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A QUESTIONNAIRE TO ASSESS PRESERVICE TEACHER BELIEFS ABOUT TEACHING

The Ohio State University  Ph.D.  1985

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A QUESTIONNAIRE TO ASSESS PRESERVICE TEACHER BELIEFS ABOUT TEACHING

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of the Ohio State University

By
Penelope Rucker Reighart, B.S., M.S.

****

The Ohio State University
1985

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CHAPTER I

THE PROBLEM

Background to the Problem

Making decisions is a skill that is basic to teaching (Shavelson, 1973; Medley, 1981). Recent research on teacher thinking has revealed that classroom life is a continuous cycle of varied, complex, and uncertain situations often requiring immediate, "correct" decisions (Borko, Cone, Russo, & Shavelson, 1979; Clark & Yinger, 1977; Joyce, 1978; Shavelson & Stern, 1981). But, teachers soon learn that they lack established solutions for many problems or a general sense of what is "right" to do in a given situation (Greene, 1973).

Decision situations in the classroom often require more than categorical resolutions involving information, techniques, or facts. Classroom decisions also require reflection about what should be done and the potential consequences of alternative courses of action. To justify choices of action in classroom situations, the teacher
needs to be able to intelligently analyze and evaluate classroom experiences (Smith, 1982). A consciously formulated framework of beliefs about teaching is a necessary element in forming good judgments in uncertain classroom situations. The term belief refers to the implicitly or explicitly related cognitive meanings in peoples' conceptions of objects and relations about themselves and the world around them.

To make decisions and predict consequences of alternative choices of action it is often necessary to forecast people's behavior. To understand exhibited behavior and be able to initiate desired changes it is important to understand the beliefs that form a basis for people's choices. For an individual to reach well reasoned decisions, it is important to have a clear understanding of one's own beliefs.

Information about preservice teacher beliefs could be used by teacher educators in helping preservice teachers formulate more complete and useful sets of beliefs about teaching than is now possible. Use of such information may improve preservice teachers' ability to analyze the contradictory forces operating when teaching dilemmas occur and to examine their choices and actions for consistency with espoused beliefs (Argris & Schon, 1974). Use of a common set of concepts to explain and differentiate among
beliefs about teaching may lead to improved communication and understanding of the variety of teaching styles that are a function of individual belief systems and their interaction with societal forces.

Statement of the Problem

The problem addressed in the current study is that teacher educators lack comprehensive knowledge of preservice teacher beliefs about teaching. Furthermore, a comprehensive, valid, and reliable instrument to assess preservice teacher beliefs is unavailable. A well developed teacher belief instrument could provide information about the extent to which preservice teacher beliefs differ at each stage of the teacher education program, within program areas, or in relation to individual characteristics. An instrument could provide a means for determining the probable impact of beliefs formed prior to entry into teacher education and of the teacher education program on beliefs formed during preservice experiences.

The lack of knowledge about preservice teacher beliefs about teaching is a specific problem within a general problem area in teacher education: the lack of knowledge about preservice teachers' cognitive and affective attributes or characteristics. Using a model for guiding inquiry in preservice teacher education (Cruickshank,
1984), a study of preservice teacher beliefs about teaching can be seen to contribute to our knowledge in the area of preservice teacher professional characteristics. The inquiry model includes five general explanatory variables (characteristics of teacher educators, characteristics of preservice teachers, teacher education curriculum, teacher education instructional strategies, and teacher education experiences) that interact with each other and impact on the single response variable (sufficient and effective teachers).

Few recent studies have been directed to the study of preservice teacher characteristics (Phillips, 1982). Although a considerable amount of research has been directed to the study of experienced teacher beliefs about teaching (Bennett, 1976; Berlak & Berlak, 1981; Bussis, Chittenden, & Amarel, 1976; Janesick, 1977; Metz, 1978; Munby, 1983; Wehling & Charters, 1969), only two studies were found (Tabachnick, Popkewitz, & Zeichner, 1979-80 & Tabachnick, Zeichner, Densmore, Adler, & Egan, 1982) that focused on the assessment of the professional beliefs of teachers in preparation. The major findings of the Tabachnick, et. al. studies were based on the use of qualitative methodology and had a combined sample of 25 preservice teachers. The elements of preservice teacher beliefs found in the two studies have not been utilized or
examined in terms of assessing large numbers of preservice teacher beliefs about teaching.

Purpose

The major purpose in this study is to justify, develop, and evaluate an instrument, the Teacher Belief Questionnaire (TBQ), to assess preservice teacher beliefs about teaching. Specifically, an attempt will be made to answer the following questions:

1. To what extent will the proposed TBQ design be validated through empirical analysis?
   a) What is the degree of similarity between the six rationally conceived areas of beliefs about teaching and the areas resulting from a factor analysis of the TBQ?
   b) To what extent does each of four belief types (general, personal, goal, and normative) contribute to the overall belief orientation about each of the 23 belief elements and each of the six areas of beliefs about teaching?
   c) To what extent does a "response set" exist toward the pattern of conservative versus progressive belief orientations expressed in the questionnaire items?

2. To what extent does the TBQ provide a valid and reliable measure of preservice teacher beliefs about teaching?
   a) Internal consistency: To what extent will the TBQ demonstrate internal consistency reliability?
   b) Test-retest reliability: To what extent will the TBQ demonstrate test-retest reliability?
   c) Content validity: To what extent does the TBQ demonstrate content validity?
d) **Construct validity:** What is the relationship of the TBQ score to the following demographic variables:

i) grade level of program certification  
ii) degree of program completion  
iii) sex  
iv) age  
v) grade point average

**Assumptions**

The following assumptions undergird this study:

1. Human beings formulate beliefs that are antecedent to and indirect guides to behavior. Teachers possess organized sets of beliefs about teaching that indirectly serve to direct teacher perceptions, interpretations, and decisions about ongoing classroom events.

2. Beliefs can be reliably measured in the form of individuals' responses to questions about their beliefs.

**Definitions**

1. **Belief:** A cognitive unit of meaning composed of interrelated concepts characterized by either relevance to self or others and expressing the desirable, the desired, or the factual (Kreitler & Kreitler, 1976). (Note: A more complete explanation of the definition is provided in part one of Chapter II.)

2. **Belief Type:** Integrating the above characteristics results in four types of belief:

   a) factual beliefs about self (personal beliefs)  
   b) factual beliefs about others and the world in general (general beliefs)
c) what is desired for oneself (goal beliefs)

d) what is desirable for others and the world in general (normative beliefs)

3. Belief Element: A dimension or concept used to define a specific aspect of teaching and the world of the classroom.

4. Belief Area: A major concept or grouping of related belief elements.

Limitations of the Study

The subjects who provided responses to the Teacher Belief Questionnaire were undergraduate teacher education students at The Ohio State University. The sample was not a random sample of the total population but a representative sample in terms of a number of variables inherent in the teacher education program and characteristic of teacher education students. Chi square tests of independence demonstrated that the sample was representative in terms of grade level of program certification and sex. Comparisons of age and GPA with another sample of the population showed similar levels of age and academic performance. Although the sample is representative on these variables, some caution should be taken in generalizing the results to the teacher education population since the sample was not randomly selected. The sample includes individuals who consented to participate during regularly scheduled class time and upon the
recommendation of their instructor. Only 6% of students who were asked to participate declined to do so.

No attempt was made in this study to establish criterion-related validity of the instrument. Content validity and construct validity were assessed.

For stability of multivariate analysis, general consensus calls for using a minimum ratio of three subjects to every variable. The sample of 272 was more than sufficient to meet this requirement. For factor analysis the minimum ratio recommended is 10 subjects for every variable. Since the factor analysis was conducted on the 23 elements comprising the content base for the instrument, the sample size was sufficient to meet this requirement.
CHAPTER II

REVIEW OF LITERATURE

Introduction

The review of literature is intended to provide an understanding of the theoretical and research bases from which the study emerged. It will indicate how this study can contribute a comprehensive instrument for assessing preservice teacher beliefs about teaching. The review is organized into five major parts.

Part one presents a definition of belief as a concept and explains its particular use in this study. Definitions of belief given in the related literature are presented and contrasted with the definition of belief used in this study.

Part two presents a review of the research from which the belief definition and conceptual framework for the instrument was derived. It includes research related to the process of developing a comprehensive belief instrument and studies in which researchers focused on determining the
meanings used to define teaching and the world of the classroom.

Part three presents brief explanations of two theories (Mead, 1938, & Kelly, 1955) that formed a base for the research described in part two above.

Part four presents conclusions about the research review and indicates the focus of this study.

In part five a brief review of educational and psychological instrument development is presented in order to establish procedures for instrument development.

**Defining and Assessing Beliefs**

**Definition of Belief**

Belief is generally defined as the cognitive element of information in one's conception of an object, event, person, or issue. The cognitive element is generally separated from the affective element of information. For example, a belief is what one accepts as true or factual (Petty & Cacioppo, 1981; Shaw & Wright, 1967). Beliefs are also described as one of three attitude components: affect, cognitions or beliefs, and action tendencies (Greenwald, 1968). The concept of attitude is sometimes limited to the affective component that is, in turn, based on beliefs and is an antecedent of behavior (Edwards, 1957; Shaw & Wright, 1967; Thurstone, 1931, 1946).
The above definitions characterize the concept belief as cognitive or factual. **Belief** as defined and used in this study differs from the above definitions in that it interrelates factual and affective meanings. It is a complex interrelation of meanings in which factual and affective elements are integrated with their relevance to self and others (Kreitler & Kreitler, 1976, p. 90). At a basic level of cognition, meanings are developed and used to guide perceptions, interpretations, judgments, and behaviors. Meanings are the basic elements of beliefs. The explicit or implicit interrelation of two or more meanings forms a belief.

Meaning, according to *Webster's New World Dictionary* (1982), is "what is meant; what is intended to be, or in fact is, signified, indicated, referred to, or understood." Interrelating factual meanings with affective meanings results in conceptions of a more general and comprehensive nature. Beliefs (as comprehensive meanings) also guide the processes of perceiving, interpreting, judging, and behaving and thus are of paramount importance for answering the question "What does it mean?" that underlies the formation of comprehensive meaning. Comprehensive meaning in turn contributes to evocation and generation of further beliefs designed to answer the question "What does this input mean to me and for me?" More often than not it is not asked explicitly but remains implicit. If the answer to this question, based on elicited beliefs, indicates the necessity of any action, the next stage of the process
consists in producing additional beliefs that are particularly suited to answering the crucial question "What am I to do?" (Kreitler & Kreitler, 1976, p. 86)

A classification of beliefs is formed by interrelating meanings that refer to self or to others with meanings that are factual or affective (Kreitler & Kreitler, 1976, p. 90). The classification includes four types of beliefs: (1) factual beliefs about self, (2) factual beliefs about others and the world in general, (3) affective beliefs regarding oneself and (4) affective beliefs regarding others and the world in general. Figure 1 illustrates how the four types of beliefs are interrelated.

Factual beliefs about oneself (labeled personal beliefs in the study) are meanings of personal relevance connected to meanings about what is perceived to be true. For example, "I learn best by starting with a whole idea." Factual beliefs answer the question, "Who am I and what can I do?"

Factual beliefs about others and the world in general (labeled general beliefs in the study) are meanings regarding other people, objects, or issues connected to meanings about what is perceived to be true. For example, "People learn best by understanding the whole as more than the parts." General beliefs, formed from observations and experiences, serve as frameworks for how we view the world and of what we expect from others.
Figure 1. Four types of beliefs from the classification by H. Kreitler and S. Kreitler, *Cognitive Orientation and Behavior*. New York: Springer, 1876.

Note: Brief labels for the four belief types were adopted for ease in listing beliefs in the study. More complete descriptions of the belief types are presented on pages 12 and 14.
Affective beliefs regarding oneself (labeled goal beliefs in the study) are meanings of personal relevance connected to meanings about what is desired by and for oneself. For example, "I want to help my students understand big ideas." Goal beliefs express what one wants to have happen and intends to make happen.

Affective beliefs regarding others (labeled normative beliefs in the study) are meanings related to others and the world in general connected to meanings about what is desirable. For example, "Schools should ensure that students learn big ideas that can serve as guiding principles." Normative beliefs provide standards about what should be for others and the world in general.

When there is agreement about two or more categories of belief about a particular person, object, or issue they form an overall belief orientation. It has been found that when an individual holds similar positions of agreement or disagreement on two or more of the four types of belief about a particular phenomenon, correlation of belief orientation to behavior is much higher than it is when a single type of belief is held (Kreitler & Kreitler, 1976, p. 312).

Belief orientation (referred to as cognitive orientation by the Kreitlers) represents the potential power of beliefs, "functioning singly or in interaction, to promote
the formation of a specific behavioral intent and thus to predispose the individual toward a certain molar behavior" (Kreitler & Kreitler, 1976, p. 95). Molar behavior is an act that results from or requires cognition above a reflex or habitual response.

Assessment of Beliefs

Classifying beliefs into four types permits the assessment of factual and affective elements as they pertain to particular (self-related) and general (other-related) situations. This classification is more comprehensive and includes more factors that have been shown to be antecedent to behavior than is true of many attitude or belief instruments.

Attitude questionnaires generally assess the evaluations or feelings associated with some cognitive element, not the underlying element itself. Such evaluations imply an underlying set of beliefs, intentions, or actions (Ajzen & Fishbein, 1980); but provide only inferences as to what they are. It has been proposed that this is a reason for the lack of congruence between measures of attitude and behavior (Kreitler & Kreitler, 1976).

The determination of belief orientation about a particular phenomenon involves two major tasks: (1) the development of a questionnaire and (2) the assignment of
belief orientation scores to individuals (Kreitler & Kreitler, 1968, 1976). The first stage of questionnaire development is the identification of the relevant meanings that define the situations or behaviors to be studied.

Identifying definitions begins with asking individuals to communicate the meaning of the particular situation or behavior to someone else in as clear and comprehensive a manner as possible, using any means of expression. The communications are analyzed for frequency of meaning occurrence. Meanings that occur frequently are used to construct belief statements that refer to such meaning dimensions as: function, antecedents and causes, consequences and results, manner of occurrence, action and potentialities for action, domain of application, feelings and emotions, judgments, and opinions and values.

Each belief statement is then reformulated into a set of four, representing the four types of beliefs: personal beliefs, general beliefs, goal beliefs, and normative beliefs. For example, in a study of beliefs about achievement the four belief statements could be as follows:

1. Personal belief: I usually make efforts to succeed in life.
2. General belief: People make efforts to succeed in life.
3. Goal belief: I want to make efforts in order to succeed in life.
4. Normative belief: People should make efforts in order to succeed in life.
Following this procedure a questionnaire is generated. The items on the resulting questionnaire are grouped into four parts, critiqued by judges, and administered to a sample of 30-50 subjects (Kreitler & Kreitler, 1976, pp. 165-169).

An individual's belief orientation score is determined by comparing an individual's score on each of the four parts to a group mean or median score. Scores above the mean are assigned a value of one, those below a value of zero. A belief orientation score for the four parts ranges from zero to four and individuals are classified into groups by their score. Using this information it is possible to compare actual behavior regarding a situation to the indicated degree of belief orientation toward the situation.

Although some belief orientation questionnaires have been developed in the area of school learning, none relate to teacher beliefs about teaching. Most existing belief orientation questionnaires study such situations and behaviors as achievement, accuracy, success and failure, being late or coming on time, pain tolerance, and quitting smoking.
The Meanings Used to Define Teaching

The research reported in this section was selected from two groups of studies: (1) conceptual studies directed toward determining cognitive meanings that make up teacher beliefs and (2) perspective studies aimed at discovering teacher views and meanings that are antecedent to actions in the classroom.

Researchers in the above groups of studies used several different terms to describe the subject of their studies. In addition to belief, terms such as cognition, conception, perception, understanding, viewpoint, opinion, principle, and perspective were used to describe the purpose and/or outcomes of the studies. Although each of these terms has a specific definition, they also have a common characteristic that is pertinent to the study of belief orientation. All of the terms involve the mental processes of formulating and using meanings about phenomena. A particular mental process required in each of the above processes is judging. Judging is basic to forming meaning and meanings are utilized in reaching judgments. It is the purpose in this review to examine the research to ascertain whether their efforts resulted in a set of meanings that are clear and comprehensive and that define the general and specific contents of teachers' beliefs about teaching and the world of the classroom.
Conceptual Studies

The four conceptual studies that will be reviewed were directed toward establishing the meanings that make up teacher beliefs. Researchers were interested in the cognitions or meanings that teachers use to perceive and judge events and problems in the classroom. In the sequence of the four studies (Wehling & Charters, 1969; Bennett, 1976; Bussis, Chittenden, & Amarel, 1976; and Munby, 1983) an increasing emphasis on the "language of teachers" occurs.

Wehling and Charters' (1969) purpose was to attempt "to identify the principal dimensions of teachers' belief systems regarding the classroom teaching-learning process" (p. 7). They developed the Inventory of Teacher Conceptions of the Educative Process. The inventory is a Likert-type instrument that includes a broad range of educational topics such as the teacher's role in governing the learning process, methods of classroom management, how learning should be organized, what motivates learning, and interpersonal relations. Items were constructed to emphasize cognitive rather than affective aspects of teachers' beliefs. Over a period of three years the questionnaire was administered to a total of 469 educators including apprentice teachers, secondary teachers, cooperating teachers, and school personnel.
A factor analysis of the responses revealed eight dimensions that were "substantially independent" but formed two general clusters that hinted at the presence of an underlying continuum described as teacher-centered vs. student-centered orientation. The concepts of subject-matter emphasis, emotional disengagement, classroom order, and the teacher direction pole of autonomy-direction formed a teacher-centered orientation; the concepts of personal adjustment ideology, consideration of student viewpoint, student challenge, integrative learning, and the student autonomy pole of autonomy-direction formed the opposite end of the continuum, student centered orientation (p. 22).

A similar continuum was found by Ryans (1960) using the Educational Viewpoints Inquiry Instrument, a part of the Teacher Characteristics Study. Ryans found 3 dichotomous factors (academic objectives vs. other objectives, rigid teacher control vs. flexible teacher control, and teacher directed learning vs. pupil directed learning) and combined them into a composite dichotomous continuum, i.e., traditional versus liberal viewpoints. This dichotomous composite concept appears frequently, yet is misleadingly simple (Bennett, 1976) and lacks in precise agreed upon definitions (Elliott, 1976).
The result of Wehling and Charters' study is a set of eight empirically derived factors or content areas of beliefs about teaching. One pair of the eight forms a dichotomy and overall two groups of four factors form a general dichotomy of teacher-centered vs. student-centered orientation. The use of dichotomous orientations will be explored further in succeeding studies.

Bennett (1976) conducted a large survey study in England. His purpose was to identify the self-reported teaching practices and their relationship to teachers' educational aims and teachers' opinions about educational issues and methods. His sample included third and fourth year teachers in 766 primary schools in Great Britain. He used a questionnaire composed of items derived from both a review of the literature on traditional and progressive views, and on interviews of teachers in 12 schools. The items covered six content areas:

1. Classroom management and organization
2. Teacher control and sanctions
3. Curriculum content and planning
4. Instructional strategies
5. Motivational strategies
6. Assessment procedures

Since few differences occurred between third and fourth year teachers, data from the groups were combined for
analysis. To determine the number of different behavior patterns or teaching styles that existed among the teachers, a cluster analysis was conducted. This analysis resulted in 12 categories of teaching styles, arranged from formal to informal. For further analysis seven of the 12 categories were selected as representative of the whole range of teaching styles and were collapsed into three general styles, i.e., formal teaching style, informal teaching style, and a middle group containing elements of both formal and informal styles.

Using the three general style groups, percentages of agreement about the importance of teaching aims, agreement with educational issues, and agreement with teaching methods were computed. Overall, a strong relationship was found between teacher aims and opinions and the style teachers reported using. Differences by teaching style existed, although not to the extent that each group was totally exclusive of other groups. Teachers classified as having mixed teaching-styles were in greater agreement with those having formal styles on academic aims, the development of creative abilities (less emphasis), and standards of behavior. Mixed-style teachers were in greater agreement with those having informal styles on encouraging self-expression and high academic achievement (less emphasis).
More than 75% of the teachers, regardless of teaching style, believed that acquisition of the basic curriculum was an important goal. The majority of teachers, including more than half of the informal teachers, appeared to be concerned about the potential discipline problems that can accompany informal methods.

Bennett's findings revealed the presence of an overall dichotomy (formal to informal) that is similar to Wehling and Charter's (1969) underlying continuum (teacher-centered vs. student-centered orientation). In both studies the dimensions under the positions at each end of the overall dichotomy did not consistently form specific dichotomies.

An in-depth interview study by Bussis, Chittenden, and Amarel (1976) involved elementary teachers who were implementing instruction in open classrooms. The purpose of the study was to determine variations in teachers' understandings and perceptions of curriculum, children, materials, and purposes. The data were collected from interviews with 60 teachers. Coding schemes were developed to analyze teachers' responses to indirect questions about what went on in their classrooms.

Teachers' responses about curriculum were classified into four major construct systems (representing a person's knowledge and view of the world) according to two characteristics: (1) complexity of conception (surface to
in-depth); and (2) breadth of goals (narrow and structured to broad and unstructured). The four types of constructs range from the least complex and most structured to the most complex and least structured. This classification provides two dichotomous concepts to explain variations in teachers' understanding of curriculum (Bussis, et. al., p. 56).

Teachers understandings of children also formed four patterns of orientation. In relation to children's emotional needs and feelings teachers' orientations ranged from one in which needs and feelings were only remotely perceived and lacked reality to an opposite position in which the expression of needs and feelings was seen as integral to and inseparable from the learning process (Bussis, et. al., p. 83).

Munby recently developed a way of establishing individual sets of teacher beliefs (1983). He applied Kelly's (1955) Repertory Grid Technique to analyze personal constructs with 14 teachers. Using Kelly's structured interview process, he asked each of the teachers to describe activities that took place in his or her classroom. These activities (e.g., students read stories silently) were listed on the vertical axis of a grid. He then asked each teacher to group the activities into related categories. As associated categories of constructs
emerged, an interviewee (according to Kelly's procedure) is generally asked to describe how the categories are alike and different. The elicited associations or constructs are placed on the horizontal axis of the grid.

