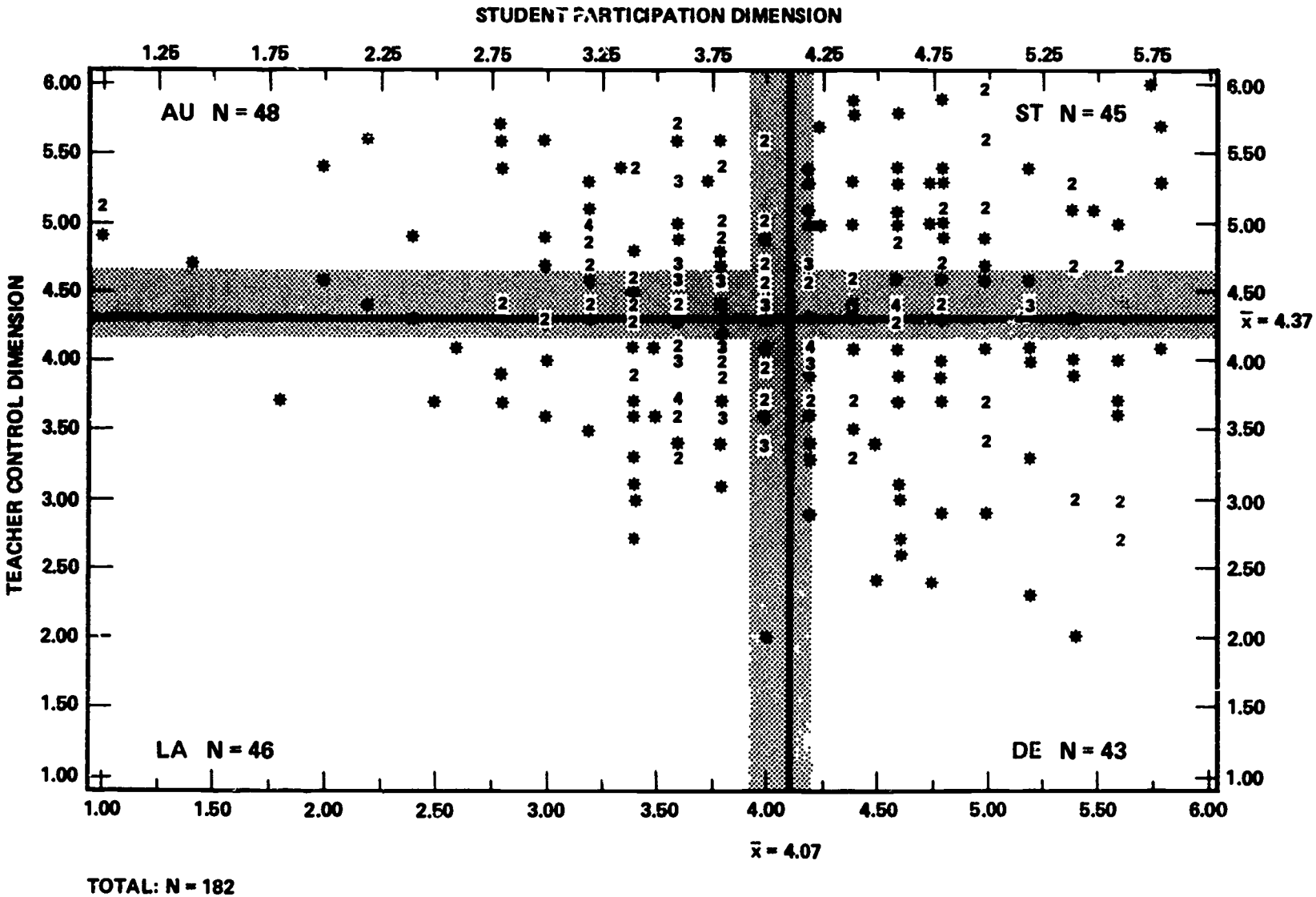

Figure 5. Scattergram of Teacher Control and Student Participation Scores

The teacher educational belief types and the cases drawn for inclusion in the development of the typology are presented in Figure 6.

Beliefs About Teacher Control	Beliefs about Student Participation: Low	Beliefs about Student Participation: High
High	I Autocrats (N = 48)	II Strategists (N = 45)
Low	III Laissez-Faires (N = 46)	IV Democrats (N = 43)

Note: Total N = 182

Figure 6

Typology of Teacher Belief Types with Case Distribution for 182 Elementary Teachers

In summary, then, about an equal number of teachers were distributed across the four belief types. Forty-eight teachers agreed with autocratic-type beliefs, 45 with strategist-type beliefs, 46 with laissez-faire-type beliefs, and 43 with democratic-type beliefs. It is clear from the scattergram, however, that the distributions of teachers' scores are negatively skewed on both scales used in the classification of the four teacher belief types. The peculiar nature of the distribution indicates that caution should be exercised in attributing highly distinct differences in belief among groups. Nevertheless, it is likely that the typology is descriptive of the general elementary teacher population and that "pure" teacher belief types would be difficult to find. In effect, the group most skewed (i.e., laissez-faires) may be

nonexistent, that is, this group may actually represent teacher drop-outs or potential drop-outs from the instructional system.

While the development of the typology in itself was considered a descriptive finding, it was deemed necessary to further delineate the sample. Of the 182 teachers, 53 were found to be teachers of Kindergarten or special teachers such as Title I reading teachers, teachers of the educable mentally retarded, music, or physical education. These were excluded as a classroom-based data source. It seemed appropriate to eliminate from this study teachers whose teaching focus might not be fully directed toward a comprehensive classroom instructional system. Thus, a sample of 129 regular classroom teachers remained. This group represents the data base for the teacher-questionnaire information reported in this study including general and class-specific curriculum data. Table 2 presents the numerical distribution of this subset of teachers by grade level and teacher belief type.

Table 2

Distribution of 129 Elementary Teachers
by Teacher Belief Type and Teaching Level

Teacher Belief Type Teachers:	Early (1-3)	Upper (4-6)	Total	%
Autocrats	18	18	36	28%
Strategists	21	11	32	25%
Laissez-Faires	16	15	31	24%
Democrats	17	13	30	23%
Totals:	(72)	(57)	(129)	(100%)

Approximately 62 percent or 80 of the 129 regular classroom teachers were found to have been included in the sampled classes, that is, there were additional data available from student questionnaires, observations, and teacher interviews for this subsample of teachers. Thus, this subsample served as the data source for the sampled teachers, classrooms, and students. (See Table 3.)

Table 3

Distribution of Sampled Elementary School Teachers, Classrooms, and Students by Teacher Belief Type

Teacher Belief Type	Teachers and Classrooms				Students			
	Early (1-3)	Upper (4-6)	Total	%	Early (1-3)	Upper (4-6)	Total	%
Autocrats	15	10	25	31%	397	282	679	33%
Strategists	10	8	18	23%	225	198	423	20%
Laissez-Faires	9	12	21	26%	232	312	544	26%
Democrats	8	8	16	20%	205	231	436	21%
Totals:	(42)	(38)	(80)	(100%)	(1059)	(1023)	(2082)	(100%)

In summary, then, this study examined the educational beliefs of 286 elementary teachers, of whom 182 were identified as having relatively different educational belief orientations. Teacher questionnaire data were examined from 129 of those teachers who taught in regular classrooms. Survey data from a total of 2,082 students in 80 of these teachers' observed classrooms were analyzed along with observers' reports and teacher interviews. Interestingly, these 80 teachers and

classrooms were distributed across all 13 elementary schools included in the national sample. Generally, the number of participating students and teachers for this study was large enough to warrant investigation of the data for patterns, trends, and relationships descriptive of classroom life.

Instrumentation

Between February 1974 and August 1975, new comprehensive instruments were developed by the staff of A Study of Schooling. Questionnaire and interview schedules were constructed for students, teachers, school and district administrators, other adult school staff, parents, and other community members. An observation form was designed for describing classroom processes and school staff meetings. Survey questions were formulated and constructs operationally defined by the generation of scalable items. The development of all measurement techniques included repeated field testing, analysis, and revision.

The entire instrument package was pilot tested during a six-week period at a triple in a California school district. Further revisions made after the pilot study resulted in a more concise and integrated set of instruments and data collection procedures. For example, the amount of time required for data collection was reduced from six to four weeks for each triple. Furthermore, a decision was made to modify and use the classroom observation instrument designed by the Stanford Research Institute (Stallings, 1975). This instrument permitted the collection of detailed information about teacher behaviors, teacher-student interactions, grouping procedures, class activities, the use of time, and

several other features of classroom life. The Stanford Research Institute's classroom observation instrument was modified by the A Study of Schooling Staff so as to (a) classify data by subject, and (b) break down data by "classroom context" (instructional, behavioral, routines, or social). For the final study of 13 triples, professionally printed and optically scannable instruments were used for efficient and accurate computerization.

This present study of teachers' educational beliefs draws from elementary school data obtained from the teacher and early and upper elementary student questionnaires, the classroom observation instrument, and the teacher interview schedule. As previously mentioned, two dimensions from the Educational Beliefs Inventory included in the teacher survey were used to develop the typology of teacher educational beliefs. A subsample of 129 teachers was then identified as holding relatively different belief orientations. For these 129 teachers, the constructs and their data sources as used in this study are described in the following paragraph. The same will also be discussed, then, for the subsample of 80 teachers.

For the 129 teachers, one additional Likert-type measure from the Educational Beliefs Inventory was used to assess teachers' attitudes toward the teaching of basic subjects and skills. In addition, teachers answered 13 questions on the teacher survey form about (1) the goals of schooling, (2) the utilization of student information in individualizing instruction, (3) sources of curriculum influence, (4) the usefulness of certain types of evaluation strategies, (5) teaching activities used,

(6) the materials, levels of cognitive discourse, and evaluation methods used in these activities, (7) the implementation of individualized instruction, (8) grouping patterns, and (9) time spent on instruction, routines, behavior, and homework. Several of these items represented a composite of scores across the four basic subject areas, e.g., English/Reading/Language Arts, Mathematics, Social Studies, and Science.

For the subsample of 80 teachers, in addition to the data already described, one question from the curriculum section of the teacher interview schedule was used to assess teachers' goals or intended learnings for students. Additionally, data from two sections of the classroom observation instrument were included in the analysis of teacher belief group differences. The Five-Minute Interaction (FMI) was used during each classroom observation period to record the fine details of the adult/student interactions taking place. The Snapshot furnished an overview of the general events taking place. It was used to identify: (1) the learning activities occurring in classrooms, (2) the audio-visual media used in these activities, (3) grouping patterns, (4) adult and student leadership responsibilities, and (5) student and teacher involvement in activities independently and together.

Finally, 2,082 students of these 80 teachers responded to 37 attitudinal items included in the student questionnaires intended to measure class climate. From 23 of these separate response items, four scales were generated, two each for early and upper elementary students, using factor and cluster analysis around constructs considered important in this study, including students' views of the teacher and perceptions of

other students.[3] The remaining student questionnaire items, 14 in number, were used as single-item constructs to measure various other aspects of class climate.

Variable Definitions

Guided by the research objectives, this study focused on the exploration and analysis of a complex set of variables that characterize the teachers' classroom behaviors and the classroom experiences of students of different teacher belief types in elementary school classrooms. Teacher, student, and observer perceptions were included in these explorations and analyses of the following variable sets: (1) goals of schooling, (2) student-intended learnings (academic and behavioral), (3) teacher decision making, (4) methods of instruction, (5) grouping arrangements, (6) use of time, (7) classroom leadership, (8) expressive behaviors, and (9) classroom environment.

The variables in the study, reflected in the research questions, were operationally defined and measured as follows:

Teacher Educational Belief Type Variables

Each teacher group--autocrats, strategists, laissez-faires, and democrats--was identified on the basis of scores obtained on the Educational Belief Inventory as explained earlier.

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[3]For additional information on the methodology and instrument development phases of A Study of Schooling, see Overman, B. C., A Study of Schooling: Methodology. A Study of Schooling Technical Report No. 12, and Giesen, P., and Sirotnik, K. A., The Methdology of Classroom Observation in A Study of Schooling. A Study of Schooling Technical Report No. 5. Los Angeles, 1979.

Goals of Schooling Variables

Teachers' attitudes toward the goals and functions of schooling were gauged with data from the teacher questionnaire. The first measure was a scaled set of items concerning the place of basic subjects and skills in the school curriculum. The second was a forced-choice question requiring teachers to single out the school's most important function.

Basic subjects and skills. Teachers' responses to the following set of statements were used as the measure of teacher agreement on a basic subjects and skills emphasis in school:

Basic Subjects and Skills Emphasis

- Learning is essentially a process of increasing one's store of information about the various basic fields of knowledge.
- Before students are encouraged to exercise independent thoughts they should be thoroughly grounded in facts and knowledge about basic subjects.
- The teaching of basic skills and subject matter is the most important function of the school.

Responses were coded as: Strongly agree = 6, Moderately agree = 5, Mildly agree = 4, Mildly disagree = 3, Moderately disagree = 2, Strongly disagree = 1.

Social, intellectual and personal development. Teachers were asked to respond to the following question:

> If you had to choose only one, which do YOU THINK this school should emphasize? (Please mark ONLY ONE.)
>
> - Social Development
> - Intellectual Development
> - Personal Development
> - Vocational Development

Responses were coded as Yes = 1 and No = 0 for each possible choice.

The terms "social," "intellectual," "personal," and "vocational" had been previously defined for teachers in an earlier question. Those definitions are given below.

a. SOCIAL DEVELOPMENT (Instruction which helps students learn to get along with other students and adults, prepares students for social and civic responsibility, develops students' awareness and appreciation of our own and other cultures).

b. INTELLECTUAL DEVELOPMENT (Instruction in basic skills in mathematics, reading, and written and verbal communication; and in critical thinking and problem-solving abilities).

c. PERSONAL DEVELOPMENT (Instruction which builds self-confidence, creativity, ability to think independently, and self-discipline).

d. VOCATIONAL DEVELOPMENT (Instruction which prepares students for employment, development of skills necessary for getting a job, development of awareness about career choices and alternatives).

It should be noted that so few teachers chose vocational development as a response that it was not used in the analysis.

Student-Intended Learnings Variables

The type of curriculum goal teachers stated they intended for their students was assessed with data from the Teacher Interview Schedule. The teachers were asked to respond to the following interview question:

> "If you had to rank order them from most important on down, what are the five most critical things you want the students in your _____period/grade/class (subject:_____) to learn this year? By learn, we mean everything that the student should have upon leaving the class that (s)he did not have upon entering. (List no more than five.)"

Two aspects of the content of the teachers' curriculum goals were selected for analysis: (a) subject matter, skills, learning activities, and general academic development goals; and (b) behavioral or non-

subject-related goals listed or mentioned by teachers. In addition, the teachers' priority goal, or the most important thing teachers wanted their students to learn that year was examined. In investigating goal content, a qualitative analysis was conducted by (1) classifying each goal mentioned by a teacher as either behavioral (i.e., non-subject-related) or as a subject-specific goal; (2) counting all the subject-related or academic type goals teachers listed; (3) rating the set of behavioral-type goals in a given list on a continuum between two distinct and conceptually different types of behavioral goals. In examining goal priority, a category system was used to identify the first listed goal as either social, intellectual (including subject-related goals), or personal. (See above discussion regarding the meaning of these terms.)

Academic goals. An analysis was conducted regarding the number of academic or subject-specific goals mentioned by teachers. These included reference to a specific subject, skill, learning activity, or academic development in general such as "learn science, reading, and math," "improve reading comprehension rate," "share literature," and "develop scholastically." In this regard, teachers' lists could be expected to contain from zero to five academic or subject-related goals. Each teacher's list was given a rating for academic goals as follows:

5 = five academic goals
4 = four academic goals
3 = three academic goals
2 = two academic goals
1 = one academic goal
0 = no academic goals

Priority goal. The first ranked goal teachers mentioned as critical for their students was categorized as reflecting social, intellectual, or personal development. The first goal on each teacher's list was then examined for these three possible choices and coded as yes = 1 and no = 0 depending on a teacher's response.

Behavioral goals. Many of the teachers' responses to the interview question were distinguished by their lack of relationship to academic development or to specific subject matter, basic skills, and learning activities. Generally, these were of two types: desired student behaviors in the area of (a) personal growth and development, and (b) behaviors considered part of the learning process or classroom procedures.

It was expected that these lists of behaviors mentioned by teachers would range from those indicating that a teacher placed a strong emphasis on student autonomy and independence to those strongly emphasizing student conformity and dependence on teacher authority and classroom expectations. Thus, two ideal types were conceptualized as follows:

independence

critical or independent thinking
creativity
self-direction, self-motivation
development of potential
development of leadership qualities
improved self-image/self-concept

conformity

conforming to grade level expectations
obeying classroom rules and regulations
improve behavior/conduct/discipline
develop work or study habits
working independently or quietly
listen and follow directions

One type of goal mentioned by teachers that appeared not to reflect either an emphasis on independence nor conformity was social interaction goals, e.g., "ability to work together," "get along with one another." For the purposes of this analysis, these and other behaviors that could not easily be classified as indicating independence or conformity, e.g., "enjoyment of learning," were assigned to the middle range of the continuum. Similarly, if a teacher placed equal emphasis on both goals or on various types of goals, or if the list appeared contradictory or ambiguous it was also assigned to a middle range.

The following is the devised rating scale used to code each teacher's list of behavioral goals on a continuum between independence and conformity:

11 = independence dominates: two or more goals on independence and no other behavioral goals are mentioned.
10 = only independence is mentioned: only one goal on independence, but no other behavior goals are mentioned.
9 = independence emphasized over other goals: conformity is not mentioned.
8 = equal emphasis on independence and some other goal (i.e., social interaction); conformity is not mentioned.
7 = other behavioral goals dominate, but independence is mentioned; conformity is not mentioned.
6 = other behavior goals dominate, but neither independence nor conformity are mentioned; or both conformity and independence are mentioned together; or equal emphasis is placed on three or more kinds of goals including conformity and independence; or ambiguous.
5 = other behavioral goals dominate, but conformity is mentioned; independence is not mentioned.
4 = equal emphasis on conformity and some other goal; independence is not mentioned.
3 = conformity emphasized over other goals; independence is not mentioned.
2 = only conformity mentioned: only one goal on conformity, but no other behavioral goals are mentioned.
1 = conformity dominates: two or more goals on conformity and no other behavioral goals are mentioned.
0 = no behavioral goals are mentioned.

An examination of the distribution of teachers' scores resulted in a collapsing of the 11 categories into three. Thus, teachers' lists were coded as: conformity = 1-5, mixture = 6-7, and independence = 8-11.

Teacher Decision Making Variables

The teacher survey instrument was the data source used to measure various aspects of teacher decision making. Cross tabulations and other preliminary analyses were conducted and the results used as a guide in selecting and grouping teacher responses to the following three questionnaire items.

Sources of curriculum influence. The following question was used to measure the amount of influence each curriculum source had on teacher planning.

How much influence does each of the following have on what you teach in this subject?

	A lot	Some	Little	None
District consultants	___	___	___	___
State or district recommended textbooks	___	___	___	___
State curriculum guides	___	___	___	___
District curriculum guides	___	___	___	___
Commercially prepared materials	___	___	___	___
Your own background, interests and experiences	___	___	___	___
Other teachers	___	___	___	___
Students' interests and abilities	___	___	___	___
Parent Advisory Council	___	___	___	___
State equivalency exams	___	___	___	___
Teachers' Unions	___	___	___	___

This question was analyzed acro s the four subject areas previously mentioned since teachers answered this question for each of the subject areas in which they taught. For this analysis, the variables were grouped in order to represent the following sources of influence:

textbooks and materials = state or district recommended textbooks and commercially prepared materials

curriculum guides = state curriculum guides and district curriculum guides

teacher background = your own background, interests and experiences

student background = students' interests and abilities

Responses were coded as: A lot = 4, Some = 3, Little = 2, and None = 1. Preliminary analyses indicated that the remaining responses in this item were relatively unimportant as an influence on curriculum planning and were therefore not included in the final analysis.

Utilization of student information. The following question was used to measure the extent to which teachers used various kinds of information in making decisions regarding individualized instruction:

> How frequently do you utilize each of the following types of information about students if and when you individualize instruction (different instructional methods, materials, activities, contents, or groups for different students)?

	Always or almost always	Often	Not very often	Hardly ever or never
Aptitude test results	___	___	___	___
Diagnostic test results	___	___	___	___
Teacher observation of student performance and behavior	___	___	___	___
Student performance and behavior classwork	___	___	___	___
Student preferences	___	___	___	___
Student grade level	___	___	___	___

For this analysis, the variables were grouped in order to represent the following types of student information:

test results = aptitude test results and diagnostic test results

present student performance/behavior = teacher observation of student performance and behavior and teacher analysis of student classwork

past student performance/behavior = student performance and behavior in previous classes

Responses were coded as: Always or almost always = 4, Often = 3, Not very often = 2, Hardly ever or never = 1. Again, preliminary analyses indicated that the remaining response (i.e., student grade level) in this questionnaire item was relatively unimportant in differentiating teachers' use of student information.

Usefulness of evaluation strategies. The following question was used to assess the extent to which teachers found various strategies useful in evaluating student progress:

> Listed below are some ways teachers obtain information to determine student progress. Indicate how often you use each way in this class and how useful you think each one is or would be in helping you to evaluate students in social studies.
>
> - Have students take written tests or quizzes
> - Have students make projects or do reports
> - Have students perform or show how to do something
> - Have students turn in classwork or homework
>
> Response options: How Often? Always or most of the time, Often, Not very often, Never. How Useful? Very useful, Somewhat useful, Somewhat useless, Very useless

For this variable, only the "how useful" side of the question was analyzed. Again, as for sources of curriculum influence, this analysis was conducted across the four subject areas.

The following response items were grouped in the analysis in order to represent two types of evaluation strategies:

formal = have students take written tests or quizzes and have students turn in classwork or homework

informal = have students make projects or do reports and have students perform or show how to do something

Responses were coded as: Very useful = 4, Somewhat useful = 3, Somewhat useless = 2, and Very useless = 1.

Methods of Instruction (Teacher Report) Variables

Several measures were used to assess the extent and type of instructional methods used by different teacher belief types and the percentage of time and variety of individualized instruction provided in a classroom.

Uncommon pedagogical methods. Teachers were asked to respond to a series of questions indicating the frequency with which they used certain teaching materials and activities, cognitive learnings, and evaluation strategies in their classrooms. Questions were similar for each of the four subject areas in which teachers responded. Preliminary analyses including frequency distributions and cross tabulations indicated that some of these instructional practices were less frequently used by some teachers than others. That is, whereas some practices were used frequently by nearly all teachers, such as use of textbooks and writing answers to questions, other practices such as using games and simulations and having class discussions were infrequently employed in classrooms. These latter practices, that is, those that were used infrequently or were relatively less common became the measure of uncommon pedagogical methods. These practices are listed below following each questionnaire item displayed. In all, 69 response items were included in this measure. All responses were coded as: Always or most

of the time = 4, Often = 3, Not very often = 2, and Never = 1. Only the "how often" side of the question was included in the analysis. Questionnaire items had been modified to reflect the different subject areas. These modifications, while not all shown in the representative questions presented here, are included in the summary lists following them.

SOCIAL STUDIES

Listed below are some things that might be used in social studies instruction. On the left side, indicate how often each thing is used in this class. On the right side, indicate how useful you think each one is or would be for student learning in social studies, even if it isn't used in this class.

- Textbooks
- Other books
- Work sheets
- Films, filmstrips, or slides
- Learning kits
- Games or simulations
- Newspapers or magazines
- Tape recordings or records
- Television
- Teaching machines or equipment for computer assisted instruction
- Things like globes, maps, and charts

Response options: How Often? Always or most of the time, Often, Not very often, Never. How Useful? Very useful, Somewhat useful, Somewhat useless, Very useless

Uncommon teaching materials (29 items)

Films, filmstrips, or slides

Learning kits

97

Games or simulations

Tape recordings or records

Television

Teaching machines or equipment for computer assisted instruction

Things like globes, maps, and charts (Social Studies only)

Things like counters, slide rules, calculators, computers, etc. (Math only)

Things like models, charts, and pulleys (Science only)

Things like animals and plants (Science only)

Lab equipment and materials (Science only)

Listed below are some things that students might do when learning social studies. Indicate how often students do each thing in this class and how useful you think each one is or would be for student learning in social studies.

