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A study of the effects of matched and mismatched teacher and student belief systems on student state anxiety, self-esteem, and academic achievement.

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A STUDY OF THE EFFECTS OF MATCHED AND MISMATCHED

TEACHER AND STUDENT BELIEF SYSTEMS ON STUDENT

STATE ANXIETY, SELF-ESTEEM, AND ACADEMIC

ACHIEVEMENT

A Dissertation Presented

By

ROBERT A. PAUKER

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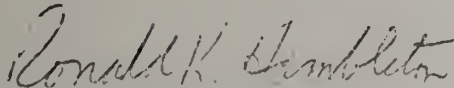
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A STUDY OF THE EFFECTS OF MATCHED AND MISMATCHED TEACHER AND STUDENT BELIEF SYSTEMS ON STUDENT STATE ANXIETY, SELF-ESTEEM, AND ACADEMIC ACHIEVEMENT

ROBERT A. PAUKER

ABSTRACT
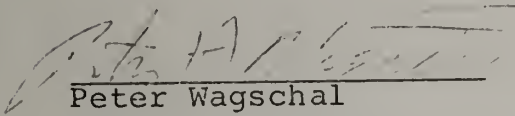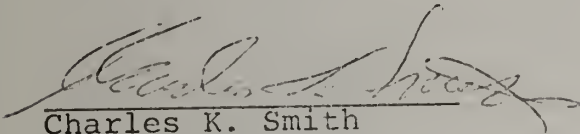
In recent years, a great deal of interest has existed among educators and psychologists in optimally matching teachers and students so as to maximize student learning. Also, educators and psychologists have long regarded anxiety as a major factor influencing student academic and social development. Specifically, it is well-known that heightened levels of student state anxiety will adversely effect the amount of student learning.

The research reported in this investigation was designed to study the effects of matched and mismatched teacher-student belief systems on levels of student state anxiety. The research was designed also to consider the impact of matched and mismatched teacher-student belief systems on self-esteem and academic achievement. The following research questions were investigated:

Among high trait anxious students, will state anxiety
levels be higher when teacher-student belief systems
are mismatched as compared to the situation when
these belief systems are matched?

Among high trait anxious students, will levels of
student self-esteem in school be lower when teacher-
student belief systems are mismatched as compared
to the situation when these belief systems are
matched?

Among high trait anxious students, will academic
achievement be lower when teacher-student belief
systems are mismatched as compared to the situa-
tion when these belief systems are matched?

The study was conducted in the Spring of 1976 with
students and teachers from three different sites participat-
ing. In total, there were 806 students (in grades six to ten)
and 14 teachers. In attempting to answer the research
questions, six instruments were utilized. The This I Believe
test was used to assess teacher belief system levels. The
Conceptual Systems Test was given to participating students
in order to measure student belief system levels. The State-
Trait Anxiety Inventory and the State-Trait Anxiety Inven-
tory for Children were given to participating students to
measure levels of state and trait anxiety. Finally, two
questionnaires were developed by the investigator. The first
was designed to informally assess conceptual levels and to
measure levels of student self-esteem in school. This ques-
tionnaire was administered to students in two of the sites.
The second questionnaire was designed to primarily measure
student perceptions of their own learning styles. It was

administered as a follow-up questionnaire to thirty-seven students in one of the sites.

There were no significant differences in student state anxiety when teacher-student belief systems were matched or mismatched. Levels of self-esteem in school and academic achievement, also, did not significantly fluctuate with matched or mismatched belief systems. Even though no significant results occurred, an important trend in the data did occur in one of the sites where higher levels of student state anxiety existed in cases when the teacher belief system scores were greater than those of students.

The results of the second student questionnaire revealed that both high and low trait anxious students were aware that certain teachers make them nervous and that when placed in a classroom with such a teacher, their academic achievement and self-esteem decline. The questionnaire also provided evidence suggesting that high trait-anxious students perceived themselves as being more negatively affected by mismatches than low trait anxious students and students who scored low on a worry scale. While the sample size was small, the results from the questionnaire administration supported the Harvey-Hunt theories of matching teachers and students, and the theory developed in this investigation.