In Munby's study an adjustment to the above procedure was made in order to avoid using the researcher's language, a problem detected in the first interview. Munby decided to use teachers' statements about the categories of activities, rather than expecting them to formulate more general constructs during the first interview, for the horizontal axis of the grid. An example of a teacher's statement associated with the activity "students read stories silently" is "creative work". Activities and constructs were then examined and ranked according to degree of association between them. A factor analysis of the data was conducted. In a second interview the resulting factors were used as vehicles to elicit teachers' deeper beliefs and principles (constructs).

Munby's work resulted in 14 case studies of teachers' major sets of beliefs and principles. Three to six sets of beliefs were identified for each case study. Of the 59 separate beliefs, 32 were dichotomies; poles, however, were not the same in all cases. Classification of the individual beliefs resulted in five general categories or areas of beliefs: goals (e.g., curriculum goals, extra
curricular goals), management (e.g., time, behavior),
teacher needs (e.g., order, interpersonal relations),
student needs (e.g., personal, academic), and facilitating
learning (e.g., questioning, motivation).

The "conceptual" belief studies described above have
provided information about the meanings teachers use to
define and think about the world of the classroom. The
results indicate the presence of several overall
dichotomous categories that are not incongruent with Ryans'
(1960) traditional versus liberal viewpoints (see Figure
2). The underlined categories on the left side of Figure 2
(traditional, teacher centered, formal, low complexity -
high structure) tend to represent a conservative,
conventional viewpoint while the underlined categories on
the right side (liberal, student centered, informal, high
complexity - low structure) tend to represent a
progressive, unconventional viewpoint.

The specific dimensions listed under each general
dichotomy do not always form individual dichotomies. The
identified areas and dimensions are important in that they
represent meanings used by teachers to describe and
characterize their beliefs about teaching. Although it is
possible to classify the areas found by each researcher
with such general content areas as curriculum aims,
classroom management, and student characteristics,
<table>
<thead>
<tr>
<th>Source</th>
<th>Dichotomous Categories and Dimensions of Meanings about Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryans</td>
<td><strong>Traditional</strong>&lt;br&gt;academic objectives&lt;br&gt;rigid teacher control&lt;br&gt;teacher directed learning&lt;br&gt;<strong>Liberal</strong>&lt;br&gt;other objectives&lt;br&gt;flexible teacher control&lt;br&gt;pupil directed learning</td>
</tr>
<tr>
<td>Wehling &amp; Charters</td>
<td><strong>Teacher-centered</strong>&lt;br&gt;subject matter emphasis&lt;br&gt;emotional disengagement&lt;br&gt;teacher autonomy&lt;br&gt;<strong>Student-centered</strong>&lt;br&gt;integration of learning&lt;br&gt;consideration of student viewpoint&lt;br&gt;student autonomy</td>
</tr>
<tr>
<td>Bennett</td>
<td><strong>Formal</strong>&lt;br&gt;academic preparation&lt;br&gt;academic achievement&lt;br&gt;normal standards of behavior&lt;br&gt;<strong>Informal</strong>&lt;br&gt;develop creative abilities&lt;br&gt;encourage self-expression&lt;br&gt;enjoy school</td>
</tr>
<tr>
<td>Bussis, Chittenden, &amp; Amarel</td>
<td><strong>Low Complexity-</strong>&lt;br&gt;narrow, structured goals&lt;br&gt;low degree of complexity in purpose&lt;br&gt;learner needs remote from learning process&lt;br&gt;<strong>High Complexity-</strong>&lt;br&gt;broad, unstructured goals&lt;br&gt;high degree of complexity in purpose&lt;br&gt;learner needs integral to learning process</td>
</tr>
<tr>
<td>Munby</td>
<td>(Dimensions only)&lt;br&gt;management&lt;br&gt;teacher needs&lt;br&gt;student needs&lt;br&gt;facilitating learning goals</td>
</tr>
</tbody>
</table>

Figure 2. Similarities in categories and dimensions of meanings found in the conceptual studies.
inaccurate interpretations could occur. This problem will be discussed further in the review summary.

Munby's individual case studies of teacher beliefs and principles resulted in a large proportion of specific beliefs presented in the form of dichotomies. This demonstrates that specific beliefs are often conceived of in terms of one position versus another position.

**Perspective Studies**

The set of five studies in this section used participant observation, in addition to questionnaires and interviews, to explore the world of teachers in the classroom. In this ethnographic type of study a participant observer follows those being studied "through their daily round of life, seeing what they do, when, with whom, and under what circumstances, and querying them about the meaning of their actions" (Becker, Geer, & Hughes, 1968, p. 13). This procedure results in a large body of unsystematic material; but, over time it enables the researcher to capture patterns of collective action as they occur in real life.

Teacher perspectives refer to the ways in which teachers think about their work (e.g., purposes and goals, conceptions of curriculum and children) and ways in which they give meaning to these beliefs by their actions in the classroom (Tabachnick, Popkewitz, & Zeichner, 1979-80).
Ethnographic studies on the perspectives of individual teachers result in case study reports on beliefs and actions (e.g., Janesick, 1977; Smith & Geoffrey, 1968). Results of studies that look at groups of teachers provide more general perspectives (e.g., Berlak & Berlak, 1981; Hammersley, 1977; Metz, 1978; & Tabachnick, Popkewitz, & Zeichner, 1979-80; & Tabachnick, Zeichner, Densmore Adler & Egan, 1982).

Janesick and Smith and Geoffrey, in their reports of individual teachers did not analyze teacher beliefs according to predetermined frameworks. Instead, each study reports the highly individual perspective of a single teacher in a particular instructional situation. Even so, several concepts or areas of beliefs were present in both descriptions:

1. View of self in the teacher role
2. View of students
3. Purposes and goals
4. Notions about the subject matter to be taught
5. Notions about how instruction ought to occur

These areas are similar to Munby's teacher needs, student needs, goals, facilitating learning, and management. While the findings from Janesick's and Smith and Geoffrey's studies as well as the previous conceptual studies can be integrated, the possibility of inaccurate
interpretations remains a problem. This problem is of less concern in the group perspective studies because the final study reviewed (Tabachnick, Zeichner, Densmore, Adler, & Egan, 1982) builds onto and incorporates findings of several other studies.

Studies of teacher perspectives as a group require that the participant observer use a broader range of data than would be found in the study of an individual teacher. Metz (1978), for example, observed and interviewed teachers, counselors, principals, and students in each of two desegregated junior high schools. In each school, she observed four students and 15 teachers during an entire school day. She also interviewed each of the teachers and 40 eighth grade students who varied in sex, ability levels, and disciplinary records.

Metz found that the majority of teacher perspectives were most accurately located on either side of a middle position on a directive to non-directive continuum. The majority of directive teachers were classified as incorporative (emphasizing the transmission of knowledge to students) while teachers in an extreme directive position were classified as proto-authority (emphasizing the task of requiring unwilling charges to put forth effort). Most non-directive teachers were classified as developmentalists (emphasizing maturing of attitudes, interests, and skills
by working from the student's current status), while teachers in an extreme non-directive position were classified as non-directive guidance (emphasizing providing opportunities and helping students build upon the resulting experiences).

Metz found that a major belief was held in common by the two middle groups of teachers, i.e., teachers having incorporative and developmental perspectives. This belief was that students either can or do share in the educational goals of the school and the teacher.

The teachers classified at the two extreme positions of the continuum, proto-authority and non-directive guidance, also shared a belief. They believed that students did not or could not share the educational values and goals of the teacher. Development of students' characters was stressed above their academic development.

Metz's discovery that directive and non-directive teachers share beliefs adds to the evidence that a single general continuum is inadequate to explain the complex variations and contradictions in teacher beliefs about teaching. This may be reflective of contradictions embedded in a society possessing a diversity of beliefs and calling for a variety of educational policies and programs.

The development of a comprehensive and relevant set of elements (meanings) representing the diversity, complexity,
and contradictions in teacher beliefs and behaviors in the schooling process was the goal of Hammersley (1977) in *Teacher Perspectives* and Berlak and Berlak (1981) in *Dilemmas of Schooling*.

Hammersley (1977) criticized the "neglect or dismissal of the diversity in conceptions of teaching" and devised a framework of dimensions for use in examining ethnographic field observations of teaching (p. 18). The set of 25 dimensions presented by Hammersley were reported as associated with research that was "in progress," the details of which were not reported. Several of Hammersley's dimensions were utilized in a later study (Tabachnick, et. al., 1982) to define preservice teacher perspectives.

The dimensions, organized into five groups, are useful as a typology for exploring the diversity of teaching. In the list below each dimension is presented in the form of a dichotomy:

1. Definition of the Teacher's Role
   a) authoritative role vs. no distinct role
   b) curriculum vs. method
   c) narrow vs. wide
   d) high degree of teacher control vs. low control
   e) universalistic vs. particularistic
   f) product vs. process

2. Conceptualization of Pupil Action
a) licensed child vs. adult
b) individualistic vs. deterministic vocabulary of motives
c) pessimistic vs. optimistic theory of human nature

3. Conceptualization of Knowledge
a) distinct curriculum vs. not distinct curriculum
b) knowledge objective and universally valid vs. knowledge personal and/or tied to particular purposes or cultures
c) hierarchical structure vs. not hierarchy
d) discipline bound vs. general

4. Conceptualization of Learning
a) collective vs. individual
b) reproduction vs. production
c) extrinsic vs. intrinsic motivation
d) biological vs. cultural learning path
e) diagnosis vs. pupil intuition
f) learning by hearing vs. learning by doing.

5. Preferred or Predominant Techniques
a) formal vs. informal organization
b) supervision and intervention vs. participation and non-intervention
c) imperative mode plus positional appeals vs. personal appeals
d) class tests vs. no formal assessment
e) grouping vs. no grouping
f) grouping by age and ability vs. random, friendship or pupil-choice grouping
Berlak and Berlak (1981) conducted their research in 19 primary schools in Great Britain. Over a period of six months they observed in each of three schools for four to six weeks; they visited the other 16 schools for one to three days each.

The Berlaks found a high degree of complexity in the schooling process and in the way teachers talk and think about classroom events and problems. They found that they could not adequately or accurately describe the schooling process solely in terms of formal and informal teaching. Real life in the classroom, they explained, includes apparent contradictions such as those illustrated in the following excerpt:

What might be said of "freedom" in classrooms? Mrs. Martin prescribed the range of activities each child was to do every morning, yet children, some regularly, others on occasion, were exempted from the requirement. In Mr. Scott's room, Jeffrey, who chose to study "Red Indians" was not expected to do the "required" work for the week. Mr. Carlson walked by a group of giggling girls but chastised a boy for not doing his maths. Yet the same teacher, among the staunchest advocates of informal methods, who at a staff meeting argued for giving the "experiment in freedom of choice" at Heathbrook a longer try, refused to allow children to paint pictures of costumed Dutch girls or Second World War fighter planes, so beloved by eleven-year-old girls and boys respectively. (Berlak & Berlak, 1981, p. 107)

In order to represent the uncertainties, constancies, and apparent contradictions of everyday social life in the classroom, a set of 16 elements, presented in the form of
dilemmas, was developed. Dilemmas are situations requiring a choice between two opposing and often equally advantageous alternatives. Based on George H. Mead's (1938) *Philosophy of the Act* the Berlaks used the dilemma to represent the complexities and contradictions that teachers expressed and demonstrated in the classroom. "Each dilemma not only captures the dialectic between alternative views, values, beliefs in persons and in society, but also the dialectic of subject (the acting true 'I') and object (the society and culture that are in us and upon us)" (Berlak & Berlak, p. 124).

The Berlaks divided the 16 elements into three major areas. They include:

1. Control Dilemmas: locus and extent of control over students
   a) whole child vs. child as student
   b) teacher control of time vs. child control of time
   c) teacher control of operations vs. child control of operations
   d) teacher control of standards vs. child control of standards

2. Curriculum Dilemmas: transmissions of knowledge and ways of knowing and learning
   a) public knowledge vs. personal knowledge
   b) knowledge as content vs. knowledge as process
   c) knowledge as given vs. knowledge as problematical
   d) extrinsic motivation vs. intrinsic motivation
   e) learning is molecular vs. learning is holistic
f) children have shared characteristics vs. each child is unique

g) learning is individual vs. learning is social

h) child as a client vs. child as a person

3. Social Dilemmas: equality, justice, and social relations between ages, sexes, and ethnic and racial groups

a) childhood continuous vs. childhood unique

b) equal allocation of resources vs. differential allocation of resources

c) equal justice under the law vs. ad hoc application of the rules

d) common culture vs. sub-group consciousness

The typology presented by Hammersley and the dilemmas developed by the Berlaks were utilized by other researchers to examine the development of teacher perspectives during the student teaching experience (Tabachnick, Zeichner, Densmore, Adler, & Egan, 1982). Teacher perspectives refer to teachers' beliefs about teaching and the ways in which they give meaning to these beliefs by their actions in the classroom (Tabachnick, et. al., 1982, p. 2).

Prior to the 1982 study, Tabachnick, Popkewitz, and Zeichner (1979-80) conducted an exploratory study on preservice teacher perspectives. The purpose of the 1979-80 study was to explore student teachers' developing beliefs about teaching and about themselves as teachers. The purpose of the 1982 study was to find the existing range of perspectives in a small group of student teachers.
and the factors impacting on their perspectives before and during student teaching.

The 1979-80 study was conducted with a sample of 12 students, representative of 85 students who were willing to participate in the study. Data were collected by a team of six researchers who observed and kept records of student teachers during teaching, campus seminars, conferences with cooperating teachers and college supervisors, and orientation and workshop sessions. Tape recorded interviews were conducted following observations of teaching. Recordings and records of observations were transcribed and content analyzed using a "constant comparative" method (Glaser & Strauss, 1967).

The data revealed that "the reality of school life poses problems of accommodating to routines and the denial of personal goals in favor of expectations and demands which come from others" (Tabachnick, et. al., 1979-80. p. 23). The perspectives of student teachers were generally represented in their perception of a choice between a routinized, highly controlled classroom, which was likely to be somewhat dull, and the uncertainties of a more lively teaching environment. The more lively environment was perceived as carrying the risks of the unexpected, requiring more teacher time for planning and preparation and placing more demands on classroom time to allow development at each pupil's rate.
The findings by Tabachnick, Popkewitz, and Zeichner in the 1979-80 study as well as the findings by Berlak and Berlak (1981) and the framework developed by Hammersley (1977) were utilized by Tabachnick, Zeichner, Densmore, Adler, and Egan (1982) to examine the range of perspectives present among another group of student teachers.

The 1982 study by Tabachnick, et. al. was conducted with 13 elementary education students. The 13 students were selected from a larger group of 48 students whose reported educational beliefs, student teacher settings, grade levels, and cooperating teachers' teaching styles varied.

Prior to student teaching, the Teacher Belief Inventory (TBI) was administered to the group of 48 students. The TBI contains 47 items assessing six major content areas of beliefs about teaching:

1. The teacher role: passive to active
2. Teacher-pupil relationships: custodial to humanistic
3. Knowledge and curriculum: strong frame to weak frame
4. Student diversity: negative to positive
5. The role of the school in community affairs: active to passive
6. The role of the school in society: reproductive to transformative

Interview and observational data were also collected by the five researchers; each of whom worked with two to four
of the 13 student teachers. Each student teacher was interviewed at least five times and observed at least three times. Interviews were also sought with learners, cooperating teachers, and university supervisors. Weekly discussions of observations, emerging themes, and plans for future interviews resulted in a consensus of direction for forthcoming observations and interviews. At the end of student teaching, the TBI was readministered. Conclusions were drawn about changes in perspectives based on a compilation of the TBI, observation, and interview data.

A product of the data analysis was thirteen individual profiles of students' perspectives. The profiles were developed using a set of areas of beliefs and elements or dimensions within each area to define and identify differences in teaching perspectives. During the profiling process an initial set of areas and elements of beliefs from the 1979-80 study provided a framework for analyzing the data. While the original six areas were maintained, specific elements were added, deleted, and/or changed to reflect the data that were collected about the 13 students.

The final set of 23 elements organized in six major content areas of beliefs is listed in brief form below. (A more detailed description is provided in Appendix A.) Employing the concept of dilemma as developed by Berlak and Berlak (1981), the elements are presented in juxtaposition
with their opposites. This illustrates the either/or situations often experienced by teachers. Choice of one alternative usually means loss of advantageous consequences from the opposing alternative.

1. Knowledge and Curriculum
   a) public knowledge vs. private knowledge
   b) knowledge is a product vs. a process
   c) knowledge is certain vs. problematic
   d) learning is fragmented vs. holistic
   e) learning is unrelated vs. integrated
   f) learning is individual vs. collective

2. Teacher-Pupil Relationships
   a) teacher control over pupil learning vs. pupil control
   b) teacher control over pupil behavior vs. pupil control
   c) distant relationships vs. close relationships

3. The Teacher's Role
   a) what to teach is determined by authorities vs. by teacher
   b) how to teach is determined by authorities vs. by teacher
   c) school rules are determined by authorities vs. by teacher

4. Student Diversity
   a) learners classified by categories vs. each is unique
   b) universal curriculum vs. particular curriculum
   c) universal rules vs. particular rules
d) equal allocation of resources vs. differential allocation

e) common culture vs. subgroup cultures

f) restricted preference for work situation vs. unrestricted

5. The Role of Community in School Affairs
   a) limited access to school vs. unlimited
   b) passive role in curriculum and instruction vs. active role
   c) no role in school administration vs. active role

6. The School and Society
   a) child's background causes problems vs. conditions in society
   b) educational interventions are solutions vs. changes in society

From the detailed case study type reports of the 13 student teacher profiles, three general categories of perspective emerged: conservatively traditional, progressive, and instrumental/progressive, i.e., a blend of the first two perspectives.

Students with conservatively traditional perspectives saw pupils as belonging to groups and believed that the aim of schooling was to socialize pupils to a common culture through offering the same curriculum to all, expecting the same standards of behavior from everyone, and allocating resources equally. Students in this group treated knowledge as an independent entity much of which was known for certain. They maintained a high degree of control over
what pupils learned and how pupils behaved in the classroom. Decisions about curriculum were better made by experts than by themselves.

Students with progressive perspectives saw pupils as unique individuals. While two progressive students aimed to socialize pupils to a common culture, the other two tended to encourage recognition of subgroup cultures. Their goals in providing curriculum was to find the correct mixture of activities and materials. They tried to allocate resources equitably, recognizing and responding to the unequal needs of pupils. Progressive students recognized that there is agreed upon and public knowledge but also acted in their teaching as though the personal experiences of pupils created a synthesis of knowledge. They tended to view knowledge as more problematic than certain. They tried to encourage children to take responsibility for their work and behavior. They acted toward institutional authority as though it was a guide to be interpreted and adapted to by each teacher.

Students with instrumental/pragmatic perspectives frequently faced contradictions. Their classroom teaching styles resembled those with conservatively traditional perspectives. However, their responses toward the teacher role were more like those of progressive teachers. They varied in their responses to teacher-pupil relations. As a
group, they were more controlling toward pupil's learning and behavior than were progressive teachers.

The studies on teacher perspectives have resulted in rich, meaningful descriptions of teacher beliefs about teaching. They have provided relevant meanings representative of teachers' ways of viewing their world. The perspective research approach is not realistic for the study of large numbers of individuals; however, it has provided a set of elements representative of preservice teacher beliefs about teaching.

**Theories Underlying the Concepts**

The research studies that led to the development of the above elements (meanings) descriptive of teacher beliefs about teaching were based on theories by George H. Mead (1938) and George A. Kelly (1955). Mead contends that, in general, people are both free to determine the order and flow of their worlds and shaped or constrained in what, how, and why they do by societal and organizational influences. Kelly's theory of personal constructs provides a framework for viewing the content, structure, and process of individuals' thinking. A personal construct provides a lens or way of construing the world. It enables one to selectively perceive phenomena and to decide upon and take particular actions.
Mead's Integrated "Act"

Rather than fragment decisions and activities into such categories as values, beliefs, attitudes, and personality traits, Mead treated them as a "dialectical unity" and called the whole process "the act". The act includes the subjective as well as the objective aspects of a situation. Overt behavior is the observable phase of the entire activity (Berlak & Berlak, 1981). Often, feelings and images from the past bear heavily upon decisions, but at a low level of consciousness.

In the daily world of the classroom, teachers must respond to many problems. Their responses may be in the form of unconscious routines or habits, or they may be reflectively based. To respond reflectively is to examine critically one's own habits and routine responses, to become self-conscious. "Self-consciousness" as Mead uses it means "awareness of one's self as an object in the consciousness of others."

Self-conscious thought is carried on as an internal conversation between "I" and "me". "I" represents the individual as a subject who makes choices and initiates actions. "Me" represents the individual as an object, as seen from the point of view of another. Such conversations may occur before, during, or after overt action, raising awareness of the habitual and enabling one to evaluate the
assumptions, alternatives, and consequences inherent in a thought and behavior pattern. Through self-conscious thought the influence of constraints and possibilities from our own as well as other cultures may be consciously examined.

**Kelly's Personal Constructs**

When dealing with problems, teachers often conduct internal conversations. To do so they use sets of personal constructs to provide meaning and to structure the many details operating in a situation. When a pattern of constructs does not fit well, it may be revised or replaced.

Constructs are personally developed abstractions of elements or aspects of objects, events, or issues; whereas concepts are abstractions that are generally recognized and widely used. Constructs are not real in the same way as facts. They are interpretations of facts. Many constructs are not readily verbalized and may not lead to logical organizations of ideas.

Constructs are defined through a process of determining similar and opposing attributes or elements. At its most basic level a construct is the relation of two similar elements and their constrast with a third element. A person's complete construct system is composed of a finite
number of dichotomous constructs (Kelly, 1955, p. 59). The results from Munby's study are examples of teachers' sets of individual constructs. The set of dichotomous elements or constructs developed by Tabachnick, et al., is an example of a construct system representing teachers as a group rather than an individual teacher.