- Listen to me when I talk or demonstrate how to do something
- Go on field trips
- Do research and write reports
- Listen to student reports
- Listen to speakers who come to class
- Have class discussions
- Interview people
- Build or draw things
- Write answers to questions
- Take tests or quizzes
- Make films or recordings
- Act things out
- Read for fun or interest

Response options: How Often? Always or most of the time, Often, Not very often, Never. How Useful? Very useful, Somewhat useful, Somewhat useless, Very useless

Uncommon teaching activities (23 items)

Go on field trips

Do research and write reports

Have class discussions

Build or draw things

Make films or recordings (English, Science, Social Studies only)

Act things out (English, Social Studies only)

Interview people (Social Studies only)

Do projects or experiments students plan (Science only)

Listed below are some things that a teacher might have students do when learning social studies. Indicate how often students do each thing in this class and how useful you think each one is or would be for student learning in social studies.

- Remember facts, dates, names, or places
- Tell in their own words what they have read, seen, or heard
- Use what they learn to solve problems
- Tell how places, people, and ideas are the same or different

Response options: How Often? Always or most of the time, Often, Not very often, Never. How Useful? Very useful, Somewhat useful, Somewhat useless, Very useless

Uncommon cognitive learnings (9 items)

Make up their own stories, plays or poems (English only)

Tell how stories, people, and ideas are the same or different (English, Social Studies only)

Tell how rules, operations, and problems are the same or different (Math only)

Tell how facts, things, and rules are the same or different (Science only)

Do word problems (Math only)

Use what they learn to solve problems (Science, Studies Studies only)

Do experiments, take things apart, or create new things (Science only)

The evaluation strategies question was the same for all four subject areas and has already been displayed under Teacher Decision Making Variables. The following response items from this question were used in the analysis:

Uncommon evaluation strategies (8 items)

Have students make projects or do reports

Have students perform or show how to do something

The frequency with which teachers indicated that they had students engage in any of the above infrequently used activities or practices became an uncommon pedagogical methods score.

Individualized instruction. Similarly, teachers were asked to respond to a question used to assess both the percentage of time they individualized instruction and the ways in which they do it. The following question was coded in two ways in order to obtain each measure.

Mark the circle which most closely approximates the percentage of time you individualize instruction in each of the following ways.

- Use of different objectives for different students
- Use of different contents for different students
- Use of different activities for different students
- Use of different instructional methods for different students
- Use of different grouping arrangements for different students
- Use of different time schedules for different students

Response options: How Often? Never or almost never, Not very often, A moderate amount, Always or almost always.

First, a composite score over all items was obtained by coding the responses as follows: 90%-100% = 5, 67%-90% = 4, 33%-67% = 3, 10%-33% = 2, and 0%-10% = 1. This was then used to calculate percentage of individualized instructional time scores. Second, a count was made of the number of ways in which teachers reported they individualized instruction. For example, if a teacher reported using four of the seven ways of individualizing 33% or more of the time, then a score of 4 was obtained.

Grouping Arrangements (Teacher Report) Variables

The following item from the teacher survey instrument was used to assess grouping arrangements:

> Listed below are three ways students can work when learning math. Indicate how often students work in each way in this class and how useful you think each one is or would be for students learning math.

- Alone
- With a small group
- With the whole class

Response options: How Often? Always or most of the time, Often, Not very often, Never. How Useful? Very useful, Somewhat useful, Somewhat useless, Very useless

Again, only the "how often" side of the question was used in the analysis. Teachers were asked to respond to this question for each of the four subject areas. The four response options were coded as follows: Always or most of the time = 4, Often = 3, Not very often = 2, Never = 1. A frequency score was obtained for each type of grouping arrangement. These scores then became the measure of independent learning (alone), small group learning (with a small group), and whole class learning (with the whole class).

Use of Time (Teacher Report) Variables

Two items were used to assess the relative amount of time spent on instruction or learning activities. Furthermore, additional information about the time students spend on learning was gained from teachers' stated expectations for students' homework time.

Teachers were asked to indicate the approximate percentage of class time spent on instructional activity by responding to the following question:

On the average, approximately what percentage of daily class time is spent on each of the following?

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Daily routines (getting started, passing out materials, taking attendance, making announcements, messages, intercom, preparing to leave)	—	—	—	—	—	—	—	—	—	—	—
Instruction	—	—	—	—	—	—	—	—	—	—	—
Getting students to behave	—	—	—	—	—	—	—	—	—	—	—

Responses were coded on a scale from 0 to 10 representing 0% to 100%.

Teachers also reported their expectations for the amount of time students should spend on homework.

> Approximately how much time do you expect students in this class to spend on homework <u>each</u> <u>day</u> for all subjects combined?
> - None
> - About half an hour
> - About one hour
> - About two hours
> - More than two hours

The five response options were recorded as follows: None = 1, About half an hour = 2, About one hour = 3, About two hours = 4, More than two hours = 5.

Methods of Instruction (Observer Report) Variables

The classroom observation data provided six measures which were used to assess instructional methods. These included: noninteractive classroom activities, open-ended questioning, teacher lecturing, media utilization, teacher monitoring, and corrective feedback.

<u>Noninteractive activities</u>. Snapshot data were used to obtain a measure of the type of learning interactions in which students were engaged. This portion of the classroom observation instrument permitted the following activities to be conceptualized as noninteractive:

(1) students reading silently to themselves; (2) students working on written assignments such as writing papers, doing computation, or any other written work which is done nonverbally; (3) students taking tests or quizzes. These activities were performed independently, that is, teachers were not engaged with students nor students with one another when this type of activity was recorded as occurring. The frequencies of each of the above activities were summed to obtain a measure of noninteractive classroom activities.

Teacher open-ended questioning. The extent to which teachers used open-ended questions while teaching was used as a measure of instructional methods. The Five-Minute Interaction (FMI) section of the classroom observation instrument was used to record the types of questions, commands and other sentence paradigms teachers used while engaged in instruction. Open-ended sentence paradigms were recorded when teachers were attempting to encourage a thoughtful, imaginative response by posing a problem, asked a question which allowed an opportunity for free expression of ideas or feelings, and/or invited opinions. Such responses were viewed as requiring interpretation of ideas, cause and effect relationships, comparisons, reasoning, conceptualization, description of a process, definition of abstract concepts, and open-ended preferences. This FMI data permitted the computation of the percentage of total classroom verbal interactions which were open-ended questions or commands in the context of instruction.

Teacher lecturing. Similarly, the FMI data were used to compute the frequency with which teachers engaged in verbally giving information

to students, which might include reviewing lessons, lecturing on new material, and reading aloud.

Utilization of media. Snapshot data were used to assess the extent to which students used audiovisual equipment and materials for purposes of instruction. These occurrences were recorded when students were using or watching: television, radio, teaching machines, tapes, records, films, or filmstrips. The percentage of observed incidences in which students were thus engaged was used as the measure of utilization of media.

Teacher monitoring. A measure of teacher monitoring and observing activities was obtained by calculating the observed percentage of incidences in which teachers watched or listened to students while they were taking tests, doing written assignments, or engaged in some other form of activity not involving the teacher. This information was provided by the FMI portion of the classroom observation instrument.

Corrective feedback. Similarly, FMI data were used to calculate the percentage of incidences in which teachers provided corrective feedback to students during instruction. This included both simple correction (i.e., statements intended to change students' behavior such as providing answers or corrections to work or student responses to the teacher) and correction with guidance (i.e., corrective feedback presented in a positive manner, designed to help students understand why something may be wrong, and viewed as stimulating understanding).

Grouping Arrangements (Observed) Variables

Data from the Snapshot portion of the classroom observation instrument were used to measure grouping arrangements. These data included information about: three types of grouping configurations (i.e., students working independently, in small groups, with the whole class) and variety in grouping arrangements.

Types of grouping. Observers noted the type of grouping used in the activities observed. The frequency with which students were recorded as doing an activity either independently, in a small group, or with the total class became the measure of grouping.

Variety in grouping. Calculations were performed over all grouping data provided by the Snapshots in order to obtain a measure of variety in grouping practices during the three days in which a particular classroom was observed. The number of different grouping patterns observed during these observations became the index of variety in grouping. If only one grouping pattern was observed, a score of one was obtained, and so on.

(Observed) Use of Time Variables

A measure of time on task was obtained from data recorded by the Snapshot portion and the FMI sections of the classroom observation instrument. The Snapshot data included information about students' level of interest during a subject. This item was used as an inferential measure of students' attention to instructional tasks. Additionally, the FMI data provided information indicating the context

in which all classroom interactions occurred. These were classified as instructional, routine, behavioral, and social.

Student task behavior. At the end of each Snapshot section of the classroom observation instrument, observers were asked to summarize and record the percentage of students actively participating in the prescribed activity or subject matter. An evaluation of high interest was made if the students appeared enthusiastic about the task in which they were involved. Similarly, a low rating was given when students appeared not to be involved. Observer perceptions of the percentage of students at high interest level were coded as follows: 0 to 24% = 1, 25 to 49% = 2, 50 to 74% = 3, 75 to 100% = 4.

Instructional time. Observers were asked to record all interactions in the classroom as either (1) instructional, (2) involving class routines, (3) dealing with student behavior, or (4) social. The percentage of total observed interactions that were rated as instructional, behavioral, routines and social in classes was used as the measure of observed time on instruction, time on behavior, and time on routines/social.

Classroom Instructional Leadership Variables

Three measures were used to explore the type of learning interactions in which teachers and students engaged in classrooms. Again, both Snapshot and FMI data were used to assess whether classrooms taught by teachers of dissimilar educational beliefs could be characterized by the extent to which students led or directed classroom activities,

teachers worked together cooperatively with students, and students initiated verbal interactions.

Student-directed activity. The frequency with which students led any classroom activity, as measured by the classroom Snapshot, was used as the measure of student-directed activity. Observers noted the mode of leadership of the activities observed. The percentage of observed student direction (relative to teacher-led and independent student activity) including occurrences of student cooperative small, medium, or large group activities not led by a teacher was used as a measure of student leadership of classroom activity.

Teacher-student cooperative activity. Similarly, observers noted occurrences of group activity when no individual was directing or leading a group. If a teacher was participating with two or more students doing any instructional activity, observers indicated that the activity was being done cooperatively. These activities might include teacher and students playing a math game, dramatizing a play, singing a well-known song together, and watching an instructional film. The frequency of these occurrences as recorded by the FMI portion of the observation instrument was used as a measure of teacher-student cooperative activity.

Student-initiated interaction. Finally, the FMI data provided a measure of student-initiated interaction. Any verbal interactions initiated by students including questions and other verbal contributions from students were noted. The percentage of total student-initiated interactions was used as a measure of this variable.

Classroom Expressive Behavior Variables

A set of four variables measured students' interactions with one another and with the teacher including the affective quality of these interactions. The variables included: teacher support and teacher affect (positive, neutral, and negative). FMI data permitted the computation of the percentage of total classroom interactions that were characterized by these variables.

Teacher support. Observers noted all teacher statements used as an indication that a student response, product, or behavior was recognized, accepted, or affirmed. This included simple acknowledgement such as a "yes" to indicate a correct response to very positive praise or enthusiastic acknowledgement. Teacher support also included statements intended to encourage a student not to be dissuaded by momentary difficulties, recognizing past deeds, and statements of affection and comfort. Again, FMI data permitted the computation of the percentage of total classroom interactions that were statements of teacher support.

Affective responses. Classroom observers recorded the affective tone of student-teacher and student-student verbal and nonverbal interactions. These interactions were classified during the FMIs as either positive or negative if overt expressions of either type were made. Positive affect was noted whenever humor, positive touching, or an expression of enthusiasm occurred. Interactions were coded as negative if they were demeaning, punishing, or included an expression of negative feeling. Specifically, these codes were intended to capture the affective atmosphere or ambience of the classroom. Thus, a positive rating indicated an atmosphere of warmth and good will while a negative one

indicated hostility, anger, and general recalcitrance or reluctance. If neither a positive nor a negative tone could be observed, no rating was given. Thus, all interactions not so specified became the measure of neutral affect. The percentages of total class interactions that included positive, negative, and neutral affect were used as a measure of these variables.

Classroom Learning Environment Variables

The classroom learning environment scales and several classroom climate items drawn from the student survey instruments were used to measure (a) classroom social and affective relationships, and (b) students' perceptions of various other classroom learning interactions. One additional item from the curriculum section of the student survey for upper elementary students was used to measure student choice of classroom learning materials. Again, as was done with the teacher decision-making variables, preliminary analyses including cross tabulations and cluster analyses were conducted to determine the feasibility of grouping certain variables in the discriminant analysis.

Social and affective relationships. Two classroom learning environment scales--Student Affect and Peer Esteem--were used to measure, respectively, (a) how students perceived their teacher's relationship with them, and (b) how students perceived their relationships with one another. The Student Affect Scale included the following ten items for upper elementary students and five for early elementary students:

Student Affect (Upper Elementary)

My teacher listens to me.
My teacher makes the class fun for me.
My teacher is friendly.
I like the teacher in this class.
I wish I had a different teacher for this class.
My teacher hurts my feelings.
I'm afraid of my teacher.
My teacher gets mad when I ask a question.
My teacher makes fun of me.
My teacher punishes me unfairly.

Student Affect (Early elementary)

My teacher is friendly.
I like my teacher.
I'm afraid of my teacher.
My teacher gets mad when I ask questions.
My teacher is mean to me.

Responses to the scales were recorded and coded as follows: Yes = 3, Sometimes = 2, and No = 1.

Similarly, the Peer Esteem Scale included the following five items for upper elementary students and three for early elementary students:

Peer Esteem (Upper elementary)

Students in this class are unfriendly to me.
I like working with other students in this class.
I like my classmates.
In this class people care about me.
My classmates like me.

Peer Esteem (Early elementary)

The kids in this class are friendly to me.
I like the other kids in this class.
I have many friends in this class.

The responses and their codes were the same for these scales as those listed above.

Several other items were used as additional measures to assess students' perceptions of these relationships. Early elementary students were asked to respond to the statements "My teacher likes some kids in

this class better than others (Teacher Favoritism)" and "Kids in this class fight with each other (Classroom Dissonance)." Upper elementary students were asked to respond to similar statements: "The teacher likes some students in this class better than others (Teacher Favoritism)" and "Students in this class yell at each other (Classroom Dissonance)." Responses to these items were coded in the same way as the scales listed above.

Lastly, the classroom social and affective relationships constructs also included students' perceptions of how frequently teachers seemed to care about their learning progress as measured by their responses to the following statements: "If I do my work wrong, my teacher helps me to do it right (Knowledge of Results--early elementary)," "If I do my work wrong, my teacher tells me how to do it right (Knowledge of Results--upper elementary)," "Our teacher makes sure we finish our work (Teacher Task Orientation--early and upper elementary)." Again, these responses were recorded and coded as already described.

Classroom learning interactions and student choice. Another set of variables measured several additional aspects of students' classroom interactions: Student Decision Making, Student Cooperation, Student Competitiveness, School Liking, and Teacher Authoritarianism. The items and their constructs follow:

Early Elementary

Student Decision Making: I choose what I want to do in this class.

Student Cooperation: The kids in this class help each other.

School Liking: I like school.

Upper Elementary

Student Decision Making: Students help decide what we do in this class.

Student Competitiveness: When I'm in this class I feel I have to do better than other students.

Teacher Authoritarianism: We don't feel like we have any freedom in this class.

Again, responses for these items were coded in the same manner as was stated above for all classroom environment scales and items.

Finally, the upper elementary student survey data provided a measure of student choice regarding books and materials. Students responded to an item similar to the one given below across the four subject areas.

> How often can you choose your own reading, language arts, or English books and materials in this class? (Mark ONLY ONE circle)
>
> - Whenever I want to
> - Sometimes
> - Never

Responses were coded as follows: Whenever I want to = 3, Sometimes = 2, and Never = 1. The responses were used as a measure of student choice for upper elementary students.

Method of Data Analysis

The basic exploratory research question of this study was one of relationship between two sets of variables--teachers' educational belief types and classroom processes. Discriminant analysis was used as the primary analytic tool since it measures the success with which sets of variables discriminate among groups of cases and provides an efficient basis for explaining the nature of these group differences.

By weighting and linearly combining a set of variables on which groups are expected to differ, this procedure results in groups being as statistically distinct as possible. This is accomplished by forming one or more linear combinations of variables into "linear discriminant functions." These functions, and the group centroids (means) on them, permit two kinds of assessment. First, it can be determined whether there are differences among groups. The test of equality of group centroids prior to the removal of the first discriminant function is equivalent to a multivariate (MANOVA) test of differences among group means on the entire set of variables. And, second, the nature of this differentiation can be explained, that is, measures that appear to contribute most in differentiating among group types are indicated.

In this study, discriminant analysis was used to describe the differences on five classroom dimensions, as defined by the research objectives, among teacher educational belief types. These analyses were conducted on every teacher and every class that had scores on those variables to be included in the analyses. This, then, involved a total of 129 teachers and 80 classes at both the early and upper elementary school levels.

Instead of conducting one large multivariate analysis, considerable substantive clarity was achieved by treating the 14 conceptually distinct sets of variables separately. Thus, smaller multivariate analyses were conducted for the six teacher variables subsets, the five observer variable subsets, and for the three sets of aggregated student perception and classroom experience variables. Moreover, since it was expected that the multivariate relationships might be different for

early and upper elementary level student perceptions, these analyses were performed separately by level. Thus, 14 separate discriminant analyses were produced in all. Additionally, one chi-square analysis for one set of teacher variables also was conducted.

For each of the discriminant analyses, because differences among four groups were considered, three discriminating functions were possible. However, only those functions were considered that contributed signficantly to separation among groups. To give substantive meaning to the discriminant functions in each analysis, the relative contribution of each variable was assessed by the size of its correlation coefficient with the function itself. Thus, the whole process of interpretation was clarified.

For descriptive purposes, summary statistics are also provided for each analysis. These include group means, standard deviations, and univariate F-ratios (see Appendix). However, one of the advantages of multivariate analysis is that variables which are important when viewed together with other measures may appear to be insignificant in conventional univariate analyses and, thus, their importance may be lost in a discussion of group differences. Conversely, variables that appear to be important in univariate analyses may not be so when considered as part of a set of measures. Therefore, in this study, the multiple discriminant analyses served as the basis for findings and interpretations.

The focus of this study is clearly on the classroom as the conceptual unit for statistical analysis. Many of the variables are

clearly class measures (e.g., the proportion of observed time spent on instruction and teachers' reports of the variety of ways in which they individualize instruction). Other measures such as students' perceptions of their classroom learning environments, for example, are not so easily categorized. They may be viewed either individually as measures of characteristics of perceivers in the classroom context or collectively--averaged within classes--as measures of systematic properties of classes themselves. Because this inquiry was focused primarily on features of classroom or classroom processes and groups of students, rather than on the students within them as individuals, the second approach seemed most appropriate in this case. Thus, the averages of individual perceptions within classes were used as a measure of properties of those classrooms. This approach necessitated the aggregation of student data at the class level and the reporting of these data in terms of class means and percentages.

Finally, the issue of statistical significance needs to be addressed. Although a considerable number of teachers and classes were available for analysis, the cases used in this study were not an independent, simple random sample required in the strict mathematical sense for the use of tests for statistical inference. Consequently, the test of significance does not apply here under a strict interpretation of the underlying assumptions. Nevertheless, in view of the exploratory nature of this study, such tests can be of heuristic value, and it is in this spirit that they are reported. Moreover, for the purposes of this study, relationships within the .10 to .15 range of statistical

significance appear worthy of some discussion, particularly where they indicate an expected trend or pattern. Although the results section will focus primarily on these "significant" outcomes, the results of all the analyses are presented and explored for the purpose of generating research hypotheses for further study.

Chapter V

RESULTS AND DISCUSSION

The statistical analyses of the data from the 80 elementary school classrooms and the 129 teachers included in this study revealed significant differences in relationships between each teacher belief type and 10 of the 15 variable sets explored. While some discussion will be included in the following presentation of the findings, the implications of these results for the larger question of teaching effectiveness and its relationship to children's classroom experiences will be considered in Chapter VI.

This chapter describes the findings from the 14 discriminant analyses and one chi square analysis relating to the research questions discussed in Chapter III. The reporting of these analyses and resulting findings are organized around the three curricular domains and the sets of classroom behaviors which characterize them as also discussed previously in Chapters II and III.

General Overview of the Findings

Several trends are clearly evident. First, the correlations tend to be moderate. The highest correlations were found for upper elementary student perceptions of the classroom learning environment (.56 significant at the .09 level and .64, but not statistically significant) with student choice and decision making variables contributing the most to group separation. Teacher decision making variables were also correlated near this level (.52), significant at the .001 level. Otherwise,

the correlations ranged from .27 to .49 for the remaining variable sets. It is somewhat disappointing that the correlations were not higher, but they did result in a behavior pattern evident among teacher belief types consistent with the purposes of this study. Given the exploratory nature of this investigation, these patterns and trends, while not generalizable, do suggest hypotheses for further study.

Second, in most analyses, the correlation between the first canonical function and the set of discriminating variables was descriptive of an expected relationship between the variables in the set and teachers' scores on the student participation dimension of the Teacher Educational Beliefs Inventory. For example, teachers who scored high on teacher participation (i.e., democrats and strategists) consistently scored high on the classroom process variables representing variety and student participation in instructional decision making and teaching practices. They emphasized student interest regarding decision making and individualized ways of teaching and learning. However, this was not the case regarding these teachers' attitudes toward the broad goals of schooling and their intentions for student learning. While autocrats, strategists and laissez-faires are similar in indic ng narrow attitudes toward general schooling and student specific academic goals, laissez-faires tend toward an association with democrats regarding student specific behavioral goals. That is, both laissez-faires and democrats scored high on student autonomy and independence even though they disagreed regarding their belief in student participation.

From the results of the statistical analyses, then, it appears that student participation beliefs are likely to be more predictive of

classroom decisions and teaching practices than teacher control beliefs since democrats and strategists were more systematically associated with the discriminating variables chosen for this study than autocrats or laissez-faires. An interesting relationship emerged, however, between teacher groups who scored low on the teacher control dimension of the Educational Beliefs Inventory (i.e., democrats and laissez-faires). The lower teachers scored on this dimension, the more they chose student autonomy and independence as student-intended learnings and the less they emphasized student conformity. If the teacher control dimension does have a predictive quality about it, it would seem to be in the area of the kinds of behavioral learnings teachers expect from students. It is interesting to note also, that while teaching decisions do seem to be reflected in teaching practices, teaching goals and intentions do not consistently appear to be translated into compatible instructional decisions and strategies (cf. laissez-faire teachers and strategists).

The results of the discriminant analyses can be observed in the summary profile presented at the conclusion of this chapter (see Figure 17, p. 169). The chi square analyses for student-intended behavioral learnings is presented in Table 6 on page 122 of this chapter.

Third, surprisingly, teacher data and observer data for the most part tended to agree regarding the specific dimensions of classroom practices chosen for this study. For example, those teachers who reported more frequent use of a variety of classroom methods and use of small groups for instruction were reported by observers as doing so. However, there was a discrepancy between teacher-reported and observer-reported grouping arrangements for democratic teacher belief types as

will be noted later. This general finding seems to be at odds with a number of studies indicating a low correlation between teacher reports and observer ratings (cf. Hook and Rosenshine, 1979).

Lastly, the unanticipated findings included a general lack of relationship between teacher belief types and their affective relationships with students, both in their classroom expressive behaviors and students' perceptions of classroom social and affective relationships. This was unexpected but not altogether uninterpretable as will be discussed. Similarly, no differences were found among teacher belief groups regarding the amount of class time spent on instruction, routines and behavior.

In concluding these general introductory remarks, it seems clear that strategists and democrats, that is, teachers whose beliefs are strongly positive regarding student participation do conduct their classrooms differently than do autocrats and laissez-faires. Students do participate more broadly in the curriculum by experiencing individualized instruction, variety in teaching, student responsibility for leading activities, and student choice and decision making. Likewise, it seems clear that strategists along with autocrats, that is, teachers whose beliefs are strongly positive regarding teacher control, do have more narrow teaching purposes in mind than those reported by democrats and laissez-faires. They want basic skills and the intellectual functions of schooling emphasized, seek student conformity rather than autonomy and independence, and stress more general and formalized criteria in making decisions about students and teaching practices. However, classroom expressive behaviors and students' perceptions of the social

and affective climate of the classroom do not appear clearly to differentiate teacher educational belief types.

On Interpreting Discriminant Analysis

Turning to the separate analyses, Tables 4 through 18 show the results of the one chi square and 14 discriminant analyses performed for each of the variable subsets. For the discriminant analyses these include: correlations between canonical discriminant functions and discriminating variables, the group centroids or means, and the discriminant function statistics. Table 5 presents the distribution of percentages obtained as a result of the chi square analysis.