Regarding the research questions investigated in this study, future research is needed to further clarify the

influence of matching teacher and student belief systems on classroom anxiety. Future research also needs to investigate effective approaches for utilizing conceptual systems theory as a means of expanding teacher flexibility.

C H A P T E R   I

Introduction

1.1 Background

In recent years there has been considerable inter-
est in the design of flexible learning environments. In
part, this interest has resulted from the belief among many
educators and psychologists that the quality of instruc-
tion can be improved for students by providing them with
instruction and environments which are consistent with both
their learning styles and personalities (Bracht, 1970;
Cronbach, 1970; Murphy and Brown, 1970; Prather, Harvey
and Coates, 1970; Rogers, 1969; Tuckman, 1968). Unfortu-
nately, our knowledge of instruction is not developed to the
point where clear guidelines for matching teachers and stu-
dents so as to optimize student learning are readily avail-
able.

There are, however, certain promising strategies
that deserve to be thoroughly studied. One such strategy
involves the matching of teachers (or teacher behaviors)
to student learning styles (Harvey 1966b, 1970a, 1970b, 1974,
1976a; Hunt 1970, 1971, 1972, 1974, 1975; Hunt & Sullivan,
1974).   Proponents of matching teachers and students

maintain that student learning will be enhanced when students receive instruction in a mode consistent with their most effective learning styles. In short, proponents of this strategy believe that proper matching will produce a healthier relationship between teacher and student with an end result of greater student learning.

One of the major consequences of teacher and student matching might be the minimizing of those psychological variables which most likely interfere with learning. To date, educational research has only begun to explore the effects of teacher and student matching on these psychological variables (Harvey, 1976a). One important psychological variable that is negatively related to school achievement is "anxiety".

1.2 Anxiety in the Classroom

Anxiety has been regarded by educators and psychologists over the past two and one half decades as a prime factor in student academic and social development (Ausubel, Schiff, Goldman, 1956; Castaneda, McCandless, Palermo, 1956; Cronbach, 1970; Dunn and Schelhun, 1967; Feather, 1963; Gelfand, 1962; Groom and Endler, 1960; Krause, 1961; Lucas, 1952; Phillips, 1967; Sarason, Davidson, Lighthall, White, 1960; Spielberger, 1966). For example, anxiety has been found to be related to student self-esteem (Gelfand, 1962; Rosenberg, 1962) and academic achievement (Saltz and Hoehn, 1957; Tennyson and Wooley, 1970).

Psychologists and educators have determined that certain types of anxiety are highly contingent upon stress. In terms of a student viewing the classroom as threatening, he or she perceives one or more stressors within the environment. Krause (1961) describes stressors (factors which produce present stress) as certain stimuli which tend to induce anxiety. Because different individuals react differently to a specific stimulus and because it is impossible to come up with a set list of stressors, Krause concludes:

> We have argued, then, that defining anxiety as response to stress rests like introspective report upon convention, namely, the irresistible fearsomeness of certain stimuli, but a less determinate convention. The stimuli productive of fear may be somewhat idiosyncratic for any subject and even the most potent stimuli can conceivably fail to produce fear. Thus, no given stressor is a necessary or sufficient cause of fear, though some would generally be expected to cause it in most persons (p. 181).

Therefore, since no defined list of stressors exists, it becomes increasingly difficult to determine which student interactions with the classroom environment may be creating anxiety. Nevertheless, it remains important to determine generally if a given classroom environment is provoking a student to feel anxious.

What effect does this anxiety have on student academic and social development? This question has been a major focus of educational researchers. Anxiety has been found to have a negative relationship to grades and grade point average (Groom and Endler, 1960; Spielberger and Katzenmeyer, 1959). A high

negative correlation exists between anxiety and self-concept (Lipsitt, 1958; Horowitz, 1962). McCandless, Castaneda and Palermo (1957) found a negative relationship between anxiety and status, while Holcomb (1972) demonstrated through a review of the literature that achievement and acceptance are interrelated to anxiety. Cowen (1965) in a very significant investigation studied the relationship between anxiety, sociometric, cognitive and physical health factors. This investigation revealed six important findings regarding anxiety: 1) high anxious children are more likely to be referred to the nurse's office; 2) high anxious children are generally rated by teachers as having negative behavior characteristics; 3) high anxious children tended to be nominated by the class for a negative part in a myth play; 4) high anxious children received, on the whole, lower grades; 5) high anxious children had lower verbal I.Q. levels; 6) high anxious children were found to have lower reading comprehension. The importance of this study lies in the fact that the authors have reconfirmed positive and negative relationships of anxiety to certain school factors.