**Summary and Focus of the Current Study**

The definition of belief for the current study as stated at the beginning of the chapter established a focus for the research review. The stated definition of belief uses "meaning" as the basic unit of beliefs and interrelates both the factual aspects of beliefs with the affective aspects of beliefs. Integrating factual and affective meanings results in a more holistic, comprehensive definition of belief.

Thus defined, belief is the foundation for a conceptual framework in which assessments of four types of beliefs (characterized by whether a belief is of a factual or affective nature and whether a belief has meaning for oneself in particular or others and the world in general) are combined to form a measure of an individual's overall belief orientation about particular phenomena. Measures of belief orientation have been shown to be more closely related to predicted behavior than measures of belief that
are less comprehensive. Because the process of assessing four types of beliefs about the same phenomenon is repetitious, the contribution of each belief type to the overall orientation should be determined.

Knowledge of the particular meanings about the situation or behavior to be studied is necessary for the development of a belief orientation questionnaire. Kreitler and Kreitler (1968, 1976) developed a process for determining meaning that involves asking a sample of the population to be studied to communicate the meaning of the referents to a hypothetical partner in as comprehensive and clear a manner as possible, using any means of expression.

For this study a review of the research directed toward identifying the meanings and concepts used by teachers to think about and make decisions in the classroom was conducted. Two general groups of studies were reviewed: (1) conceptual studies directed toward determining cognitive meanings that make up teacher beliefs and (2) perspective studies aimed at discovering teacher views and meanings that are antecedent to actions in the classroom.

An examination of the findings in terms of providing a comprehensive, clear, and relevant set of meanings revealed that the results of the conceptual studies were appropriate in focus; but the use of their findings presented difficulties. The conceptual studies resulted in sets of
general areas of meanings, some with specific meanings under each general category. Synthesizing the different sets of terms used by the different researchers presented a problem. Although the terms could be compiled into a general set of meanings, the potential for inaccurate interpretation of researchers' definitions was a problem. It was decided that the findings from the conceptual studies would not be useable in developing a belief orientation questionnaire; however their purpose and findings provided a useful example for researchers in the second group of studies, the perspective studies.

The perspective studies, especially those directed toward studying groups of teachers, resulted in a set of areas and elements of meanings representative of preservice and inservice teachers' ways of viewing the teaching/learning process. The final study by Tabachnick, Zeichner, Densmore, Adler, and Egan (1982) incorporated, when appropriate, dimensions used in several previous studies (Berlak & Berlak, 1981; Hammersley, 1977; & Tabachnick, Popekewitz, & Zeichner, 1979-80). The culminating set of 23 elements organized into six areas of beliefs is a broad and comprehensive representation of the meanings used by preservice teachers to think about and make decisions in the classroom.
From the review of research it is possible to propose a two-part conceptual framework for the development of a teacher belief orientation questionnaire. The first part of the conceptual framework consists of the classification and process of assessing four types of beliefs about the meanings relevant to the identified phenomenon, i.e., teaching. The second part of the conceptual framework consists of the content base of meanings about teaching, i.e., the 23 elements derived by Tabachnick, et. al., (1982).

The present study is an attempt to develop and evaluate a teacher belief questionnaire based on the proposed conceptual framework. The instrument will be original in that it will incorporate the results of a substantial body of qualitative research on the meanings teachers use to define teaching with an approach for assessing multiple types of beliefs that make up overall belief orientations about particular phenomena. The belief orientation questionnaire will provide an assessment instrument that is conceptually relevant to "teachers' language" and that is able to provide a measure composed of both the factual and affective components of beliefs.

The major questions in the present study are directed toward justifying and validating the proposed teacher belief questionnaire design and establishing validity and
reliability for the questionnaire items. A brief presentation of procedures and criteria for instrument development is included as the final section of the literature review.

Test Development and Dissemination

The quality of a psychological or educational instrument is judged by two primary criteria: validity and reliability. To be able to judge these qualities information about the content and process of instrument development and testing is needed. Information about instrument scoring, interpretation, and limitations is also necessary to help ensure appropriate test usage. The development and dissemination of instruments will be described below in three major sections: validity, reliability, and manual for test usage.

Validity

The primary questions of validity are: "What can be inferred about what is being measured by the test?" and "What can be inferred about other behavior?" (APA, 1974). The first question concerns both content validity or how well the test score represents the domain it is designed to assess and construct validity or the relationship of the score representing one characteristic to other scores
representing other characteristics. The second question refers to the use of a test score as a criterion to explain or predict other characteristics.

**Content validity.** Evidence that a test is a valid representation of the selected domain of knowledge, skill, or personality is frequently judged by the credibility and authority of its sources. It is important that the domain be clearly defined and that it be fully represented.

**Construct validity.** A concept is defined in part through its similarity to and contrast with other concepts. Assessment of test construct validity is made by examining the pattern of relationships of one test score to other scores measuring similar or contrasting concepts. Construct validity is determined by the scientific and conceptual sense of these relationships (Green, 1981).

**Criterion-related validity.** The ability to use a test score as a criterion to predict future performance on the same test or other related assessments is known as predictive validity. Before using a test score for prediction, prior establishment of content and construct validity is necessary. Concurrent validity is also a form of criterion-related validity and is different from predictive validity in that it serves to explain the relationship of two or more constructs measured at the same time, not to predict a future relationship (APA, 1974).
Establishing criterion-related validity requires extensive assessment of the same group of individuals on two or more constructs. This may involve experimental treatments or complicated performance assessments in real life situations and over extended periods of time.

**Reliability**

Test reliability is an estimate of its stability and repeatability of scores (Green, 1981). Systematic sources of variance affect the degree to which a group of individuals will have the same scores when retested with the same or parallel forms of a test. Different methods of estimating reliability account for different sources of variance or error (APA, 1974).

**Test-retest.** Administering the identical test a second time provides one means to correlate two sets of test scores. The content is held constant; however memory becomes a systematic source of variance. Correlation of scores may be higher than it would be on parallel forms of the test (APA, 1974).

**Parallel test forms.** Use of two sets of test items developed to represent the same domain eliminates memory of specific items as a source of variance. This procedure depends on the ability to produce two sets of items that are approximately equal.
**Matched-half reliability.** The matched-half method enables a reliability estimate based on one test administration. It involves dividing test items into two sets that are approximately equal in content coverage and length and correlating the half-test item scores. This procedure was criticized by Hoyt (1949) who presented an analysis of variance procedure for estimating reliability from a single administration. The analysis of variance procedure obtains a reliability coefficient by correlating scores on all possible sets of test items rather than correlating two sets of items that you hope are equal.

**Internal consistency.** Coefficient alpha provides another type of reliability estimate. It provides an estimate of the major source of measurement error, i.e., variance in content sampling. The size of coefficient alpha is based on both the average correlation among items and the number of items (Nunnally, 1978).

**Manual for Test Usage**

To disseminate an instrument and make it available for other professionals to use requires a manual reporting instrument development, testing, and information about its appropriate use. The report should include information about test rationale, development procedures, administration and scoring procedures, score
interpretations, test qualities, and appropriate applications (APA, 1974).

The APA (1974) standards contain a complete set of suggestions for summarizing and reporting the above components. Complete information is necessary to enable the test user to use the test in standard ways and to compare test results among different groups and test administrations.
CHAPTER III

METHODOLOGY

This chapter presents descriptions of the design used to develop the Teacher Belief Questionnaire (TBQ) and the research procedures used to evaluate its quality. The chapter includes the following sections: TBQ design and development, sample, TBQ administration, and TBQ analysis. The major research questions from Chapter I are restated here. Hypotheses are listed in the analysis section.

1. To what extent will the proposed TBQ design be validated through empirical analysis?
   a) What is the degree of similarity between the six rationally conceived areas of beliefs about teaching and the areas resulting from a factor analysis of the TBQ?
   b) To what extent does each of four belief types (general, personal, goal, and normative) contribute to the overall belief orientation about each of the 23 belief elements and each of the six areas of beliefs about teaching?
   c) To what extent does a "response set" exist toward the pattern of conservative versus progressive belief orientations expressed in the questionnaire items?

2. To what extent does the TBQ provide a valid and reliable measure of preservice teacher beliefs about teaching?
a) **Internal consistency**: To what extent will the TBQ demonstrate internal consistency reliability?

b) **Test-retest reliability**: To what extent will the TBQ demonstrate test-retest reliability?

c) **Content validity**: To what extent does the TBQ demonstrate content validity?

d) **Construct validity**: What is the relationship of the TBQ score to the following demographic variables:

   i) grade level of program certification
   
   ii) degree of program completion
   
   iii) sex
   
   iv) age
   
   v) grade point average

**Teacher Belief Questionnaire Design and Development**

**Questionnaire Design**

The conceptual framework or design for the proposed teacher belief questionnaire integrates the results of two major areas of research, the first contributing a process base and the second a content base. The process base studies (Kreitler & Kreitler, 1968, 1976) contributed an empirically tested procedure for assessing multiple types of beliefs about a phenomenon, enabling a more accurate assessment of beliefs than less comprehensive procedures. The content base studies, culminating in the work of Tabachnick, Zeichner, Densmore, Adler, and Egan (1982), provided a set of 23 elements (meanings) used by preservice
teachers to define their teaching perspectives, i.e., how they think and talk about teaching and how they act in the classroom.

The process base component of the conceptual framework originated in an effort on the part of the Kreitlers to explain an observation that "whereas beliefs belonging to a specific homogeneous type are not at all or very slightly correlated with behaviors, beliefs belonging to a variety of types and themes show a high and meaningful correlation with the behavior in question," (Kreitler & Kreitler, 1976, p. 88). A four-fold categorization of beliefs (personal beliefs, general beliefs, goal beliefs, and normative beliefs) was developed and tested. It was hypothesized that when measures of the four beliefs are summed the overall "belief orientation" score would be related to performance on related behaviors.

In each of six studies (Kreitler & Kreitler, 1976) it was found that belief orientation scores were significantly related to actual behaviors. The topics of study were achievement, accuracy, success and failure, being late or coming on time, pain tolerance, and quitting smoking. Although there were numerous differences in types of behavioral measures and features of belief questionnaires, three general characteristics were the same throughout: the sampling of beliefs reflected meaning aspects of the
topics studied (definition, purpose, consequences, etc.), the beliefs measured included the four basic types, and the final belief orientation score reflected the independent standing of the four belief components.

The content base component of the conceptual framework (23 elements used to define teacher perspectives) has four direct sources: Berlak and Berlak (1981), Hammersley (1977), Tabachnick, Popkewitz, and Zeichner (1979-80), and Tabachnick, Zeichner, Densmore, Adler, and Egan (1982). The total set of 23 elements, organized into six areas of beliefs, was used in the 1982 study by Tabachnick, et. al. Eleven elements had been previously utilized by Berlak and Berlak, eight by Hammersley, and an initial framework of the six areas with elements under each area by Tabachnick, Popkewitz, and Zeichner. Figure 3 presents the list of the elements and sources.

The eight elements from Hammersley were proposed as a part of a detailed framework to aid ethnographic researchers in the analysis of indepth field observations. The framework of areas of beliefs and elements developed by Tabachnick et. al., (1979-80) was based on indepth observation and interview data collected on 12 student teachers. From the 16 dilemmas developed by Berlak and Berlak to describe classroom situations faced by teachers in 19 primary schools, 11 were also found to be appropriate
<table>
<thead>
<tr>
<th></th>
<th>Knowledge and Curriculum</th>
<th></th>
<th>Classroom Control and Relationships</th>
<th></th>
<th>The Teacher's Role</th>
<th></th>
<th>Student Diversity</th>
<th></th>
<th>The Role of the Community in School Affairs</th>
<th></th>
<th>School and Society</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Public knowledge vs. personal knowledge</td>
<td>X</td>
<td>High teacher control over learning vs. high pupil control over learning</td>
<td>X</td>
<td>What to teach: bureaucratic vs. independent role</td>
<td>X</td>
<td>Learners classified by categories vs. learners are unique</td>
<td>X</td>
<td>Limited access to school vs. free access to school</td>
<td>X</td>
<td>Source of teacher's problems: child's background vs. conditions in society</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>Knowledge is product vs. knowledge is process</td>
<td>X</td>
<td>High teacher control over pupil behavior vs. high pupil control over behavior</td>
<td>X</td>
<td>How to teach: bureaucratic vs. independent role</td>
<td>X</td>
<td>Universal curriculum vs. particular curriculum</td>
<td>X</td>
<td>Passive role in curriculum &amp; instruction vs. active role</td>
<td>X</td>
<td>Solutions to problems: existing educational interventions vs. changes in schools and society</td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>Knowledge is certain vs. knowledge is problematic</td>
<td>X</td>
<td>Distant teacher-pupil relationships vs. close relationships</td>
<td>X</td>
<td>School rules and regulations: bureaucratic vs. independent role</td>
<td>X</td>
<td>Universal rules vs. particular rules</td>
<td>X</td>
<td>No role in school administration vs. active role</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Learning is fragmented vs. learning is holistic</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Equal allocation of resources vs. differential allocation of resources</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Learning is unrelated vs. learning is integrated</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Common culture vs. subgroup consciousness</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Learning is individual vs. learning is a collective activity</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Restricted preference for work situation vs. unrestricted preference</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 3. Sources of areas and elements of teacher perspectives.
by Tabachnick, et. al. in the 1982 study to define and describe student teacher perspectives.

In the 1982 study Tabachnick, et. al. utilized the initial framework from the 1979-80 study to examine observation, interview, and questionnaire data gathered on 13 elementary student teachers. During the process of data analysis the elements developed by Hammersley and Berlak and Berlak were also examined for their appropriateness in defining student teacher perspectives. Some elements were added or changed and other elements were dropped from the initial framework. The final set of 23 elements was used to write detailed descriptions of the 13 student teachers' perspectives.

Each element is presented in the form of a dilemma, juxtaposed with its opposite. The presentation of elements as dilemmas was adopted by Tabachnick, et. al. (1982) to "enable us to recognize and identify important differences within each perspective.... These appear to be genuine dilemmas for most students and they are pulled in contradictory directions by conflicting appeals" (p. 23).

The 23 elements are appropriate for the content base of a teacher belief questionnaire. They constitute a well developed set of meanings descriptive of preservice teacher's thoughts, descriptions, beliefs, and actions in the classroom. Because they represent perspectives, the
elements have a broader base than beliefs only. A broad base of meanings, however, is appropriate for use with the proposed process base for the questionnaire design.

The description of the conceptual bases and empirical data in the above section was presented to explain the integrated design for the proposed Teacher Belief Questionnaire. The design provided a clear structure for the development of questionnaire items. Integrating the four types of beliefs from the process base with the 23 elements of beliefs from the content base resulted in a questionnaire containing 92 items. Figure 4 illustrates the proposed design and the number of questionnaire items.

**Questionnaire Development and Pilot Study**

The first stage of TBQ development was the drafting of the 92 items, i.e., four statements about each of the 23 elements. The statements are presented in dichotomous form with the first half of each statement representing a "conservative" viewpoint and the second half representing a "progressive" viewpoint. The following are examples of the four types of belief statements for the first element, private versus public knowledge.

1. **Personal Belief:** The knowledge that I possess came from bodies of information that I acquired rather than from meanings that I personally developed.

2. **General Belief:** Knowledge consists of information accumulated independent of learners rather than information developed in relation to each learner.
Figure 4. Conceptual framework for the Teacher Belief Questionnaire (TBQ).
3. Goal Belief: My goal as a teacher will be to help learners acquire the agreed-upon knowledge in a field rather than to help learners develop individual understandings about a field.

4. Normative Belief: The major content in a school curriculum should be the knowledge that has been established by authorities rather than the knowledge that has personal relevance to individual learners.

The instrument is organized into four sections by type of belief, each section containing 23 items (see Appendix B). Respondents are asked to indicate degree of agreement with the first half of the statement on a one, strongly agree, to four, strongly disagree, scale. Agreement with the first half of the statement indicates a conservative viewpoint whereas disagreement with the first half of the statement indicates that the second half of the statement, a progressive viewpoint, is a better representation of their belief. To prevent and check for a set scoring pattern, five items have the original positions reversed.

The TBQ orientation score is determined in three stages: for each of 23 belief elements, for each of six areas of beliefs, and for the total TBQ. The score for each element is the sum of the scale positions indicated for the four belief statements about the element. Scores for the six areas of beliefs result from summing the scores of elements contained in each area. The overall TBQ score is determined by proportion of areas indicating a conservative versus a progressive orientation. A proportion of four or
more areas in one orientation will indicate an overall belief orientation in that direction. An equal proportion in each orientation will indicate a mixed overall orientation.

The 92 item instrument was reviewed by two preservice education students and two education researchers and piloted before administration to the sample in the study. The pilot study was conducted in two phases. In the first phase, 27 preservice teachers enrolled in two education courses were administered the 92 item questionnaire. Preliminary principal components, multiple regression, and internal consistency analyses were conducted. Based on the regression analysis it was decided to eliminate two sets of 23 items that assessed general and normative types of beliefs and to conduct another pilot with the shortened instrument.

In the second phase of the pilot study, the halved 46 item questionnaire was administered to a sample of 93 education students. The belief scores were analyzed using principal components and internal consistency procedures. Scores were also analyzed for their relationship to the demographic variables of elementary versus secondary education major and sex.

The results revealed that the factor areas were similar to the originally conceived areas of beliefs about
teaching. The internal consistency scores (alpha coefficients) for the major areas of beliefs ranged from .41 to .77 and the overall TBQ alpha coefficient was .79. The differences in scores by major and sex indicated that more elementary majors and females than secondary majors and males held "progressive" belief orientations.

Based on the low internal consistency scores, it was decided to use the original set of 92 items for the full sample testing of the TBQ. Results from the two-phase pilot study were used in forming the hypotheses in the study.

Sample

The target population for the study is the body of undergraduate students in teacher education at The Ohio State University. The sample consisted of a total of 272 students who were at three different stages in the teacher education program during Winter and Spring Quarters 1984. The three stages of program completion were defined by student enrollment in general methods, special methods, and student teaching courses.

The desired sample size was set at 100 students at each stage of program completion, i.e., a total number of 300. At the general methods stage of program completion, students enrolled in Education 451, Professional
Introduction II, were selected over students in Education 450, Professional Introduction I, because Education 451 students would have had more opportunity to develop beliefs about teaching. Students enrolled in Education 451 are generally at the sophomore and junior rank and are majors in a cross section of elementary and secondary certification programs.

At the special methods stage of program completion, students enrolled in courses taken a quarter or two prior to student teaching were selected because they would have had an opportunity to examine and develop beliefs about teaching in terms of philosophies inherent to their major subject areas. Because resources were unavailable to administer the TBQ to students in 20 different certification areas, a decision was made to group students by elementary and secondary certification levels. Five certification programs that account for a large proportion of the teacher education enrollment were selected for TBQ administration. The certification programs were elementary, English, exceptional children, physical education, and social studies. Based on the proportion of 1981-82 graduates of The Ohio State University, College of Education teacher education program, the five programs account for 64 percent of the total College graduates (Loadman & Holcomb, 1983).
At the student teaching stage of program completion, students enrolled in the five certification areas listed above were also sampled.

Of the students present at each administration of the questionnaire, only six percent refused to participate in the study. The total obtained sample number was 272 students. Table 1 presents the sample numbers by stage of program completion and grade level of intended certification. Elementary certification majors composed 45 percent of the sample; secondary majors composed 55 percent. Exceptional children majors, who receive K-12 certification, were placed in the elementary education category because of a program emphasis on elementary teaching. Physical education majors, some of whom receive K-12 certification, were placed in the secondary education category because of a program emphasis on secondary teaching. Table 2 presents the sample as distributed among program area majors. The sample included students majoring in eleven different teacher education programs. The six program areas with the lowest sample numbers were from the Education 451 portion of the sample.

Classification by sex, age, and grade point average revealed a sample that was 71 percent female, 72 percent at age 23 or younger, and 55 percent with a grade point average of 3.0 or below (see Table 3).
In the majority of the courses selected for test administration, all sections in the Spring Quarter 1984 enrollment were utilized in the sample. Exceptions were elementary education special methods and student teaching groups. One course section of elementary special methods students was sampled during Winter Quarter 1984. Assuming that students are not significantly different due to the quarter in which they complete a particular course, the total enrollment groups could be considered representative of the annual course enrollment.

To further examine the representativeness of the sample, chi square analyses were performed on the variables of grade level of program certification and sex. Expected frequencies were established using data from the Loadman and Holcomb (1983) study of 1981-82 graduates of the College of Education at The Ohio State University.

The sample was representative of the population on grade level of program certification and sex (Tables 4 & 5). Comparison on the age variable of the current sample of enrolled students with graduates (after one year) is somewhat difficult. However, the proportion of the current sample that was age 23 or under (72%) is similar to the proportion of the 1981-82 sample that was age 25 or under (77%). Comparison on grade point average (4.0 scale) of the current sample ($\bar{X}=3.00$) with the 1981-82 sample
(\bar{x}=3.11) revealed similar academic performance levels. Also, the higher GPA level of the 1981-82 sample was expected due to the fact that overall GPA increases with seniority in the university.
Table 1
Sample Size by Stage of Program Completion (Stage) and Grade Level of Program Certification (Major)

<table>
<thead>
<tr>
<th>Major</th>
<th>General Methods N</th>
<th>Special Methods N</th>
<th>Student Teaching N</th>
<th>Total N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary*</td>
<td>46</td>
<td>52</td>
<td>22</td>
<td>120</td>
<td>45</td>
</tr>
<tr>
<td>Secondary**</td>
<td>59</td>
<td>43</td>
<td>47</td>
<td>149</td>
<td>55</td>
</tr>
<tr>
<td>Total</td>
<td>N 105</td>
<td>95</td>
<td>69</td>
<td>269***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% 39</td>
<td>35</td>
<td>26</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

* Majors in Exceptional Children (N=12), who receive K-12 certification, were included in this category.