Since the primary analytic tool used in this study was discriminant analysis, the following is a preliminary discussion of the dimensions of this analysis as it is used in reporting and interpreting the results of this study.[1]

The nature of the discriminant functions derived and the associated teacher group differences are explained throughout this chapter from an examination of the magnitude of the correlations between the canonical discriminant functions and the discriminating variables. While it was the set of variables acting together that produced the difference among groups, those with the largest correlations were considered to be contributing the most to these differences for purposes of interpretation.

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[1]All the discriminant analyses performed for this study used William R. Klecka, "Discriminant Analysis," in N. Nie et al., SPSS: Statistical Package for the Social Sciences (New York: McGraw-Hill, 1975).

The group centroids (standard mean scores for each teacher belief group on the function) represent the typical position on a set of variables for each group of teacher belief types. They show the direction of the differences among the teacher groups for each analysis.

The discriminant function statistics include the canonical correlation (R), the canonical correlation squared (R^2), the relative percentage of discriminant function variance, and the test of statistical significance. These indicate the extent to which variables in a particular subset contributed to the separation of teacher belief types on that function. The canonical correlation coefficients and the canonical correlation coefficients squared are measures of association between teacher groups and each discriminant function. The groups are considered as an independent variable which influences the values on the discriminant function, the dependent variable. The degree of difference between the group means on the function is measured by the canonical correlation. A more realistic interpretation of the canonical correlation can be made when it is squared. The canonical correlation squared is the proportion of variation in the discriminant function shared by the groups and is not relative to the other functions. The relative percentage, however, is based on the sum of the eigenvalues for all functions and represents the percentage of variance accounted for by that function relative to the others. When there is more than one function, it is important to compare the relative magnitudes to see how much of the total discriminating power each has. When a function carries only a small proportion of the total discriminating power, it is

unlikely to contribute much understanding of group differences beyond what has already been learned from the other functions.

For the discriminant analyses, the test of the equality of group centroids was measured by the Wilks' lambda statistic which was converted to a chi square significance test. The significance of group differences was determined before the derivation of any discriminant function. The significance for the chi square analysis is based on Bartlett's chi-square test for remaining eigenvalues. It should be remembered that "significance" is not being used here in the usual sense (see Chapter IV).

The discussion in this results section will focus mainly on the group differences identified by the canonical discriminant loading on a variable in conjunction with the group centroids as the basis for interpretation of group differences. However, where warranted, group means on a single variable also will be cited. For this purpose, a table of group means and standard deviations of all dimensions included in the set of discriminant analyses on teacher belief types is presented in the Appendix.

Since this is an exploratory study, all the above tables are included for purposes of description. However, the discussion of results will be limited to those statistically significant in the sense described in Chapter IV or where trends are indicated. If a variable subset is not significant on any function and no trend is indicated, tables will be presented but discussion will focus on the limitations of this study and suggestions for research modification.

Differences in the Instructional Curriculum

Teacher Preactive Behavior: Goals, Intentions, and Decision Making

Four dimensions of teacher preactive teaching behavior were examined: attitudes toward the goals of schooling, intended academic learnings for students, intended behavioral learnings for students, and bases for teacher decision making. The data were analyzed to determine relationships between teacher belief types and these four variable subsets representing teacher preactive behavior. Specifically, the research questions to be answered with the data were: (1) Do teachers of dissimilar educational beliefs view differently the goals of schooling and intend similar or dissimilar academic and behavioral learnings for their students? (2) Do they perceive differently the bases or criteria upon which their own teaching decisions are made regarding influences on teacher planning and judgments made about student progress? All the analyses for this dimension of the instructional curriculum were significant (Tables 4-7).

For purposes of keeping variables in conceptually distinct sets, three separate discriminant analyses were performed, two for goals and student-intended learnings (separating general schooling goals from specific student-intended goals) and one for decision making. In addition, a chi square analysis was used to test the relationship between teacher types and three distinct classes of student-intended behavioral goals (i.e., conformity, mixed, and independence). The results of each of the analyses will be presented separately and then discussed briefly.

Differences in goals of schooling variables. This variable subset represented teachers' attitudes toward the broad purposes or goals of schooling. It included teachers' level of agreement with statements reflecting the importance of school emphasis on the teaching of basic subjects and skills, and teachers' choice of the one most important goal their school should emphasize--social, intellectual, or personal development. While significant differences were found among teacher belief types and these goals of schooling variables at the .001 level, the variables were only moderately correlated with the teacher belief groups.

As can be seen in Table 4, the first discriminant function derived for goals of schooling accounted for the majority of the variance among the four belief types. The figures also show the lack of significance of the information remaining in these variables after the first discriminating function was removed. This indicates that the second and third functions derived were relatively useless in describing differences among teacher groups. As a result, the second and third functions for goals of schooling were ignored in the interpretation of teacher belief differences.

The .91 loading on basic subjects and skills in conjunction with the -.85 group mean for democrats indicates that these teachers tend to be the least supportive of a basic subjects and skills emphasis in teaching. On the contrary, strategists tend to be the most supportive in this regard, followed closely by autocratic teachers. It is clear, then, that agreement regarding the teaching of basic subjects and skills is a singularly large contributor to differentiation among teacher

Table 4

Discriminant Analysis of Goals of Schooling Variables
for Teacher Belief Types
(n = 124)

Discriminating Variables	Correlations Between Canonical Discriminant Functions and Discriminating Variables		
Functions:	1	2	3
Basic Subjects and Skills	.91	-.31	-.03
Intellectual Development	.46	.80	-.36
Personal Development	-.45	-.57	-.23
Social Development	-.07	-.06	.96
Teacher Belief Types	Group Centroids		
Autocrats	.36	.07	.04
Strategists	.50	-.24	-.02
Laissez-Faires	-.11	.33	-.02
Democrats	-.85	-.16	.01
Canonical R	.47	.22	.03
Canonical R^2	.22	.05	.009
Relative Percentage	84.75%	15.04%	.02%
Significance	.001	.444	.961

groups in this analysis. Teachers' lack of agreement regarding intellectual development versus personal development as the single most important schooling function to be emphasized at their school contributed somewhat importantly to the separation of teacher groups on goals of schooling. Social development as a primary schooling goal was not a contributor to group separation on the first function.

Looking at the discriminant scores or group centroids for goals of schooling as shown graphically in Figure 7, it can be seen that democratic teachers stand out as a group. They had lower scores on basic subjects and skills than did autocrats, strategists, and laissez-faires although this latter group was not as distinguished from democrats as autocrats and strategists were. Thus, democratic teachers were distinguished as viewing less positively than other groups the teaching of basic subjects and skills and preferring personal development over intellectual development as a school goal. However, since the group mean for democratic teachers was only slightly below the midpoint of the scale, it can be interpreted that they were not seriously in disagreement with the other groups regarding the teaching of basic subjects and

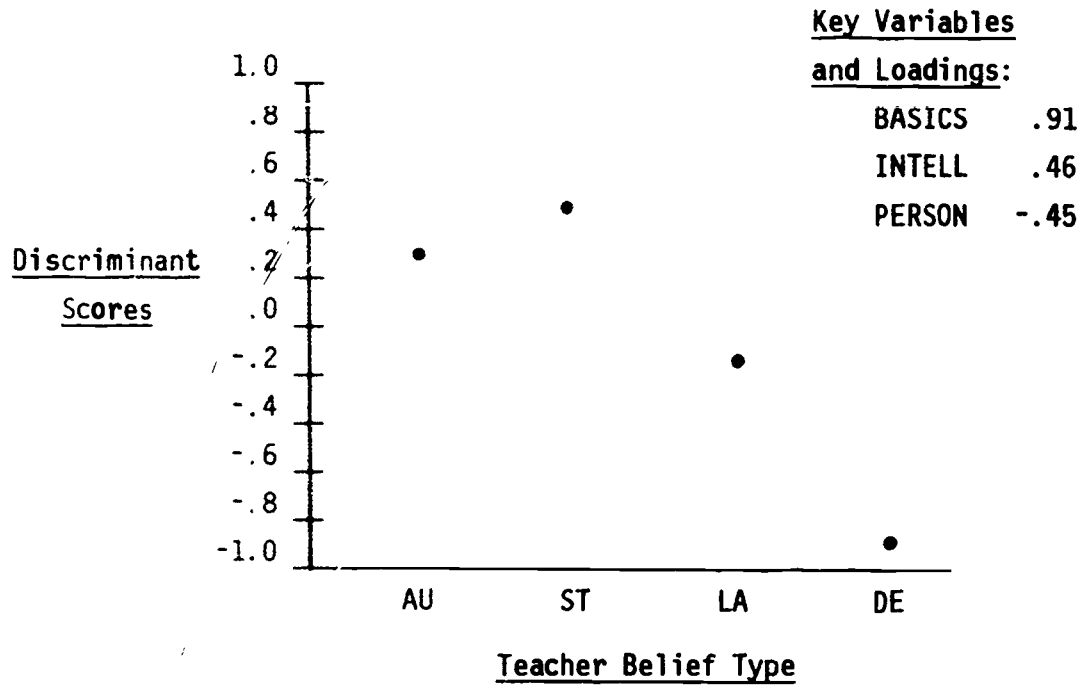

Figure 7. Goals of Schooling--Plot of Group Centroids on Function 1. (High scores indicate strong positive views on basics and intellectual (+) versus personal (-) goals of schooling.)

skills, but only that they did not regard such teaching with the same intensity that prevailed among the other groups. (See Appendix for the Table of Group Means.)

Furthermore, democratic teachers' choice of personal over intellectual goals of schooling was more marked than the choice of schooling goals made by the other groups. Clearly, these teachers are inclined to view instruction in the personal domain as the most important function to be emphasized at their school.

Differences in student-intended academic learnings. The variables in this subset represented student-intended subject-specific goals in contrast to the preceding set of general schooling goals. They included the number of goals specific to subject-related information and skills that teachers mentioned as desired learnings for their students, and the type of learning goal they gave as most critical for the students in their classes--personal, social, or intellectual. This subset of variables excluded student-intended learnings that were oriented toward classroom behaviors such as "listening," "working quietly," and "following directions." While the association between teacher groups and these variables was relatively low, significant differences were found among teacher belief types on student-intended academic goals at the .03 level. Throughout this section and the next, it should be kept in mind that only 62% of the teachers could be included in the analyses of student-intended academic and behavioral goals since not all 129 teachers were interviewed.

The first discriminant function from the student-intended academic learnings analysis accounted for the majority of the variance among the four teacher belief types. As the figures in Table 5 indicate, the second function accounted for only a small portion of the variance. While the relationships are weak, the results are in the expected direction, suggesting the usefulness of this function in describing group

Table 5

Discriminant Analysis of Student-Intended Academic Learnings Variables for Teacher Belief Types (N = 73)

Discriminating Variables	Correlations Between Canonical Discriminant Functions and Discriminating Variables		
Functions:	1	2	3
Personal	-.99	.02	-.15
Social	.16	.88	.45
Intellectual	.68	-.70	-.23
Subject-Specific	.48	.17	-.86
Teacher Belief Types	Group Centroids		
Autocrats	.19	-.01	-.18
Strategists	.34	.39	.12
Laissez-Faires	.08	-.39	.10
Democrats	-.83	.12	.01
Canonical R	.39	.27	.13
Canonical R^2	.15	.07	.02
Relative Percentage	64.49%	29.57%	5.94%
Significance	.033	.155	.285

differences. Therefore, the first and second functions for this set of variables were considered in the interpretation of teacher belief type differences while the third was ignored.

Looking at the correlations for separate variables in Table 5, it is clear that goals representing the acquisition of personal growth skills are singularly large contributors to differentiation among teacher groups. The group centroids indicate that, again, democrats stand out as a group. The inverse relationship indicates that they had significantly higher scores on personal development as a goal than did autocrats, strategists, and laissez-faires. The second function suggests that these teachers' choice of social goals is a contributing factor in making this group distinct. The second function also suggests that it is very likely that strategist teachers choose social goals more frequently than the other groups. Thus, democratic teachers were distinguished as viewing more positively persona' development as a student-intended academic goal.

Figure 8 is useful in viewing the progression of laissez-faires, autocrats, and strategists away from personal growth goals (Function 1) while at the same time they each progress as a group toward social goals (Function 2). In other words, the less personal goals are preferred by these groups, the more social goals are preferred. Similarly, the more social goals are preferred, the less intellectual goals are favored by these groups. On the other hand, democratic teachers prefer personal and social goals together while shunning a predominately intellectual goal emphasis as a priority for students in their classrooms.

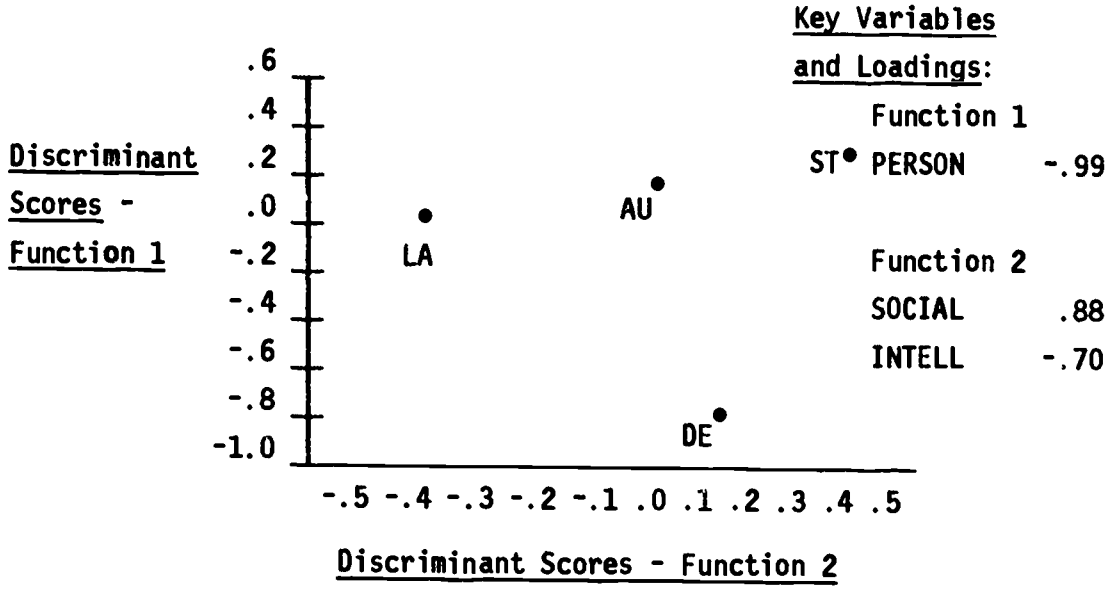

Figure 8. Student-Intended Academic Learnings--Two-Dimensional Plot of Group Centroids on Functions 1 and 2. (The ordinate represents high absence of personal development as a goal choice; the abscissa increasing emphasis on social (+) and decreasing emphasis on intellectual (-) goals.)

In summary, it is interesting to note that the three analyses relating to goal areas indicate that democratic teachers tend to be remarkably consistent regarding their level of agreement between general schooling goals and those specifically intended for their students. No clear pattern is apparent for the other groups.

Differences in student-intended behavioral learnings. Additionally, one other variable pertaining to goals and intentions was considered a positive contributor to this aspect of group difference among teachers. The student-intended non-subject-specific behaviors mentioned as desired learnings by 80% of the interviewed teachers were examined in a more qualitative way in order to determine whether significant differences occurred in the type of general behaviors that were encouraged by

teachers in the different belief groups. This analysis took a form different from all other analyses used in this study.

A cross tabulation of teacher belief types and the scores obtained from the Behavioral Goal Rating Scale (Chapter IV) were used to describe the distribution of these goals across groups and thus the differences among them. As can be noted in Table 6, the three types of goals were almost evenly distributed across all teachers: 30% emphasized student conformity, 36% emphasized student autonomy and independence, and 34% emphasized a mixture of these and/or other student behavioral goals.

However, the more specific findings relating to each teacher group followed a different and expected pattern. Democratic teachers far

Table 6

Distribution of Student-Intended Behavioral Learnings Variables Among Teacher Belief Types

Teacher Belief Types		Type of Behavioral Goal			
		Conformity	Mixed	Independence	Total
Autocrats	N =	8	5	5	18
	Row %	(44)	(28)	(28)	(30)
Strategists		5	4	1	10
		(50)	(40)	(10)	(16)
Laissez-Faires		2	10	6	18
		(11)	(56)	(33)	(30)
Democrats		3	2	10	15
		(20)	(13)	(67)	(25)
Column Totals:	N =	18	21	22	61
	Row %	(30)	(34)	(36)	(100)

$x^2 = 16.0608$, $p < .01$ (6 df)

outweighed the others in preferring independence-type goals alone while autocratic teachers strongly emphasized comformity-type goals. As has been established in the literature (see Chapter II), democratic-type teachers are more likely to favor and encourage autonomy, independent thinking and creativity in their students. On the contrary, autocratic or more authoritarian-type teachers tend to prefer comformity, standardized thinking, and structured or predicted ways of behaving from their students. What is important to notice for this study is that strategists most resemble autocratic teachers in this regard while laissez-faires most resemble democratic teachers.

The percentage of teachers preferring conformity-type behavioral goals as most critical for their students ranged from a low of 11% for laissez-faire teachers to a high of 50% for strategists, closely followed by 44% for the autocratic teachers. Of all teachers who emphasized independence behavioral goals for students, strategists stand out as preferring these goals the least (10%). On the contrary, 67% of the democratic teachers emphasized independence goals. By combining the percentage of teachers in each group who emphasized comformity or listed conformity along with other goals, it can be seen that a total of 90% and 72% of the strategist and autocratic teachers respectively ascribe to conformity type goals and thereby do not emphasize student independence. On the contrary, 89% and 80% of all laissez-faires and democrats respectively emphasized independence or listed independence along with other goals, thereby not emphasizing conformity goals. Viewing the results in this manner highlights the similarity between laissez-faire and democratic teachers in choosing independence as a student-intended

learning. As has been noted, this chi square analysis was significant at the .01 level.

In summary, then, democratic teachers appear to differ most from other types of teachers regarding goals of schooling and learning goals intended for students although laissez-faire teachers also reject student conformity as a student goal. Democratic teachers view the goals of schooling as more than just the teaching of basic subjects and skills. While emphasizing basic subjects and skills, they also have strong positive views about the importance of personal and social development in their school and classrooms. When asked to list the most critical learning goals they have for their students, democratic and laissez-faire teachers, more frequently than the other groups, place a high priority on goals which emphasize student autonomy and independence.

On the contrary, strategists place great emphasis on the teaching of basic subjects and skills and choose intellectual over personal development as a goal most in need of being emphasized at their school. However, within their own classrooms, strategists more frequently choose social over intellectual development as the most critical goal they intend for students. Similarly, their behavioral goal orientation for students is very markedly toward conformity.

In regard to goals and intended learnings variables, autocratic teachers as a group were more like strategists than any other group. However, laissez-faire teachers were primarily like democratic teachers in that they shared similar behavioral goals for their students.

Regarding other goals and intentions variables, they tended to be only slightly distinguished from autocrats and strategists.

Differences in teacher decision making. A second dimension of teachers' preactive teaching behaviors included in the first research objective of this study was teacher decision making. In addition to examining teachers' thinking regarding goals and intentions, this objective sought to explore the bases upon which teachers make curriculum decisions. This exploration was pointed at the discovery of whether or not different groups of teachers are influenced by different sources in making decisions regarding curriculum planning and use different criteria in the evaluation of student progress. If there were differences, it would be likely that some students experience the schooling process differently. For example, teachers low on participation might be limiting or inhibiting individual student initiative and participation in the learning experience if they ignore what is appropriate and of interest to students in favor of a more homogenized or generalized curriculum. The specific question to be answered with the data generated from this part of the research objective was: Do teachers of dissimilar educational beliefs perceive differently the bases or criteria upon which their own teaching decisions are made regarding influences on teacher planning and judgments made about student progress?

As with the analyses of teachers' goals and intentions, significant differences regarding decision making were found among teacher belief types, as shown in Table 7. Similarly, the first discriminant function derived from the analysis of the 10 variables accounted for the majority of variance among the teacher groups. Again, figures in Table 7 indicate

Table 7

Discriminant Analysis of Teacher Decision Making Variables
for Teacher Belief Types
(n = 124)

Discriminating Variables	Correlations Between Canonical Discriminant Functions and Discriminating Variables		
Functions:	1	2	3
Student Preferences as Information	.56	.17	.41
Informal Evaluation Strategies	.52	.18	-.28
Student Background as an Influence	.49	.17	.08
Curriculum Guides as Influences	-.02	.62	.06
Formal Evaluation Strategies	-.33	.59	-.17
Information about Student Past Performance/Behavior	.12	.54	.08
Textbooks and Materials as Influences	-.26	.31	.18
Test Results as Information	.10	.27	-.17
Teacher Background as an Influence	.16	.11	.58
Information about Present Student Performance/Behavior	-.02	-.12	.47
Teacher Belief Types	Group Centroids		
Autocrats	-.74	-.14	.21
Strategists	.36	.71	.06
Laissez-Faires	-.31	-.06	-.34
Democrats	.81	-.47	.06
Canonical R	.52	.40	.20
Canonical R^2	.27	.16	.04
Relative Percentage	62.02%	30.84%	7.14%
Significance	.001	.14	.77

that the information remaining after the removal of the first function was not statistically significant. However, the second function derived suggested a potential contribution to an explanation of differences among the four groups since the significance level was within a range useful for exploring trends in the relationship. As in the student-intended academic goals analysis, therefore, the first and second function derived in the teacher decision making analysis was used in the interpretation of group differences while the third function was ignored.

The discriminant function statistics presented in Table 7 report the ability of the derived functions to discriminate among teacher groups in the area of decision making as defined by the variables. From the size of the relative percentage, it can be determined that the first function accounted for more than half the variance among teacher groups. The canonical correlation shows a fairly high association between the first function and teacher belief types. Thus, as with teachers' goals and intentions, we can conclude from these statistics that there were significant differences among teacher groups in regard to curriculum decision making and that the first two functions derived from the discriminant analysis of teacher belief types and this set of variables can be useful in exploring these differences efficiently.

The substance of these first two functions and the associated group differences among teacher belief types are demonstrated by the correlations between the two functions and the discriminating variables reported in Table 7. Again, while it was the set of variables which produced the differences among groups, the single variables with the

largest correlations can be considered, for interpretive purposes, as those that contributed most to the differences.

In examining these correlations between the first two canonical discriminant functions and their discriminating variables, then, it can be seen that in each case a group of three variables appears to be the most important contributor to separation among teacher groups. On the first function, teacher use of student preferences as information in planning individualized instruction, usefulness of informal evaluation strategies, and consideration of student background as an influence on what is taught were the variables which seem to best explain teacher group differences. On the second function, the influence of curriculum guides on what is taught, the usefulness of formal evaluation strategies, and use of information regarding student past performance and behavior in planning individualized instruction together seem to suggest a separation among teacher belief types.

The group centroids for both functions displayed in Table 7 show the direction of the differences among teacher belief types for this analysis. These scores are shown graphically in Figure 9. Both laissez-faire and autocratic teachers are characterized by lower levels of preference for utilizing individualized criteria for decision making such as student preferences as information in planning individualized instruction, informal evaluation strategies, and consideration of student background factors such as interests and abilities as an influence on what is taught, whereas democrats and strategists are relatively high

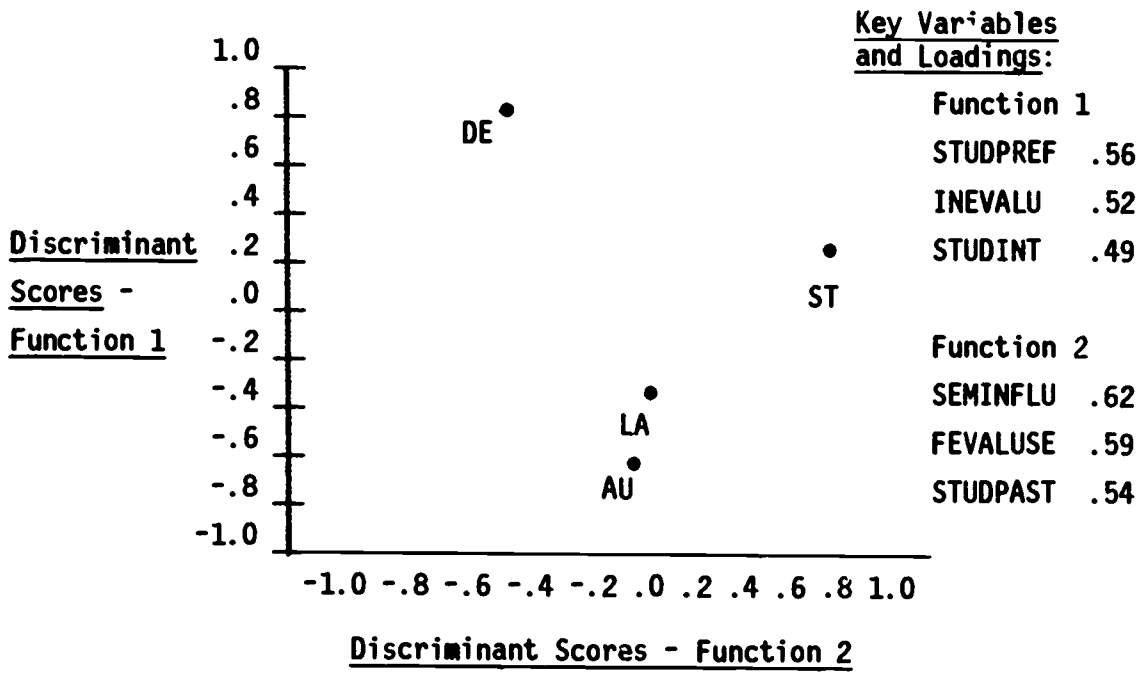

Figure 9. Teacher Decision Making--Two-Dimensional Plot of Group Centroids on Functions 1 and 2. (The ordinate represents high teacher preference for utilizing individualized student criteria for decision making; the abscissa represents increasing preference for utilizing generalized student criteria for decision making.)

on these measures. Strategists appear to be further characterized by a preference for utilizing a more diversified set of criteria for decision making since they scored high on these variables as well as on those representing generalized criteria for decision making.