Anxiety has been defined in a variety of different ways. Therefore, a major difficulty exists in interpreting the findings of a given study, especially when the reader fails to perceive results through each author's definition. It is essential that any investigator using anxiety as a

major variable specifically define the term as it will be used in that study.

One very useful definition of anxiety was developed by Spielberger (1966) where he distinguishes between two types of anxiety: trait anxiety and state anxiety. Trait anxiety (A-trait) refers to a relatively stable personality trait of the individual. An individual who is ordinarily an anxious person will fit into this category. Generally, trait anxiety implies a behavioral disposition in which the individual tends to view circumstances which pose no realistic danger threatening. State anxiety is concerned with the anxiety level at a given time, level of stress, of the individual, as opposed to the degree of anxiety which by nature accompanies one's personality (Spielberger, 1966). State anxiety is concerned with feelings of apprehension which exist at a given moment. Levels of state anxiety tend to be generally higher in trait anxious individuals.

In summary, anxiety has been shown to be a major factor influencing student learning and, generally, student behavior in school. One useful way for defining anxiety is that of Spielberger who distinguishes between trait and state anxiety.

1.3 Purposes of the Study

With considerable interest in models designed to optimally match teachers and students to maximize student

learning, it seemed important to provide some research re-
sults collected from many classrooms to report on the
effectiveness of these models. Primarily, this study was
designed to address three questions:

> Among high trait-anxious students, will state anxiety
> levels be higher when teachers and students are mis-
> matched as compared to the situation when they are
> matched?

> Among high trait-anxious students, will levels of
> student self-esteem in school be lower when teachers
> and students are mismatched as compared to the situa-
> tion when they are matched?

> Among high trait-anxious students, will academic
> achievement be lower when teacher and students are
> mismatched as compared to the situation when they
> are matched?

Levels of state anxiety and self-esteem were considered
for low trait-anxious students. This investigation also
studied the extent to which matched and mismatched teacher-
student classroom environments affect both student atti-
tudes about their classrooms in general and self-perceptions
of stress levels.

1.4   Rationale for the Study

The theories and research on matched and mismatched
teacher-student conceptual systems point out the impact
certain teacher personality characteristics can have on
student learning.[1]   It may be inferred that if teacher-student

---

[1]This theory describes four stages of conceptual
development. Conceptual systems theory will be defined
and discussed in detail in Chapter II.

conceptual systems are mismatched, the student may perceive
an increased amount of stress within the classroom environ-
ment. The attempt to better match students and teachers
is designed to promote a more harmonious learning situation
and to avoid a more stressful classroom atmosphere.

Research and theory concerning Aptitude Treatment
Interactions (ATI) reflects the need for combining such
variables in the hope of improving instruction and maxi-
mizing student learning. Bracht (1970) summarizes the
goal of ATI as follows:

> The goal of research on ATI is to find significant
> disordinal interactions between alternative treat-
> ments and personological variables, i.e., to develop
> alternative instructional programs so that optimal
> educational payoff is obtained when students are
> assigned differently to the alternative programs
> (p. 627).

Hunt (1974), and Hunt and Sullivan (1974) used the
work of Lewin (1936) to develop a paradigm similar in theory
to the goals of ATI. This paradigm maintains that "Behavior
is a function of Person and the Environment." "In the
classroom the Behavior (learning) would be seen as jointly
determined by P (kind of student) and E (way of teaching)"
(Hunt, 1975, p. 13). The B-P-E paradigm requires the educa-
tor to ask specific questions extending beyond "What instruc-
tional approach is better?" to include "For whom?" and
"For what purpose?" An awareness of proper classroom
environmental structure will enhance an effective instructional

mode for the teacher. If Behavior is a function of Person and Environment, one's level of state anxiety (the cause of a particular behavior) can profoundly affect learning.