** Majors in Physical Education (N=51), some of whom receive K-12 certification, were included in this category.

*** This total is less than the total sample of 272 because of missing values on some variables.
Table 2
Program Areas and Number of Participants Represented in the Sample

<table>
<thead>
<tr>
<th>Program Areas</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>12</td>
<td>4.46</td>
</tr>
<tr>
<td>Art</td>
<td>7</td>
<td>2.60</td>
</tr>
<tr>
<td>Business</td>
<td>5</td>
<td>1.85</td>
</tr>
<tr>
<td>Distributive</td>
<td>3</td>
<td>1.11</td>
</tr>
<tr>
<td>Elementary</td>
<td>103</td>
<td>40.15</td>
</tr>
<tr>
<td>English</td>
<td>39</td>
<td>14.50</td>
</tr>
<tr>
<td>Exceptional Children</td>
<td>12</td>
<td>4.46</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>4</td>
<td>1.49</td>
</tr>
<tr>
<td>Health</td>
<td>4</td>
<td>1.49</td>
</tr>
<tr>
<td>Physical Education</td>
<td>51</td>
<td>18.96</td>
</tr>
<tr>
<td>Social Studies</td>
<td>24</td>
<td>8.92</td>
</tr>
<tr>
<td>Total</td>
<td>269*</td>
<td>99.99**</td>
</tr>
</tbody>
</table>

*The total is less than the total sample of 272 because of missing values on some variables.

**Rounding error
Table 3
Sample Size by Sex, Age, and Grade Point Average

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>189</td>
<td>71</td>
</tr>
<tr>
<td>Male</td>
<td>76</td>
<td>29</td>
</tr>
<tr>
<td>Total</td>
<td>265*</td>
<td>100</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 years or under</td>
<td>176</td>
<td>72</td>
</tr>
<tr>
<td>Over 23 years</td>
<td>68</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>244*</td>
<td>100</td>
</tr>
<tr>
<td><strong>Grade Point Average</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.00 or below</td>
<td>133</td>
<td>55</td>
</tr>
<tr>
<td>Above 3.01</td>
<td>111</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td>244*</td>
<td>100</td>
</tr>
</tbody>
</table>

* Sample sizes vary due to missing values on some variables.
### Table 4

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Secondary</th>
<th>Total*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Observed</td>
<td>120</td>
<td>149</td>
<td>269</td>
</tr>
<tr>
<td>Frequency Expected</td>
<td>122</td>
<td>147</td>
<td>269</td>
</tr>
<tr>
<td>Contribution to Chi square</td>
<td>.032</td>
<td>.027</td>
<td>.059</td>
</tr>
</tbody>
</table>

\[ X^2 = .059; \text{df} = 1; \text{Table value} = 3.84; p < .05 \]

* This total is less than the total sample of 272 because of missing values on some variables.

### Table 5

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Observed</td>
<td>189</td>
<td>76</td>
<td>265</td>
</tr>
<tr>
<td>Frequency Expected</td>
<td>196</td>
<td>69</td>
<td>265</td>
</tr>
<tr>
<td>Contribution to Chi square</td>
<td>.250</td>
<td>.710</td>
<td>.960</td>
</tr>
</tbody>
</table>

\[ X^2 = .960; \text{df} = 1; \text{Table value} = 3.84; p < .05 \]
Administration of the Questionnaire

Permission to administer the TBQ to preservice teachers during regularly scheduled class sessions was obtained from each chairman or program head and from each course instructor. Questions to request information about preservice teachers' sex, age, program area major, and stage of program completion were included in a general information section of the TBQ. General instructions and information were provided in written form. Completion time required 30 to 50 minutes.

At each administration of the questionnaire, the researcher explained the purposes of the study; and that although students were not required to complete the instrument, their participation could be of value to teacher education as well as to themselves. To encourage participation and increase the value of the session as a learning experience, the researcher promised interested students that they would be mailed summaries of group results and their own individual results. To facilitate the mailing, students were asked to address provided envelopes with a permanent address.
Analysis of the Quality of the Questionnaire

Conceptual Framework

The conceptual framework of the TBQ is based on the research reported in the literature review. The framework is formed from the 23 elements representing teacher beliefs about teaching that are integrated with the four belief types that form an overall belief orientation. The 23 elements of beliefs are organized into six areas of beliefs about teaching.

To examine the above framework two types of analysis were conducted. First, an analysis was conducted to determine the similarity of the six rationally grouped areas of beliefs to the factors resulting from a mathematical analysis of the questionnaire responses. Second, two analyses were used to determine the amount of contribution and impact of each belief type on the total score for each of the 23 elements of beliefs.

Areas of beliefs. **Hypothesis 1**: There will be a high degree of similarity between the six rationally conceived areas of beliefs about teaching and the factors resulting from a factor analysis of the questionnaire responses.

The results of a factor analysis were used to validate the rational grouping of belief elements into six areas of beliefs about teaching. This procedure has been suggested by Kerlinger and Kaya (1959) as a means to assess the logical validity of an instrument.
As reported in the literature review the inclusion of the 23 belief elements in the framework of the questionnaire was based on the results of extensive observation and interview studies of teachers in the classroom. In the final study (Tabachnick, et. al., 1982) the 23 elements were organized into six areas of beliefs. The factor analysis provided an empirical assessment of this rational structuring of elements into related areas.

The factor analysis procedure included the 23 elements as variables. SAS (1982) principal components factor analysis was used. This procedure uses the squared multiple correlations of each variable with all other variables serving as communality estimates. Both orthogonal and oblique rotations were tried.

Types of beliefs. Hypothesis 2: There will be a significant degree of impact on overall belief orientation indicated in the scores of the 23 belief elements that is attributable to each of the four belief types (personal, general, goal, normative).

To ascertain the value of assessing four belief types about each element, two types of analyses were conducted: multiple regression and correlation.

The multiple regression of the four belief types was used to determine the ability of each group of three belief types, in turn, to predict the fourth belief type score for
each of the 23 belief elements. It also enabled an overall determination of the frequency with which each belief type contributed most to least to the total element score.

In the regression equation each belief type, in turn, served as the dependent variable and the three scores for each of the other three belief types served as independent variables. Using the stepwise entry method the belief type scores were examined for entry and continued inclusion in the equation based on a $p < .05$ criterion.

A series of four separate correlation analyses was performed to examine the relationship of each belief type to the other three belief types for each of the 23 belief elements. This involved removing the score for one belief type and correlating it with the score based on the remaining three belief types. Correlations of the six pairs of the four belief scores were also computed. Extremely high positive correlations could mean that an individual belief type measured what is also measured by the other three belief types.

Response set to questionnaire items. Hypothesis 3: There will be no difference between the scores of the five "reverse of belief orientation" items and scores of items for the same belief elements and in the internal consistency coefficients of items in the same subscale (area of beliefs).
An analysis of scores for the presence of a set response influenced by the placement of the conservative belief orientation in the first half of each statement and the progressive belief orientation in the second half of each statement was made. The placement of belief orientation was reversed in five items (nos. 5, 20, 30, 45, 85). Correlation analyses were completed to examine the relationship of the reverse item scores with the three other item scores for each of the five belief elements. A negative correlation could mean that a response set had a strong impact on the response. Internal consistency coefficients were examined for the impact on the reliability score if the reverse items were removed.

Reliability

Internal consistency. Hypothesis 4: There will be a moderate degree of internal consistency for each area of beliefs about teaching and across the Teacher Belief Questionnaire.

Internal consistency provides an estimate (coefficient alpha) of instrument reliability based on both the average correlation among items and the number of items (Nunnally, 1978). Cronbach's coefficient alpha was used to measure the actual variance of individuals' scores with a set probability that they would agree with each statement.
Internal consistency was determined for the entire set of 92 items and for subsets of items contained in each of the six areas of beliefs about teaching.

**Test-retest reliability.** Hypothesis 5: There will be a moderate degree of reliability between repeated measures of the belief orientation for each area of beliefs about teaching and across the Teacher Belief Questionnaire.

In the test-retest procedure the TBQ was administered a second time to the Spring Quarter 1984 sample of 245 preservice teachers. Because addresses had not been obtained from the Winter Quarter 1984 participants, the 27 participants from that portion of the sample were not included in the second administration. The TBQ was mailed to students approximately 10 weeks following the first administration. Correlation of first and second administration scores for the entire set of 92 items and for subsets of items contained in each of the areas provided a measure of instrument stability over time.

**Validity**

Although extensive studies to establish criterion related validity were beyond the scope of the current study, content validity and beginning assessments of construct validity were conducted. The examination of construct validity was based on the relationships between
belief orientation scores and the demographic variables of grade level of program (major), stage of program completion (stage), sex, age, and grade point average.

Content validity. 

Hypothesis 6: An adequate degree of content validity will be indicated.

Content validity was examined in terms of the results of the research on which the selection of the 23 belief elements was based.

Construct validity. 

The relationships of selected categorical and numerical classifications were examined using analysis of covariance procedures. Each TBQ score on beliefs was the dependent variable in each analysis and GPA (a demographic variable) was the covariate. Level of program certification (major), stage of program completion (stage), sex, and age were the independent variables in the analyses completed on the overall TBQ score and on each belief area score.

If strong and numerous relationships between demographic variables and belief orientation scores are found, it could affect the factor analysis. For example, if elementary and secondary majors express large significant differences in belief orientation, the factor analyses for the two groups could result in very different factor groupings of belief elements. Separate analyses for groups showing
significantly different beliefs were conducted to check for this possibility.

**Hypothesis 7**: TBQ orientation will indicate differences by grade level of certification (major) with elementary education majors more progressive than secondary education majors.

Preliminary analysis of the TBQ pilot data indicated that larger proportions of elementary education majors than secondary education majors were classified as progressive in belief orientation. Based on this preliminary data, the tentative hypothesis about the relationship of belief orientation to major was proposed.

**Hypothesis 8**: TBQ orientation will indicate differences by stage of program completion (stage) with individuals at a more advanced stage of completion more progressive than individuals at a less advanced stage.

Preliminary data on the relationship of stage of program completion to belief orientation was unavailable. However, based on the assumption that increased time in the teacher education program was related to holding a more progressive belief orientation, the tentative hypothesis above was proposed.

**Hypothesis 9**: TBQ orientation will indicate differences by sex with females more progressive than males.
The preliminary analysis indicated that females, a variable associated with major, were more progressive than males in belief orientation. Based on this preliminary data, the tentative hypothesis above was proposed.

**Hypothesis 10:** TBQ orientation will indicate differences by age with older individuals more progressive than younger individuals.

Preliminary data on the relationship of age to belief orientation was unavailable. However, based on the assumption that maturity in years is related to holding a more progressive belief orientation, the tentative hypothesis was proposed.

**Hypothesis 11:** Even after adjustment for the covariate, grade point average, TBQ orientation will indicate differences by GPA with individuals with a higher GPA more progressive than individuals with a lower GPA.

Although information about the relationship of GPA to belief orientation was unavailable, a higher GPA was hypothesized to be related to more progressive beliefs. This was based on the assumption that individuals with higher GPAs would have greater skill and interest in the instructional complexities inherent in the progressive belief orientation.
CHAPTER IV

RESULTS

Introduction

This chapter contains the results of the analyses used to examine the validity of the proposed Teacher Belief Questionnaire design and the validity and reliability of the developed questionnaire. Before presenting the results, however, a description is given of the overall analysis procedures and the implications of preliminary findings for the final analyses and reporting of results.

The interrelatedness of findings from the various analyses conducted in the study influenced this decision. For example, if the beliefs of elementary majors were drastically different from the beliefs of secondary majors, a factor analysis of the total sample responses could ignore the presence of distinct differences in the way elements grouped to form major areas of beliefs. Therefore, the entire set of analyses was completed; and based on the findings, some additional analyses were
conducted to check for the impact of differences in belief as related to the demographic variables of interest in the study.

A review of the preliminary analyses revealed some relationships between beliefs about teaching and different levels or groups within demographic variables. Some of the beliefs scores were related to major area of certification, stage in the program, and sex. Separate principal components analyses for the groups within each of these variables were completed and compared to the total sample results.

The results for elementary education majors were, except for differences in amount of factor loadings, the same as for the total group. The results for secondary education majors were also primarily the same as for the total group. One difference was in the strength of the factors. Factors three and four were reversed for secondary majors. Also, two elements showed high loadings on more than one factor; and in one case, the higher loading was on a different factor than for the total group. Overall, these differences were slight. And, the actual differences in mean scores between groups were small and both groups were on the same end of the conservative to progressive scale for each of the five belief scores used. It was decided that the principal components results from the total group analysis for the major variable would be used in the study.
The results of the separate principal components analysis for the three stages in the program were also very similar to the total sample results. For the three stage groups 14, 16, and 17 of the 18 belief elements loaded as expected from the total group analysis. Of the elements that did not load as expected, all showed lower but significant loadings on the expected factors. (Note: The reduction in the number of belief elements from 23 to 18 is explained in the following section, analysis of the conceptual framework.)

The results for males and females repeated the findings described above. Fourteen and 16 of the 18 elements loaded as expected from the total group analysis. Elements that did not load as expected showed lower but significant loadings on the expected factors.

Thus is was with considerable confidence that the principal components analysis was utilized for the total sample of preservice teachers. Even though some differences in beliefs existed, they were not large enough to cause distinct differences in the way elements grouped into factors.

The results are presented in three major sections: analysis of the conceptual framework, analysis of reliability, and analysis of validity. Descriptive data about preservice teacher beliefs are presented in the construct validity section.
Analysis of the Conceptual Framework

Areas of Beliefs

The rational grouping of the 23 belief elements into six areas of beliefs was analyzed using factor analysis procedures. The score for each of the 23 elements that was utilized in the principal components factor analysis was a mean score of responses to four items (representing personal, general, goal, and normative types of beliefs).

For the analysis, the initial principal components factor solution was examined and a number of criteria were considered in deciding on the number of factors to retain (see Table 6). First, in light of the six rationally grouped areas, the six factor solution was examined. Based on the eigenvalue of one criterion, the sixth factor eigenvalue (1.08) satisfied the minimum value. Six factors accounted for 61.80 percent of the total variance and 100.14 percent of the common variance. Both the excess of 100 percent common variance and the scree test plot indicated a lack of support for the six factor solution. The scree test showed no decrease between the sixth and seventh factors. Even so, the six factor solution was selected for the first trial rotation.

The six factor solution was judged unsatisfactory because the final factor was weak, being composed of one relatively high loading (.76) and one relatively low
loading (.40). Trial rotations with two, four, and five factors were then tried using both orthogonal and oblique rotations. The results from orthogonal and oblique rotations were very similar. Because the orthogonal rotation eliminates collinearity and thus provides results usable for further analysis, the orthogonal solution was utilized for the final solution.

The five factor solution was accepted as the best solution. The results of the five factor solution are presented in Tables 7 and 8. The five factor solution accounted for a total of 57 percent of the total variance and 100 percent of the common variance. It contains one large factor accounting for almost 20 percent of the total variance and four smaller factors each explaining between 8.12 and 10.49 percent of the total variance.

There was a high degree of similarity between the five factor solution and the six areas of beliefs proposed in the conceptual framework. And, although there were a number of changes in terms of particular belief elements loading onto a different factor than in the matching proposed area of beliefs, the basic character of four of the final five factors is essentially the same as four of the original six areas. See Table 8 for a comparison of element groupings.
Table 6
Summary Data from Principal Components Solution
Before Varimax Rotation
for Twenty-three Belief Elements (N=272)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>Percent of Total Variance</th>
<th>Cumulative Percent of Total Variance</th>
<th>Percent of Common Variance</th>
<th>Cumulative Percent of Common Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.117</td>
<td>30.94</td>
<td>30.94</td>
<td>54.18</td>
<td>54.18</td>
</tr>
<tr>
<td>2</td>
<td>1.966</td>
<td>8.55</td>
<td>39.49</td>
<td>14.97</td>
<td>69.15</td>
</tr>
<tr>
<td>3</td>
<td>1.429</td>
<td>6.21</td>
<td>45.70</td>
<td>10.88</td>
<td>80.03</td>
</tr>
<tr>
<td>4</td>
<td>1.395</td>
<td>6.07</td>
<td>51.77</td>
<td>10.62</td>
<td>90.65</td>
</tr>
<tr>
<td>5</td>
<td>1.229</td>
<td>5.34</td>
<td>57.11</td>
<td>9.37</td>
<td>100.02</td>
</tr>
<tr>
<td>6</td>
<td>1.078</td>
<td>4.69</td>
<td>61.80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 7
Factors and Amount of Variance Explained
After Varimax Rotation
for Twenty-three Belief Elements (N=272)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>Percent of Total Variance</th>
<th>Cumulative Percent of Total Variance</th>
<th>Percent of Common Variance</th>
<th>Cumulative Percent of Common Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.543</td>
<td>19.75</td>
<td>19.75</td>
<td>34.59</td>
<td>34.59</td>
</tr>
<tr>
<td>2</td>
<td>2.413</td>
<td>10.49</td>
<td>30.24</td>
<td>18.37</td>
<td>52.96</td>
</tr>
<tr>
<td>3</td>
<td>2.197</td>
<td>9.55</td>
<td>39.79</td>
<td>16.73</td>
<td>62.89</td>
</tr>
<tr>
<td>4</td>
<td>2.116</td>
<td>9.20</td>
<td>48.99</td>
<td>16.11</td>
<td>85.80</td>
</tr>
<tr>
<td>5</td>
<td>1.867</td>
<td>8.12</td>
<td>57.11</td>
<td>14.21</td>
<td>100.01</td>
</tr>
</tbody>
</table>
### Table 8
Factor Pattern of Twenty-three Belief Elements  
(N=272)

<table>
<thead>
<tr>
<th>Belief Element Number</th>
<th>Belief Element</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Factor 1: Knowledge and Curriculum</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Knowledge is product vs. process</td>
<td>.78</td>
</tr>
<tr>
<td>1</td>
<td>Knowledge is public vs. personal</td>
<td>.77</td>
</tr>
<tr>
<td>3</td>
<td>How to teach is determined by authorities vs. by teacher</td>
<td>.73</td>
</tr>
<tr>
<td>4</td>
<td>Knowledge is certain vs. problematic</td>
<td>.70</td>
</tr>
<tr>
<td>5</td>
<td>Learning is unrelated vs. integrated</td>
<td>.68</td>
</tr>
<tr>
<td>13</td>
<td>Learners classified by categories vs. each is unique</td>
<td>.61</td>
</tr>
<tr>
<td>10</td>
<td>What to teach is determined by authorities vs. by teacher</td>
<td>.52</td>
</tr>
<tr>
<td>11</td>
<td>Common culture vs. subgroup consciousness</td>
<td>.61</td>
</tr>
<tr>
<td>12</td>
<td>Universal curriculum vs. particular</td>
<td>.49</td>
</tr>
<tr>
<td>18*</td>
<td>Restricted preference for work situation vs. unrestructed</td>
<td>.35</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Belief Element Number</th>
<th>Belief Element</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Factor 2: Community Role</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Passive role in curriculum &amp; instruction vs. active role</td>
<td>.81</td>
</tr>
<tr>
<td>21</td>
<td>No role in school administration vs. active role</td>
<td>.81</td>
</tr>
<tr>
<td>19</td>
<td>Limited access to school vs. free access</td>
<td>.77</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Belief Element Number</th>
<th>Belief Element</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Factor 3: Classroom Control and Relationships</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Teacher controls learning vs. student</td>
<td>.76</td>
</tr>
<tr>
<td>9</td>
<td>Teacher controls behavior vs. student</td>
<td>.70</td>
</tr>
<tr>
<td>6*</td>
<td>Distant vs. close relationships</td>
<td>.56</td>
</tr>
<tr>
<td>6*</td>
<td>Learning is individual vs. collective</td>
<td>.46</td>
</tr>
</tbody>
</table>
Table 8 (continued)

<table>
<thead>
<tr>
<th>Belief Element Number</th>
<th>Belief Element</th>
<th>Factor Solution</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>Factor 4: Equal/Differential Treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>School rules determined by authorities</td>
<td></td>
<td>.71</td>
</tr>
<tr>
<td>14</td>
<td>vs. by teacher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Equal allocation of resources vs.</td>
<td></td>
<td>.66</td>
</tr>
<tr>
<td>16</td>
<td>differential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Universal rules vs. particular</td>
<td></td>
<td>.62</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VI</td>
<td>Factor 5: School and Society</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Educational interventions are solutions</td>
<td></td>
<td>.75</td>
</tr>
<tr>
<td>23</td>
<td>vs. changes in schools &amp; society</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22*</td>
<td>Child's background causes problems vs.</td>
<td></td>
<td>.72</td>
</tr>
<tr>
<td></td>
<td>conditions in society</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4*</td>
<td>Learning is fragmented vs. holistic</td>
<td></td>
<td>.58</td>
</tr>
</tbody>
</table>

* These elements were eliminated after examination of the factor and reliability analyses.
Overall, three of the original six areas of beliefs were the same or had only one additional element. The three areas were: Area II, Classroom Control and Relationships; Area V, Community Role; and Area VI, School and Society. Area I, Knowledge and Curriculum, became the most significant factor, loading 10 of 23 elements. Area III, Teacher Role, was not found in the five factor solution. Area IV, Student Diversity, changed significantly.

In the new Factor 1: Knowledge and Curriculum, four of the original six elements (1, 2, 3, and 5) were among the five top loadings. Two elements (10 and 11) from Area III, Teacher Role, loaded on Factor 1. Both of these elements concern decisions about curriculum (how and what to teach). Four elements (13, 14, 17, and 18) from Area IV, Student Diversity, also loaded on Factor 1. Elements 13, 14, and 17 have clear implications for curriculum decisions. Element 18, had a relatively weak loading (.35) and was not particularly relevant or important to this factor. The resulting new Factor 1 is the largest, strongest component of the Teacher Belief Questionnaire. It includes elements that create a broad-based philosophical foundations type of component.

The remaining element (12) from Area III loaded with the remaining two elements (15 and 16) from Student Diversity. The resulting three element factor is characterized by
whether students are treated alike or differently rather than by their diversity. Element 12, for example, may be interpreted as: when school rules are determined by authorities they are more likely to be the same for everyone than when rules are determined by each teacher. This new Factor 4 was therefore labelled Equal/Differential Treatment.