In summary, then, democratic and strategist teachers appear to distinguish themselves as a group. Democratic teachers clearly favor individualized or personalized student factors as a basis for making curriculum decisions while not relying solely on generalized or universalized criteria for doing so. Strategists, however, appear to be in

favor of utilizing concurrently both an individualized and a generalized approach as bases for decision making.

In answer to the first research question, then, dissimilar views prevail among teacher belief types regarding the primary goals of schooling and teacher preference for academic and behavioral goals for their students. Democratic teachers appear to be more likely to embrace a comprehensive set of curriculum expectations for their students followed by laissez-faires. On the contrary, strategists and autocrats tend to want student conformity and place more emphasis than the other groups on social development in their classrooms. They appear to stress basic subjects and skills to the exclusion of personal development as a goal.

Similarly, teacher belief groups differ in regard to the criteria they use as a basis for their own teaching decisions. While strategists tend to utilize a variety of bases or criteria for curriculum decision making, not preferring any one approach over the other, democratic teachers appear to be firm in their preference for the utilization of a student-centered approach in decision making. In this way it would appear, then, that democratic teachers would be more apt to enhance student initiative and participation in the learning experience since they tend to give primary consideration to individualized student-related factors as bases for their curriculum decisions. Inadvertently, strategists may be sending their students "mixed messages" if they appear to be inconsistent in their judgments regarding decisions by emphasizing both a universalized and a particularized approach simultaneously.

From this set of analyses on teachers' preactive behaviors, then, it is clear that teacher belief types differ in their thinking about this aspect of the instructional curriculum. Democrats tend to be like strategists and laissez-faires like autocrats in indicating the bases for their curriculum decisons.

Teacher Interactive Structuring Behavior:
Perceived Classroom Practices

Three dimensions of teachers' interactive teaching behavior were examined, again, from their own perspectives. Specifically, these were chosen to represent the ways in which teachers structure or organize their teaching. These included: their instructional methods, grouping arrangements, and use of learning time. The data were analyzed to determine relationships between teacher belief groups and these three variables subsets representing teachers' interactive classroom practices. The questions to be answered with the data were: Do methods of instruction differ among teacher belief types? Do grouping arrangements or learning group size used for instruction differ among teacher types? Does the use of instructional time differ among teacher belief types? These questions were explored using data from the teacher questionnaire.

Differences in methods of instruction (teacher report) variables. A discriminant analysis was performed on teacher belief types and methods of instruction using a composite of three discriminating variables as reported by teachers: use of uncommon pedagogical methods, variety in individualizing instruction, and percentage of individualization time. While significant differences were found among the teacher groups at the .001 level, this variable subset was only moderately

correlated with teacher belief types. However, the differences resulted in a substantial separation among the groups.

As can be seen in Table 8, the first function accounted for nearly all the variance among the four belief types. The high to moderately high loadings on the three methods of instruction variables are inversely associated with autocratic and laissez-faire teachers while being positively associated with strategist and democratic teachers. It is

Table 8

Discriminant Analysis of Methods of Instruction (Teacher Report) Variables for Teacher Belief Types (n = 119)

Discriminating Variables	Correlations Between Canonical Discriminant Functions and Discriminating Variables		
Functions:	1	2	3
Use of Uncommon Pedagogical Methods	.85	-.37	.39
Variety in Individualizing Instruction	.75	.40	-.53
Percentage of Individualization Time	.53	.84	.09
Teacher Belief Types	Group Centroids		
Autocrats	-.54	.10	-.07
Strategists	.54	-.12	-.05
Laissez-Faires	-.47	-.12	.07
Democrats	.45	.15	.06
Canonical R	.46	.13	.06
Canonical R^2	.21	.02	.00
Relative Percentage	92.84%	5.76%	1.40%
Significance	.001	.683	.803

clear, then, that these latter teacher types stand out as perceiving themselves using more frequently instructional methods that are less commonly found in many classrooms, providing greater variety in individualizing instruction, and using more of their classroom teaching time in individualizing instruction. On the contrary, autocrats and laissez-faires tend to see themselves as being relatively conventional in the type of activities, materials, cognitive learnings, and evaluation opportunities they provide in their classrooms. Figure 10 portrays these relationships graphically.

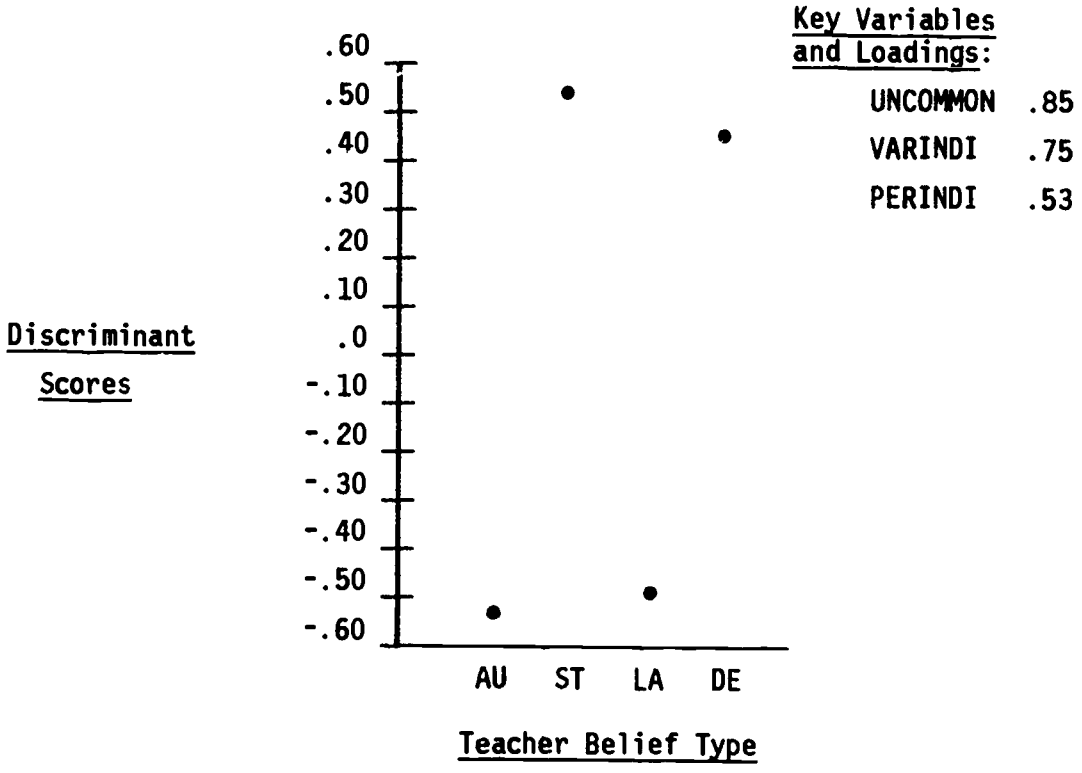

Figure 10. Methods of Instruction (Teacher Report)--Plot of Group Centroids on Function 1. (High scores indicate more frequent use of instructional practices which reflect uncommon pedagogical methods and more variety in and time on individualizing instruction.)

Differences in grouping arrangements (teacher report) variables. Again, while the canonical correlation between the first discriminating function and its variable subset indicates that these grouping arrangements variables are only moderately associated with teacher belief types, their contribution to group differences is substantial (see Table 9). The telling variable is the teacher's perception of the

Table 9

Discriminant Analysis of Grouping Arrangements (Teacher Report) Variables for Teacher Belief Types (n = 125)

Discriminating Variables	Correlations Between Canonical Discriminant Functions and Discriminating Variables		
Functions:	1	2	3
Small Group Learning	.96	.14	.23
Whole Class Learning	-.29	.95	.13
Independent Learning	-.02	-.17	.99
Teacher Belief Types	Group Centroids		
Autocrats	-.57	-.03	.03
Strategists	.32	.32	.01
Laissez-Faires	-.17	-.03	-.06
Democrats	.54	-.25	.02
Canonical R	.41	.20	.04
Canonical R^2	.17	.04	.00
Relative Percentage	82.50%	16.94%	.56%
Significance	.002	.295	.688

frequency with which students work in small groups when learning a subject. This variable is most strongly associated with democratic teachers and least associated with autocrats. Strategists are more closely identified with democrats, whereas laissez-faires tend to be more like autocrats in this regard. Interestingly, an examination of group means (see Appendix) indicates that democratic and strategist teachers utilize both small group and whole class grouping arrangements about equally, whereas autocratic and laissez-faire teachers reported greater use of whole class learning over small group learning.

It is clear that teachers who score high on student participation (i.e., strategists and democrats) perceive themselves as providing more opportunities for small group learning, whereas high scores on teacher control without correspondingly high scores on student participation (i.e., autocrats) appear to somewhat inhibit this grouping arrangement in the classroom. Furthermore, laissez-faire teachers who are characterized as scoring low on both teacher belief dimensions do not appear to be as extreme as autocratic teachers in failing to provide small group learning opportunities. This progression from strong associations between teachers with high scores on student participation and the small group learning variable to weak associations between this variable and teachers not characterized by this belief dimension is illustrated in Figure 11.

In summary, then, if teachers favor student participation, they are more likely to perceive themselves as providing small group learning activities for students. On the contrary, if teachers are less favorably disposed toward student participation while at the same time

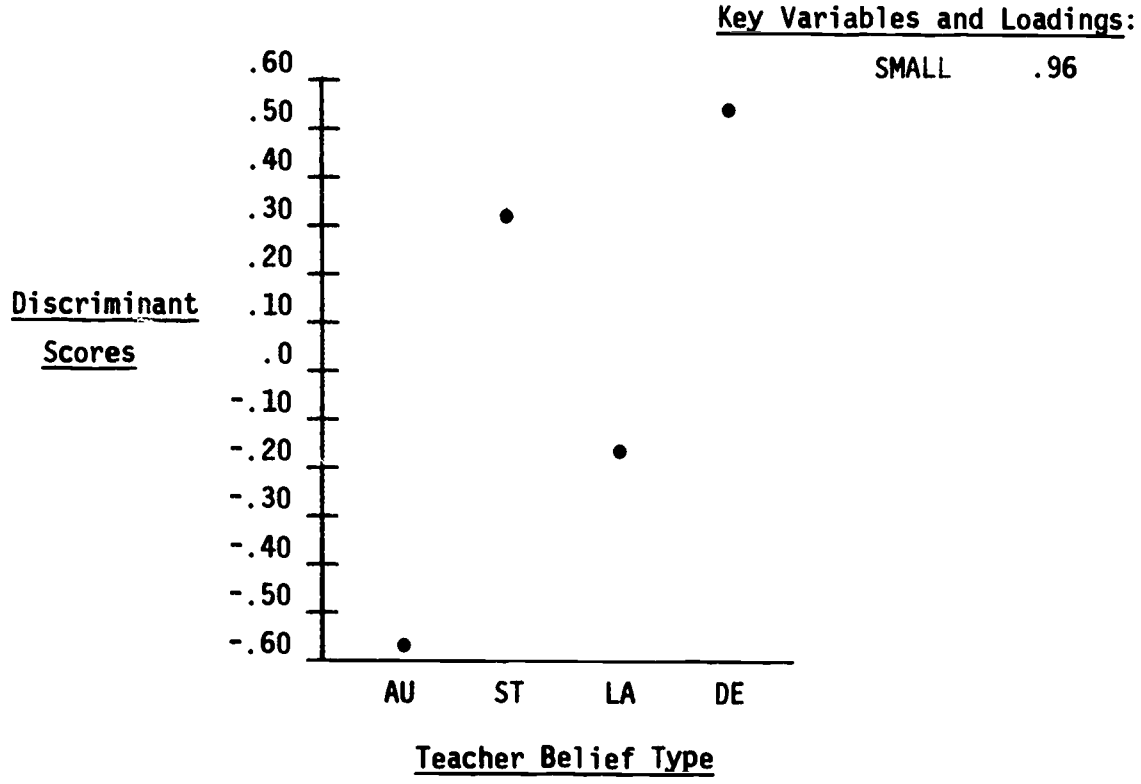

Figure 11. Grouping Arrangements (Teacher Report)--Plot of Group Centroids on Function 1. (High scores indicate more frequent use of small groups as opposed to whole class for instruction.)

embracing positive beliefs about teacher control (i.e., autocrats), they are less likely to provide opportunities for small group learning.

Differences in use of time (teacher report) variables. The low significance level and the low correlations between the discriminant functions and the use of time variables chosen for this study (e.g., expected homework time, teacher's estimate of time on instruction, behavior, and routines) indicated that any discussion and interpretation would be unproductive. Therefore, none will be attempted, although Table 10 is included for reference.

Table 10

Discriminant Analysis of Use of Time (Teacher Report) Variables for Teacher Belief Types (n = 116)

Discriminating Variables	Correlations Between Canonical Discriminant Functions and Discriminating Variables		
Functions:	1	2	3
Expected Homework Time	.96	.25	.15
Time on Instruction	-.22	.81	-.31
Time on Behavior	-.12	-.08	.84
Time on Routines	.12	-.34	.65
Teacher Belief Types	Group Centroids		
Autocrats	-.05	.19	.08
Strategists	.60	-.03	-.03
Laissez-Faires	-.18	-.25	.03
Democrats	-.26	.09	-.11
Canonical R	.31	.17	.08
Canonical R^2	.10	.03	.01
Relative Percentage	74.56%	21.44%	4.01%
Significance	.245	.689	.733

In summary, democratic and strategist teachers generally perceive themselves as offering a more enriching type of curriculum to students by providing opportunities for student participation in activities less commonly found in classrooms, by using a variety of individualized instructional methods, and by using individualized instruction more frequently. Furthermore, they report that they use small group learning

situations relatively more often than do strategist and laissez-faire teachers. There were no clear trends among belief types regarding expected homework time nor teachers' estimates of the time they spent on instruction in contrast to time spent on behavior and routines. Thus, use of time as reported by teachers was not found to be a discriminating variable among teacher educational belief types.

Differences in the Operational Curriculum

Teacher Interactive Structuring Behavior: Observed Classroom Practices

In keeping with the framework of this study and in order to preserve the distinction between perceived and observed classroom practices, the two data sources--teachers' questionnaires and classroom observers' reports--were analyzed separately. Consequently, this section reports teachers' interactive structuring behaviors as recorded by classroom observers. The research question remained the same as it was for the previous set of analyses on teachers' classroom practices since the concepts to be examined were similar although reported from different viewpoints. Since this set of findings reflects the operational curriculum rather than the instructional curriculum, they are thus classified. It will be remembered that the instructional view of curriculum depends on the teacher for its definition and description whereas the operational curriculum relies on the viewpoint of outside observers.

Again, three dimensions of teachers' interactive teaching behaviors were examined: their instructional methods, grouping arrangements, and

use of learning time. Specifically, the data were analyzed to determine differences between teacher educational belief types and these observed classroom practices.

Differences in methods of instruction (observer report) variables. A discriminant analysis was performed on teacher belief types and methods of instruction using a variety of observable teaching variables that were intended to explore the extent to which teachers engaged in the more commonly as opposed to less commonly practiced classroom activities: (a) the frequency of noninteractive-type instructional activities, (b) the frequency of teacher lecturing, (c) the frequency of teacher use of open-ended questioning during instruction, (d) the extent of media utilization, (e) the extent of teacher monitoring, and (f) the frequency of teacher corrective feedback. While the results of this analysis were not significant in the usual sense, they were within the .10 to .15 range of statistical significance indicating a trend in the expected direction.

Again, as with teacher reported methods of instruction variables, this variable subset is only moderately associated with teacher educational belief types. However, it is particularly interesting to note that the group separations are identical for this set of observed methods as for the teacher reported methods of instruction variables. The first and strongest positive correlation is marked by democratic and strategist teachers' use of instructional media followed by an inverse association with lecturing/explaining as an instructional method. While teacher corrective feedback and teacher open-ended questioning appear to contribute to this separation among the two sets of teacher belief

types, it is important to note that a particularly low incidence of these two variables was observed over all classrooms. However, where it was observed, clearly it was associated with these teacher belief types. (See Table of Group Means for these variables in the Appendix.) Thus, democratic and strategist teachers are again distinguished from

Table 11

Discriminant Analysis of Methods of Instruction (Observer Report) Variables for Teacher Belief Types (n = 80)

Discriminating Variables	Correlations Between Canonical Discriminant Functions and Discriminating Variables		
Functions:	1	2	3
Utilization of Media	.78	.10	.21
Lecturing/Explaining	-.52	.51	.20
Noninteractive Activities	-.29	.29	-.07
Corrective Feedback	.32	.32	.02
Teacher Monitoring	-.43	-.31	.52
Open-Ended Questioning	.34	.24	.57
Teacher Belief Types	Group Centroids		
Autocrats	-.35	.36	.04
Strategists	.59	.05	.32
Laissez-Faires	-.43	.40	.00
Democrats	.44	-.01	-.44
Canonical R	.42	.28	.25
Canonical R^2	.18	.08	.06
Relative Percentage	58.21%	23.90%	17.89%
Significance	.121	.367	.321

autocratic and laissez-faire teacher types by their more frequent use of methods considered more desirable in classroom teaching and learning. This set of variables accounts for over 50% of the variance found among the teacher groups. Table 11 presents the correlation coefficients and statistical information obtained for this analysis while Figure 12 displays graphically the group separation that was produced.

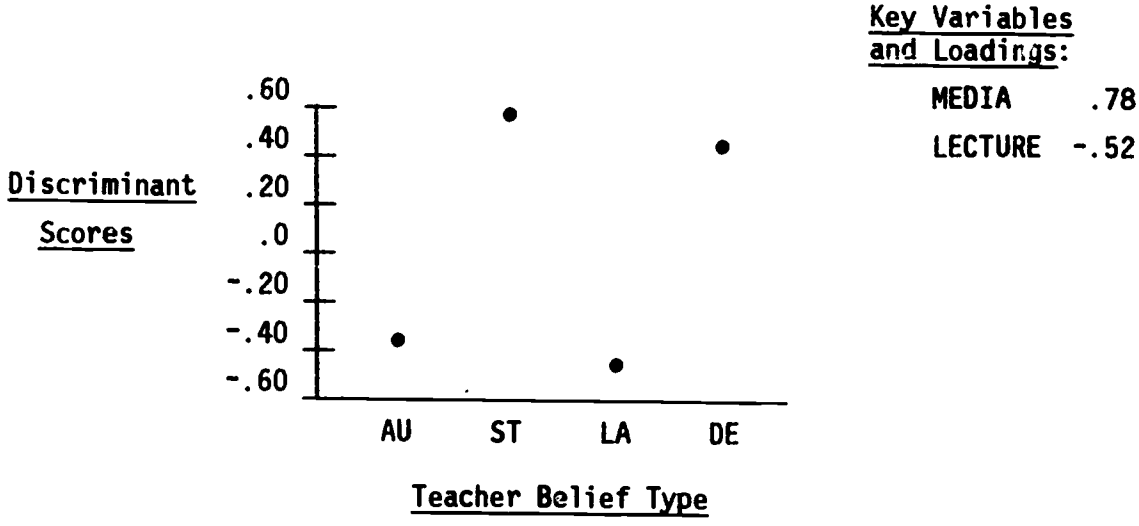

Figure 12. Methods of Instruction (Observer Report)--Plot of Group Centroids on Function 1. (High scores indicate more frequent use of media and less lecturing during instruction.)

Differences in grouping arrangements (observer report) variables. Again (see Table 12), while the canonical correlation between the first discriminating function and its variable subset indicates that the variables are only moderately associated with teacher belief types, their contribution to group differences is substantial. Clearly, all four variables in the subset contribute importantly to these differences and together account for 88% of the total variance among groups. These differences are significant at the .02 level.

Table 12

Discriminant Analysis of Grouping Arrangements (Observer Report) Variables for Teacher Belief Types (n = 80)

Discriminating Variables	Correlations Between Canonical Discriminant Functions and Discriminating Variables		
Functions:	1	2	3
Small Groups	.90	-.23	.37
Variety in Grouping	.72	-.03	-.27
Total Class Grouping	-.55	.41	.52
Independent Group	.63	.24	-.64
Teacher Belief Types	Group Centroids		
Autocrats	-.48	-.24	-.00
Strategists	.99	-.09	.00
Laissez-Faires	-.20	.19	.02
Democrats	-.10	.22	-.02
Canonical R	.49	.20	.02
Canonical R^2	.24	.04	.00
Relative Percentage	88.67%	11.27%	0.06%
Significance	.022	.810	.99

Strategist teachers stand out as a group (see Figure 13). They are clearly characterized as more frequently instructing in small groups and less frequently doing so with the total class. Similarly, they were observed as using a greater variety of classroom grouping arrangements. Surprisingly, in contrast to teacher-reported grouping arrangements, democratic teachers were observed to be more like autocratic and

laissez-faire teachers than strategists in this regard, that is, they reported more frequent use of small group instruction than they were observed to actually utilize.

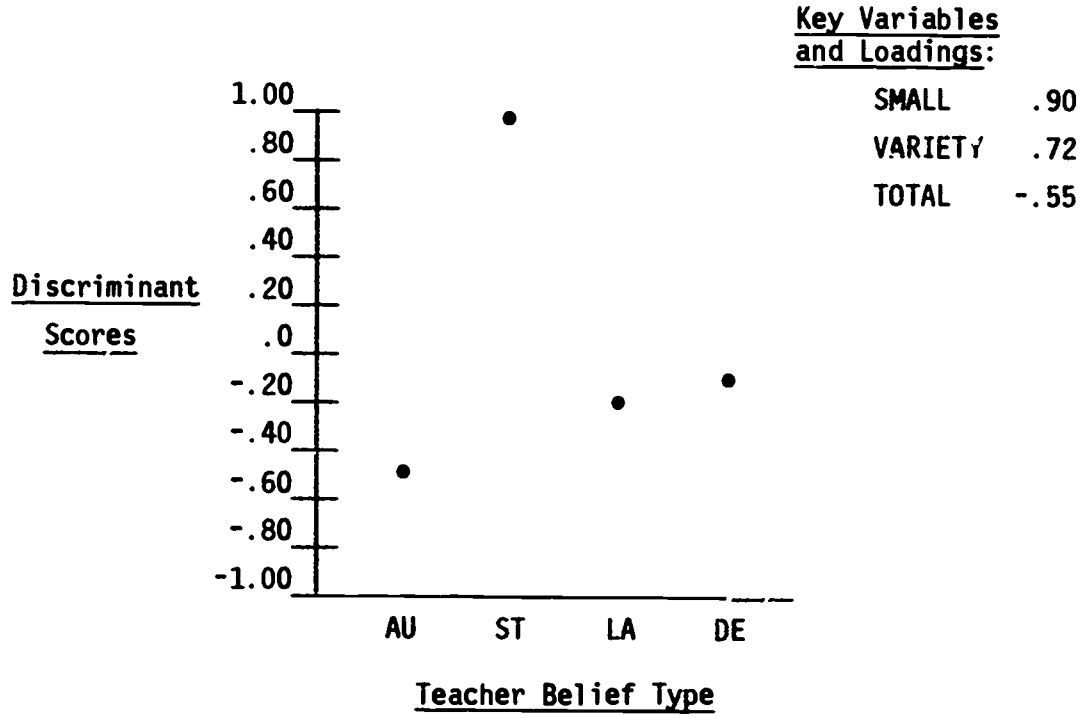

Figure 13. Grouping Arrangements (Observer Report)--Plot of Group Centroids on Function 1. (High scores indicate high frequency of use of small groups accompanied by less total class instruction and greater variety in grouping arrangements.)