1.5 Outline of the Dissertation

The organization for the remainder of the study is described in this section. In Chapter II we will present a definition of all significant terms and review educational and psychological literature related to state and trait anxiety and the concept of matched and mismatched classroom environments. The purpose of Chapter III is to describe the research methodology for the study and discuss sample selection, instrumentation and procedures. The analysis of results will be reported in Chapter IV. Finally, in Chapter V, we will summarize the results, discuss implications for educational practices, and suggest several promising areas for further research.

CHAPTER II
Review of Literature

2.1 Introduction

By increasing our understanding of the relation-
ship between matched teacher and student learning environ-
ments and trait anxiety, it should be possible to design
better educational programs for more students. With this
in mind, the major purpose of this Chapter is to review
relevant literature on the topics of conceptual systems and
anxiety.

The review of the literature is divided into two
major parts: the first part is concerned with conceptual
systems and the second with theory related to anxiety and
its effects on students. The reviewed literature provides
a theoretical base for the investigation.

2.2 Conceptual Systems

This section of the review of the literature is divided
into the following seven parts:

1. Background
2. Conceptual Systems Theory
3. Belief Systems
4. Belief Systems and Classroom Atmosphere

5. Summary of Belief Systems Theory and Research

6. The Conceptual Level Matching Model

7. Belief Systems and the Conceptual Level Matching Model in Perspective.

2.2.1 Background

Educational researchers have expended considerable energy in an attempt to categorize specific teacher behaviors which most positively influence student learning. The subsequent studies were designed to determine advantageous teacher behaviors, but the results of the studies are inconclusive.

Ryans (1960) in his major study on the characteristics of teachers, attempted to find which teacher characteristics were related to teacher effectiveness. He came up with a long list of traits, including fair, democratic, understanding, stimulating, original, honest, confident. However, the study could not determine which teacher behaviors cause which changes in student behavior. Wehling and Charters (1969) investigated the belief systems of teachers in regards to the classroom learning process. They hoped to identify specific variables from a questionnaire of 118 items. Again, no definite results were found. Rosenshine and Furst (1971) reviewed research regarding teacher behaviors and student achievement. Their conclusions

express the frustration of those who have sought to identify
specific behavior characteristics for teachers:

> . . . However, as of this writing no one has shown
> that the behaviors identified in the models have
> any proven relevance to the real world. To be real,
> teacher behaviors need to be researched so that
> they are known to have some relationship to student
> outcome measures. Until this research is done,
> we can have little confidence that the models are
> providing any more hope that either teacher train-
> ing or student education will be greatly improved
> in the foreseeable future (p. 66).

Getzels and Jackson (1963) echo the conclusions of Rosen-
shine and Furst. They concluded that "very little is known
for certain about the nature and measurement of teacher
personality, or about the relationship between personality
and teaching effectiveness."

Two decades ago, Getzels (1955) suggested that
what is needed is not research concerned with self-evident
characteristics--friendliness, cheerfulness, etc.--but
"the discovery of specific and distinctive features of
teacher personality and the effective teacher."

Along these lines MacDonald and Zaret (1969) con-
ducted a study in which they sought to measure the atti-
tudes of teachers based on the concepts of open and closed
belief systems developed by Rokeach (1960). In an open
system the individual perceives more sources of information
as relevant and organizes that information in a more complex
manner. In a closed belief system the individual will

tend to filter out all information contrary to his or her existing structure for viewing the world.

The authors characterized teacher behavior as transaction or role expectancy-oriented. Transaction behavior refers to the teacher who is stimulating, supporting, facilitating, etc. The role-oriented teacher is directing, judging, reproving, rejecting, etc. The authors assume that the transaction-oriented teacher is on the open end of the spectrum, while the role-oriented teacher is on the closed end.