Factor 3, Classroom Control, and Factor 5, School and Society, each had one additional element (6 and 4). Both elements were unrelated to and had the lowest factor loadings (.46 and .58) for their respective factors.

In hypothesis number one a high degree of similarity between the six rationally conceived areas of beliefs and the factors resulting from a factor analysis was proposed. The results of the analysis supported this hypothesis. Although movement in nine of the 23 belief elements occurred, the fundamental character of four of the six areas of beliefs was unchanged. Of the other two areas, one (Teacher Role) was not found to exist as a separate entity; and the other (Student Diversity) became a more narrowly focused factor concerning equal versus differential treatment of students.

The results of the principal components analysis indicated the need to examine several belief elements for possible deletion from the questionnaire. First, in Factor
1: Knowledge and Curriculum, element 18 had a low factor loading (.35) and was not related to the other belief elements in the factor. Because of these reasons, element 18 was deleted from the questionnaire. This meant deleting four questionnaire items (nos. 18, 41, 64, 87).

Second, in Factor 3: Classroom Control, element six had a relatively low factor loading (.46) and also was not closely related to the other belief elements. It was decided that element six would also be deleted from the TBQ. This eliminated four more questionnaire items (nos. 6, 29, 52, 75).

Last, the weakest factor, Factor 5: School and Society, was composed of three belief elements, one of which (4) was not related to the other two elements (22 and 23). An examination of the internal consistency and test-retest reliability analyses for Factor 5 showed other weaknesses. The internal consistency estimate was an alpha coefficient of .61. The test-retest Pearson correlation coefficient was .51. Because of these weaknesses, it was decided to delete the entire Factor 5 from the TBQ. This meant deleting 12 questionnaire items (nos. 4, 27, 50, 73; 22, 45, 68, 91; and 23, 46, 69, 92).

As a result of the above decisions, the TBQ was reduced to eighteen belief elements grouped into four factors or areas of beliefs about teaching. The first and largest
area contains nine belief elements (36 items). The other three factors each contain three belief elements (12 items). The reduced number of 72 questionnaire items is more practical in terms of questionnaire administration and more cohesive in content.

Interestingly, a recent report by Zeichner and Tabachnick (1984) reports the deletion of five belief elements. Two of the elements deleted as a result of this analysis were also eliminated by Zeichner and Tabachnick, elements 22 and 23. They also deleted elements 19, 20, and 21. This analysis indicated these elements to be the second strongest factor.

A final principal components analysis of the revised set of eighteen belief elements produced four factors with the same distribution of elements as in the five factor solution. The four factor solution explained 60 percent of the total variance among the 18 elements and 99.90 percent of the common variance. Almost 24 percent of the total variance was attributed to the strong first factor with factors two, three, and four explaining 13, 12.5, and 10.5 percent of the total variance. The results of the 18 belief element factor solution are presented in Tables 9 and 10.

In subsequent analyses in the study that involve areas of beliefs, the results are reported using the revised set of eighteen elements grouped into four factors.
Table 9
Factors and Amount of Variance Explained
After Varimax Rotation
for Eighteen Belief Elements (N=272)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>Percent of Total Variance</th>
<th>Cumulative Percent of Total Variance</th>
<th>Percent of Common Variance</th>
<th>Cumulative Percent of Common Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.274</td>
<td>23.72</td>
<td>23.72</td>
<td>39.59</td>
<td>39.59</td>
</tr>
<tr>
<td>2</td>
<td>2.365</td>
<td>13.17</td>
<td>36.89</td>
<td>21.91</td>
<td>61.50</td>
</tr>
<tr>
<td>3</td>
<td>2.257</td>
<td>12.56</td>
<td>49.44</td>
<td>20.91</td>
<td>82.31</td>
</tr>
<tr>
<td>4</td>
<td>1.389</td>
<td>10.56</td>
<td>60.00</td>
<td>17.59</td>
<td>99.90</td>
</tr>
</tbody>
</table>
Table 10
Factor Pattern of Eighteen Belief Elements
(N=272)

<table>
<thead>
<tr>
<th>Belief Element Number</th>
<th>Factor Solution</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor 1: Knowledge and Curriculum</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Knowledge is product vs. process .82</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Knowledge is public vs. personal .78</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Knowledge is certain vs. problematic .74</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>How to teach is determined by authorities vs. teacher .70</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Learning is unrelated vs. integrated .69</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Common culture vs. subgroup consciousness .60</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Learners classified by categories vs. each is unique .59</td>
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<td>10*</td>
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<td>Universal curriculum vs. particular .46</td>
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<td>Factor 2: Community Role</td>
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<td>Passive role in curriculum and instruction vs. active role .82</td>
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</tr>
<tr>
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<td>No role in school administration vs. active role .80</td>
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<td>Limited access to school vs. free access .78</td>
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<td>Factor 3: Equal/Differential Treatment</td>
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<td>School rules determined by authorities vs. by teacher .74</td>
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<td>16</td>
<td>Equal allocation of resources vs. differential .66</td>
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<td>15</td>
<td>Universal rules vs. particular .64</td>
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<td>What to teach is determined by authorities vs. teacher .47</td>
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<tr>
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<td>Factor 4: Classroom Control and Relationships</td>
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<td>7</td>
<td>Teacher controls learning vs. student .82</td>
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<td>8</td>
<td>Teacher controls behavior vs. student .76</td>
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<tr>
<td>9</td>
<td>Distant vs. close relationships .46</td>
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</tr>
</tbody>
</table>

* Element number 10 loaded equally on two factors.
Types of Beliefs

The utilization of four types of beliefs (personal, general, goal, and normative) to secure an assessment of an overall belief orientation about each of the 18 belief elements was examined to determine whether each type of belief had a significant impact on the overall belief score.

In two separate analyses, multiple regression and correlation, each belief item in the set of four was removed, in turn, and analyzed using scores from the remaining three items. In the regression analysis, the ability of each set of three items to predict the variability present in the fourth was examined. In the correlation analysis, the relationship of each single belief type to the mean of the other three belief types was examined.

Tables 11-14 present the results of the multiple regression analysis. The number of the 18 personal belief items (Table 11) that general, goal, and normative belief items had a significant ability to predict was general (8), goal (13), and normative (7). Of the 18 personal belief items, only one (5) had no variability predicted by general, goal, or normative beliefs. The total percent of variance ($R^2$) accounted for by the three beliefs ranged from one to ten percent for eight items, from 11 to 20
percent for four items, from 21 to 30 percent for two items, and above 30 percent for three items.

The number of the 18 general belief items (Table 12) that personal, goal, and normative beliefs had a significant ability to predict was personal (9), goal (15), and normative (15). Of the 18 general belief items, all had a significant amount of variability predicted by personal, goal, or normative beliefs. The total percent of variance accounted for by the three beliefs ranged from two to ten percent for two items, from 11 to 20 percent for eight items, from 21 to 30 percent for three items, and above 30 percent for five items.

The number of the 18 goal belief items (Table 13) that personal, general, and normative beliefs had a significant ability to predict was personal (13), general (15), and normative (17). Of the 18 goal belief items, all had a significant amount of variability predicted by personal, general, or normative beliefs. The total percent of variance accounted for by the three items ranged from five to ten percent for four items, from 11 to 20 percent for three items, from 21 to 30 percent for four items, and above 30 percent for seven items.

The number of the 18 normative belief items (Table 14) that personal, general, and goal beliefs had a significant ability to predict was personal (6), general (15), and goal
Table 11

Standardized Regression Coefficients and $R^2$ for General, Goal, and Normative Beliefs as Predictors of Personal Beliefs (N=269)

<table>
<thead>
<tr>
<th>Personal Beliefs</th>
<th>General Beliefs</th>
<th>Goal Beliefs</th>
<th>Normative Beliefs</th>
<th>Adjusted $R^2^*$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item No.</td>
<td>Items</td>
<td>Items</td>
<td>Items</td>
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</tr>
<tr>
<td></td>
<td>24-44</td>
<td>47-67</td>
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* All values were significant at the $p < .001$ level.
Table 12
Standardized Regression Coefficients and $R^2$ for Personal, Goal, and Normative Beliefs as Predictors of General Beliefs (N=258-269)

<table>
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<tr>
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<th>Personal Beliefs</th>
<th>Goal Beliefs</th>
<th>Normative Beliefs</th>
<th>Adjusted $R^2*$</th>
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<td>Items 47-67</td>
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* All values above .02 were significant at the $p<.001$ level.
Table 13
Standardized Regression Coefficients and $R^2$ for Personal, General, and Normative Beliefs as Predictors of Goal Beliefs (N=258-269)

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<th>Goal Beliefs</th>
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<th>Normative Beliefs</th>
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* All values were significant at the $p < .001$ level.
Table 14

Standardized Regression Coefficients and $R^2$ for Personal, General, and Goal Beliefs as Predictors of Normative Beliefs (N=258-269)

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<th>General Beliefs Items 24-44</th>
<th>Goal Beliefs Items 47-67</th>
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<td>.161</td>
<td>.319</td>
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<td>.35</td>
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</tbody>
</table>

*All values were significant at the $p < .001$ level.
Of the 18 normative belief items, all had a significant amount of variability predicted by personal, general, or goal beliefs. The total percent of variance accounted for by the three items ranged from eight to ten percent for three items, from 11 to 20 percent for five items, from 21 to 30 percent for five items, and above 30 percent for six items.

Comparison of the above counts is facilitated by Tables 15 and 16. A general ranking of the predictive abilities of the four belief types places goal beliefs first, normative beliefs second, general beliefs third, and personal beliefs last. Both affective belief types (goal and normative) had greater predictive power than the two factual belief types (personal and general).

As stated in hypothesis number two, the question of whether each belief type has a significant impact on the overall belief orientation for each belief element is the important consideration in this analysis. Based upon the amounts of variance within each belief type that is explained by each grouping of the remaining three belief types, it was concluded that, in general, predictors were able to explain significant amount of variance. However, the greatest percentage of total variance explained by three beliefs was only 54 percent. Often the amount of variance explained was much lower. Since the three belief
Table 15
The Number of Belief Elements Predicted by Groups of Three Belief Types for the Fourth Belief Type

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Predictors</th>
<th>Personal Beliefs</th>
<th>General Beliefs</th>
<th>Goal Beliefs</th>
<th>Normative Beliefs</th>
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</thead>
<tbody>
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</tr>
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<tr>
<td>Normative Beliefs</td>
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</table>
Table 16
Amounts of Variance Predicted by Groups of Three Belief Types for the Fourth Belief Type

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Number of Elements at Percentage Levels</th>
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<tr>
<td>Normative Beliefs</td>
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</table>
elements did not contribute overwhelmingly large percentages of variance, it was concluded that each belief type has a unique contribution to make to the total belief orientation score for each element.

The correlation analyses supported the above conclusion. Pearson correlation coefficients between each set of two belief types and coefficients between each belief type and the mean of the other three belief types were computed. The correlations between the six pairs of belief types are presented in Table 17. Of the large number of correlations, only two were negative. Overall, the lowest correlations were between the two factual belief types (personal and general). The highest correlations were between the two affective belief types (goal and normative). However, the range of mean correlations, averaged over the 18 belief elements for each pair, was small (.20 to .38). Goal beliefs had the highest correlations with the other three belief types. Personal beliefs had the lowest correlations with the other three.

The correlation coefficients between each belief type and the mean score of the other three beliefs are reported in Table 18. Of the 72 correlations computed all but one were positive. The correlations of personal beliefs to general, goal, and normative beliefs ranged from .075 to .599, with a mean correlation of .329. The correlations of
Table 17
Pearson Correlation Coefficients of Responses for Six Pairs of Belief Types
(N=266-269)

<table>
<thead>
<tr>
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<th>General Beliefs</th>
<th>Goal Beliefs</th>
<th>Normative Beliefs</th>
<th>Correlations of Pairs of Belief Types</th>
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<th>AD</th>
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<td>12</td>
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<td>58</td>
<td>81</td>
<td>.50</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>13</td>
<td>36</td>
<td>59</td>
<td>82</td>
<td>.28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>37</td>
<td>60</td>
<td>83</td>
<td>.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>15</td>
<td>38</td>
<td>61</td>
<td>84</td>
<td>.45</td>
<td></td>
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</tr>
<tr>
<td>16</td>
<td>39</td>
<td>62</td>
<td>85</td>
<td>-.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>40</td>
<td>63</td>
<td>86</td>
<td>.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>42</td>
<td>65</td>
<td>88</td>
<td>.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>43</td>
<td>66</td>
<td>89</td>
<td>.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>44</td>
<td>67</td>
<td>90</td>
<td>.42</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.20</td>
<td>.31</td>
<td>.25</td>
<td>.35</td>
<td>.36</td>
<td>.38</td>
</tr>
</tbody>
</table>

N (range: 266-269)
Table 18
Pearson Correlation Coefficients of Responses for Each Belief Type to the Mean of Responses for the Other Three Belief Types (N=266-269)

<table>
<thead>
<tr>
<th>Belief Elements</th>
<th>Personal Beliefs (A)</th>
<th>General Beliefs (B)</th>
<th>Goal Beliefs (C)</th>
<th>Normative Beliefs (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A/BCD</td>
<td>B/ACD</td>
<td>C/ABD</td>
<td>D/ABC</td>
</tr>
<tr>
<td>1</td>
<td>.363</td>
<td>.359</td>
<td>.308</td>
<td>.339</td>
</tr>
<tr>
<td>2</td>
<td>.212</td>
<td>.391</td>
<td>.387</td>
<td>.241</td>
</tr>
<tr>
<td>3</td>
<td>.241</td>
<td>.283</td>
<td>.478</td>
<td>.484</td>
</tr>
<tr>
<td>5</td>
<td>.075</td>
<td>.356</td>
<td>.312</td>
<td>.462</td>
</tr>
<tr>
<td>7</td>
<td>.145</td>
<td>.315</td>
<td>.491</td>
<td>.325</td>
</tr>
<tr>
<td>8</td>
<td>.124*</td>
<td>.484</td>
<td>.576</td>
<td>.631</td>
</tr>
<tr>
<td>9</td>
<td>.525</td>
<td>.528</td>
<td>.637</td>
<td>.656</td>
</tr>
<tr>
<td>10</td>
<td>.494</td>
<td>.572</td>
<td>.641</td>
<td>.536</td>
</tr>
<tr>
<td>11</td>
<td>.326</td>
<td>.389</td>
<td>.530</td>
<td>.407</td>
</tr>
<tr>
<td>12</td>
<td>.608</td>
<td>.700</td>
<td>.705</td>
<td>.665</td>
</tr>
<tr>
<td>13</td>
<td>.339</td>
<td>.401</td>
<td>.458</td>
<td>.273</td>
</tr>
<tr>
<td>14</td>
<td>.282</td>
<td>.366</td>
<td>.352</td>
<td>.371</td>
</tr>
<tr>
<td>15</td>
<td>.599</td>
<td>.605</td>
<td>.710</td>
<td>.711</td>
</tr>
<tr>
<td>16</td>
<td>.182</td>
<td>.037</td>
<td>.266</td>
<td>.215</td>
</tr>
<tr>
<td>17</td>
<td>.284</td>
<td>.363</td>
<td>.375</td>
<td>.391</td>
</tr>
<tr>
<td>19</td>
<td>.335</td>
<td>.265</td>
<td>.513</td>
<td>.371</td>
</tr>
<tr>
<td>20</td>
<td>.196</td>
<td>.386</td>
<td>.316</td>
<td>.340</td>
</tr>
<tr>
<td>( \bar{X} )</td>
<td>.329</td>
<td>.409</td>
<td>.480</td>
<td>.445</td>
</tr>
</tbody>
</table>

* Amounts above .12 were significant at the \( p < .05 \) level.
general beliefs to personal, goal, and normative beliefs ranged from .037 to .700, with a mean of .409. The correlations of goal beliefs to personal, general, and normative beliefs ranged from .266 to .710, with a mean of .480. Last, the correlations of normative beliefs to personal, general, and goal beliefs ranged from .215 to .711, with a mean of .445.

The pattern of highest to lowest relationship indicated by the mean correlation scores repeated that of the highest to lowest variance from the regression analysis. Goal beliefs had the strongest relationship, followed by normative, general, and personal beliefs. Also, as in the regression analysis, both affective belief types had stronger patterns of relationship than the two factual belief types. Although a few of the correlations were very high, the majority were low to moderately high in strength. This supports the conclusion that each belief type has a unique contribution that was not explained by the scores of the other belief types.

Response Set to Questionnaire Items

The response set analysis involved examining responses to five questionnaire items in which the pattern of belief orientation was reversed. The regular pattern placed the conservative belief orientation in the first half of each
statement and the progressive belief orientation in the second half of each statement. Two analyses were conducted. First, a comparison was made between the correlations of reverse items to the other three items in each set of four items and the correlations among the other three items. Second, the estimate of internal consistency of the relevant subscale of items was examined for change upon removal of the reverse items. Large increases of the alpha coefficient could mean that a response set exists.

Table 19 displays the five sets of 4 items (reverse items are noted 'R') and their correlation matrices. Before correlating reverse items to the other items in the set, the scores were fixed, i.e., reversed so that a disagree response became an agree response. If a response set existed, the fixed responses would be different, perhaps opposite to the pattern of responses for the other items that were listed in the regular conservative versus progressive pattern. A t-test was computed for each set of items to determine whether a statistically significant difference existed between the correlations involving the reverse items and the correlations among the other items.

One of the five reverse items had a pattern of correlations that was significantly lower than correlations among the other items in the same set. Reverse item number five had a t-test score of 3.30; p < .05. For two other
Table 19
Pearson Correlation Coefficients of Reverse Items (R) with Other Items Assessing the Same Belief Element (N=240)

<table>
<thead>
<tr>
<th>Belief Element</th>
<th>Item No.</th>
<th>R5</th>
<th>28</th>
<th>51</th>
<th>74</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 R5 Learning is unrelated vs. Integrated</td>
<td>28</td>
<td>1.000</td>
<td>-.038</td>
<td>.086</td>
<td>.082</td>
</tr>
<tr>
<td></td>
<td>51</td>
<td>-247</td>
<td>.511</td>
<td>.284</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>74</td>
<td>- .043</td>
<td>X = .347 (t=3.30*)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 R20 Community role in curriculum is passive vs. active</td>
<td>43</td>
<td>1.000</td>
<td>.079</td>
<td>.253</td>
<td>.104</td>
</tr>
<tr>
<td></td>
<td>66</td>
<td>.238</td>
<td>1.000</td>
<td>.232</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>89</td>
<td>.145</td>
<td>X = .322 (t=1.72)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 R30 Teacher controls learning vs. student</td>
<td>7</td>
<td>1.000</td>
<td>.090</td>
<td>.456</td>
<td>.214</td>
</tr>
<tr>
<td></td>
<td>53</td>
<td>.140</td>
<td>1.000</td>
<td>.435</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>76</td>
<td>.253</td>
<td>X = .233 (t=.14)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 R45 Child's background causes problems vs. conditions in society</td>
<td>22</td>
<td>1.000</td>
<td>-.011</td>
<td>-.043</td>
<td>-.105</td>
</tr>
<tr>
<td></td>
<td>68</td>
<td>-.019</td>
<td>1.000</td>
<td>.224</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>91</td>
<td>-.053</td>
<td>X = .084 (t=1.76)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 R85 Equal allocation of resources vs. differential allocation</td>
<td>16</td>
<td>1.000</td>
<td>.275</td>
<td>-.014</td>
<td>.154</td>
</tr>
<tr>
<td></td>
<td>39</td>
<td>.074</td>
<td>1.000</td>
<td>.180</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>62</td>
<td>.138</td>
<td>X = .073 (t=.58)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < .05
reverse items (30 and 85), the correlations involving reverse items were higher than correlations among other items in the same set. The remaining two items had correlations involving reverse items that were lower than correlations among the other items; but the amount was not statistically significant.

The results from the internal consistency analysis were utilized to examine the degree of change in alpha coefficient scores when reverse items were deleted. (The complete results of the internal consistency analysis are presented in the reliability section.) The specific impact of individual items can be determined from this analysis. Table 20 includes the reliability estimate for each subscale with and without reverse items.

There was little or no difference in the reliability estimates as influenced by four of the five reverse items. Changes were one point or less. In the previously eliminated Factor 5, reverse item 45 did have a significant impact on the alpha coefficient. The score increased four points upon deletion of the reverse item. Table 19 shows that all of the inter-item correlations for the R45 set of items were low negative to low positive relationships. This lack of relationship apparently contributed to the moderately low estimate of internal consistency (.61) for this previously eliminated area of beliefs.
Table 20

Reliability Coefficients for Areas of Beliefs with and without Reverse Items (N=240)

<table>
<thead>
<tr>
<th>Areas of Beliefs</th>
<th>Alpha Coefficient with Reverse Item</th>
<th>Alpha Coefficient without Reverse Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge and Curriculum (R5)</td>
<td>.90</td>
<td>.90</td>
</tr>
<tr>
<td>Community Role (R30)</td>
<td>.82</td>
<td>.83</td>
</tr>
<tr>
<td>Classroom Control and Relationships (R30)</td>
<td>.78</td>
<td>.80</td>
</tr>
<tr>
<td>Equal/Differential Treatment (R85)</td>
<td>.78</td>
<td>.79</td>
</tr>
<tr>
<td>School and Society (R45)</td>
<td>.61</td>
<td>.65</td>
</tr>
</tbody>
</table>
Hypothesis three stated that there would be no difference between the scores of the five reverse items and scores for the same belief element or in the internal consistency estimates for the appropriate subscale of items. This hypothesis was not entirely supported. Although the analysis of correlation patterns revealed a significant difference in only one item and the impact of change in internal consistency was significant for only one item, a different item was the exception in each test. This information indicates that a "response set" could be the cause of these score variations.

Reliability

Internal Consistency

The estimates of internal consistency reliability were calculated using Cronbach's alpha coefficient. The analysis was performed on the reduced set of 72 items and on subsets of items contained in each area of beliefs about teaching. The results of the analysis are presented in Table 21.