Again, the group means (see Appendix) indicate the variance that was observed among teacher belief types on each variable. While the first discriminant function indicates the importance of the contribution of all the variables in the subset, the group means indicate that strategists are the most clearly distinguished from the other three teacher belief types by the extent to which they use the total class as an instructional group. While all teachers were observed to use total class instruction over 50% of the time, there was a 15% differential

between strategists and all other teacher types on this one variable, implying its importance in describing strategists as less oriented toward total group instruction.

Differences in use of time (observer report) variables. The significance levels and the low correlations between the discriminant functions and the use of time variables chosen for the study indicated that any discussion or interpretation of this analysis would be unproductive. Therefore, none will be attempted, although Table 13 is included for reference. Both Snapshot and FMI Summary data indicated the lack of differences between the teacher belief groups regarding students' interest level (an inferred measure of students' attention to the instructional task at hand) and the distribution of classroom activities across the three contextual variables--instructional, behavioral, and routines. This lack of differences in observed time is consistent with the lack of differences found in teacher-reported use of time.

In summary, teachers' classroom practices--instructional methods, grouping arrangements, and use of time--whether reported by teachers or observers, indicate a congruency. That is, those teachers who reported the frequent use of methods and grouping arrangements considered more desirable in classroom teaching and learning were also observed to more frequently use classroom practices so classified, with the exception of democratic teachers regarding grouping arrangements. Similarly, there were no differences among the teacher groups regarding the amount of classroom time spent on instruction, behavior, and routines. It is interesting to note that the total group means for teachers' estimates of time spent on instruction closely paralleled observers' reports (70%

Table 13

Discriminant Analysis of Use of Time (Observer Report) Variables for Teacher Belief Types (n = 80)

Discriminating Variables	Correlations Between Canonical Discriminant Functions and Discriminating Variables		
Functions:	1	2	3
Students at High Interest Level	.78	.57	-.26
Time on Instruction	-.35	.93	.11
Time on Routines/Social	.18	-.89	-.43
Time on Behavior	.50	-.23	.84
Teacher Belief Types	Group Centroids		
Autocrats	-.06	-.09	-.01
Strategists	.12	-.11	.02
Laissez-Faires	-.38	.10	.00
Democrats	.45	.12	-.00
Canonical R	.30	.10	.01
Canonical R^2	.09	.01	.00
Relative Percentage	88.42%	11.44%	.14%
Significance	.638	.934	.920

reported by teachers, 72% reported by observers), whereas behavioral and routine time were inconsistently reported by the two groups (teachers reported 20% time spent on behavior while observers reported 5%; teachers reported 10% time spent on routines while observers reported 23%). These figures are presented in the Table of Group Means found in the Appendix.

Again, democratic and strategist teachers stand out as a group. They are characterized as emphasizing classroom practices that are considered desirable in terms of promoting student learning--less emphasis on teacher lecturing, utilization of instructional media, more frequent use of small group instruction as opposed to total class instruction. Strategists appear to be particularly marked by their less frequent use of total class instruction as noted by observers and, along with democratic teachers, reported a greater use of small group instruction.

Laissez-faire and autocratic teachers stand out as a group favoring a quite different direction. They emphasize more traditional, controlling-type practices such as teacher lecturing and total class instruction. Autocrats are particularly marked as reporting that they are less likely to use small group instruction as a teaching group arrangement than any other teacher belief type.

Thus, strategists are more likely to teach in small groups, make use of instructional media, individualize instruction, and make use of a greater variety of pedagogical methods. Democratic teachers are similarly characterized with one notable exception--they were observed to place a greater emphasis on total class instruction than were strategist teachers while reporting even more frequent use of small groups than reported by strategists.

The answer to the second research question regarding teacher interactive structuring classroom behavior, either as reported by them or by observers, then, is that classroom instructional methods and grouping arrangements differ among teacher belief types while use of classroom time does not. Democratic and strategist teachers appear to provide a

greater exposure to what is generally considered to be more positive and effective teaching practices, such as utilization of various methods in individualizing instruction and use of small groups for instruction, than do autocratic and laissez-faire teachers. However, there is no indication that teachers high on control use instructional time any more efficiently than do those who favor student participation.

The analyses of teachers' interactive classroom behaviors revealed some inconsistencies with the results of the teacher preactive behavior analyses. Comparing the teacher belief groups, democratic and strategist teachers appear most often to be similar in their use of instructional practices while appearing to be dissimilar in their goals and intentions. Thus, a rather inconsistent pattern emerges linking one area of the curriculum with another, that is, the instructional to the operational. For example, although both strategists and autocrats scored high on conforming-type student goals, they tended to emphasize different sets of classroom practices. Similarly teachers high on student autonomy and independence (i.e., democrats and laissez-faires) also tend to differ in their use of instructional practices. Strategists are more likely to emphasize a variety of teaching practices while espousing a narrow range of teaching goals while democrats are more likely to emphasize both a variety of practices and a broader range of teaching goals.

In regard to teacher decision making, democrats tend to place a high priority on utilizing student-related or individualized criteria in making instructional decisions while strategists attempt to depend on a

mixed set of criteria, that is, both formal and informal criteria, in making instructional decisions.

In summary, then, it would appear that strategists may reinforce a narrow set of teaching goals effectively while democrats reinforce a broad set of teaching goals effectively. Similarly, laissez-faires may be ineffective in implementing their goals for students if they utilize a limited set of teaching practices, while autocrats limit both their intentions and practices. It can be concluded that strategists and democrats are more active teachers, but active in pursuing quite different goals.

Classroom Interactive Verbal Behavior: Observed Classroom Relationships

The third objective of the study was to explore leadership and affective interactions in classrooms among the various teacher belief groups. This exploration was aimed at determining whether any differences found served to contribute to differential opportunities for students to experience an encouraging, supportive, and warm learning environment. Two distinct research areas developed from this objective: (1) the nature of teacher-student leadership responsibilities, and (2) the character of teacher-student affective interactions. Specifically, the research questions to be explored were: Do leadership behaviors differ among teacher belief types regarding their verbal interactions related to directing, and initiating classroom activities? How do teacher-student expressive behaviors differ among teacher belief types regarding teacher praise and positive/negative/neutral affective

interactions. Both these areas were explored using separate discriminant analyses. The following section explores teacher belief type differences in teacher-student leadership responsibilities. Next, the absence of differences found in teacher-student affective interactions among the four teacher belief types will be considered briefly. The concluding parts of this section will summarize the findings in relationship to the operational curriculum, including both teacher structuring and verbal interactive classroom behaviors before introducing the experiential curriculum analyses.

Differences in classroom leadership variables. A discriminant analysis was performed on teacher belief types and teacher-student leadership responsibilties in the classroom. Three discriminating variables from the classroom observation instrument were included in the analyses: student-directed activity, student-initiated interaction, and teacher-student cooperative activity. Again, the weak association between teacher belief types and these variables in conjunction with a slightly high statistical significance level tends to disguise the extent to which the discriminating variables separate the teacher belief types. However, since an expected pattern emerged, a brief discussion appears warranted.

The first discriminant function, once again, accounted for the majority of variance found among the teacher belief types. The figures in Table 14 show that the extent to which students directed any classroom activity was the most important contributor in the discrimination among teacher belief types. Autocratic teachers appear to stand out among teacher belief types in the lack of frequency of occurrences of

student responsibility in leading or conducting classroom activities. The Table of Group Means (see Appendix) indicates that the probability of this event occurring in the classrooms of autocratic teachers is approximately 6% less likely than in classrooms of strategist teachers. While this may not appear to be a very large rate of predicted occurrence, its meaning assumes greater importance when the total mean of such activity--less than 7% as opposed to 93% teacher-directed activity--is considered. Figure 14 presents graphically the relative scores each

Table 14

Discriminant Analysis of Classroom Leadership Variables for Teacher Belief Types (n = 80)

Discriminating Variables	Correlations Between Canonical Discriminant Functions and Discriminating Variables		
Functions:	1	2	3
Student-Directed Activity	.79	-.50	.35
Student-Initiated Interaction	.36	.74	.57
Teacher-Student Cooperative Activity	.67	.03	-.74
Teacher Belief Types	Group Centroids		
Autocrats	-.55	-.05	-.01
Strategists	.57	-.19	-.01
Laissez-Faires	-.07	.02	.03
Democrats	.31	.26	-.01
Canonical R	.41	.15	.02
Canonical R^2	.17	.02	.00
Relative Percentage	89.05%	10.76%	.19%
Significance	.080	.770	.859

teacher group obtained in relationship to one another. Again, democratic teachers are closest to strategist teachers on this variable.

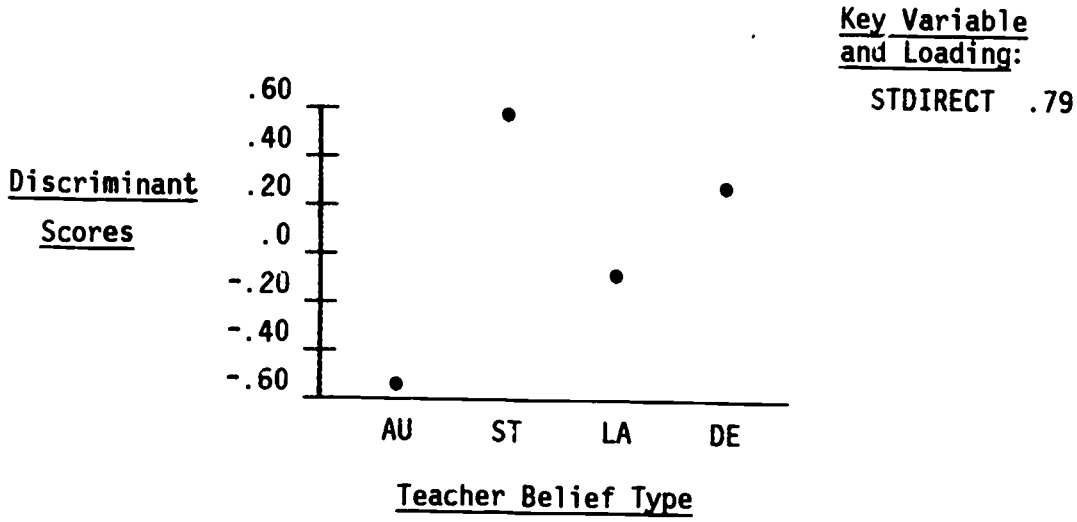

Figure 14. Classroom Leadership--Plot of Group Centroids on Function 1. (Higher scores indicate increasing occurrences of students directing activities.)

Differences in expressive behavior variables. A discriminant analysis of teacher-student affective interactions including teacher responses to students of support and affirmation, and teacher-student positive, negative, and neutral affect revealed no significant differences among the four teacher belief types (see Table 15). Furthermore, the correlations between this set of variables and the teacher belief groups were relatively low, indicating that none of these variables had the ability to discriminate one teacher group from another. This finding, at first, appears disheartening since important studies already cited conclude that teacher warmth is almost universally associated with a democratic-type as opposed to an autocratic-type leadership style. However, critics of the democratic-autocratic dichotomy reviewing these

Table 15

Discriminant Analysis of Expressive Behavior Variables for Teacher Belief Types (n = 80)

Discriminating Variables	Correlations Between Canonical Discriminant Functions and Discriminating Variables		
Functions:	1	2	3
Teacher Support/Affirmation	.99	-.00	.05
Teacher-Student Positive Affect	.47	-.62	.50
Teacher-Student Neutral Affect	.05	.16	.72
Teacher-Student Negative Affect	-.02	.33	.60
Teacher Belief Types	Group Centroids		
Autocrats	-.04	-.31	.02
Strategists	-.33	.13	-.14
Laissez-Faires	-.13	.18	.14
Democrats	.60	.10	-.05
Canonical R	.31	.21	.11
Canonical R^2	.10	.04	.01
Relative Percentage	65.10%	28.10%	6.81%
Significance	.466	.652	.661

same studies conclude that such a dichotomy is erroneously based on the assumption that authoritarian-type teachers are less warm, supportive, or enthusiastic, and therefore these factors are usually neglected in the operational definition of the variables used in such studies (Anderson, 1959). The conclusion of this study is that these affective factors, as defined by the variables, do not differentiate teacher

belief types. Consequently, it seems likely that expressive behaviors of teachers holding dissimilar educational beliefs cannot necessarily be expected to result in differential opportunities for students to experience an encouraging, supportive, and warm learning environment. It should be noted that the relatively fewer occurrences of observable classroom affect indicate that the vast majority of classrooms observed in this study can best be described as neutral in regard to expressive behaviors. (See the Appendix for Table of Group Means.)

In summary, then, the analyses conducted on leadership and expressive behaviors indicate that democratic and strategist teachers tend to be less dominating in regard to classroom activities but are not likely to be more affective in their interactions with students than autocratic and laissez-faire teachers. Democrats and strategists are more likely to provide opportunities for student-led instructional activity, but are not any more likely than other groups to be encouraging, warm, and supportive in the type of expressive behaviors they exhibit in the classroom toward their students. In answer to the research question, then, it is difficult to conclude that student involvement in directing and initiating learning activities accompanied by a positive emotional tone conveyed by the teacher fosters a supportive classroom learning situation. Obviously, student-led activities, although they may occur more frequently among some teacher groups, may not contribute significantly to a student's experience of a supportive environment. Conversely, it can be argued that an emotionally positive environment as conveyed by the teacher's verbal interactions with students could contribute significantly to a student's experience of support and encouragement

while also being characterized by strong teacher domination of classroom activities.

It seemed conceptually incomplete to attribute affective outcomes to leadership and expressive behaviors alone as defined by the variables in this study without also considering students' feelings and attitudes toward the teacher, other students, and the classroom learning process. Consequently, the following and final set of analyses focused on student perceptions of the classroom learning enviornment in an attempt to capture further the nature of psychological and affective interactive classroom behaviors. However, before exploring these analyses, a brief discussion regarding the operational curriculum is in order.

While this study has concluded that teacher educational belief types do not differ regarding expressive behaviors, it should be noted that certain limitations inherent in observational methods inhibit a conceptually sound definition and exploration particularly of affective factors within the operational curriculum. First, the operational curriculum necessarily depends on the views of outsiders for its definition. Sociologically, being an outsider necessarily precludes being an insider whose understanding of the meaning of situations and events may differ dramatically from those of the participants. Second, classroom observers and the classroom observation instrument used in this study may not have been sensitive enough to adequately identify and describe pertinent data relative to classroom affective factors. While leadership and expressive behavior variables as operationally defined and assessed for this study appear to be rather global, other more subtle and specific behaviors not easy to define operationally or important

affective behaviors which may infrequently occur but may have an affective impact on the classroom were simply not available as data. Third, the presence of observers in a classroom is known to affect the participation of those being observed. It may be that some teacher belief types (e.g., democratic-type teachers) tend to respond differently to the presence of an outside observer than do others. Lastly, the classroom observations for this study were limited to three teaching days. Such a limited data source may not be sufficient to capture the extent of affective interactions between teachers and students expressive of describable emotional and psychological factors. While these analyses and the ones reported in the next section on the experiential curriculum suggested a way in which to explore the influence of interactive affective behaviors on student attitudes, it is clear that this is an area where further study is needed. Future studies might focus on developing instruments and methods emotionally and psychologically sensitive to classroom events including students' responses to those events. In addition, there is a need to conduct such observations and inquiries over an extensive period of time.

Differences In The Experiential Curriculum

The Classroom Learning Environment: Student Perceptions of Classroom Interactions

The fourth and final research objective of this study was to explore the classroom learning environment as perceived by students in classrooms of teachers holding dissimilar educational beliefs. This exploration was conducted in order to examine classroom social and

affective relationships and learning interactions experienced by early and upper elementary students. Furthermore, this investigation was aimed at determining whether any differences found might result in the likelihood that some children would feel less positively affiliated with the learning process. As described previously, the experiential curriculum derives its definition and meaning from the perceptions of students. Thus, this final set of analyses exploring the classroom learning environment was conducted using classroom variables drawn from the student survey instrument.

Six dimensions of the classroom learning environment were examined in separate analyses for both early and upper elementary students: Peer Esteem, Teacher Favoritism, Knowledge of Results, Student Affect, Teacher Task Orientation, and Classroom Dissonance. These constructs were drawn from identical or nearly identical survey items to which students at both levels responded. In addition, the two analyses contained constructs specific to each level. The early elementary analysis was supplemented by the following variables: Student Decision Making, School Liking, and Student Cooperation. Similarly, the upper elementary analysis included: Student Decision Making, Student Choice, Student Competitiveness, and Teacher Authoritarianism. Lastly, one additional analysis was conducted for upper elementary students on a selected subset of variables thought to be more importantly related to teacher educational beliefs. The research questions to be answered with the data were: How do classroom social and affective relationships and learning interactions differ among classes taught by teachers of

dissimilar educational beliefs? Do interactions related to the way in which the learning task is perceived, including student opportunities for choice and decision making, differ for these same classes? Are there differences in the way early elementary and upper elementary students view teacher types?

Differences in the classroom learning environment: Early elementary students. One discriminant analysis was performed on teacher belief groups and the perceptions of early elementary students regarding the classroom learning environment. While the results were not significant, probably due to sample size, a moderate association was obtained between this set of discriminating variables and teacher educational belief types. However, the correlations between the canonical discriminant functions and the discriminating variables are relatively weak, indicating the uselessness of attributing importance to any single variable or set of variables in contributing to differences among the groups. Thus, in some ways, all the variables included in this analysis were contributors. Table 16 is included for reference.

It is interesting to note in the Table of Group Means (see Appendix) that, among all the variables comprising this set, only Student Decision Making fell below the midpoint of the scale for all teacher belief types. Thus, not only were teacher groups not singularly distinguished by this variable or any other but all early elementary teacher belief types in this study were perceived by their students as rarely permitting students "to choose what I want to do in this class."

Table 16

Discriminant Analysis of the Classroom Learning Environment (Early Elementary) Variables for Teacher Belief Types (n = 42)

Discriminating Variables	Correlations Between Canonical Discriminant Functions and Discriminating Variables		
Functions:	1	2	3
Peer Esteem	.41	-.07	.03
Knowledge of Results	.38	.37	.25
School Liking	.23	.01	-.08
Student Affect	-.22	.14	.22
Student Cooperation	.06	.48	-.20
Student Decision Making	-.09	-.12	-.09
Teacher Favoritism	.16	.07	-.44
Teacher Task Orientation	.16	.27	.35
Classroom Dissonance	.13	.13	.33
Teacher Belief Types	Group Centroids		
Autocrats	.24	-.25	-.27
Strategists	.75	.26	.25
Laissez-Faires	-.69	.60	-.08
Democrats	-.62	-.54	.28
Canonical R	.52	.40	.24
Canonical R^2	.27	.16	.06
Relative Percentage	59.40%	30.32%	10.28%
Significance	.876	.947	.953

Differences in the classroom learning environment: Upper elementary students. Two discriminant analyses were performed on teacher belief groups and the perceptions of upper elementary students regarding the classroom learning environment. These analyses produced the two highest correlations obtained in this study between a discriminant function and its set of discriminant variables. Each analysis will be discussed separately.

For the general overall analysis of classroom learning environment variables (Table 17), the significance level was not within the percentage range of statistical significance being used as a criterion for reporting findings in this study. Nevertheless, it is quite likely that had a true random sample and a larger number of cases been examined, these differences would become statistically significant. Given this possibility, the high correlations, and the direction of the group centroids indicating an expected pattern among teacher belief types, a brief discussion appears to be in order.

Figure 15 displays the group separation obtained among teacher educational belief types on these variables as indicated by the group centroids. Clearly, laissez-faire teachers stand out as a group. Less student choice and decision making is perceived to occur in these classrooms, as well as less emphasis on student competition. In contrast, autocrats, strategists and democrats are seen to place a greater emphasis on these aspects of the classroom curriculum. It is not immediately clear why student competitiveness is ranked with these as relatively important variables in discriminating among the teacher belief types. It may be that a sense of identification or affiliation with the

Table 17

Discriminant Analysis of the Classroom Learning Environment (Upper Elementary) Variables for Teacher Belief Types
(n = 38)

Discriminating Variables	Correlations Between Canonical Discriminant Functions and Discriminating Variables		
Functions:	1	2	3
Student Choice	.60	-.21	-.25
Student Competitiveness	.54	.32	.26
Teacher Task Orientation	.30	-.12	-.01
Teacher Favoritism	.11	.29	-.09
Classroom Dissonance	.04	-.22	.05
Student Decision Making	.44	-.25	-.62
Teacher Authoritarianism	.17	-.01	.60
Peer Esteem	-.08	.22	-.42
Student Affect	.04	.11	-.35
Knowledge of Results	.05	-.19	-.26
Teacher Belief Types	Group Centroids		
Autocrats	.13	.23	.59
Strategists	.85	.71	-.38
Laissez-Faires	-1.09	.01	-.18
Democrats	.62	-1.02	-.10
Canonical R	.64	.52	.36
Canonical R^2	.41	.26	.13
Relative Percentage	56.45%	31.17%	12.38%
Significance	.494	.742	.839

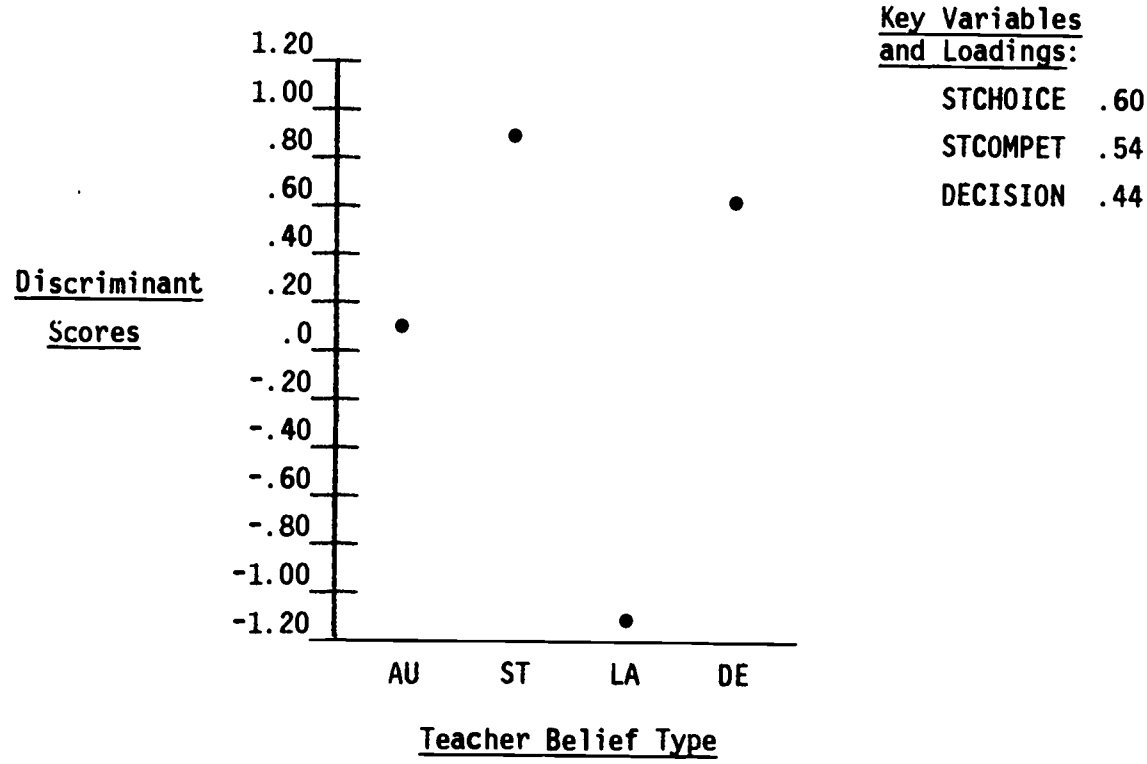

Figure 15. The Classroom Learning Environment (Upper Elementary)--Plot of Group Centroids on Function 1. (Higher scores indicate strong positive student views regarding choice of books and materials and in making classroom decisions; also, higher competitiveness.)

learning task is manifested by students who say "When I am in this class I feel I have to do better than other students." Its association with student choice and decision making, however, seems to be clearly established. Furthermore, as indicated in the Table of Group Means (see Appendix), the univariate analysis of this construct resulted in a greater differentiation among teacher belief types than any single other variable. Strategists received the highest score on student competitiveness while laissez-faire teachers scored relatively low on this construct.