The results of the investigation found that in eight of nine classrooms, the teacher's behavior, either open or closed, was assumed by the students. Thus an open teacher most likely had a class which exemplified those characteristics of an open belief system.

The authors found evidence to support the belief that the role-expectancy oriented teacher will have a reproductive class (guessing, confirming, acquiescing, following, parroting, counter responding, reproducing factism reasonably based on given or remembered data). The transaction-oriented teacher will most likely have students who demonstrate productive behavior (discovering, exploring, experimenting, elaborating, qualifying, evaluating, synthesizing, explicating, deriving implications, divergent association, counter-responding).

The results of this study indicate that teacher personality can influence what occurs in the classroom environment.

In another study, Harvey, White, Prather, and Hoffmeister (1968) found that more abstract teachers tended to be more resourceful, while more concrete teachers tended to be more dictatorial and punitive. The authors view abstractness as related to the individual's capacity to perceive many available sources of information and to organize this information in a way consistent with the existing situation. Concreteness refers to less of a capacity to perceive information and a tendency to organize information in a dichotomous fashion. Individuals who are more abstract tend to also be more flexible in that they readily adapt their behaviors according to the dictates of the immediate situation and not according to present modes of behavior.

Certainly, a major educational problem would be solved if teacher instructional modes existed at the flexible end of the continuum. With this in mind, it becomes important to study which students benefit most from more flexible teachers.

2.2.2   Conceptual System Theory

The concept of matching teachers and students has grown out of the conceptual systems theory developed by Harvey, Hunt and Schroder (1961). These authors defined four stages of conceptual development. They are as follows:

First Stage: Unilateral Dependence - Conceptual
systems in the first stage are characterized by
external control, by the acceptance of externally
derived concepts or schemata not built up through
experience with the actual stimuli, and by the
absolutistic nature of such concepts. In a new or
relatively unstructured situation, a person's func-
tioning is maximally anchored in external control
and is therefore characterized by seeking external
criteria for evaluating his behavior. The term
unilateral is intended to convey the fact that func-
tioning in this stage is adjusted to match absolu-
tistic, ready-made conceptual criteria. Unilateral
dependence implies a lack of differentiation between
a rule and its purpose; between authority and one's
own experience; between one's thoughts about author-
ity and oneself. First stage functioning is assumed
to have the following characteristics: things are
endowed with power as in magical thought; answers
to questions are accepted more in the sense of
absoluted . . .; thinking is more concrete . . .;
behavior associated with this stage is characterized
by a greater immediacy, by greater sensitivity to
limits, to what is right and wrong, to what is toler-
ated and not tolerated, and by greater submissive-
ness to external control.

Second Stage: Negative Independence - Negative
independence represents functioning that is negatively
related to external constraints. Since such func-
tioning represents a lessening of the importance of
external control and the initial budding of inter-
nal control, we use the term, negative independence;
the term does not imply a necessary hostility or
aggression.

Third Stage: Conditional Dependence and Mutuality -
This stage may be characterized by conditional or
'as if' functioning in that it involves learning
about one's relationship to the environment in a
more objective way. The progression is from exter-
nally derived structure (first stage) through re-
sistance to external control (second stage) and if
this can be achieved, to a more empirical approach
in the third stage. . . As third stage concepts
emerge, a more objective view of the social environ-
ment becomes possible. The person in the third
stage views other people less subjectively (that is,

less in terms of his own motives and less in terms
of absolute standards) and more in terms of other's
standards and past experience. His understanding
of other points of view, rather than resisting or
submitting to them, makes mutual relationships
possible. Third stage functioning also involves
holding alternative views of the self, of events,
and of others simultaneously with a minimum of con-
cern for ambiguity.

Fourth Stage: Interdependence - In the fourth
stage mutuality and autonomy are integrated so
that neither interferes with the other and yet both
are important. We refer to this integration as
positive interdependence. The nature of subject-
object linkages at this level is abstract, inter-
dependent, and informational. . . Fourth stage
functioning is characterized by abstract standards
developed through the exploration of alternative
solutions against a variety of criteria. These
standards are systematically related to the informa-
tional consequences of exploration and as such are
'tools' not masters, since they are subject to change
under changing conditions. Abstract functioning
is characterized both by the availability of alter-
nate conceptual schemata as a basis for relating and
by the ability to hold a strong view or attitude
that does not distort incoming information (pp. 94-
109).