The findings show a range of reliability estimates from .78 to .90 for the subscales and a very high score, .92, for the overall TBQ. This indicates that items and belief elements contained within each subscale and in the entire questionnaire belong to internally consistent major concepts.
<table>
<thead>
<tr>
<th>Areas of Beliefs</th>
<th>No. of Items</th>
<th>Alpha Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge and Curriculum</td>
<td>36</td>
<td>.90</td>
</tr>
<tr>
<td>Community Role</td>
<td>12</td>
<td>.82</td>
</tr>
<tr>
<td>Classroom Control and Relationships</td>
<td>12</td>
<td>.78</td>
</tr>
<tr>
<td>Equal/Differential Treatment</td>
<td>12</td>
<td>.78</td>
</tr>
<tr>
<td>Teacher Belief Questionnaire</td>
<td>72</td>
<td>.92</td>
</tr>
</tbody>
</table>
An examination was also made of the impact on internal consistency when the questionnaire was reduced from 92 to 72 items. Since internal consistency is related to the number of items, lower alpha coefficient scores could be expected for the reduced number of items. As shown in Table 22, only one minor reduction occurred. Essentially, the internal cohesiveness was not affected by deleting 20 questionnaire items.

Hypothesis number four proposed that there would be a moderate degree of internal consistency for each area of beliefs and across the entire questionnaire. This hypothesis was supported for the entire questionnaire as well as for each of the four areas of beliefs.

Test-Retest Reliability

While the previous reliability analysis provided an evaluation of the questionnaire's stability of content or internal cohesiveness, the test-retest analysis provided an evaluation of its stability over time, based on a repeated measure of the questionnaire.

A total of 65 repeat measures of the questionnaire were returned via mail from the Spring Quarter 1984 sample of 245 students; a response rate of 27 percent. Although the return rate was low, a series of chi-square tests revealed that the repeat respondents were representative of the
Table 22
Reliability Coefficients for Areas of Beliefs
and the Teacher Belief Questionnaire
Before and After Deleting Five Belief Elements
(N=240)

<table>
<thead>
<tr>
<th>Areas of Beliefs</th>
<th>No. of Items Before Deletion</th>
<th>Alpha Coefficient Before Deletion</th>
<th>No. of Items After Deletion</th>
<th>Alpha Coefficient After Deletion</th>
<th>Belief Elements Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge &amp; Curriculum</td>
<td>40</td>
<td>.90</td>
<td>36</td>
<td>.90</td>
<td>18</td>
</tr>
<tr>
<td>Community Role</td>
<td>12</td>
<td>.82</td>
<td>12</td>
<td>.82</td>
<td></td>
</tr>
<tr>
<td>Classroom Control &amp; Relationships</td>
<td>16</td>
<td>.79</td>
<td>12</td>
<td>.78</td>
<td>6</td>
</tr>
<tr>
<td>Equal/ Differential Treatment</td>
<td>12</td>
<td>.78</td>
<td>12</td>
<td>.78</td>
<td></td>
</tr>
<tr>
<td>School &amp; Society</td>
<td>12</td>
<td>.61</td>
<td>0</td>
<td></td>
<td>4, 22, 23</td>
</tr>
<tr>
<td>TBQ</td>
<td>92</td>
<td>.92</td>
<td>72</td>
<td>.92</td>
<td>4, 6, 18</td>
</tr>
</tbody>
</table>

Note: TBQ refers to the Teacher Belief Questionnaire.
original sample in terms of the major characteristics utilized in the study. A comparison of the two samples and the results of the chi square analyses are shown in Table 23.

Pearson correlation coefficients were computed on belief scores for the four factor groupings and for the entire questionnaire. Table 24 indicates that all correlations were significant beyond the p < .001 level. Even so, the correlations are generally lower than is expected if an instrument is to be regarded as highly stable over time.

Two circumstances may have contributed to the moderate stability scores. First, the length of time (10-12 weeks) between questionnaire administrations was longer than is recommended for securing high reliability scores. Second, the testing conditions for the two administrations were different. The first administration took place in regularly scheduled class sessions. The setting was similar for everyone. The second administration took place in students' homes where varying degrees of noise and other distractions may have influenced responses.

The hypothesis stating that a moderate degree of reliability between repeated measures of belief orientation would be indicated was not highly supported. Although the correlations between first and second measures were highly significant, they indicated a minimal level of stability.
Table 23

Comparison of Re-test Sample to Original Sample on Demographic Variables

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Original Sample</th>
<th>Re-test Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N*</td>
<td>%</td>
</tr>
<tr>
<td>Level of Program Major</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>120</td>
<td>45</td>
</tr>
<tr>
<td>Secondary</td>
<td>149</td>
<td>55</td>
</tr>
<tr>
<td>Total</td>
<td>269</td>
<td>100</td>
</tr>
</tbody>
</table>

\[ x^2 = 0.56 \ (x^2 = 3.84; p < .05) \]

| Stage of Program Completion           |     |     |    |     |
| General Methods                       | 105 | 39  | 31 | 48  |
| Special Methods                       | 95  | 35  | 21 | 32  |
| Student Teaching                      | 69  | 26  | 13 | 20  |
| Total                                 | 269 | 100 | 65 | 100 |

\[ x^2 = 2.50 \ (x^2 = 5.99; p < .05) \]

| Sex                                   |     |     |    |     |
| Female                                | 189 | 71  | 52 | 80  |
| Male                                  | 76  | 29  | 13 | 20  |
| Total                                 | 265 | 100 | 65 | 100 |

\[ x^2 = 2.68 \ (x^2 = 3.84; p < .05) \]
Table 23 (continued)

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Original Sample</th>
<th>Re-test Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 Years or Under</td>
<td>176</td>
<td>72</td>
</tr>
<tr>
<td>Over 23 Years</td>
<td>68</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>244</td>
<td>100</td>
</tr>
</tbody>
</table>

\[ x^2 = 1.30 \quad (x^2 = 3.84; p < .05) \]

<table>
<thead>
<tr>
<th>Grade Point Average</th>
<th>Original Sample</th>
<th>Re-test Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>3.00 or Below</td>
<td>133</td>
<td>55</td>
</tr>
<tr>
<td>Above 3.01</td>
<td>111</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td>244</td>
<td>100</td>
</tr>
</tbody>
</table>

\[ x^2 = 2.51 \quad (x^2 = 3.84; p < .05) \]

* Sample sizes vary due to missing values on some variables.
Table 24
Pearson Correlation Coefficients of Re-test Scores with Original Administration Scores (N=65)

<table>
<thead>
<tr>
<th>Areas of Beliefs</th>
<th>No. of Items</th>
<th>Correlation*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge and Curriculum</td>
<td>36</td>
<td>.54</td>
</tr>
<tr>
<td>Community Role</td>
<td>12</td>
<td>.61</td>
</tr>
<tr>
<td>Classroom Control and Relationships</td>
<td>12</td>
<td>.67</td>
</tr>
<tr>
<td>Equal/Differential Treatment</td>
<td>12</td>
<td>.57</td>
</tr>
<tr>
<td>TBQ</td>
<td>72</td>
<td>.51</td>
</tr>
</tbody>
</table>

* All correlations were significant at the $p < .000$ level.
Validity

Content Validity

The selection of the original 23 elements of beliefs about teaching for the content base of the Teacher Belief Questionnaire was based on a series of research studies that examined how teachers defined classroom events and decisions. The belief elements possess credibility because they were formulated over a period of time from sets of rich descriptions of teachers' thoughts, beliefs, and actions. The findings from such research are meaningful; they are relevant to the subjects being studied.

The 23 belief elements from the perspective studies were established through the leadership of B. R. Tabachnick and K. M. Zeichner (1979-80, 1982, 1984). Characteristics of the content base, such as the overall continuum and the use of selected belief areas and elements were supported through their own and others' research (see Figure 3) and through the theoretical foundations from Mead (1938) and Kelly (1955).

Similarities in the above findings with the findings from the separately conducted conceptual studies provide further validation of the content base. (See the review of conceptual studies in Chapter 2.) For example, the presence of an overall dichotomy or continuum was repeatedly noted (see Figure 2). Also, the major
categories and specific dimensions reported in the concept studies are similar to the 23 belief elements, though not as exhaustive in scope.

In hypothesis six, it was proposed that the TBQ would possess an adequate degree of content validity. The procedures used to derive the belief areas and elements and the consistency of findings from separately conducted studies support the conclusion that the TBQ is based on a valid content base.

Construct Validity

The relationship of five demographic variables to overall teacher belief orientation and to orientations in each area of beliefs about teaching was examined in the study. The selected variables included:

1. Grade level of program certification (major): elementary and secondary;

2. Degree of program completion (stage), identified by enrollment in the course sequence: general methods, special methods, and student teaching;

3. Sex: female and male;

4. Age, grouped for purposes of analysis in two groups: age 22 and under and age 23 and over; and,

5. Grade point average, utilized as a continuous variable and as a covariate with teacher belief orientation.

The number of responses that total sets of data on all the variables were available was 208, a reduction from the
original sample of 272 participants. Using this sample set, the relationships among demographic variables, overall belief orientation, and the four factor areas were examined.

Before describing the results of the analysis of covariance, overall TBQ score means, ranges, and standard deviations are presented. These findings are also presented for each factor area of beliefs.

The overall score for the TBQ is a composite score based on belief orientation scores in the four belief areas. For example, if participants' scores in Knowledge and Curriculum fell within the conservative half of the scale (36-90), they were assigned one point to be counted toward the overall TBQ score. If the scores fell within the progressive half of the scale (91-144), they were assigned two points. This resulted in a possible overall score of four to eight points. As shown in Table 25, the TBQ mean score for the entire sample of 272 participants was 6.66, indicating a slightly progressive belief orientation. The adjusted (for covariate GPA) mean score for the reduced sample of 208 participants was similar (6.47).

The mean scores for each belief area are also presented in Table 25. Scores for each area were based on the sum of responses (1-4 point scale) for each item in the subscale. The mean score for three areas of beliefs indicated
<table>
<thead>
<tr>
<th>Belief Area</th>
<th>Conservative Orientation</th>
<th>Progressive Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Score Range</td>
<td>Score Range</td>
</tr>
<tr>
<td>TBO (72 items)</td>
<td>4-5</td>
<td>6</td>
</tr>
<tr>
<td>MIN=4</td>
<td>X=6.66</td>
<td>MAX=8</td>
</tr>
<tr>
<td>SD=.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted X (N=208)=6.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge and Curriculum</td>
<td>36-90</td>
<td>91-144</td>
</tr>
<tr>
<td>MIN=70.33</td>
<td>X=106.59</td>
<td>MAX=140</td>
</tr>
<tr>
<td>SD=12.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted X (N=208)=105.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Role</td>
<td>12-30</td>
<td>31-48</td>
</tr>
<tr>
<td>MIN=21</td>
<td>X=35.89</td>
<td>MAX=47</td>
</tr>
<tr>
<td>SD=5.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted X (N=208)=35.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom Control and Relationships</td>
<td>12-30</td>
<td>31-48</td>
</tr>
<tr>
<td>MIN=13</td>
<td>X=31.33</td>
<td>MAX=46</td>
</tr>
<tr>
<td>SD=4.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted X (N=208)=31.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal/Differential Treatment</td>
<td>12-30</td>
<td>31-48</td>
</tr>
<tr>
<td>MIN=12</td>
<td>X=28.22</td>
<td>MAX=48</td>
</tr>
<tr>
<td>SD=4.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted X (N=208)=28.17</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
progressive belief orientations. The three areas include Knowledge and Curriculum, Community Role, and Classroom Control and Relationships.

The strongest progressive orientations were in the Community Role and Knowledge and Curriculum areas. This means that teacher education students expressed an orientation toward an active community role in the school. It means that overall they believe that knowledge is developed by individuals, is uncertain, and is best acquired when organized around a theme. It means they believe that what and how to teach is better decided by the teacher; and, that curriculum should be geared to learners' differences. The slightly progressive belief orientation expressed about Classroom Control and Relationships was influenced more by element nine, indicating belief in close rather than distant relationships, than by belief in student opportunity to control learning and behavior (elements 7 and 8). Mean scores for elements seven and eight were very close to the midpoint of the belief continuum.

The mean scores for Factor 4: Equal/Differential Treatment, placed preservice teacher beliefs in the slightly conservative orientation. Belief in equal distribution of resources and the same rules for everyone was stronger than belief in distributing resources
Five separate analyses of covariance were conducted to assess whether variations in the overall TBQ and the four factor belief scores were related to the five demographic variables. In each analysis, the dependent variable, belief score, was adjusted based on the covariate, GPA, and then analyzed for differences related to groups within the independent variables of major, stage, sex, and age.

The analysis of covariance was first completed with a full effects model that included four main effects (major, stage, sex, and age), six two-way interactions, and four three-way interactions. The full model results included many non-significant $F$ values among both main effects and interactions.

The three-way interactions were examined first. Non-significant effects were removed, one at a time, from the analysis models. With repeated analyses, none of the three-way interactions were found to have significant $F$ values; and all were removed from the five analysis models. This meant that variance in belief scores, as related to the four independent variables and after being adjusted for GPA, was not explained by any patterns of relationship among groupings of three independent variables.
Next, the five models were examined for the presence of significant two-way interactions. Although a few effects resulted in significant two-way interactions, the majority were not significant. Non-significant two-way interactions were also eliminated from the analysis models. The final model for each belief orientation score included the four independent variables, the covariate, and significant two-way interactions. Only two significant two-way interactions occurred among a possible 30 in the five analysis models. The mean belief scores for each category of major, stage, sex, and age are presented in Table 26. The results of the analyses of covariance are presented in Tables 27-31. A summary of significant relationships is presented in Table 32. The tables are placed at the end of the description of results for the five demographic variables.

Differences by major of program. Belief orientation scores showed some differences related to whether preservice teachers majored in elementary or secondary education. For the overall TBQ score, a significant interaction occurred between major and sex. Female elementary education majors were more progressive in belief orientation than male elementary education majors ($p < .01$). Female elementary majors were also more progressive than female and male secondary majors ($p < .01$).
No significant differences were found regarding beliefs about Knowledge and Curriculum as related to major. On beliefs about Community Role, elementary education majors \((\bar{X}=35.87)\) expressed greater belief in active community participation than secondary majors \((\bar{X}=34.21; p < .05)\). On beliefs about Classroom Control and Relationships, a similar difference was found. Elementary majors expressed greater belief in student control and close relationships than secondary majors. No significant differences were found on beliefs about Equal/Differential Treatment as related to major.

Hypothesis seven proposed that elementary education majors' belief orientations would be more progressive than secondary education majors. This hypothesis was supported in terms of two of the four area belief scores: Community Role and Classroom Control and Relationships. It was also supported for the overall TBQ score for female elementary education majors. Male elementary education majors were the least progressive of the four sex and major groups; however, the difference between male elementary majors and secondary majors was not statistically significant.

**Differences by stage of program.** Belief orientation scores also showed some differences related to stage of program. For the overall TBQ score, preservice teachers enrolled in the general methods course, Education 451
(stage 1), were significantly (p < .05) less progressive in belief orientation than were preservice teachers enrolled in special methods courses (stage 2). Student teachers (stage 3) were similar in overall belief orientation to stage one students; means were 6.37 and 6.33, respectively. The difference between belief orientation scores of special methods students and student teachers was also significant at the p < .05 level.

A similar pattern of a less progressive orientation among Education 451 students, a more progressive orientation among special methods students, and a return to the former less progressive orientation among student teachers occurred for Factor 1: Knowledge and Curriculum and Factor 3: Classroom Control and Relationships. For Factor 1, the differences between both less progressive scores (stages 1 and 3) and the more progressive stage two were statistically significant (p < .05). For Factor 3, the difference between stages one and two was significant (p < .05); however, the difference between stages two and three was not significant.

No significant differences were found regarding beliefs about Community Role or Equal/Differential Treatment as related to stage in the teacher education program; however, an interaction between stage and sex occurred regarding beliefs about Community Role. Whereas females exhibited
the pattern described above of an increase followed by a
decrease in progressive orientation, males exhibited an
opposite pattern of a decrease followed by an increase in
progressive orientation. The only significant difference by
stage was at the special methods course stage (p < .01).

Hypothesis eight proposed that preservice teachers would
exhibit more progressive belief orientations as they
advanced in the teacher education program. This hypothesis
was supported for advancement from general to special
methods; but, for advancement from special methods to
student teaching, a reverse in the degree of progressive
orientation occurred. An exception to this pattern
occurred for males in belief orientation regarding
Community Role. Males decreased in the extent to which
they believed in an active community role after special
methods but increased again after student teaching.

**Differences by sex.** Belief orientation scores showed
some differences related to sex as a main effect; and both
significant two-way interactions involved the sex variable.
For the overall TBQ score, a significant main effect for
sex was indicated; however, examination of the interaction
between major and sex revealed that the difference existed
between male and female elementary majors (p < .01) but not
between male and female secondary majors.
A significant difference regarding all male and female preservice teachers was found regarding belief orientation about Knowledge and Curriculum. Females were significantly more progressive ($p < .05$). Females at the special methods stage were also more progressive in beliefs about active community participation. For males and females at stages one and three, no differences were found. No differences were found regarding males and females beliefs about Classroom Control and Relationships or Equal/Differential Treatment.

Hypothesis nine proposed that female preservice teachers would express belief orientations that were more progressive than male preservice teachers. This hypothesis was partially supported. The greatest difference between beliefs by sex occurred between male and female elementary majors in terms of their overall TBQ orientation. Females were more progressive. In terms of beliefs about Community Role, only those males at the special methods stage expressed a lower progressive orientation. All males were less progressive than females in terms of beliefs about Knowledge and Curriculum.

**Differences by age.** No significant differences in any of the five belief orientation scores were found to be related to age. Although mean scores show the age 23 and over group to be slightly more progressive for each score,
none of the differences were large enough to reach the $p < .05$ level.

Hypothesis ten proposed that preservice teachers at a more advanced age would express belief orientations that were more progressive than beliefs of younger preservice teachers. This hypothesis was not supported in the analysis. It is possible that larger differences exist between other patterns of age grouping; however, the small numbers of respondents in each age year above 23 did not allow for a finer breakdown of age groups.

**Differences by GPA.** The covariate, GPA, was found to have a significant relation to belief orientation regarding beliefs about Knowledge and Curriculum even after the score had been adjusted for GPA. No relationships were found between GPA and the other four belief scores.

Hypothesis 11 stated that GPA would have a significant impact on belief orientation scores even after the scores had been adjusted for the effect of GPA. This hypothesis was supported for only one belief score.
Table 26

Adjusted Mean Belief Scores for the Teacher Belief Questionnaire and Areas of Beliefs by Major, Stage, Sex, and Age (N=208)

<table>
<thead>
<tr>
<th>Areas of Beliefs</th>
<th>Major</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Elementary (104)</td>
<td>Secondary (104)</td>
</tr>
<tr>
<td>TBQ</td>
<td>6.45</td>
<td>6.48</td>
<td></td>
</tr>
<tr>
<td>Knowledge and Curriculum</td>
<td>105.37</td>
<td>105.69</td>
<td></td>
</tr>
<tr>
<td>Community Role</td>
<td>35.87</td>
<td>34.21</td>
<td></td>
</tr>
<tr>
<td>Classroom Control and Relationships</td>
<td>31.96</td>
<td>30.28</td>
<td></td>
</tr>
<tr>
<td>Equal/Differential Treatment</td>
<td>27.50</td>
<td>28.29</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Areas of Beliefs</th>
<th>Stage</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>General Methods</td>
<td>Special Methods</td>
<td>Student Teaching</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(83)</td>
<td>(77)</td>
<td>(48)</td>
</tr>
<tr>
<td>TBQ</td>
<td>6.36</td>
<td>6.71</td>
<td>6.33</td>
<td></td>
</tr>
<tr>
<td>Knowledge and Curriculum</td>
<td>104.53</td>
<td>108.34</td>
<td>103.73</td>
<td></td>
</tr>
<tr>
<td>Community Role</td>
<td>35.05</td>
<td>35.15</td>
<td>34.92</td>
<td></td>
</tr>
<tr>
<td>Classroom Control and Relationships</td>
<td>30.19</td>
<td>32.37</td>
<td>30.80</td>
<td></td>
</tr>
<tr>
<td>Equal/Differential Treatment</td>
<td>28.65</td>
<td>28.17</td>
<td>26.87</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Areas of Beliefs</th>
<th>Sex</th>
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<th></th>
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</thead>
<tbody>
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<td></td>
<td></td>
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<td>Male (58)</td>
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<tr>
<td>TBQ</td>
<td>6.74</td>
<td>6.19</td>
<td></td>
</tr>
<tr>
<td>Knowledge and Curriculum</td>
<td>107.80</td>
<td>103.26</td>
<td></td>
</tr>
<tr>
<td>Community Role</td>
<td>36.26</td>
<td>33.82</td>
<td></td>
</tr>
<tr>
<td>Classroom Control and Relationships</td>
<td>31.56</td>
<td>30.68</td>
<td></td>
</tr>
<tr>
<td>Equal/Differential Treatment</td>
<td>28.22</td>
<td>27.56</td>
<td></td>
</tr>
<tr>
<td>Areas of Beliefs</td>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>--------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>22 &amp; Under</td>
<td>23 &amp; Older</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(114)</td>
<td>(94)</td>
<td></td>
</tr>
<tr>
<td>TBQ</td>
<td>6.40</td>
<td>6.54</td>
<td></td>
</tr>
<tr>
<td>Knowledge and Curriculum</td>
<td>104.06</td>
<td>107.00</td>
<td></td>
</tr>
<tr>
<td>Community Role</td>
<td>34.37</td>
<td>35.71</td>
<td></td>
</tr>
<tr>
<td>Classroom Control and Relationships</td>
<td>31.09</td>
<td>31.14</td>
<td></td>
</tr>
<tr>
<td>Equal/Differential Treatment</td>
<td>27.57</td>
<td>28.22</td>
<td></td>
</tr>
</tbody>
</table>
Table 27
Analysis of Covariance Results for Overall Teacher Belief Orientation (N=208)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Type III Sums of Squares</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td>1</td>
<td>.02</td>
<td>.02</td>
</tr>
<tr>
<td>Stage</td>
<td>2</td>
<td>5.74</td>
<td>3.52*</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>7.11</td>
<td>8.73**</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>.80</td>
<td>.99</td>
</tr>
<tr>
<td>GPA</td>
<td>1</td>
<td>.42</td>
<td>.47</td>
</tr>
<tr>
<td>Major X Sex</td>
<td>1</td>
<td>4.56</td>
<td>5.60*</td>
</tr>
</tbody>
</table>