For the more specific analyses of those classroom learning environment variables thought to be importantly related to teacher educational beliefs (Table 18), a fairly high correlation was obtained. Statistically significant differences were found among teacher educational belief types at the upper elementary level on this set of variables.

Table 18

Discriminant Analysis of the Classroom Learning Environment: Aspects of the Classroom Curriculum (Upper Elementary) Variables for Teacher Belief Types (n = 38)

Discriminating Variables	Correlations Between Canonical Discriminant Functions and Discriminating Variables		
Functions:	1	2	3
Student Choice	.76	-.15	-.12
Student Decision Making	.59	-.47	-.54
Student Competitiveness	.58	.80	-.17
Teacher Authoritarianism	.17	.38	.79
Teacher Belief Types	Group Centroids		
Autocrats	-.03	.45	.26
Strategists	.58	.24	-.37
Laissez-Faires	-.85	-.20	-.08
Democrats	.73	-.52	.16
Canonical R	.56	.36	.24
Canonical R^2	.31	.13	.06
Relative Percentage	68.56%	22.33%	9.11%
Significance	.089	.366	.377

It seems particularly noteworthy that a high significance level was obtained considering the fact that only 38 cases were available for this analysis.

Again, the first discriminant function accounts for more than 68% of the variance among teacher educational belief types, with the student choice and student decision making variables contributing most importantly to group separation. Figure 16 indicates the extent of this separation.

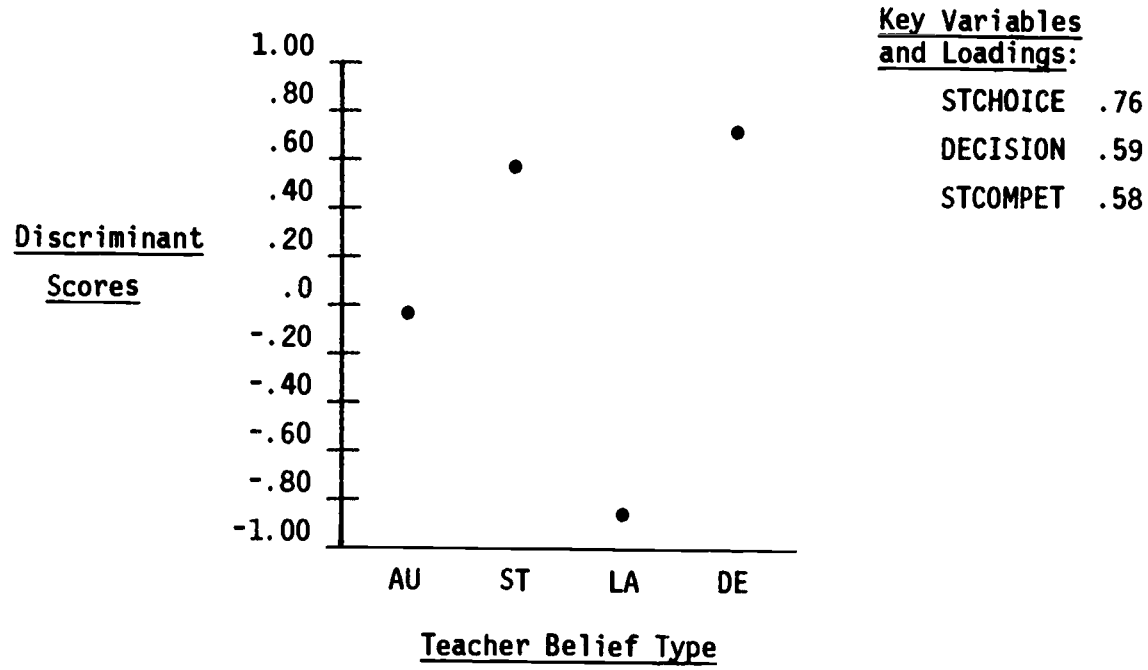

Figure 16. Aspects of the Classroom Curriculum (Upper Elementary)--Plot of Group Centroids on Function 1. (Higher scores indicate strong positive student views regarding choice of books and materials and in making classroom decisions; also, higher competitiveness.)

Clearly, democratic and strategist teachers again tend to be perceived as providing students with opportunities to make classroom decisions and choose their own learning materials. Laissez-faire

teachers as a group tend to be most reluctant in providing a classroom atmosphere where students feel they are allowed to make classroom decisions and choices. Again, student competitiveness ranks as a contributor in discriminating between teacher belief groups, particularly between strategists and laissez-faires as indicated in the Table of Group Means (Appendix).

In summary, democratic and strategist teachers of upper elementary students appear to be systematically characterized by a greater openness to student choice and decision making in the classroom. With the exception of student competitiveness, social and affective relationships including peer esteem and student affect do not stand out as important contributors to separation among teacher belief types at either the early or upper elementary level. In addition, teacher authoritarianism does not appear to characterize teachers high on classroom control as measured by this construct in the upper elementary analyses. Rather, student decision making variables tend to characterize differences more effectively. Again, affective and social variables such as student affect, peer esteem, classroom dissonance, and teacher favoritism do not stand out as contributing importantly to differences among teacher belief types. This is consistent with the conclusions already made regarding teachers' expressive behaviors as reported in the preceding set of analyses. That is, neither observers nor students reported differences among teacher groups either in the observed expression of external affective behaviors nor in the affective attitudes students reported they had toward their teachers or other students.

In answer to the research questions, the important differences found among teacher belief types are more closely associated with learning interactions linked to student choice and decision making for upper elementary students and not as strongly to social and affective relationships. This cannot be said of early elementary students since their views differed from those of upper elementary students. Perhaps no differences were found among these students for a number of reasons. First, it is probable that younger students lack the cognitive sophistication to identify their teachers' attitudes and behaviors toward them in a differential way. Furthermore, their lack of experience in the schooling process may also contribute to an inability to discriminate among various elements in the classroom curriculum. Lastly, the student questionnaire may not have been an adequate instrument for drawing out the type of student data needed to assess such questions as they apply to younger students.

Regarding upper elementary students, however, students of democratic and strategist teachers do report some degree of choice and decision making in the classroom not shared by students of autocrats and laissez-faires. That is not to say, however, that greater student satisfaction results from such experiences. It may be that choice and decision making are conceptually and methodologically more closely related to teacher's instructional practices than to a student's experience of a conducive learning environment. In fact, it is likely that the reverse might be the case, particularly since student competitiveness ranked with student choice and student decision making in characterizing classrooms of democratic and strategist teachers.

The findings reported in this section concerning the experiential curriculum illustrate sharply the complexities and difficulties involved in determining the extent to which teachers holding dissimilar educational beliefs permit the classroom environment to be characterized or influenced by their beliefs and thus lessen or increase the chances that some children will feel positively affiliated with the educational process. As already discussed, students differ in their ability to identify and appreciate the differing attitudes and behaviors exhibited toward them by their teachers. Furthermore, students differ in other characteristics such as emotional needs, background experiences, creative and intellectual talents, and other attributes which influence their perceptions of the classroom learning environment. These differences are conceivably found among students individually as well as between students at different grade levels. Therefore, it is difficult to attribute student responses generally to the educational beliefs of teachers without knowing the specific needs of students.

It is disappointing that variables directly related to affective and social relationships (i.e., peer esteem, student affect, teacher favoritism, teacher authoritarianism and so on) did not play a greater role in differentiating among teacher belief types. Given the nature of discriminant analysis it is realized that all the classroom learning environment variables <u>together</u> contributed something to a differentiation among teacher belief types. Precisely what this contribution was, however, is obscure. While it would be helpful to this study to be able to indicate an expected relationship, it would take an approach different from the one taken in this study to indicate a clear finding

regarding the classroom learning environment and teachers' educational beliefs.

From the results of the analyses on the classroom learning environment construct, then, it is not clear whether or how teachers' beliefs influence students' classroom experiences, at least in the affective and social realms. Considering both the findings from the classroom expressive behavior analyses (from the operational curriculum) and those from the classroom learning environment analyses (from the experiential curriculum), it cannot be concluded that classes of any particular belief group are differentiated by learning environments leading to positive student affiliation with the learning task. Thus, the larger question raised by this study concerning the kinds of experiences students may have when taught by teachers whose educational beliefs differ remains largely unanswered by the available student data analyzed for this investigation. Similarly, while strategist and democratic teacher belief types appear to more frequently utilize instructional practices considered desirable for teaching effectiveness, including student choice and decision making, there is little evidence in this study to conclude that such practices in themselves promote effective learning for most students. The perennially troublesome black-box phenomenon that has historically linked teaching and learning seems to remain staunchly in place.

Teacher Beliefs Profile

A summary profile of the typology of teacher educational belief types and its relationship to the classroom processes analyzed for this

study is presented in Figure 17. Only the group means on the first discriminant function for each statistically significant analysis (as defined in this study) are displayed here. The results of the chi square analysis for student-intended behavioral learnings are not included but can be found in Table 6 on p. 122. With the exception of goals of schooling, student-intended academic learnings, and observed grouping arrangements variables, the similarities in teaching practices between democratic and strategist teacher belief types are apparent. Likewise, the display indicates a number of similarities between autocratic and laissez-faire belief types as previously described.

In concluding this chapter, it seems that the overall results of the analyses performed on teacher educational belief types indicate a relatively clear distinction among teacher belief groups. First, teacher control does not appear to be a predictive dimension of educational beliefs concerning the various classroom processes explored here. Rather, the student participation dimension of teacher's educational beliefs does indicate that teachers high on this dimension are likely to permit greater student involvement in the learning process by the way they (1) plan and organize their teaching (i.e., more emphasis on individualized student criteria) (2) structure their classroom activities (i.e., greater instructional variety) and (3) interact with students (i.e., smaller instructional groups and more student-initiated activity). Similarly, upper elementary students of teachers high on the participation dimension perceive themselves as having more opportunities to choose materials and participate in classroom decisions. It may be that the classroom process variables available and chosen for this study were

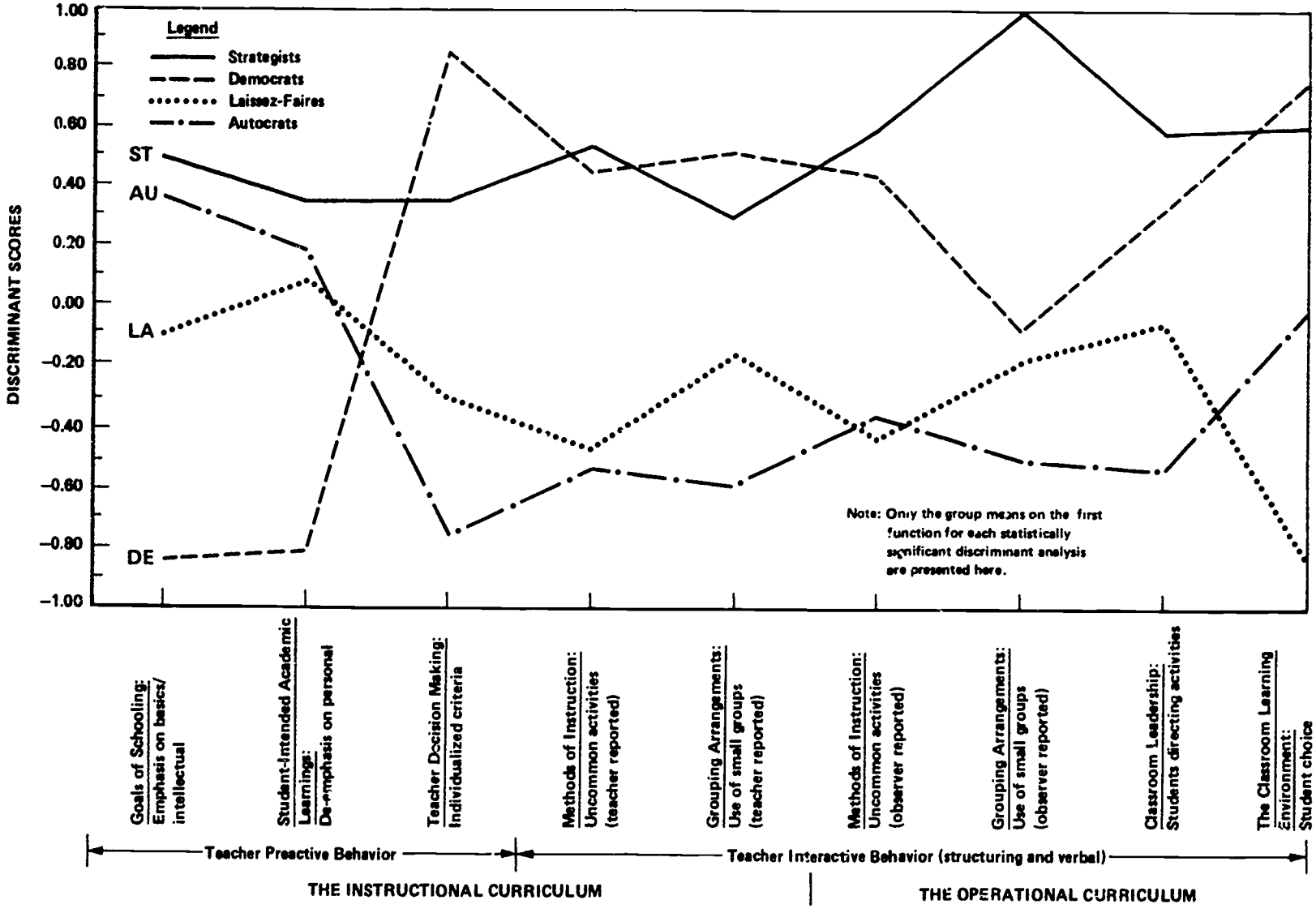

Figure 17. Profile of a Typology of Teacher Educational Beliefs and Elementary Classroom Processes

not as specifically related to the teacher control dimension of the Educational Beliefs Scale as they were related to the student participation one. It may also be the case, as suggested in the skewed distribution of the four teacher belief groups (see Scattergram, Chapter IV, p. 69), that teacher control is a more pervasive and thereby similarly held belief among all teachers than is student participation. This has been found to be almost universally true in elementary school classrooms, even those characterized as "informal" and "open" (cf. Bealing, 1972; Moran, 1971). If so, it may not be a useful construct on which to differentiate teachers.

Second, what is not clear is the affective or emotional impact on students' learning experiences that might be attributed in part to teachers' beliefs, especially to their beliefs regarding student participation. In other words while students taught by teachers whose educational beliefs differ do not seem to regard their classroom experiences differently (i.e., social and affective relationships and learning interactions) nor do they appear to experience a different emotional climate (i.e., differences in classroom affective behaviors), the structure or organization of the learning environment clearly is different.

Third, not only is the structure or organization of the learning environment clearly different, but teacher belief types also differ in their attitudes toward the goals of schooling and in the learning intentions they have for students. What is not immediately clear is whether or not these differing goals, intentions, and classroom structuring and verbal behaviors which might be attributed to differing beliefs do indeed effect differing outcomes for students. Again, what we do know

from this investigation is that teachers with differing beliefs about student participation do structure their classroom activities differently, but they do not necessarily ascribe to similar learning objectives for their students. Despite their teaching intentions--either broadly or narrowly conceived--perhaps some teachers are simply more willing to invest their efforts in providing students with a more varied instructional pattern and are more open to variety, flexibility, adaptability and instructional change. There is a clear indication here, however, that instructional openness is not necessarily related to teachers' instructional intentions. Some teachers may be reinforcing a narrow set of teaching goals deeply while others reinforce a broad set of goals superficially. For example, strategists appear to utilize a wide array of teaching activities but also embrace a narrow range of teaching goals. Similarly, laissez-faires appear to favor a broader range of teaching goals and intentions while utilizing a narrow range of instructional strategies.

Lastly, while teachers' beliefs, especially their beliefs regarding student participation, appear to predict their interactive structuring behaviors regarding the teaching-learning process, it seems necessary to caution the use of teachers' beliefs as a potential guide in predicting educational outcomes. The influence these behaviors have on student learning is unclear, especially since students for the most part, do not appear to evaluate their schooling experiences differentially. Thus, the relationship between teachers' educational beliefs and what students actually experience in the learning process remains obscure.

Chapter VI

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Overview of the Study

The Research Problem

Teachers' educational beliefs--the attitudes and values teachers hold toward children as well as toward various instructional strategies--have been the subject of educational research for the last half century. However, the view that teachers' philosophical assumptions function in a way that influences teaching behaviors and student outcomes has gained dubious acceptance in the educational community, although years ago Ralph Tyler (1949) convincingly argued the importance of teachers' value screens in the selection of educational objectives. While it seems reasonable to assume that what people believe to be true has some influence on their behavior and, indeed, research abounds to support this notion, teachers' educational beliefs have not been the specific focus of the more recent research on teacher characteristics and student outcomes intended to determine teacher effectiveness. The importance of studying teachers' educational beliefs takes on a new dimension in the light of more promising advances being made in attempting to identify effective teacher behaviors. But scant attention has been given to the role of beliefs in predicting teaching practices, and virtually none has attempted to relate teacher beliefs to everyday student experiences in the classroom. Furthermore, conceptual leaps have been made in traditionally viewing teaching as only behavior or more recently as only decisions and behavior. What has been missing from this research is the

development of adequate conceptual models to serve as heuristic devices in understanding more clearly the teaching-learning process. As a result, teacher effectiveness studies have not convinced many of the importance of the philosophical underpinnings of behavior.

Despite the extensive research, little is known about the precise nature of teacher educational beliefs nor the role they play in influencing teacher attitudes, intentions, decisions, and behaviors regarding teaching. Therefore, the present study was designed to examine a comprehensive data set within a conceptual framework that specifically addresses the role of teacher beliefs in relationship to three domains of the classroom curriculum. This was done by first developing a typology of teacher educational belief types. Teachers' behaviors were then examined for each of these types from three perspectives: the teachers', outside observers', and the students'. The three curricular domains--the instructional, the operational, and the experiential--embraced a wide range of teacher preactive and interactive teaching behaviors and student perceptions. The primary purpose of this study, then, was to consider the possible relationships between elementary school teachers' educational beliefs and their classroom teaching behaviors from the three perspectives representing the instructional, the operational, and the experiential curricula.

Procedures

This study used data collected from a national research project, A Study of Schooling, to investigate relationships between teacher educational beliefs and elementary classroom processes. This was done by

first developing a typology of teacher educational belief types. Next, a theoretical perspective on teaching incorporating teacher beliefs, attitudes, intentions, decisions, and behaviors was used in developing the beliefs-curriculum framework. This framework focused on teacher beliefs and three domains of the curriculum--the instructional (teacher perceptions), the operational (observer perceptions), and the experiential (student perceptions). Classroom process variables were then selected for comparison with teacher belief types. Those were selected that matched the three domains listed in the framework and that were thought to be related to the beliefs under study. These variables were further categorized to match the theoretical perspective on teaching. The 15 analyses thus focused on 10 sets of classroom process variables representing teacher preactive behavior (i.e., goals, intentions, decisions), teacher interactive structuring behavior (i.e., methods of instruction, grouping arrangements, use of time), classroom interactive verbal behavior (i.e., classroom instructional leadership and expressive behavior), and the classroom learning environment (i.e., early and upper elementary student perceptions). Theoretical propositions taken from the body of work on teacher effectiveness were used both to guide the formulation of research questions and in the interpretation of findings. Discriminant analysis was the primary analytic tool used to determine whether differences could be obtained among teacher belief types on the sets of variables studied and to explain the direction of the differences that were found.

Limitations

There is no reason to suspect that the teachers and their classes studied here were unrepresentative of those in American public schools in general. The schools in the sample were from several major regions of the United States and differ in size, economic status, ethnicity, and location in terms of urban, rural, or suburban. No attempt was made to secure a statistically random sample of schools. In addition, this study did not examine achievement data, teaching content, nor subject matter. However, reasonable speculations were attempted regarding teacher effectiveness and students' classroom experiences. Furthermore, this was not a causal or predictive study, but an exploratory one. For these reasons, no definitive conclusions generalizable to a larger population of teacher belief types can be drawn from the set of findings emerging from this study. Rather, insight can be provided from this work about processes occurring within classes taught by different teacher belief types at those schools studied. And, of course, hypotheses can be raised about the implications of these findings for teaching effectiveness on a wider scale.

Summary of Findings

Teacher preactive behavior and beliefs. The first objective of this study was to determine the relationship between teachers' educational beliefs and their preactive teaching behavior regarding their attitudes toward the goals or functions of schooling, the intended learnings they have for their students, and the bases upon which they make their instructional decisions. This objective was explored with

the data by seeking the following information: Do teachers with dissimilar educational beliefs view differently the goals of schooling and prefer similar or dissimilar learning and behavior goals for their students? And, do they perceive differently the bases upon which their own teaching decisions are made regarding influences on teacher planning and judgments made about student progress? The data from the elementary classroom teachers studied revealed that in several respects teachers' intentions and decisions prior to instruction varied among teacher belief types. Not only did teachers of different beliefs vary in what they perceived the primary goals or functions of schooling to be, but they also had different teaching intentions, both academic and behavioral, regarding what students in their classes were expected to learn. The influence of various sources on curriculum planning and the influence on their teaching of different types of available information regarding students also differentiated teacher belief types.

This first research objective also included the determination of whether any differential distribution found could be considered as reflecting a limiting of exposure to a comprehensive set of curriculum expectations for some students and might also inhibit individual student initiative and participation in the learning experience. This question was considered from the viewpoint that effective teachers incorporate a wide array of teaching goals and strive to actively involve students in classroom activities.

While the determination of teaching effectiveness cannot be accomplished by the statistical manipulation of data, it can be inferred by examining the pattern of differences among teacher belief groups, that

the findings point in this direction. While all teacher belief types supported the teaching of basic subjects and skills as an important function of schooling, democrats were less intense in their emphasis on the basics. Strategists, autocrats, and laissez-faires considered the broad purpose or function of schooling to be primarily intellectual. Democrats considered personal development to be primary. Democrats listed as intended learnings for their students such goals as creativity, self-confidence, and independent thinking, in contrast to the other three belief types whose lists were focused on subject matter and related skills. Laissez-faires and democrats were more likely than others to be concerned that their students learn behaviors that would enable them to function autonomously and think critically. In contrast, strategists and autocrats were more likely to want their students to develop behaviors related to classroom discipline and control such as obeying rules, following directions, and completing classwork on time.

In addition to teachers' attitudes toward the broad purposes of schooling and to the above mentioned qualitative differences in teacher expectations, the differences found in teacher decision-making styles lend support to the impression that democratic teachers overall tend to practice a different set of preactive teaching behaviors than the others. As indicated, both research and practice regard some of these activities as more effective in determining positive student outcomes. Democratic teachers consistently considered student interests, background, and abilities rather than textbooks and materials as a major influence on teacher planning. Similarly, they more frequently regarded student preferences and student projects, reports, and demonstrations as

information in determining instructional decisions. In contrast, the other three teacher belief groups relied primarily on curriculum guides and on student tests, quizzes, and written work as information in determining instructional decisions. It seems clear, then, in respect to teachers' preactive behaviors--goals, intentions, and decisions--that democrats stand out among the other teacher groups as more likely to expose their students to a comprehensive set of curriculum expectations and to promote greater student initiative and participation by utilizing a student-focused approach in making instructional decisions.

Teacher interactive structuring behavior and beliefs. The second objective of this study was to explore the relationship between teacher beliefs and teacher interactive structuring behavior regarding methods of instruction, grouping arrangements, and use of learning time. The behaviors explored represent instructional practices effective in the sense that they are identified in the literature as strongly associated with student achievement. It is postulated that the more personally involved students are in a diverse array of learning activities, the more likely it is learning will occur. Representing both the perspectives of teachers and classroom observers, the data were analyzed to determine whether teacher belief groups differed in: (1) teacher frequency in the provision of a diverse array of learning opportunities, including (a) multiple teaching methods and materials (as opposed to an emphasis on conventional activities, routine tasks, or repeated use of the same type of learning materials), and (b) multiple levels of cognitive discourse (as opposed to heavy concentration at one level of discourse); (2) the percentage of time teachers individualized

instruction using a variety of teaching methods; (3) the frequency of interactive instructional activities (as opposed to those requiring little or no pupil-to-pupil or teacher-to-pupil interaction); (4) open-ended questioning rather than frequent lecturing; (5) media utilization; (6) teacher monitoring; (7) frequency of teacher corrective feedback; (8) grouping patterns; and (9) time on task including percentage of class time spent on instruction and expected time on homework. The findings from the data revealed significant differences between democrats and strategists as a group and laissez-faires and autocrats on all teaching variables associated with effective teaching except time on task. Democrats and strategists are clearly separated from laissez-faires and autocrats in utilizing a diversity of instructional practices considered desirable in promoting student involvement in classroom learning. Their classrooms are characterized by a greater variety of instructional methods, including more time on individualized instruction, and more frequent use of interactive teaching activities, instructional media, teacher feedback, open-ended questions, and small group instruction.