In summary, first stage conceptual development

describes an individual who is characterized by external

control and an absolutist view toward occurring events.

Second stage conceptual development describes an individual

with an emerging need for inner control and decreasing need

for external control. Third stage conceptual development

would apply to an individual viewing the environment in a

more objective fashion. Finally, a fourth stage conceptual

development, a harmonious integration of mutuality and

autonomy occurs in the individual.

Since their original work, the three authors have pursued research along three rather different lines. Phillips (1972) relates the different paths of researching conceptual stages taken by each author:

> The three authors of the original work have continued their exploration of conceptual stages in recent years, but have chosen different paths. Hunt's studies have led him to exclude Stages III and IV because of evidence indicating that Stage III does not necessarily develop in sequential order and because of failure to find Stage IV individuals. Schroder's work has focused on the integrative complexity of personality structure. The research of O. J. Harvey has emphasized the motivation variables and has used content-oriented measures for classifying individuals into one of the four system categories (p. 46).

This study will primarily utilize the research and instrumentation of Harvey.

2.2.3 Belief Systems

Since the conceptual systems theory was developed in 1961, Harvey and his associates have conducted research on the relationship between belief systems and behavior. Based on the earlier work, he has created four distinct belief systems which parallel the four stages of conceptual development described previously. These four belief systems are described below:

> System 1 is characterized by such things as high concreteness of beliefs; high absolutism toward rules and roles; a strong tendency to view the work in an overly simplistic, either-or-black-white way; a strong belief in supernaturalism and inherent truth; a strongly positive attitude toward tradition,

authority and persons of power as guidelines to thought and action; and inability to change set, role play, put oneself in another's boots, and to think and act creatively under conditions of high involvement and stress.

Representatives of System 2 are only slightly less dogmatic, evaluative, and inflexible than System 1 individuals. However, they tend to have strong negative attitudes toward institutions, traditions, and the social references toward which System 1 persons are strongly positive. Also, representatives of System 2 are the lowest of the four groups in self-esteem and the highest in alienation and cynicism, wanting and needing keenly to trust and rely upon authority and other persons, but fearing to do so because of potential loss of personal control and exploitation.

A System 3 belief system is reflected by a strong outward emphasis upon friendship, interpersonal harmony, and mutual aid. This takes the more subtle form of efforts at manipulation through establishing dependency of oneself on others, and of others on oneself. Those of whom the System 3 representative would have dependent upon him are persons of low status and low power. . . Those on whom the System 3 individual would be dependent are individuals of high status, power, and expertise.

System 4, the most abstract and open-minded of the four belief systems, manifests itself in information seeking, pragmatism, a problem-solving orientation, and a higher ability to change set, withstand stress and behave creatively. Representatives of this system are neither pro-rule, like System 1 persons, nor anti-rule, like System 2 individuals. They are for rules structure, and organization when these are utilitarian and instrumental to problem solving and attaining an objective, but they want none of these for its own sake (Harvey, 1970b p. 2-3).

Those individuals at the System 1 level tend to be the most

concrete (least flexible) while those at the System 4 level

tend to be the most abstract (most flexible). Harvey (1970a)

describes the distinction between concreteness and abstrac-

tions as follows:

> At the behavior level concreteness is manifested in
> a seemingly tight stimulus response linkage, the
> extreme of which we have illustrated by the invar-
> iance of the moth flying taxically toward the light.
> More abstract functioning, on the other hand, due
> to its being based on a more complex and enriched
> meditational system which allows departure from the
> immediate properties of a stimulus, is reflected
> in less stimulus response oughtness and greater
> relativism and freedom of thought and action (p. 70).