* p < .05
** p < .01

Table 28
Analysis of Covariance Results for Knowledge and Curriculum Belief Orientation (N=208)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Type III Sums of Squares</th>
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</tr>
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<tr>
<td>Major</td>
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<td>.03</td>
</tr>
<tr>
<td>Stage</td>
<td>2</td>
<td>775.52</td>
<td>3.00*</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>636.11</td>
<td>4.92*</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>359.28</td>
<td>2.78</td>
</tr>
<tr>
<td>GPA</td>
<td>1</td>
<td>652.07</td>
<td>5.04*</td>
</tr>
</tbody>
</table>

* p < .05
### Table 29

Analysis of Covariance Results for Community Role Belief Orientation (N=208)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Type III Sums of Squares</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td>1</td>
<td>112.74</td>
<td>5.14*</td>
</tr>
<tr>
<td>Stage</td>
<td>2</td>
<td>1.21</td>
<td>.03</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>181.02</td>
<td>8.25**</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>73.12</td>
<td>3.33</td>
</tr>
<tr>
<td>GPA</td>
<td>1</td>
<td>9.89</td>
<td>.45</td>
</tr>
<tr>
<td>Stage X Sex</td>
<td>2</td>
<td>169.29</td>
<td>3.86*</td>
</tr>
</tbody>
</table>

* p < .05

** p < .01

### Table 30

Analysis of Covariance Results for Classroom Control and Relationships Belief Orientation (N=208)

<table>
<thead>
<tr>
<th>Source</th>
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<th>Type III Sums of Squares</th>
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<tbody>
<tr>
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<td>Stage</td>
<td>2</td>
<td>189.07</td>
<td>4.27*</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>24.30</td>
<td>1.10</td>
</tr>
<tr>
<td>Age</td>
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<td>.07</td>
<td>.00</td>
</tr>
<tr>
<td>GPA</td>
<td>1</td>
<td>14.90</td>
<td>.67</td>
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</table>

* p < .05
Table 31
Analysis of Covariance Results for Equal/Differential Treatment Belief Orientation (N=208)

<table>
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<tbody>
<tr>
<td>Major</td>
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<td>25.31</td>
<td>1.10</td>
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<td>Stage</td>
<td>2</td>
<td>86.84</td>
<td>1.89</td>
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<tr>
<td>Sex</td>
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</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>17.30</td>
<td>.75</td>
</tr>
<tr>
<td>GPA</td>
<td>1</td>
<td>3.25</td>
<td>.14</td>
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</table>

Table 32
Summary of Significant Relationships between Belief Orientation Scores and Demographic Variables

<table>
<thead>
<tr>
<th>Demographic Variables</th>
<th>TBO (1)</th>
<th>K&amp;C (2)</th>
<th>CR (3)</th>
<th>CC&amp;R (4)</th>
<th>E/QT (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
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</tr>
<tr>
<td>Stage</td>
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</tr>
<tr>
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<td>X</td>
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<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPA</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Major X Sex</td>
<td></td>
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<td>X</td>
</tr>
<tr>
<td>Stage X Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

(1) Knowledge and Curriculum (2) Community Role (3) Classroom Control and Relations (4) Equal/Differential Treatment
CHAPTER V

DISCUSSION

The purpose of this study has been to evaluate the design and to determine the quality of the Teacher Belief Questionnaire. The discussion provides a summary of the results and brings into focus the implications of the findings for use and for further evaluation of the questionnaire. The discussion is organized by the three areas of the TBQ evaluation reported in the results: the conceptual framework, reliability, and validity. The chapter is concluded with sections outlining areas for future inquiry and an overall summary.

Conceptual Framework

Areas of Beliefs

The conceptual framework for the Teacher Belief Questionnaire was formed through integrating two separate bodies of research, one providing a content base and the other providing a process base. The first part of the study evaluated the TBQ in terms of the logical validity
(Kaya & Kerlinger, 1956) of the proposed content base of 23 belief elements grouped into six major areas of beliefs about teaching. It also evaluated whether each belief type in the process base made a unique contribution to the assessment of belief orientation about each belief element.

The content base was evaluated through the use of a principal components analysis of the 23 belief elements. To determine the feasibility of using the total sample for the analysis when significant differences in belief orientation existed among groups within the demographic variables, separate principal component analyses were conducted. Differences in belief orientation caused only minor variations in factor patterns for each subgroup. Therefore, the total sample was utilized for the principal components analysis.

Comparison of the five resulting factors to the six previously grouped areas of beliefs revealed that four of the original six areas were unchanged in fundamental character. However, the relative strength of the factors was changed (see Tables 8 and 10). The results of the factor analysis were examined for possible deletion of weak belief elements and weak factor areas. The fifth factor was composed of two related and one unrelated belief elements. It contributed only eight percent of the total variance. It was also found to have a relatively low
internal consistency estimate (alpha coefficient=.61) and a low test-retest reliability (r=.51). Because of these weaknesses, the three elements composing the final factor were deleted from the questionnaire (see Table 22). This meant eliminating four questionnaire items for each element.

Two other belief elements that loaded on factors one and three were also deleted from the TBQ. In each case the element had the lowest factor loading on its factor and was generally unrelated to the fundamental meaning of the major concept area. These deletions eliminated eight more questionnaire items. The revised form of the questionnaire is composed of 18 belief elements (72 items) grouped into four areas of beliefs about teaching.

A reanalysis of the reduced set of 18 belief elements using the principal components procedure showed that the elements grouped into the same pattern of four factors as in the previous five factor solution. The four factor solution explained 60 percent of the total variance among the 18 belief elements. The repeated consistency in results from the reanalysis as well as from the initial analyses conducted to check for the effect of group differences provides a basis for a high degree of confidence in the factor pattern solution. The final factor pattern is justifiable on both rational and
empirical grounds and thus has greater credibility than a pattern that meets only one of the two criteria.

The reduced number of belief elements and questionnaire items produces a questionnaire that is more practical to administer and more efficient. A review of the internal consistency and test-retest reliability scores showed little or no loss in these qualities due to the reduction in items. These results provide additional empirical support for the four factor solution. The shortened questionnaire is as internally consistent and stable as the original version. The information lost through eliminating Factor 5: School and Society was minor and concerned an area that may have been poorly understood by respondents. The final four factor solution was utilized for both reliability and construct validity analyses in the study.

A recent presentation by Zeichner and Tabachnick (1984) reported the elimination of five belief elements from the original 23 elements. The results of this study support the elimination of two elements, 22 and 23, the original School and Society belief area. Zeichner and Tabachnick also eliminated elements 19-21, the three belief elements that composed the second strongest factor in this analysis. The second factor contributed 13 percent of the total variance and is composed of three highly cohesive belief elements describing the role of the community in the
school. These findings indicate that Factor 2: Community Role is important in assessing preservice teacher beliefs about teaching. Elements 19-21 contribute information that is helpful in differentiating between conservative versus progressive beliefs. They should not be eliminated from the total set of belief elements.

In considering the potential uses of the TBQ, an examination of the first and strongest factor, Knowledge and Curriculum, was made. The factor solution broadened the original contents of the area to include belief elements about curriculum decisions and characteristics of learners that impact on how knowledge is attained and how curriculum should be organized. The 36 item area of beliefs includes nine elements that pertain to four variables identified by Zais (1976) as foundations for curriculum construction. In a model of curriculum (p.97), Zais proposed that the philosophical assumptions that decision makers hold about four variables guide choices in curriculum design. The four variables are the nature of knowledge, society/culture, the individual, and learning theory.

The Knowledge and Curriculum portion of the TBQ could be used alone as a means to assess beliefs about the foundations of curriculum. It is composed of a cohesive set of belief elements with a high alpha coefficient (.90).
For situations requiring a shorter instrument, it could cut response time in half. Its use alone would, however, eliminate more specific information regarding beliefs about classroom control and relationships, community role, and equal/differential treatment of learners.

Types of Beliefs

The process base of the TBQ conceptual framework was evaluated using two procedures. Through regression and correlation analyses, each of the four belief types (personal, general, goal, and normative) was, in turn, separated from and examined in relation to various groups of the remaining three belief types. The purpose was to ascertain whether each belief type made a unique contribution to the belief orientation about each of the 18 belief elements.

In the regression analysis, each group of three beliefs was examined for ability to predict the fourth belief type score. The analysis was repeated for each of the 18 belief elements. As reported in Tables 11-14, although the groups of three predictors were able to account for significant amounts of variance, the total amounts were generally low and were never more than 51 percent of the total variance present in the score for the individual belief type. A similar result occurred with the correlation scores.
Although the correlations were almost all positive and generally significant, they were not sufficiently high to warrant eliminating any of the four belief types from the conceptual framework.

The results indicate that each of the four belief types in the process base component of the TBQ is important in assessing preservice teacher beliefs about teaching. Using four types of beliefs to determine belief orientation provides a broader, richer information base for determining the orientation regarding each belief element.

Overall, the affective belief types (goal and normative) were more highly correlated with and were better able to predict scores of the other three belief types than were the factual belief types (personal and general). However, none of the belief types stood out as significantly different from the others in its ability to predict or its relationship to the other belief types. This is consistent with the findings of the primary researchers (Kreitler & Kreitler, 1976). In numerous studies none of the four belief types emerged as consistently more able to predict behavior.

The results of the belief type analyses indicate that the process base is a valid and meaningful component of the conceptual framework for the TBQ. The repetition of questions about each belief element to determine how
factual and affective and self and other aspects of beliefs affect belief orientation is justified because each statement adds information to the total orientation score.

Response Set to Questionnaire Items

The possible presence of a response set to the regular pattern (conservative belief orientation in the first half of each item and the progressive belief orientation in the second half of each item) was evaluated through two procedures. The first analysis involved comparing the correlation of each reversed item with the other three items in each set of four with the paired correlations among the other three items (see Table 19). The second analysis involved examining the estimates of internal consistency of belief areas with and without the reverse item.

Originally, five items distributed throughout the questionnaire had the regular pattern reversed (nos. 5, 20, 30, 45, & 85). Item number 45 was a part of the fifth factor that was eliminated from the TBQ. Only one of the remaining four items (5) showed a significant difference between correlations with the other three items in its set and correlations among the other three items. The four reverse items had little or no impact on the degree of internal consistency estimates for the other four areas of the TBQ (see Table 17).
Although there is some evidence indicating the presence of a response set to the regular pattern of conservative versus progressive belief orientation, the impact is slight. A recommendation to randomize the pattern of belief orientation could be made; however, this might have adverse effects. The complexity of presenting opposing views in each item requires the respondent to examine specific dilemmas related to the content or issue involved. It is quite possible for respondents to express a conservative orientation toward one area of beliefs while expressing a more progressive orientation toward another area of beliefs (see Table 22). A regular pattern of the opposing views may facilitate judgments about the specific dilemmas. A changing pattern could lead to confusion and a decision that it is not worth their time to "figure out" the opposing views.

The analyses for the presence of a response set to the regular pattern of belief orientation indicates that if a response set exists, it did not have a large impact on respondents' inclination to use a single pattern of response. Two recommendations are proposed based on the above discussion. First, for the future use of the TBQ as tested in this study, it would seem best to eliminate the use of the remaining four reverse patterns. Second, a pilot study with a TBQ form that has a completely
randomized pattern of belief orientations would test the above argument that a changing pattern would strike respondents as confusing and worthless.

Reliability

The reliability of the Teacher Belief Questionnaire was assessed using two procedures. First, Cronbach's alpha coefficient was computed for the entire set of 72 items and for the four subscales or areas of beliefs. As reported in Table 21, the alpha coefficients ranged from .78 to .90 for the four areas and was a very high .92 for the entire TBQ. And, as indicated in Table 22, deletion of 5 belief elements (20 items) had little or no impact on the alpha coefficient scores.

The second procedure for assessing reliability was a test-retest Pearson correlation analysis. The retest sample included 65 respondents from the Winter Quarter 1984 sample who returned mailed questionnaires approximately 12 weeks following the initial administration. The retest sample matched the original sample in terms of major of program, stage of program, sex, age, and GPA (see Table 23). The response rate was a low 27 percent.

The correlations of original responses to mailed questionnaire responses resulted in subscale scores of .54 to .67 and an overall TBQ score of .51. The degree of
stability indicated by these scores may have been influenced by the change in testing conditions. The second administration occurred in a variety of home situations. Another detracting factor may have been that 12 weeks was too long an interval between test administrations. Gay (1981) states that, "although it is difficult to say precisely what, in general, the ideal interval should be, one day will generally be too short and one month too long" (p. 118). It may be that respondents' beliefs changed after leaving an educational environment. The impact of the beliefs promoted in the instructional situation may have lessened when students were away from the environment.

Gay also pointed out that personality type measures do not typically report reliabilities as high as the .90 that would be expected for an achievement tests. And, tests in new areas usually have lower reliability scores. These reasons, however, do not account for the discrepancy between the two types of reliability estimates. The discrepancy means that the TBQ is more reliable in terms of the internal consistency of its content than it is in terms of stability over time. The two scores assess different qualities and in this case indicate a that a high degree of confidence can be placed in the instrument's internal consistency but only a moderate degree of confidence in its stability.
From the above discussion it is recommended that further analyses of test-retest reliability be conducted on the TBQ. Conditions in the second administration should be similar to the first administration. An interval of approximately four weeks between administrations is recommended.

Meanwhile, use of the current TBQ can be recommended to educators and researchers. The very high internal consistency provides a high degree of confidence in this aspect of the instrument's reliability. And, even though additional tests of stability have been recommended, the results even under poor control conditions provided moderate degrees of instrument stability.

**Validity**

Both the content and construct validity of the Teacher Belief Questionnaire were examined in the study. Content validity was substantiated through the depth and breadth of the research that led to the formulation of 23 belief elements (which were subsequently reduced to 18) defining teachers' conceptions of the world of the classroom.

The study attempted only a beginning assessment of construct validity. The relationship of preservice teacher belief orientations (overall and for each area of beliefs) to demographic variables of interest in teacher education
were analyzed. The demographic variables were major of program, (elementary or secondary), stage of program (general methods, special methods, and student teaching), sex, age, and grade point average. In separate analyses of covariance each belief orientation score served as the dependent variable, GPA as the covariate, and major, stage, sex, and age as independent variables. A number of significant relationships were found in the five sets of analyses. Separate results were presented in Tables 27-31 and a summary of results in Table 32.

Preservice teachers were most consistent in beliefs about Equal/Differential Treatment. No significant differences in scores were found to be related to the five demographic variables. For Classroom Control and Relationships, differences were found related to major and stage. Elementary majors believed in greater student control and closer relationships than did secondary majors. And, preservice teachers at the special methods stage believed in greater student control and closer relationships than those at the general methods and student teaching stages.

For Community Role, differences were found related to major, sex, and to an interaction between stage and sex. Elementary majors believed in more active community participation than secondary majors. The difference
between the sexes existed only for those at the special methods stage. Males at this stage believed in less active community participation than females.

For Knowledge and Curriculum, differences were found related to stage, sex, and GPA. At the special methods stage, more progressive beliefs were indicated than at the other two stages. Females were more progressive in beliefs about Knowledge and Curriculum than were males. Students with GPA's higher than 3.00 were more progressive than those with less than a 3.00.

For the TBQ composite score, differences in scores were found related to stage, sex, and to an interaction of major and sex. The trend mentioned before of students being less progressive at the general methods stage, being more progressive at the special methods stage, and being less progressive at the student teaching stage was true of the overall belief orientation. As was shown in the interaction analysis, the difference in beliefs as related to sex was true of only the elementary majors. Female elementary majors were more progressive than male elementary majors.

The pattern of relationships between the identified demographic variables and belief orientation scores was not generally consistent in terms of belief scores or demographic variables. An important finding was that the
differences in belief scores between groups, although significant, were none-the-less small in actual score differences. And, groups were always on the same side of the midpoint in the conservative/progressive belief continuum.

The results indicate that variations exist in the beliefs of preservice teachers and subgroups of teachers according to major, stage, age, and sex. The differences are not great but are in several cases significantly different. The presence of variations in beliefs is consistent with the diversity that exists in our society.

The results of the analyses of covariance provide only a beginning base of information about the TBQ belief orientations. The TBQ assesses whether preservice teachers believe that knowledge is established versus continually evolving, whether curriculum should be directed toward a single culture versus cultural subgroups, and whether a set curriculum determined by authorities should be used versus a curriculum designed by the teacher. The TBQ assesses differences in belief related to passive versus active community involvement and whether classroom control should be the teacher's domain versus the students'.

An orientation toward the first part of each statement (conservative) means that there is greater certainty of what should be and less need to adjust to changing
conditions. It means having fewer instances when people from the community meet with educators. It means a more authoritarian approach to classroom management and applying the same expectations and resources to all students regardless of their varying background and needs. Overall, the conservative belief orientation is less complex in terms of implementation than the progressive belief orientation.

Further investigation for the presence of qualities such as described above in the TBQ could be examined by relating TBQ scores to a number of other constructs. For example, an examination of the overall conservative versus progressive orientation could be made by relating TBQ scores to a general conservative versus liberal viewpoint as measured by a scale such as Tompkins' Polarity Scale (1964). TBQ could be related to an ability to think in complex patterns as measured by such scales as Hunt, Butler, Noy, and Rosser's Paragraph Completion Method (1978) or Taylor's Measure of Epistemological Reflection (1983).

The TBQ could also be related to personality qualities or teaching/learning style differences. An examination of the relationship of TBQ to such measures as the Myers-Briggs Type Indicator (Myers, 1962) or the Kolb Learning Style Inventory (Kolb, Rubin, & McIntyre, 1974) could provide information about this.
The 72 item TBQ as evaluated in this study is recommended for use with the four reverse items (nos. 5, 20, 30, and 85) changed back to the regular pattern of conservative orientation in the first half of each statement and progressive orientation in the second half of each statement. The TBQ provides a belief instrument that assesses beliefs about teaching in a language relevant to teachers in the classroom. The testing with preservice teachers showed the concepts to be comprehensible to them as well. Thus the instrument is judged to be appropriate for use with both preservice and inservice teachers.

The TBQ provides an important addition to instruments designed to assess the characteristics of preservice teachers. It could aid teacher educators in assessing the effect of the teacher education program on preservice teacher beliefs about teaching. Because it provides a set of definitions that define conflicts frequently experienced in the classroom, the TBQ could also enhance discussions of the similarities and differences in viewpoints that are evident in teaching. Particularly in situations where conflicts in views exist, e.g., between cooperating teachers and student teachers, use of the concepts in the TBQ could increase understanding of differences and recognition of ways to work together in the situation.
Another potential use of the TBQ is that suggested by Glickman and Esposito (1979) where educators in a school or department discuss beliefs and educational philosophies prior to setting goals and objectives. Understanding of beliefs is necessary to establishing clear statements of what the school is seeking to accomplish. Understanding of differences in beliefs could also lead to offering alternative types of education within the same school (Glickman & Esposito, 1979). Offering schools within a school involves matching parents' desires, students' needs, and teachers' beliefs and teaching styles.

Areas for Future Inquiry

The status of the Teacher Belief Questionnaire as a result of the data analysis in this study indicates the need or potential for further work in the following areas:

1. The presence of a response set to the regular pattern of conservative versus progressive belief orientation should be studied to determine whether a random ordering of orientation would result in misunderstanding and confusion by respondents.

2. The test-retest reliability should be re-examined under matching administration conditions and with a shorter interval between administrations.
3. Additional construct validity measures should be undertaken to analyze the relationship of beliefs to other mental constructs that have related components and/or definitions.

4. The questionnaire as analyzed in this study except for the recommended change of the reversed pattern of belief orientation in four items should be checked in another analysis for impact on internal consistency reliability.

5. The use of the TBQ to study changes in preservice teacher beliefs from entry in teacher education to graduation could provide an indicator of program impact on beliefs about teaching.

6. To further validate the conceptual framework and to examine the relationship of beliefs expressed in the TBQ to actual behaviors in the classroom, a study to identify and test low-inference indicators of beliefs should be undertaken.

**Summary**

The development and evaluation of the Teacher Belief Questionnaire has provided a new type of instrument for use in assessing a characteristic of preservice teachers: beliefs about teaching. The analyses conducted in the study show that both the content and process components of
the conceptual framework were valid and useful in organizing the concept areas of the questionnaire and in formulating questionnaire items.

The initial assessments of internal consistency reliability and construct validity demonstrated that the TBQ has more than an adequate level of reliability and provided a beginning base of information about the relationship of beliefs to selected demographic characteristics of preservice teachers. Due to the moderate degree of stability indicated by the measure used in the study, a reassessment of test-retest reliability has been recommended.