The second aspect of the research objective, however, was to determine whether any differences which emerged from the analysis of data resulted in limited opportunities for some students to experience positive, participative, and efficient teaching practices. If exposure to such instructional behaviors was found to be limited to students of some teacher belief types, it could be concluded that other teacher belief types were likely to be less effective (in the sense described). Such differences, in fact, were indicated by the data. Among both democrats

and strategists, a greater preponderance of instructional practices regarded as more effective were found to be more characteristic than among laissez-faires and autocrats. Thus, students of these latter teacher types were the least likely to experience the type of instruction most highly associated with achievement. However, caution must be exercised at this point. The teaching variables considered here are only a small part of the constellation of teacher behaviors that may influence student achievement. Furthermore, other teacher characteristics such as attitudes, intentions, and decisions including the manner[1] or style in which certain teaching skills are executed, similarly influence students' learning experiences and consequently their achievement.

At the present time, knowledge of teaching effectiveness does not permit a definitive statement about what set of teaching behaviors is consistently linked with learning. While the numerous teaching variables included in this study have been found to be highly associated with learning, the presumption of a causal relationship is premature. Nevertheless, it can be said with certainty that, among the teacher belief types studied, these teaching practices were distributed differentially between democratic-strategist teachers and laissez-faire-autocratic teachers thus exposing some groups of students to a greater or lesser diversity of instructional activities.

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[1]Manner is characterized by stable dispositions in behavior associated with traits of character that accompanies the performance of a skill. See Fenstermacher (1980b) for a discussion of teaching skill and teaching manner.

Classroom interactive verbal behavior. The third research objective sought to explore the relationship between teacher beliefs and classroom interactive verbal behavior regarding classroom leadership and classroom expressive behavior. The behaviors explored represented verbal interactions between teachers and students during instruction. These were selected to capture something of the emotional tone of instructional activities and the extent to which teachers "permitted" student-initiated activity. This objective was explored with the data by seeking the following information: Do leadership behaviors differ among teacher belief types regarding their verbal interactions related to directing and initiating classroom activities? How do teacher-student expressive behaviors differ among teacher belief types regarding teacher praise and positive/negative/neutral affective interactions? It is commonly believed that teachers who dominate classroom activities to the exclusion of student initiative as well as demonstrate greater curricular constraint are also less acknowledging, affirming, and affective with their students. While the findings from the data revealed significant differences among teacher belief types regarding teacher leadership behavior, no such differences were found regarding these expressive factors. Again, democrats and strategists stand out as a group in the frequency with which their students direct or initiate classroom instructional activity. However, expressive behaviors did not differentiate teacher belief types. That is, no significant differences were found among the four teacher belief types regarding teacher-student affective interactions, and teacher-student positive, negative, and neutral affect.

This third research objective also included the determination of whether any differences found in these two aspects of interactive verbal behavior between teachers and their students indicated differential opportunities for students to experience an encouraging, supportive, and warm learning environment. While it appears highly desirable for effective teaching that students experience emotional support regarding their instructional tasks, the analysis of these data certainly does not indicate that they do. Rather, very little classroom affect, either positive or negative, and very little student-initiated activity actually occurred in the classrooms studied. Democrats and strategists were more likely to provide opportunities for student-led instructional activities, but the predicted rate of occurrence even for these teachers was not very large. In regard to expressive behaviors, none of the teacher belief groups was differentiated. Thus, no student group was more likely to experience an encouraging, supportive, and warm learning environment.

Again, caution must be exercised in attempting to ascribe positive or negative student experiences to classroom leadership and expressive factors alone without considering student characteristics such as cultural background, motivation, aspiration, and level of intellectual and emotional maturity. Furthermore, certain limitations inherent in observational methods inhibit a conceptually sound definition and exploration particularly of affective factors within the operational curriculum. Not the least among these limitations is the difficulty of understanding and recording the affective overtones or meanings of situations and events unfamiliar to an outside observer. In addition, affective

behaviors which may infrequently occur in a classroom, or even outside a classroom, may have an affective impact that is simply not available as data. Likewise, as with effective instructional practices, there is little evidence at present to suggest that a common set of verbal interactions can be fitted to most teaching situations. Nor would this seem desirable if the individuality and rationality of both the teacher and the student are to be respected. While the variables studied here are believed to be associated with positive classroom learning environments, the variety and subtlety with which they can be expressed belies most observational techniques. Nevertheless, what is clear from these analyses is that, among the four teacher belief types studied, these expressive behaviors did not differentiate democratic, strategist, laissez-faire, and autocratic teacher belief types.

The classroom learning environment and beliefs. The fourth and final research objective was to examine whether students in classes taught by different teacher belief types participated in different types of classroom social and affective relationships and experienced learning interactions differently. The following questions were explored with the data: How do classroom social and affective relationships and learning interactions including student affect, peer esteem, and student cooperation and competitiveness differ among classes taught by teachers of dissimilar educational beliefs? Do interactions related to the way in which the learning task is perceived, including student opportunities for choice and decision making, differ for these same classes? Are there differences in the way early elementary and upper elementary students view similar teacher types? Differences were greatest among

students at the upper elementary level regarding student choice and decision making. Not only were early elementary teacher belief types not distinguished on these variables, but overall their students reported little or no choice regarding classroom activities. Similarly, early elementary students' perceptions of teachers and classroom relationships were not differentiated, while upper elementary students' perceptions of these variables were differentiated among the four teacher belief types.

Classroom social and affective relationships and students' perceptions about their classroom were significantly different among upper elementary students. These differences were most strongly exhibited in students' feelings that they help make class decisions and have some choice regarding their own books and materials in class. These same students also felt that they were expected to perform better than other students (Competitiveness Scale). Democrats and strategists received the highest scores on these constructs. With the exception of student competitiveness, social and affective relationships including peer esteem and student affect did not serve as important contributors to separation among teacher belief types at either the early or upper elementary level. However, trends in the data indicated that the classroom learning environment at the upper elementary level tended to be more positively perceived by students of democratic and strategist teachers.

The second aspect of this fourth and final research objective was to explore whether any differences found in students' perceptions of these aspects of the classroom learning environment resulted in greater or lesser chances that some students would feel positively affiliated

with the educational process. While upper elementary students of democratic and strategist teachers do report some degree of choice and decision making in the classroom not shared by students of autocrats and laissez-faires, that is not to say that such perceptions indicate students' positive affiliation with the educational process. It may be that choice and decision making were conceptually and methodologically ill-conceived for this study. They appear now to be more closely related to a teacher's instructional practices than to a student's experience of a conducive learning environment. In fact, it is likely that the reverse might be the case, particularly since student competitiveness ranked with student choice and student decision making in characterizing classrooms of democratic and strategist teachers.

From th se findings it is clear that the classroom environments of the fou. teacher belief types differed noticeably in regard to the extent of choice and decision making for upper elementary students. What is unclear is the extent to which these environments differed regarding social and affective relationships with the exception of student competitiveness. These results are consistent with those already discussed for teachers' expressive behaviors. That is, neither observers nor students reported differences among teacher groups either in the observed expression of external affective behaviors nor in the affective attitudes students reported they had toward their teachers or other students. This lack of differences certainly seems to indicate that no particular belief group can be credited with providing greater or lesser chances for students to experience the educational process positively.

Descriptions of Four Teacher Belief Types

A picture of each teacher belief group can now be drawn together in the form of a summary and briefly compared to similar teacher types identified in the literature. The teaching and belief patterns for each group emerge as follows:

Autocrats. These teachers believe in teacher control and directivity of classroom processes. They tend to stress basic subjects and skills along with intellectual development as the most important function of schooling while also stressing academic learnings and student conformity as the most important outcomes they desire for their students. These teachers do not believe in student participation in making classroom decisions. They prefer not to rely on student preferences and interests in deciding instructional strategies but instead prefer more formalized criteria for planning and teaching such as textbooks and materials. They tend to emphasize traditional teaching practices such as lecturing/explaining to large groups and were observed to stress less interactive type teaching activities such as test-taking, silent reading, and written work. Students in their classrooms are less likely to be observed directing or initiating activities. They also report infrequent opportunities to choose their own books and materials and to make classroom decisions.

It can be inferred that the classrooms of these teachers are rather tightly controlled by the teacher both in terms of student behavior and teacher domination of the curriculum. No doubt these teachers are of the formal or traditional variety providing little opportunity for students to participate in enriching or "learning by doing"-type activities.

Ashton et al. (1975) found that similar teacher types emphasize the need for children to fit effectively and competently into society. They prefer to work in a teacher-directed manner. Morgan (1977) describes a similar teacher type as active-closed, that is, such teachers are highly active as classroom directors but demonstrate a tightly constrained curricular structure. Their students are observed to be led passively through factual material. Bush (1954) characterizes personal relations between teacher and student in such classrooms as "stick to business." His Type A teachers might also be referred to as academic in their teaching orientations, preferring a strictly subject-matter approach to the curriculum. Thus, the most predominant characteristic of the classrooms of autocratic teachers may well be the sameness and repetition with which daily events occur. While short-range goals such as the learning of basic skills may be accomplished, other possible long-range effects of schooling relating to personal and emotional development may be thwarted.

Strategists. These teachers believe in teacher control and directivity of classroom processes. They tend to stress basic subjects and skills along with intellectual development as the most important function of schooling while also stressing academic learnings, social development, and student conformity as the most important outcomes they desire for their students. These teachers believe in student participation in making classroom decisions. They rely on a combination of criteria for making instructional decisions emphasizing student preferences and interests but also stressing student performance on written assignments and tests and student classroom behavior. They tend to

include progressive teaching practices in the curriculum such as individualizing instruction, having class discussions, using media, manipulative materials, games and simulations. They also tend to instruct in smaller groups. Students in their classrooms are more likely to be observed directing and initiating activities. They also report opportunities to choose their own books and materials and to make classroom decisions.

Strategists may appear to be very different from autocrats on the surface since their classrooms are characterized by a greater diversity of learning activities than were found in classrooms of autocrats. However, the educational aims and student learning objectives for these teachers are very much alike. They strive to control the classroom both in terms of student behavior and teacher domination of the curriculum. While their classroom teaching processes appear "open," their intentions are narrowly based. Perhaps they are more effective managers than are autocrats and are able to deal with a wider variety of activities and with a greater number of individual students simultaneously. Galton et al. (1980) found that conventional views of so-called progressive classrooms in England did not appear to match the reality in that Style 1 teachers (somewhat similar to strategists), while interacting frequently with students do not seek to develop inquiry skills. Rather, their energies are directed toward classroom management/organization and toward providing students with direction and information. Student cooperative activity directed toward problem solving is noticeably absent. Similarly, Morgan (1977) identified active-open teachers as highly active in directing classroom activities combined with curricular

exercises that allow a broad range of individual student input. While students are highly involved in activities, they are also fairly compliant in their behavior. Although the sameness and repetition that seem to characterize classrooms of autocratic teachers may be mitigated by strategists, students appear to be the recipients of a homogeneous, although individually paced, learning experience focused primarily on basic skills and subject matter.

Laissez-Faires. These teachers de-emphasize teacher control and directivity of classroom processes in stating their beliefs about teaching and learning. They tend to stress basic subjects and skills along with intellectual development as the most important function of schooling but resist student conformity preferring instead student autonomy and independence as desired student learnings. These teachers also de-emphasize student participation in making classroom decisions in stating their beliefs about teaching and learning. They tend to be ambiguous concerning the extent to which they rely on student information and prepared curriculum materials in making instructional decisions. They tend to emphasize traditional teaching practices such as lecturing/explaining to large groups and were observed to stress less interactive-type teaching activities such as test-taking, silent reading and written work. Students in their classrooms are less likely to be observed directing or intiating activities. They also report infrequent opportunities to choose their own books and materials and to make classroom decisions.

It could be inferred that the classrooms of these teachers are not as well managed or directed as those of both autocrats and strategists.

Similarly, their goals and intentions for students appear not to be as clearly defined. While they may be able to verbalize their positive beliefs regarding student participation and their intentions to develop autonomy and independence in students, they may not have the necessary understandings nor teaching skills needed to direct and challenge their students. Morgan (1977) identified and described a similar group of teachers by their low-key approach to the direction of curriculum activities. He described teachers in the passive-open category as allowing or permitting random and largely directionless student activity. While students appear to be highly animated, at best their involvement in the curriculum is sporadic. Morgan further characterizes this group as "non-teachers," concluding that they are likely "to have a negative impact on student involvement in purposeful learning while positive teacher control stimulates student learning" (p. 17). While laissez-faires appear to primarily utilize a traditional teaching style similar to autocrats, they differ somewhat in their more frequent use of small groups and the extent to which students initiate or lead activities. However, there is no reason to believe that students are necessarily engaged in a wider range of learning activities by reason of a different classroom grouping or leadership arrangement.

Democrats. These teachers de-emphasize teacher control and directivity of classroom processes in stating their beliefs about teaching and learning. They tend to stress personal development as the most important function of schooling while also stressing personal growth and student autonomy and independence as the most important outcomes they desire for their students. These teachers believe in student

participation in making classroom decisions. They consider student preferences and interests and rely on more informal methods of student evaluation such as projects, reports and demonstrations in making instructional decisions. They tend to include progressive teaching practices in the curriculum such as individualizing instruction, having class discussions, using media, manipulative materials, games and simulations. They report a preference for small group instruction but are not likely to be observed engaging in it as frequently as they report. Students in their classrooms are more likely to be observed directing and initiating activities. They also report opportunities to choose their own books and materials and to make classroom decisions.

While democrats de-emphasize teacher control and directivity of classroom processes in relationship to autocrats and strategists, they appear to tend toward a more balanced view between teacher control and student participation. And, they seem to be more clear about their teaching intentions than laissez-faires. Like strategists, they employ a diversity of classroom teaching practices, including those involving more frequent teacher-student interactions.

In many respects democrats and autocrats appear to be opposites. No doubt democrats could be considered more informal and/or progressive in their teaching approach. Ashton et al. (1975) found that similar type teachers favor students' independence and individuality, enabling them to discover their own talents and interests and arrive at their own enjoyment and attitudes toward society. They choose to work in a more progressive, child-centered manner, stressing inquiry as well as the acquisition of the basic skills as students require them and at their

own pace. Morgan (1977) describes a similar teacher type as active-flexible, that is, such teachers tend to fall in middle ranges regarding curricular constraints by requiring some types of student input but also allowing for more active and interpretive group projects. Teacher activism varies depending on the level of student ability and initiative. Students are observed to be energetic, and teachers, for the most part, have high expectations of them. Galton et al. (1980) found a "progressive"-type group of teachers who emphasized problem solving and ideas coupled with teacher control of the activities by means of whole class teaching. It will be remembered that democrats were observed to engage in whole class teaching more frequently than they reported. It may be that these teachers are able to engage students in a wide array of activities with less emphasis on small grouping arrangements.

In Ryan's (1960) study of teacher characteristics, sympathetic and understanding teacher classroom behavior was positively correlated with teachers' expressions of more child-centered educational viewpoints. It may be that, in contrast to autocrats, democrats are in the most favorable position to accomplish both short- and long-range educational effects since they are concerned with personal and emotional development in students while also emphasizing the basic subjects and skills.

These descriptions appear conceptually complete in that they create four meaningful, plausible, and coherent pictures of four approaches to teaching, its purposes and methods. While over-simplification should be avoided, these profiles appear to suggest a long-suspected difference in opinion among teachers and their teaching methods as well as a fundamental cleavage in their conceptions of teaching. One notion might be

regarded as essentialist in nature in contrast to idealist or humanist. Essentialist teachers most likely view their teaching role as contributing toward social adaptation or social control, whereas idealists view their role as contributing toward social change and personal improvement. Strategists, autocrats, and laissez-faires exhibit a more essentialist notion regarding teaching by appearing to favor those ideas and skills held by society to be basic, and teach these to all alike, using time-tested methods. While strategists may appear to permit student choice and may engage students in a greater variety of activities, their narrow intentions for students and tight control of the curriculum as well as of student behavior indicate a pragmatic approach to getting students to master the basics. Conversely, democrats appear to exhibit a more idealist notion regarding teaching. They favor in both belief and practice a more complex and diversified approach to the teaching and treatment of students. Their expanded view of what teaching can accomplish toward the personal growth and development of students coupled with their use of a greater variety of teaching activities places them well outside a purely essentialist approach to teaching.

In summary, teachers exhibit differences based on their belief systems. These differences are noticeable in their teaching attitudes, intentions, decisions, and behaviors. The nature of these ideological differences, while probably not clearly understood by teachers, has likely effects particularly on the long-range development of society's future citizens. It may be that a typology of teacher educational beliefs such as this one can be useful as an aid in illuminating teacher

belief differences for the purpose of improving teacher effectiveness and students' personal experiences of the educational process.

Conclusions

It will be recalled that the primary purpose of this study was to consider possible relationships between elementary school teachers' educational beliefs and their classroom teaching behaviors. Furthermore, it sought to explore relationships between types of teacher beliefs and students' perceptions of the classroom environment. Research questions were developed in the context of teacher effectiveness and its relationship to the kinds of classroom learning experiences in which students were apt to be involved. A related purpose was to develop a typology of teacher educational belief types and attempt to clarify the nature of these beliefs from the relevant literature as well as from the data. Finally, it was hoped that some hypotheses concerning the characteristics of effective teachers could be suggested.

This section will focus on the major conclusions arising out of this study. The next section on implications will deal with the relevance of the findings to educational research and practice. Furthermore, questions will be raised and hypotheses proposed concerning the possible consequences of focusing on teachers' educational beliefs as a means of improving teacher effectiveness.

The major conclusions emerging from this study can be summarized in the following manner. First, teachers differ regarding their educational beliefs about how students learn best and about their own role in the classroom. These differences have a distinct bearing on their

teaching behaviors. In spite of more recent sociological viewpoints (Bossert, 1979; Gracey, 1972; Lortie, 1975; Taylor, 1975) that teachers' classroom behaviors are constrained by environmental circumstances, this study is a reminder that teachers' beliefs also constrain or inhibit classroom processes. It found a number of important relationships between teachers' beliefs and their teaching practices, indicating that teachers' educational beliefs make a difference. These relationships were most noticeable in the areas of teaching intentions (i.e., goals, student objectives, decisions) and teaching behaviors (i.e., methods of instruction, grouping arrangements, and leadership behavior). Less clear relationships were found between students' perceptions of the classroom learning environment and teachers' beliefs. Nevertheless, it can be reasonably inferred that teachers' values are likely to be a determining factor concerning what students learn in the classroom.

Second, using educational beliefs as a sorting device, teachers can be classified as exhibiting primarily either an essentialist notion or an idealist notion of teaching. Generally speaking, essentialists (i.e., strategists, autocrats, and laissez-faires) favor the teaching of basic ideas and skills to all alike using time-tested methods, while idealists (i.e., democrats) favor a more expanded or transcendent approach to teaching and to developing students as persons. Furthermore, some teachers (i.e., laissez-faires) are not likely to be effective classroom teachers if they are unclear about their teaching values, have expectations for students that they are unable to facilitate, and do not act purposefully in the classroom. In effect, such teachers are not likely to persevere in the teaching profession.

Third, it appears that teachers' educational beliefs regarding student participation are a more powerful predictor of teaching intentions and practices than teacher beliefs about control. Some level of positive teacher control seems to be a pervasive ingredient for effective classroom teaching.

Lastly, the extent to which teachers' educational beliefs influence students' learning experiences directly is unclear. Students' perceptions of the classroom learning environment, at least as measured in this study, do not appear to be discriminating of different teacher belief types. Similarly, the extent to which affective and emotional factors distinguish teacher belief types is not immediately apparent. These results were unexpected and it is of interest to speculate as to the "why" of these surprising findings.

A proposed reason for the lack of a clear relationship between affective factors and any of the teacher belief types may well be that of teacher burden. To elaborate somewhat on this statement, it may be that the complexity of the teaching situation is so great that most teachers cannot balance the social, psychological, and emotional factors of the classroom with what they perceive to be the task requirements of teaching. While democratic teachers' goals and instructional methods appear to involve students more directly in learning, even they are not distinguished as behaving any more affectively toward students than the other groups.

Unfortunately, most teacher education programs do not provide the same emphasis on helping teachers identify their personal values as they do on acquiring instructional skills. Somehow, it is assumed that

teacher candidates either already have or will acquire proper attitudes and values through experience. What is not realized is that the social system of the school and the myriad tasks of teaching may be too consuming to allow for a young teacher's adequate personal development. Furthermore, as proposed by Fenstermacher (1980c) and others, the institutional characteristics of schooling experiences may be more powerful determinants than experiences gained at a previous time. Could it be that teachers generally do not become all they could be as growing and developing persons because of the manner in which they adapt to the workplace? Unfortunately, it is no mere speculation to state that newly graduated teachers, although possibly lacking in some specific technical skills of teaching, may make up for this by exercising emotional, psychological, and social understandings concerning their own as well as students' behaviors.

Implications

This study stressed the importance of teachers' educational beliefs in identifying effective teaching. While new information and new insights into the relationships that obtain between teachers' educational beliefs and classroom processes is still urgently needed, this study does provide some data that are consistent, clearly interpretable, and suggestive of ways to improve teacher effectiveness by focusing on teachers' educational beliefs. Specifically, the documentation of the four teacher belief types representing today's elementary classroom teachers and the way in which they appear to go about accomplishing their instructional goals seem to have particular value for teacher

educators and teacher effectiveness researchers. Furthermore, the data presented seem to clarify and focus major problems and dilemmas regarding the conduct, study, and improvement of teaching.

The next section of this chapter will describe the implications that this study and related research have for changing teachers' educational beliefs for the purpose of improving instruction. Next, it will indicate a research approach that seems necessary for improving the knowledge base about teacher differences and especially about the way in which research evidence might be utilized in changing beliefs. Some of the needed research can be provided by analyzing data previously collected; however, most of the questions raised will require new data and new paradigms. Next, this section will propose a set of competencies needed by teachers before they can change their educational beliefs, and indeed, before instruction can be improved. Finally, this section will consider the implications of this study in regard to teacher selection and teacher education.

Changing Teachers' Educational Beliefs

This study shows that, for the most part, the elementary teacher population is not in agreement regarding beliefs about the teaching-learning process.[2] Similarly, there are differences among teachers regarding objectives for students, how instructional decisions are made, and the way in which classrooms are conducted. Furthermore,

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[2]The reader should be warned about the conditions under which this statement can be made by recalling the skewedness of the teachers' scores on the Educational Beliefs Inventory.

some teacher belief types can be characterized as being inconsistent regarding their beliefs and goals and what they actually do in the classroom (e.g., laissez-faires) or as exhibiting beliefs, attitudes, and intentions thought to inhibit student learning (e.g., autocrats). These findings raise several questions:

1. To what extent are teachers aware of their own belief systems, intentions, and classroom behavior patterns?
2. Should teachers share some beliefs in common?
3. Why do some teachers appear to practice behaviors thought to be contradictory to the accomplishment of desired instructional goals?
4. How can the change process be effective in helping teachers change their beliefs and thus their behavior, when desirable?

In answer to the first question, it is not surprising that teachers lack a good deal of awareness about their behaviors. Brophy and Good (1974) maintain that this arises from two sources: (a) the rapidity with which classroom events occur, making it difficult for teachers to reflect on their behavior (cf. Dreeben, 1973; Jackson, 1966) and (b) the fact that most teachers have not developed conceptual categories for labeling and understanding their classroom behavior as it unfolds (cf. Artley, 1972). Similarly, some beliefs and intentions of new teachers on a staff are placed in storage as they seek to accept or conform to the values and practices in the new setting. Lacey (1977) describes some of the strategies associated with this socialization process particularly for beginning teachers. Among them is "strategic compliance" whereby new teachers, not convinced by what seem to be the practices

operating in the new situation, decide to go along with them for the moment. Thus, some kinds of teacher beliefs become latent never to emerge again. Fenstermacher (1979), Shavelson and Stern (1981), and others suggest that teachers as a group are not particularly known to reflect on, analyze, or critize their environment nor examine the beliefs and assumptions they hold. Critical awareness of one's own beliefs, intentions, and behavior, however, appears to be an essential skill for teachers to acquire before teaching effectiveness can be improved.