The more concrete individual tends to have a simpler cogni-

tive structure, a greater tendency to judge in the extreme,

a greater dependence on status and power, a greater in-

tolerance of ambiguity, a greater need for cognitive con-

sistency, a greater insensitivity to subtle cues in the

environment, a poor capacity to assume the role of the

other, a conviction of not altering opinions, a high need

for structure and a greater tendency to form and generalize

impressions of other people from highly incomplete informa-

tion (Harvey 1974). The more abstract individual usually

is at the opposite end of these tendencies.

The concepts of concreteness and abstractness should

not be considered as absolute labels. Very few, if any,

individuals can be seen as either ultimately concrete or

abstract. Rather, virtually all people are somewhere in

between the absolute extremes of the continuum.

2.2.4 Belief Systems and Classroom Atmosphere

Harvey, White, Prather, Alter and Hoffmeister (1966)

observed concrete and abstract Head Start preschool teachers.

Teachers were rated according to degrees of flexible, adaptable and creative behavior expressed to their students. A twenty-six category rating scale was established by the raters. The results showed that on all dimensions System 4 teachers differed from System 1 teachers with System 4 teachers scoring higher on such factors as perceptiveness, flexibility, relaxation, encouraging creativity, while lower on such factors as consistency, anxiety and a need for structure. The authors conclude:

> The results are consistent in showing that the more abstract teachers differ from the more concrete Ss in their teaching approaches and in the classroom atmospheres they generated for their Head Start students (p. 380).

Harvey, Prather, White and Hoffmeister (1968) found that abstract teachers tended to be more resourceful, while concrete teachers tended to be more dictatorial and punitive. In addition, the authors investigated the relationship between a teacher's belief system and student behavior. The results show that students of System 4 teachers were more cooperative, more involved in classroom activities, more active and more helpful than student of System 1 teachers.

Prather, Harvey and Coates (1970) had 900 elementary students rate their teachers. The results showed that System 4 teachers were rated the highest by their students on fostering exploration, fostering cooperation and slightly

higher on fostering esprit de corps, while System 1 teachers were rated higher on fostering rigidity. In addition, they also rated themselves on a twenty-item personality scale so as to reveal approximate belief system level. It was found that students in Systems 1 and 4 generally rated System 4 teachers most favorably. System 2 like students generally rated all teachers negatively and those placed in System 3 rated teachers equally favorably.

Murphy and Brown (1970) studied this relationship. They had 136 student teachers take the Conceptual Systems Test developed by Harvey and scored it based on Harvey's profiles. Seventy-six of the subjects fell in System 1 (representing concreteness, absolutism toward rules, simplistic view of the world) while only twelve fell in System 4 (representing abstractness, problem-solving orientation, creative behavior). Three student teachers' lessons were coded for information and analyzed into four categories (helping students theorize, helping students towards self-exporession, questioning students for precise answers and delivering information).

System 1 teachers used much lecturing and delivering of information and played on authority. They tended to ask specific questions which did not relate to one another. Students responses were short. For System 4 teachers, content was more abstract and statements led

towards generalizations rather than toward specific in-
stances. Their sentences were interrelated, and they made
more use of students in content. They used more why ques-
tions and related more personal experiences. The authors
concluded that teachers tend to impose their structure,
depending on their conceptual level.

In a study by Harvey, Wells, Schmidt and Grimm
(1973), teachers were rated by trained observers on the
following dimensions: respect toward students; destructive-
ness; dictatorialness; fostering independence. These
observers rated System 3 and 4 teachers as demonstrating
more student respect, less destructiveness and dictatorial-
ness and fostering greater independence among the students.
This study also investigated academic grades. It was found
that System 1 students had received the highest average
grades, while System 2 students had received the lowest.

Byrne (1972) conducted a study among twenty-two
psychology teachers and classes at a Canadian University.
He introduced a significant component to his research--
that of evaluativeness. He found that high levels of evalua-
tiveness tended to depress the performance of System 2
subjects and somewhat System 3. Harvey (1974) in summar-
izing Byrne's results, states that differentiating student
belief systems coupled with certain combination of abstract-
ness and evaluativeness produced specific results. In
particular, System 2 students performed best under System 4

instructors who were low in evaluativeness. System 1 students performed best with an abstract teacher who also was highly evaluative. System 3 students performed best under teachers of intermediate abstractness and low evaluativeness, and System 4 students performed well under any of the teaching styles.