The TBQ provides an instrument that assesses beliefs that are basic to many decisions made in the classroom. What the TBQ can provide for educators is a means to recognize and evaluate their own beliefs and to compare their views with others. Use of the conservative versus progressive overall continuum and the specific opposing views represented in each of the four areas: Knowledge and Curriculum, Community Role, Classroom Control and Relationships, and Equal/Differential Treatment, could facilitate meaningful interactions and increase understanding. Increased understanding could lead to clarification and ease in justifying ones own beliefs and possibly greater consistency between ones espoused beliefs and ones actions in the classroom.
Appendix A

ELEMENTS OF TEACHER PERSPECTIVES
Elements of Teacher Perspectives*

KNOWLEDGE AND CURRICULUM

1. Public knowledge
   knowledge consists of accumulated bodies of information, skills, and facts
   knowledge is external, independent of the learner
   personal knowledge is irrelevant to school curriculum

Private knowledge
   knowledge is established primarily through its relationship to the learner
   useful knowledge enables the learner to make sense of his experience
   personal knowledge and experience is necessary for learning

2. Knowledge is product
   knowledge is organized as bodies of information, facts, theories
   learning is getting the correct answer

Knowledge is process
   the thinking and reasoning involved in learning about something is of greater concern than the product
   learning is mastery of thinking and reasoning skills

3. Knowledge is certain
   knowledge is out there to be discovered and uncritically accepted

Knowledge is problematic
   knowledge is constructed, tentative, and subject to social, political, and cultural influence

4. Learning is fragmented
   learning is the accumulation of discrete parts, built to a whole
   little concern for seeing the relationship of parts to whole

Learning is holistic
   understanding the whole is more than learning the parts
   much concern for understanding the whole

5. Learning is unrelated
   learning proceeds best when knowledge is organized within disciplines or content areas

Learning is integrated
   learning proceeds best when subject areas are organized around a theme or relational idea
6. Learning is an individual activity  Learning is a collective activity
learning proceeds best as an individual encounter between learner and material or teacher learning proceeds best when ideas are exchanged in a cooperative, supportive environment

**CLASSROOM CONTROL AND RELATIONSHIPS**

7. High teacher control over learning  High pupil control over learning
including choice of activity, time on task, how activity proceeds, and evaluation criteria

8. High teacher control over pupil behavior  High pupil control over pupil behavior
teacher assumes responsibility for maintaining control learners are given opportunities to assume responsibility for behavior
teacher makes many explicit rules few rules; less explicit

9. Distant teacher-pupil relations  Close teacher-pupil relations
detached, formal relationships close, informal relationships

**THE TEACHER'S ROLE**

10. What to teach: bureaucratic role  What to teach: independent role
teacher generally follows without question the prescribed curriculum teacher actively constructs and determines content independent of prescribed curriculum

11. How to teach: bureaucratic role  How to teach: independent role
teacher follows prescribed methods of instruction teacher determines and develops methods of instruction
authorities have legitimate role may ignore authorities directives
12. **School rules and regulations:**

<table>
<thead>
<tr>
<th>Bureaucratic role</th>
<th>Independent role</th>
</tr>
</thead>
<tbody>
<tr>
<td>teacher follows prescribed rules and regulations</td>
<td>teacher decides and establishes rules and regulations</td>
</tr>
<tr>
<td>authorities have legitimate role</td>
<td>may ignore authorities role</td>
</tr>
</tbody>
</table>

**STUDENT DIVERSITY**

13. **Learners classified by categories:**

<table>
<thead>
<tr>
<th>Use of broad, general, fixed categories to characterize learners</th>
<th>Use of specific, multiple dimensions to differentiate each child</th>
</tr>
</thead>
<tbody>
<tr>
<td>tends to stereotype groups</td>
<td>appreciates/recognizes individuality</td>
</tr>
</tbody>
</table>

14. **Universal curriculum**

| All learners exposed to the same curriculum | Some elements of the curriculum should be offered to only certain individuals or groups |

15. **Universal rules**

| Same rules applied to all | Rules applied differentially |

16. **Equal allocation of resources**

| Learners all deserve equal share of teacher time, materials, knowledge | Some learners deserve a greater share of resources than others |

17. **Common culture**

| Learners should develop a common set of values, norms, and social definitions | Learners should appreciate themselves as members of subcultures: language, race, ethnicity |

18. **Restricted preference for work situation**

| Desires and feels competent to work with only certain kinds of children | Desires and feels competent to work with children from any background |
## THE ROLE OF THE COMMUNITY IN SCHOOL AFFAIRS

<table>
<thead>
<tr>
<th></th>
<th>Limited access to school</th>
<th>Free access to school</th>
</tr>
</thead>
<tbody>
<tr>
<td>19. Limited access to school</td>
<td>Free access to school</td>
<td></td>
</tr>
<tr>
<td>little information to parents</td>
<td>much information to parents</td>
<td></td>
</tr>
<tr>
<td>little encouragement to visit classroom</td>
<td>much encouragement to visit classroom</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>Passive role in curriculum and instruction</th>
<th>Active role in curriculum and instruction</th>
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<tbody>
<tr>
<td>little input into curriculum and instruction</td>
<td>much input into curriculum and instruction</td>
<td></td>
</tr>
<tr>
<td>community people not viewed as important resource</td>
<td>community people are viewed as important resource</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>No role in school administration</th>
<th>Active role in school administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>no parent participation in running the school</td>
<td>active parent participation in running the school</td>
<td></td>
</tr>
</tbody>
</table>

## SCHOOL AND SOCIETY

<table>
<thead>
<tr>
<th></th>
<th>Source of teacher's problems: child's background</th>
<th>Source of teacher's problems: conditions in society</th>
</tr>
</thead>
<tbody>
<tr>
<td>learner characteristics, backgrounds are sources of problems</td>
<td>structural aspects of schools and conditions in society contribute to the problems faced by teachers</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Solutions to problems: educational interventions</th>
<th>Solutions to problems: changes in schools and society</th>
</tr>
</thead>
<tbody>
<tr>
<td>solving problems of people can be accomplished through successfully educating each child in the existing school structure</td>
<td>solving problems will also require changes in structure of schools and society</td>
<td></td>
</tr>
</tbody>
</table>

Appendix B
TEACHER BELIEF QUESTIONNAIRE
The purpose of this questionnaire is to learn more about what preservice teachers believe about teaching. This information can contribute to the knowledge base in teacher education and to teacher development. More specifically, it may serve to better enable the beginning teacher to respond to a frequent question from students, administrators, and parents, "Why are you teaching this content, this way?"

You can help by indicating how each statement most generally represents your belief. Each statement includes two opposing views. Even though you may see yourself reacting similarly to both sides, please indicate how one side more generally or frequently represents your position. There are no right or wrong answers.

The questionnaire contains 92 items divided into four sections. Each section contains a set of beliefs expressed in a particular way. Concepts or ideas may be repeated but expressed in a different type of belief statement.

The same answer scale is used throughout the questionnaire:

1 = strongly agree
2 = agree
3 = disagree
4 = strongly disagree

For each item, select the response that indicates the extent of your agreement or disagreement with the first half of the statement, the part before rather than. A disagree response will, in fact, be read as agreement with the second half or opposing position.

Example:

Suppose Item 5 on your questionnaire reads:

5. I learn best by first going over a whole assignment, project, or text rather than by dealing only with each part in its order.

If you "agree" with the first half of the statement, then for Item 5 on your answer sheet, shade in the area marked "2" as shown below.

5. 1 2 3 4

If, however, you "strongly disagree" with the first half of the statement, then shade in the area marked "4". This will mean that your position is represented by the second half of the statement.

5. 1 2 3 4

Now, you can help us by responding to the statements of beliefs about teaching and learning in this questionnaire. Read the instructions carefully for each section and indicate as best you can how the statements represent your beliefs.

The questionnaire is based on the research of Tabachnick, B. R. and others at the University of Wisconsin-Madison and Berlak, A., and Berlak, H., Dilemmas of Schooling.
SECTION I

Statements 1-21 refer to what you believe to be true of yourself as a learner and as a prospective teacher. They ask what you do, what you like, and how you behave in particular situations.

Answer Scale: 1 = strongly agree
2 = agree
3 = disagree
4 = strongly disagree

1. The knowledge that I possess came from established bodies of information that I acquired rather than from meanings that I personally developed.

2. When I am learning I concentrate on getting the facts, the important information rather than on developing ways of thinking about what I am learning.

3. My approach to finding out about something is to search out what is known for sure rather than to look for alternative ideas and decide which is best for myself.

4. I learn best by putting parts of ideas together rather than by starting with a whole idea.

5. When I learn a subject it is best for me to relate it to something in my life rather than to see how it has been organized within the field.

6. I learn best by going over the material by myself rather than by working and exchanging ideas with others.

7. I like it best when the teacher establishes precise expectations about how a learning situation is to proceed rather than when the teacher expects me to determine how I shall proceed.

8. I like it best when the teacher sets expectations for learner behavior rather than when the teacher expects learners to assume this responsibility.

9. I like a teacher to maintain a separate position in relations with students rather than to establish close relations with students.

10. I will choose what to teach by following the prescribed curriculum rather than by developing and organizing my own ideas into a curriculum.

11. I will choose instructional methods based on the prescribed methods of teaching rather than develop my own methods of teaching.

12. I will follow the rules of the school rather than determine my own rules.

13. I classify learners by their ages, backgrounds, and developmental stages rather than by thinking of each learner as an individual with specific characteristics.

14. I will choose to offer the same curriculum to all learners rather than to offer varied curricula to different types of learners.

15. I believe in applying the same school rules to all learners rather than in making exceptions to school rules in particular cases.

16. I will give all my learners an equal share of educational resources rather than give those learners who deserve it a greater share of educational resources.

17. I will help learners develop a common set of norms to live by rather than help learners understand the variety of norms present in society.

18. I believe that I could successfully work with students from a background similar to my own rather than with students from any kind of background.

19. I will sometimes inform parents about what goes on in my classroom rather than frequently inform parents about my classroom.

20. I believe that information from the community is very important to curriculum and instruction decisions rather than somewhat important to curriculum and instruction decisions.

21. I would prefer that parents seldom participate in running the school rather than that parents frequently participate in running the school.
My problems as a learner are caused by factors related to my ability rather than by the inability of schools to supply my needs.

I will overcome poor learner achievement by trying my best to educate each child rather than by working to change the overall structure that contributes to learning problems.

SECTION II

Statements 24-46 refer to what you believe to be true of others, the world in general as they relate to teaching and learning. They ask what exists, what the case is, in general.

Answer Scale: 1 = strongly agree
2 = agree
3 = disagree
4 = strongly disagree

Knowledge consists of information accumulated independent of learners rather than information developed in relation to each learner.

Learning is getting the right information rather than reasoning about it.

Knowledge is what is known for sure rather than what is known tentatively, based on the situation.

Learning involves accumulating parts into a whole rather than understanding the whole as more than the parts.

Learning proceeds best when the subject is organized within its content area rather than when it is organized around a central theme.

The best learning occurs in individual interactions with resources rather than in group interactions in a supportive environment.

A better education results when learners are in charge of choosing learning activities rather than when the teacher is in charge of choosing learning activities.

Education is best served when the teacher takes charge of discipline rather than when the teacher provides opportunities for learners to be in charge of discipline.

The teacher's role is to maintain a distance from learners rather than form friendships with learners.

The teacher's role is to use the curriculum set by the school or state rather than to use his or her own creativity in determining the curriculum.

The teacher's role is to use the methods of instruction set by the school or state rather than to use his or her own creativity in determining them.

The teacher's role is to abide by the established school regulations rather than to individually establish regulations.

Learners can be better understood by comparing the general categories they belong to rather than by recognizing what is individual about each learner.

Our society is better served if all learners are exposed to the same curriculum rather than if different groups of learners receive different types of curricula.

Schools function better when all rules are applied consistently to all cases rather than when rules are used as guides with exceptions made in special situations.

Society is better served when the educational monies are distributed equally rather than when educational monies are apportioned according to need.

Society would be better served if everyone shared the same culture rather than if groups developed subcultures.

Teachers are competent to teach the type of student with whom they have had experience rather than with any type of student.
42. Schools function better if the community is given little information about the school rather than if the community is given much information about the school.

43. The better curriculum results when community people have little input rather than when community people have much input.

44. Schools are managed better when parents are minimally involved rather than when parents are maximally involved.

45. The problems in schools today stem from conditions in society that result in inequity of opportunity for students rather than from the poor ability and background of students.

46. The better way to solve society's problems is to successfully educate each child rather than to change societal conditions that cause the problems.

SECTION III

Statements 47-69 refer to what you believe your goals are or will be as a teacher. They ask what you hope will happen, what you plan to do, what you intend to make happen.

Answer Scale: 1 = strongly agree
2 = agree
3 = disagree
4 = strongly disagree

47. My goal will be to help learners acquire the agreed upon knowledge in a field rather than to help learners develop individual understandings about a field.

48. I intend to help my students acquire organized bodies of knowledge rather than to help them become questioners seeking answers.

49. I want to help my students acquire the knowledge that is certain rather than treat knowledge as relative depending on the factors pertaining to a situation.

50. I hope to enable my students to learn many things, to accumulate lots of bits of knowledge rather than to learn a few big ideas.

51. My goal will be to help my students learn the organized content in my subject area(s) rather than relate subject learnings to ideas or events in their lives.

52. I want most to create learning situations in which each learner can pursue individual activities rather than in which groups of learners can work together on activities.

53. I plan to make the decisions about what and how learning will go on in my classroom rather than to allow my learners to choose learning activities.

54. My goal will be to maintain a well controlled classroom rather than to allow learners to have responsibility over behavior control.

55. I want to establish a professional relationship with my students rather than to establish a close rapport with my students.

56. My goal will be to choose what to teach according to the established plan rather than to establish my own plan of what to teach.

57. I hope to follow the established plan for methods of instruction rather than to establish my own ways of instructing.

58. My goal will be to support the school rules rather than to set up my own rules.

59. I plan to examine how my learners compare and contrast with other groups of learners rather than how my learners are each an individual.

60. I hope I will be able to provide the same content learnings to all my students rather than to provide different content learnings to different types of students.

61. I want to be a teacher who is precise and consistent in enforcing the rules rather than a teacher who makes exceptions to rules for individual cases.

62. I will try to give equal time and resources to all my learners rather than to give extra time and resources to my special learners.
63. My goal will be to help learners share in our common set of values rather than to help learners appreciate the varying sets of values from differing groups of people.

64. I hope to get a teaching position in a certain type of community rather than in any type of community.

65. I hope my students' parents visit my classroom infrequently rather than visit my classroom frequently.

66. I want to base my curriculum decisions on factors other than those related to the school community rather than on factors related to the community.

67. I hope my students' parents will leave school management to the professionals rather than participate actively in school management.

68. I will try to understand my problems with students by examining their characteristics and backgrounds rather than by examining the structure of the school.

69. My goal is to meet the special needs of each of my learners rather than to change the general circumstances that contribute to the special needs of learners.

SECTION IV

Statements 70-92 refer to what you believe are the educational norms or standards. They ask what should be done by teachers, schools, and parents or what ought to be the case in educational situations.

Answer Scale: 1 = strongly agree
               2 = agree
               3 = disagree
               4 = strongly disagree

70. The major content in a school curriculum should be the knowledge that has been established by authorities rather than the knowledge that has personal relevance to learners.

71. Schools should concentrate on helping learners do well on standardized tests rather than on helping them develop ways to judge situations.

72. Schools should teach that knowledge is what is known for certain rather than that knowledge is open to question.

73. Schools should ensure that students learn the many separate parts of what is known rather than learn whole ideas that serve as guiding principles.

74. Teachers should teach content organized in a subject area rather than as organized by a unifying theme.

75. Schools should provide opportunities for learners to work individually rather than to work in groups.

76. The teacher should be responsible for directing the learning of the classroom rather than for providing opportunities for learners to decide about their learning.

77. Teachers should establish control over classroom behavior rather than allow students to assume responsibility for classroom behavior.

78. Teachers should keep their relations with students on a formal level rather than encourage informal relations.

79. Teachers should teach the content set by the authorities rather than teach what he or she determines is important to teach.

80. Teachers should teach using the methods set by the authorities rather than teach using the methods he or she determines is best.

81. Teachers ought to follow the school's regulations rather than to determine regulations themselves.

82. Teachers should try to understand how their learners are different from other groups of learners rather than try to differentiate each learner.
Answer Scale: 1 = strongly agree  
2 = agree  
3 = disagree  
4 = strongly disagree

83. Schools should provide the same education for all learners rather than offer different educational patterns to different groups of learners.

84. Teachers should apply the same rules to all students rather than apply them differentially in particular situations.

85. Schools should provide a greater share of facilities and materials for learners who deserve it rather than provide equal facilities and materials for all learners.

86. Schools should serve as a melting pot, bringing about common social definitions rather than encourage learners to identify with their differing ethnic and racial heritages.

87. Teachers should be prepared to teach the type of students they prefer to work with rather than to teach any type of student.

88. Parents visits to the classroom should be restricted rather than unrestricted.

89. Schools should expect little community participation in curriculum and instruction decisions rather than expect much community participation.

90. Parents, being untrained, should have no role in running the school rather than, due to vested interest, should have an active role in running the school.

91. Schools should concentrate on finding the learner abilities that are related to poor school performance rather than on finding the school organizational factors that are related to poor performance.

92. Teachers should concentrate on successfully teaching their students rather than on changing things that appear to hinder students' learning.
Appendix C

QUESTIONNAIRE ADMINISTRATION FORMS
In order for us to analyze the relation of beliefs about teaching to a number of other variables, the information below is requested. Your social security number is requested for the purpose of matching data sets in the analysis. Data will be analyzed and reported using grouped data, not by individual student except for the report to be mailed to you.

Put all your responses on the answer sheet. If you make a mistake, erase the old answer completely before marking a new one. DO NOT use ink. Use only a No. 2 pencil. If you do not have one, let me know and I will give you one.

Please fill in the spaces and darken in the appropriate spaces on the answer sheet with the following information before completing the questionnaire.

**Information**

1. Name
2. Sex
3. Grade Level or Educ for the stage this course is in teacher education:
   - 1 = FEEP
   - 2 = PI
   - 3 = Methods course in your major area
   - 4 = Student Teaching
4. Your birth date
5. Identification Number - Your Social Security Number
6. Special Codes:
   - KLM = the three digit number in the upper right corner of this sheet
   - NO = the two digit number from the list below indicating your intended or current education major

   - 01 = Agriculture
   - 02 = Art
   - 03 = Business
   - 04 = Dance
   - 05 = Dental Hygiene
   - 06 = Distributive
   - 07 = Elementary
   - 08 = English
   - 09 = Exceptional Children
   - 10 = Foreign Language
   - 11 = Health
   - 12 = Home Economics
   - 13 = Industrial Technology
   - 14 = Mathematics
   - 15 = Music
   - 16 = Physical Education
   - 17 = Science
   - 18 = Social Studies
   - 19 = Speech
   - 20 = Trade & Industrial Technology
Investigators: Donald R. Cruickshank, Professor Department of Educational Theory and Practice
Penelope Reighart, Graduate student
019 Arps Hall 422-5790
4778 Hillcrest N. Hilliard, OH 43026 876-5127

Purpose: To learn about preservice teacher beliefs about teaching. This information can contribute to the knowledge base in teacher education and to teacher development.

Benefits: The items in the Teacher Belief Questionnaire include problem situations that teachers frequently face in the classroom. Exposure to them may provide for increased understanding of classroom problems in which one choice between two opposing alternatives is necessary. Taking positions may increase your conscious knowledge of your beliefs about teaching. You may be better able to describe and justify your choices and actions in the classroom.

If you desire it, an individual report of your score will be mailed to you at the conclusion of the study. Please self-address (permanent address) the provided envelope if you wish to receive your results on the Teacher Belief Questionnaire.

Procedures: Your participation involves completing the Teacher Belief Questionnaire. It will take approximately 45 minutes of your time. Because we intend to analyze the relation of beliefs about teaching to a number of variables, information about your age, sex, stage in teacher education, and education major are requested. Permission to use the Myers-Briggs scores obtained for most students in FEEP (Freshman Early Experiencing Program) is requested.

Your social security number and name are requested for the purpose of matching data sets in the analysis. Data will be analyzed and reported using grouped data. Individual student data will remain confidential. Data will be retained at the home address above until the study is finalized and reported.

I would greatly appreciate your participation; however, I can not require that you do so. Non-participation will not affect your status in any course or in your major. You may withdraw at any time during the collection period. If a problem exists with completing the questionnaires today, an alternative time could be arranged.

If you have any questions, please ask them. Thank you for your help.
THE OHIO STATE UNIVERSITY

CONSENT FOR PARTICIPATION IN
SOCIAL AND BEHAVIORAL RESEARCH

I consent to participate in research entitled:

"Preservice Teacher Beliefs about Teaching"

Donald Cruickshank, Penelope Reighart, or their authorized representative has explained the purpose of the study, the procedures to be followed, and the expected duration of my participation. Possible benefits of the study have been described as have alternative procedures, if such procedures are applicable and available.

I acknowledge that I have had the opportunity to obtain additional information regarding the study and that any questions I have raised have been answered to my full satisfaction. Further, I understand that I am free to withdraw consent at any time and to discontinue participation in the study without prejudice to me. The information obtained from me will remain confidential.

If my scores from the Myers-Briggs personality questionnaire that is regularly administered in FEEP (Freshman Early Experiencing Program) are available, I give my permission for the investigators to obtain and use them for relating data sets in this study.

Finally, I acknowledge that I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been provided to me.

Date ______________________ Signed ______________________________

(participant)

Donald R. Cruickshank, Professor
Department of Educational Theory
and Practice
College of Education
(Principal Investigator)

Penelope Reighart, Graduate student
Department of Educational Theory
and Practice
College of Education
(Investigator)
August 14, 1984

Dear Teacher Education Student:

Last quarter at OSU you completed a questionnaire about your beliefs about teaching. Thank you for your professional cooperation. The information from over 250 students' responses are being analyzed and if you requested your results, they will be sent to you this fall.

To determine an important quality of the instrument, reliability, a second administration of the questionnaire is necessary. We are asking for your help in completing the questionnaire a second time. Your individual results will be kept confidential.

We would greatly appreciate your response to the questionnaire. We will be happy to send you information on both sets of your scores this fall. Indicate your responses on the enclosed answer sheet and return the answer sheet only in the envelope provided by September 20. Thank you.

William E. Loadman
Associate Professor

Penelope A. Reighart

Sincerely yours,
TEACHER BELIEF QUESTIONNAIRE ANSWER SHEET

Answer Scale: 1 = strongly agree
2 = agree
3 = disagree
4 = strongly disagree

Return this answer sheet only in the enclosed envelope.

Directions: Rather than shade in simply circle the number for each item that best corresponds to your agreement or disagreement with the first half of the statement, the part before rather than.

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