In answer to the second question, while it may appear in one sense that teachers already hold many beliefs in common due in part to the socialization factor, there are many indications that this may not always be the case:

1. as previously mentioned, some teachers may hold uncommon stored or latent beliefs;
2. a frequent cause of teacher burn-out may be due to the continued performance of tasks and routines contrary to beliefs;
3. a frequent reason teachers give for pursuing education courses beyond those required for certification is advancement to a supervisory or administrative post that would free them from the classroom and presumably from the kinds of tasks they find difficult or unable to perform.

Furthermore, it is apparent from this study that most elementary schools are likely to possess a cross-section of teacher belief types. Such a distribution affects the classroom teaching behavior of individual teachers and has implications regarding the cohesiveness of faculty

members. If strategists, autocrats, and laissez-faires can accurately be classified as essentialists, it can be presumed that they do not need to defend their views on teaching intentions and instructional methods even when it may occur to them to do so. Belonging to such a critical mass, essentialists can unconsciously assume their views to be the norm. Likewise, their views most likely can be met with general agreement from colleagues, administrators, and perhaps from parents.

It should be noted that teaching, and more accurately schooling, periodically fluctuates between a so-called "back to the basics" curriculum and a "self-actualization" one. While the 1960s and 1940s experienced waves of progressive education, it is now generally agreed that the 1950s and 1970s reflect swings back to a conservative position regarding fundamental skills. Since the data for this study were collected in the late 1970s, it is not surprising that the majority of teachers stressed basic subjects and skills and intellectual development as the most important function of schooling. A concern raised by these findings, however, is the perhaps difficult position of the idealist or, according to this study, the democrats, in schools. A lone democrat or two in a school could be a source of a great deal of friction if they made themselves heard, or might become the victims of pedagogical oppression or ostracism. In contrast, however, they could similarly provide an occasion for faculty re-examination of educational beliefs given the presence of certain facilitating environmental factors.

Since it may be the case that certain belief types stress unhealthy mental or psychological health concepts (i.e., autocratic teachers), it seems that faculties should strive for a consensus regarding some

fundamental educational beliefs. No doubt, a step in the improvement of teaching is the creation of a dialogue which would allow a school faculty to examine their beliefs together in a conducive environment.

In response to the third question regarding contradictory teaching behavior, Green (1976) offers some illumination. He argues that people do not act on the knowledge they have because certain premises and propositions within their knowledge system are incomplete. As he states it, people "often do not do what is good because the premises of the practical arguments of their acts are either incomplete or false" (p. 256). People do not <u>not</u> do what they intend because of some inferior motive, but because they do not fully perceive the end as desirable. Thus, it may be that many teachers, not just those described in this study as holding an essentialist view of teaching (i.e., autocrats, strategists, and laissez-faires), not only perceive the teaching-learning process noncritically and a-theoretically, but possibly do not have a conception of what being educated means--or perhaps have a faulty perception. If this is the case, the process of teaching cannot be improved until those who conduct it can inquire into what it means to become an educated person and of the process of becoming one. Thus, teachers need to acquire the ability to inquire critically into what it is that they believe, what they wish to accomplish, and why they do what they are doing before educational change can occur.

In response to the last question regarding the change process, it seems obvious that teachers need to change their beliefs before they can change their teaching practices and intentions. It has been shown that research describing or setting forth policies for the practice of

teaching is not guaranteed to influence practice. The change process takes time, is a highly personal experience (Corey, 1963; Moustakas, 1977; Wheelis, 1973), and is developmental in nature (Bridges, 1980; Fowler, 1981; Gould, 1978). It is unlikely that institutions can effectively change before individuals within them change. Thus, the uniqueness of the individual person must by necessity be the primary focus of interventions designed to improve teaching performance. In reporting on the RAND change agent study, McLaughlin and March (1978-79) state that "we have learned that the problem of reform or change is more of a function of people and organizations than of technology" (p. 65).

In addition, for research to affect practice, it must be adopted by teachers and modified to fit within a particular teaching context. Fenstermacher (1980a, 1980b, 1980c) argues that, in order for teachers to adopt research findings, a chain of events needs to occur. First, teachers must become aware of their subjective beliefs about teaching. Second, these beliefs should be held open to empirical verification in the form of practical research findings in the form of a teacher "experiment." Third, a subjectively held belief becomes an objectively held belief if it is verified empirically Disconfirmation of the subjective belief constitutes grounds for a change in belief consistent with the empirical evidence (cf. Fishbein & Ajzen, 1975). And lastly, objectively held beliefs constitute reasonable grounds for action. However, before such a process can occur, adequate research evidence needs to be made available to teachers and teachers themselves need to appropriately process that evidence and other information important to the beliefs process and to the improvement of instruction.

Before drawing out of this discussion a set of proposed competencies needed by teachers before they can change their educational beliefs, it is necessary to consider the nature of the research process concerning why teachers do what they do in their classrooms. It has always been puzzling to researchers that practitioners do not utilize research findings effectively. Part of the difficulty may reside in the nature of the research process itself and the manner in which teacher effectiveness research is conducted. The next section will suggest how teacher effectiveness research might more adequately serve teachers by focusing on teachers' beliefs and intentions first.

Using Research Evidence to Change Beliefs

As discussed earlier (see Chapters I and II), the knowledge base about the relationships between teachers' beliefs, intentions, decisions, and behaviors is filled with conceptual gaps and is narrowly focused on teacher behavior. It does not consider beliefs first. Furthermore, teacher effectiveness research is conducted in a manner that does not concern itself with the individual personality of the teacher.

Traditionally, the major thrust of teacher effectiveness research has been concerned with instructional methodologies and their relationship to student achievement, with scant attention being given to the scope and nature of the research questions or why they were posed. Dobson et al. (1982) argue that the growing emphasis on teacher effectiveness and teacher competency research and the language used to describe teaching emerging from these studies promotes a technical and political ideology concerning instruction while neglecting the

uniqueness of the person who teaches. Basically, this thrust is concerned with perfecting various instructional methodologies and relating certain teacher behaviors to student achievement. The technical model of teaching suggests scientific accuracy and predictability, and the nature of this model has an interest in control (management and engineering). The historical roots of this orientation have been outlined by others (e.g., Apple, 1979; Giroux, 1980; Kliebard, 1975). Tabachnick et al. (1979-80), in their research on the student teaching experience, observe that students engage in the "routine and mechanistic teaching of precise and short term skills and in management activities designed to keep the class quiet, orderly, and on task" (p. 16).

While there are certain teaching skills that can be taught and measured, the idea that the teaching-learning process is fundamentally comprised of the right mix of techniques, methods, and skills needs to be rejected. It does not appear to be adequate for a thorough understanding of teaching. Rather, the unique personality that is the teacher needs to be taken into account. There is a vast difference between developing and implementing a personal philosophy of education and concentrating on one's role performance in the improvement of teaching.

Responsible educators are rightly concerned about the increasing technological emphasis on teaching. This has been greatly exacerbated by the failure of teacher effectiveness researchers to adopt an intentionalist's approach to the study of teaching (Fenstermacher, 1979). Such an approach would focus on helping teachers teach more effectively by seeking to determine <u>why</u> teachers behave as they do within the

complex social system comprising the classroom, the school, and the community. In contrast, teacher competency researchers tend to investigate what teachers do and impose their findings as "rules" to be "obeyed" in classrooms. Fenstermacher (1980c) argues that if the proper end of teaching is to transform a student's subjectively held beliefs into objectively held ones and thereby increase knowledge and understanding, so too, teachers ought to be treated in the same fashion in attempting to help them improve their teaching. Dobson et al. (1982) suggest that the traditional research paradigm emphasizing teacher skill and teacher behavior shift to one that emphasizes a teacher's personal philosophy, emotional awareness, and psychological posture as the crucial variables in determining teacher competency.

In the same vein, Usher and Hanke (1971), after reviewing a number of teacher effectiveness studies concerned with the unique characteristics of individual teachers in a process of becoming, recommend that educators attempt to understand effective teachers from a "self as instrument" approach. They emphasize that the nature and quality of teachers' personal beliefs become crucial, for teachers convey their beliefs through their methods, knowledge, procedures or in spite of specific procedures conventionally used in the classroom. Goodlad (1977) echoes this sentiment when he calls on educators to act responsibly in the face of educational changes so as not to violate their own integrity or beliefs.

In the face of self-reflection on values and beliefs and guided inquiry into the process of teaching, not only does the mode and manner of research on teaching need to shift, but teachers will be required

to adopt more than technical skills and knowledge in order to be successful. They will need to acquire tools that will permit a continual re-examination of beliefs as a part of their own growth and development as persons in the process of becoming and as a means of improving their teaching effectiveness.

Suggested Competencies for Teachers

There are grave warnings to be heeded regarding the conduct of teaching and its evaluation if present and future teachers are unable or unwilling to inquire into their beliefs and behaviors. If teachers do not exercise what is unique about being human, that is, the capacity to reason, to criticize, to weigh evidence, to test evidence, and to make deliberate choices about classroom performance, "then teachers are automata of some kind" (Fenstermacher, 1980c, p. 36). There is a legitimate fear in the educational community that an uncritical adoption of educational methods and practices will lead to a further denigration of the teacher's role and status in the teaching profession. Rather than acting as responsible occupants of an important social role with the moral commitment to participate in the education of a fellow human being, teaching activity will be reduced to one of technology and politics without a theoretical base or perspective. If this becomes the norm, it will be virtually impossible for students to learn to be rational, to examine reasons, to question, or to make moral decisions. Rather, their compliance will be assured. What is at stake in the unexamination of teachers' educational beliefs is the education of an intelligent citizenry. Therefore, there is an urgency in aiding

teachers to acquire those competencies that will allow them to reflect fruitfully on their belief systems and on their own classroom performance.

The foregoing discussion suggests a set of competencies that might be useful in promoting proactive teaching in teachers, that is, the ability to monitor one's own behavior and change it as needed (cf. Brophy & Good, 1974). The proposed set of teaching competencies are listed here in the form of goals for teachers:

1. develop a critical awareness of one's own beliefs, intentions, and behaviors;
2. learn to dialogue effectively concerning one's own beliefs, intentions, and behaviors;
3. learn to inquire into and to probe what one believes, what one wishes to accomplish, and why certain actions are performed;
4. learn to process research evidence and other information important to the improvement of instruction;
5. learn to acquire tools that will permit a continual re-examination of beliefs as a part of one's own growth and development as persons in the process of becoming and as a means of evaluating teaching behavior.

This list is by no means exhaustive. It is presented here as a representative set of ideas that ought to be seriously considered by teacher educators, teacher evaluators, and teachers themselves in seeking to improve instruction.

The Selection and Education of Teachers

If teaching practices and the accomplishment of instructional goals both have as their source the beliefs of teachers, then teacher education programs need to be radically restructured in order to accomplish the teacher education goals suggested above. Similarly, it appears that future teachers may need to be more carefully selected so that an adequate level of teacher competency may be assured more fully.

While it is a common practice for such criteria as grade point averages, letters of recommendation, and self-report type information (Arnold et al., 1977) to be required for acceptance into teacher education programs, this study points in a different direction. While these variables may be desirable, they do not appear to be as critical as a candidate's belief system and the assumptions underlying it. Indeed, could not other character traits that are known to be identified with effective teachers also be used as criteria: adaptability, flexibility, and emotional stability (Berliner & Tikunoff, 1976; Hamachek, 1969); abstract as compared to rigid thinking (Harvey et al., 1966); friendliness, understanding, originality, and stimulation (Ryans, 1960)? Based on the current study, it would seem desirable that applicant interviews and psychological examinations be used extensively as screening devices before prospective teachers are admitted to teacher preparation programs, and that teacher education institutions become adept in justifying their use to the public. Indeed, pre-admission interviews and other, more intensive screening devices are required by other major professions: the medical profession, candidates to schools of psychology and theology, as well as for programs in spirituality and pastoral

ministry. These areas are all a part of the helping professions where people have frequent contact with and responsibility for the care of another. Such candidates, then, should be provided with opportunities to raise their competency level regarding the proposed goals for teacher education.

It would follow clearly, then, that teacher in-service (staff development) and teacher preparation programs would need to be fundamentally restructured. The major focus of these programs today, both in teacher education institutions and in most school districts, appears to be oriented primarily toward managing the classroom and increasing the role performance of the teacher. None appears to give the same weight and place to developing the type of personal competencies suggested here.

In summary, then, there appear to be valid reasons for seriously considering teachers' educational beliefs as a means of fostering change and the improvement of the educational system. However, before teachers can change their educational beliefs, a set of personal competencies related to the processing of research evidence and other information is required. These competencies are such that a greater effort needs to be exerted in obtaining teacher candidates who may already possess a background and experience that will readily facilitate growth in the areas described. Furthermore, the focus of educational research needs to shift its emphasis from a study of behavior to a study of teacher personality characteristics so that important variables critical to the process of improving education (e.g., reasoning, communication, ability to reflect, creativity) can be identified in and taught to teachers. In

the complex, interactive situation of the classroom, it is of great importance that the teacher possess effective interpersonal competencies and hold strongly to beliefs that are critical in a child's educational development. Certainly, no effort should be spared nor method overlooked in obtaining the kind of teachers who are themselves capable of growth and can provide the means for long-range growth and development in their students.

Questions Arising

Certainly, exploratory studies of this type can raise more questions than they answer. The investigation undertaken in this dissertation is no exception. As more data become available, relationships between teachers' educational beliefs and classroom processes will become clearer. However, this study does provide a grounding from which further systematic examinations of teachers' philosophical assumptions and their classroom teaching practices can be undertaken. Furthermore, it provides some direction and is suggestive of ways in which teachers' educational beliefs and personal value systems might be examined for the purpose of improving instruction. Concerning these ends, however, an awareness of the consequences of focusing on teachers' beliefs is needed. These can be posed in a number of questions:

1. To what extent is it feasible and ethical to inquire into a teacher's personal philosophy, set of beliefs, and underlying assumptions?
2. Are there a number of professional skills and attitudes that need to be taught, not only to teachers but also to those who

would propose to work with them, so that teachers might probe their own value systems more effectively?

3. What will be the psychological and social effects of raising the awareness level of the negative and positive aspects of beliefs?
4. How will teacher groups react to increased awareness of the beliefs process in education?
5. What will be the consequences of increased awareness of educational beliefs for the relationships which develop among groups?
6. What will be the consequences of increased awareness of educational beliefs for the personal growth and development of teachers as well as their students?
7. Presently, how should teachers react to the gaps in their own teaching between beliefs and behavior?

It is not suggested that, in the near future, clear and definitive answers are likely to emerge to these questions. Rather, they are posed in order to focus attention on issues that are of some significance in any consideration of educational change and improvement and which, up to now, have been largely ignored in both research and practice.

APPENDIX

TABLE OF GROUP MEANS

Group Means and Standard Deviations of All Dimensions Included in the Set of Discriminant Analyses on Teacher Educational Belief Types

Variables and Univariate F-ratios		AUTO	STRAT	LAISSEZ	DEMO
Goals of Schooling					
BASICS	(9.45[a])*	4.35 (.97)	4.58 (1.18)	3.82 (.98)	2.39 (.98)
INTELL	(3.61[b])	.56 (.50)	.48 (.51)	.57 (.50)	.20 (.41)
PERSON	(2.91[b])	.27 (.45)	.32 (.48)	.30 (.47)	.59 (.50)
SOCIAL	(.89)	.15 (.36)	.13 (.34)	.13 (.35)	.17 (.38)
Student Academic Learnings					
PERSON	(4.12[a])	.13 (.34)	.06 (.25)	.15 (.37)	.50 (.52)
SOCIAL	(1.67)	.13 (.34)	.31 (.48)	.05 (.22)	.14 (.36)
INTELL	(2.90[b])	.74 (.45)	.63 (.50)	.80 (.41)	.36 (.50)
SUBJECT	(1.29)	2.65 (1.40)	2.50 (1.15)	2.20 (1.05)	1.86 (1.46)

* [a] $p < .01$ [b] $p < .05$ [c] $p < .10$ [d] $p < .15$

Variables and Univariate F-ratios		AUTO	STRAT	LAISSEZ	DEMO
Teacher Decision Making					
STUDPREF	(5.11[a])	2.27 (.71)	2.79 (.86)	2.29 (.78)	2.83 (.70)
INEVALU	(4.44[a])	3.21 (.45)	3.53 (.34)	3.37 (.48)	3.53 (.35)
STUDINT	(3.74[b])	3.32 (.56)	3.65 (.42)	3.41 (.51)	3.66 (.45)
SEMINFLU	(2.85[b])	2.35 (.74)	2.74 (.77)	2.36 (.83)	2.16 (.77)
FEVALUSE	(4.29[a])	3.43 (.41)	3.50 (.45)	3.43 (.43)	3.13 (.46)
STUDPAST	(2.37[c])	2.18 (.94)	2.72 (.92)	2.23 (.81)	2.17 (1.12)
FORINFLU	(1.81)	3.14 (.62)	3.12 (.57)	3.04 (.45)	2.83 (.55)
INDTEST	(.74)	2.24 (.76)	2.52 (.74)	2.36 (.80)	2.30 (.79)
ININFLU	(1.08)	3.52 (.61)	3.63 (.49)	3.38 (.61)	3.59 (.60)
STUDPRES	(.50)	3.84 (.34)	3.76 (.37)	3.73 (.51)	3.82 (.40
Methods of Instruction (Teacher Report)					
UNCOMMON	(7.24[a])	2.15 (.31)	2.49 (.45)	2.22 (.29)	2.45 (.32)
VARINDI	(5.75[a])	3.20 (.59)	3.70 (.81)	3.13 (.73)	3.69 (.63)
PERINDI	(3.22[b])	5.53 (1.98)	6.16 (1.51)	5.31 (1.82)	6.48 (1.12)

Variables and Univariate F-ratios		AUTO	STRAT	LAISSEZ	DEMO
Grouping Arrangements (Teacher Report)					
SMALL	(7.39[a])	2.61 (.40)	3.01 (.49)	2.77 (.44)	3.07 (.43)
WHOLE	(2.12[d])	3.15 (.53)	3.18 (.54)	3.09 (.40)	2.90 (.40)
ALONE	(.11)	2.75 (.65)	2.69 (.51)	2.69 (.45)	2.74 (.47)
Use of Time (Teacher Report)					
HOMEXPEC	(3.63[b])	2.12 (.86)	2.54 (.88)	1.94 (.57)	1.93 (.72)
TINSTRUC	(.95)	7.09 (1.44)	6.54 (2.40)	6.48 (2.11)	7.14 (1.82)
TBEHAVE	(.22)	1.67 (1.34)	1.46 (1.14)	1.68 (1.25)	1.50 (1.37)
TROUTE	(.27)	1.27 (.52)	1.33 (1.09)	1.36 (.95)	1.18 (.61)
Methods of Instruction (Observer Report)					
MEDIA	(3.33[b])	4.11 (7.07)	11.32 (12.01)	4.15 (5.24)	8.87 (10.43)
LECTURE	(2.06[d])	17.64 (7.64)	15.97 (7.33)	20.84 (9.40)	15.21 (4.73)
NONINTER	(.64)	35.89 (14.34)	33.39 (18.07)	39.43 (13.20)	34.49 (11.95)
TCORRECT	(.77)	2.47 (1.37)	3.18 (2.04)	2.83 (1.69)	3.04 (1.37)

Variables and Univariate F-ratios		AUTO	STRAT	LAISSEZ	DEMO
Methods of Instruction - Continued (Observer Report)					
TMONOBS	(1.83)	9.29 (7.24)	7.14 (6.44)	7.92 (5.69)	4.77 (4.01)
TOPENQ	(1.29)	.41 (.51)	.85 (1.10)	.54 (.64)	.50 (.41)
Grouping Arrangements (Observer Report)					
SMALL	(6.60^a)	4.22 (4.18)	13.78 (13.51)	5.37 (4.24)	5.91 (4.67)
VARIETY	(4.15^a)	1.32 (.13)	1.58 (.35)	1.36 (.23)	1.39 (.19)
TOTAL	(2.61^c)	65.38 (18.87)	50.92 (24.74)	66.03 (18.58)	64.70 (13.56)
ALONE	(3.27^b)	1.36 (1.38)	3.57 (2.34)	1.97 (2.57)	2.20 (3.02)
Use of Time (Observer Report)					
STUDHIN	(1.40)	3.32 (.76)	3.40 (.63)	3.22 (.65)	3.65 (.47)
TINSTRUC	(.50)	71.81 (9.64)	71.11 (11.28)	74.50 (6.16)	72.02 (10.29)
TROUTE	(.29)	23.23 (8.62)	23.54 (11.84)	21.15 (4.63)	22.32 (10.21)
TBEHAVE	(.55)	4.94 (3.08)	5.33 (4.02)	4.32 (2.53)	5.64 (3.79)

Variables and Univariate F-ratios		AUTO	STRAT	LAISSEZ	DEMO
Classroom Leadership					
STDIRECT	(3.29[b])	4.09 (5.01)	10.34 (8.02)	6.42 (6.35)	7.50 (7.02)
STINIT	(.99)	6.27 (2.96)	7.41 (4.08)	7.20 (3.43)	8.27 (4.54)
TSTCOOP	(2.28[c])	1.42 (1.99)	3.59 (4.18)	2.26 (2.43)	3.12 (2.95)
Expressive Behavior					
SUPPORT	(2.66[c])	4.26 (1.90)	3.67 (2.26)	4.10 (1.48)	5.50 (2.27)
POSITIVE	(1.14)	1.43 (1.22)	.91 (.78)	1.15 (.87)	1.44 (1.18)
NEUTRAL	(.18)	81.16 (8.02)	80.74 (6.89)	82.34 (7.26)	81.54 (5.45)
NEGATIVE	(.23)	.81 (.88)	.88 (1.60)	1.07 (.87)	.90 (.91)
Early Elementary: CLE					
PEEREST	(.78)	2.58 (.12)	2.61 (.11)	2.53 (.11)	2.55 (.12)
KNOWRES	(1.03)	2.30 (.27)	2.45 (.24)	2.30 (.34)	2.22 (.29)
SCHLIKE	(.26)	2.52 (.24)	2.53 (.17)	2.47 (.23)	2.47 (.17)
STAFFECT	(.30)	2.60 (.17)	2.61 (.19)	2.66 (.11)	2.65 (.20)
STCOOP	(.58)	2.27 (.17)	2.30 (.18)	2.33 (.22)	2.21 (.19)

Variables and Univariate F-ratios		AUTO	STRAT	LAISSEZ	DEMO
Early Elementary: CLE (continued)					
DECISION	(.80)	1.67 (.41)	1.61 (.31)	1.65 (.30)	1.69 (.21)
TFAVOR	(.28)	2.05 (.25)	2.02 (.36)	1.99 (.48)	1.92 (.32)
TTASKOR	(.39)	2.64 (.18)	2.73 (.18)	2.67 (.18)	2.64 (.29)
CLASSDIS	(.20)	1.98 (.21)	2.08 (.27)	1.99 (.53)	1.99 (.28)
Upper Elementary: CLE					
STCHOICE	(3.08[b])	1.60 (.19)	1.70 (.16)	1.52 (.17)	1.72 (.14)
STCOMPET	(2.84[c])	2.08 (.38)	2.18 (.36)	1.79 (.20)	1.99 (.30)
TTASKOR	(.76)	2.55 (.28)	2.59 (.21)	2.46 (.34)	2.63 (.15)
TFAVOR	(.46)	2.03 (.46)	2.14 (.28)	1.99 (.36)	1.94 (.31)
CLASSDIS	(.23)	2.06 (.43)	2.02 (.41)	2.05 (.44)	2.17 (.29)
DECISION	(2.40[c])	1.76 (.21)	1.98 (.28)	1.76 (.34)	2.03 (.27)
TAUTHOR	(.83)	1.74 (.38)	1.59 (.34)	1.52 (.36)	1.64 (.16)
PEEREST	(.55)	2.55 (.18)	2.62 (.18)	2.61 (.11)	2.55 (.16)
STAFFECT	(.27)	2.58 (.22)	2.67 (.17)	2.62 (.28)	2.61 (.11)
KNOWRES	(.28)	2.64 (.15)	2.68 (.22)	2.68 (.25)	2.72 (.13)

Variables and Univariate F-ratios		AUTO	STRAT	LAISSEZ	DEMO
Upper Elementary: CLE (CHOICE)					
STCHOICE	(3.08[b])	1.60 (.19)	1.70 (.16)	1.52 (.17)	1.72 (.14)
DECISION	(2.40[c])	1.76 (.21)	1.98 (.28)	1.76 (.34)	2.03 (.27)
STCOMPET	(2.84[c])	2.08 (.38)	2.18 (.36)	1.79 (.20)	1.99 (.30)
TAUTHOR	(.83)	1.74 (.38)	1.59) (.34)	1.52 (.36)	1.64 (.16)

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