Byrne's results are extremely significant in that they demonstrate the notion that one teaching style is not best for everyone. They do however, indicate the strong preference for more abstract teachers by most students. His results also indicate the flexibility of System 4 students to adapt to any teaching style.

All of the studies discussed in this section have been concerned with the influence a teacher inevitably has on classroom atmosphere. Harvey (1970a) summarizes this influence:

> Probably the most crucial determinant of the class-
> room environment, and thus of the learning conditions
> surrounding the students is the behavior of the tea-
> cher and the atmosphere she produces. In turn, her
> behavior, the resulting classroom atmosphere and the
> influence she has on her students are all influenced
> heavily by the nature of her beliefs (pp. 78-79).

2.2.5 Summary of Belief Systems Theory and Research

Belief systems theory and research to date can be summarized by as follows:

1. Harvey has adapted four belief systems from his earlier work with Hunt and Schroder (1961) (Harvey 1966; Harvey 1968; Harvey 1970a; Harvey 1970b; Harvey 1974).

2. Abstract teachers display different behavior from concrete teachers (Harvey, White, Prather, Alter, and Hoffmeister (1966; Harvey, Prather, White and Hoffmeister 1968; Harvey, Wells, Schmidt and Grimm 1973).

3. Students of more abstract teachers tended to display more positive classroom behaviors (Harvey, Prather, White and Hoffmeister 1968).

4. Students generally prefer abstract teachers (Prather, Harvey and Coates 1970; Byrne 1972).

5. A student's belief system can influence his/her academic achievement as measured by grades (Harvey, Wells, Schmidt and Grimm, 1973).

6. The degree of teacher evaluativeness can influence student performance (Byrne 1972).

2.2.6 The Conceptual Level Matching Model

Although this investigation is primarily based upon the work of Harvey and his associates, it is important to include a summary of Hunt's Conceptual Level Matching Model. This inclusion is significant because both Harvey and Hunt derive their theory and research from certain premises established in a common work (see Harvey, Hunt and Schroder, 1961).

The theoretical purpose of the model is to provide appropriate environments for students and teachers in keeping with their existing conceptual structure. Instead of defining the stages of structure as previously mentioned, Hunt (1974) establishes three developmental stages for the

individual. Stage A is viewed as the lowest conceptual level and its characteristics are concreteness, impulsiveness and poor tolerance for frustration. At this level the individual is not effectively integrating his/her environmental perceptions. Stage B, the middle stage, is the next conceptual level. At this stage the student is concerned with rules, dependent on authority and tends to think categorically. Stage C is the highest conceptual level and at this level the student displays inquiry, self-assertiveness, questioning and an ability to have alternatives available (p. 29).

It is hoped that the individual will progress from lower to higher conceptual levels:

> Progression from Stage A to Stage B requires the conceptual work of defining the external boundaries and learning the generalized standards. This general standard incorporated in Stage B then serves as the anchoring basis for the self-defining work in progressing to Stage C. Self-definition occurs through a process of breaking away from the standard developed in Stage B. Such self-definition at Stage C then enables the individual to understand others in a more emphatic fashion (Hunt 1974, p. 30).

Basically, the individual moves from an unsocialized stage (A) to a conforming stage (B) to a self-reliant stage (C). In the process, one's conceptual complexity, interpersonal maturity and understanding of oneself and others have been increased (Hunt 1975).

Hunt followed ninety-seven junior high school students over a three year period to determine if their

conceptual levels changed. Based on the Paragraph Completion Method (PCM) (Hunt, Noy, Greenwood 1973) the average scores on this instrument reveal a consistent increase from sixth to seventh to eighth grades. In addition, Hunt followed another one hundred and two junior high school students over the three year period. Similar results were found (see Hunt & Sullivan, 1974).

The existing student and teacher conceptual level is related to the degree of needed structure. A student in developmental Stage A has a very low conceptual level and needs highly imposed structure. A student at developmental Stage B has a low conceptual level and needs some imposed structure. The student at developmental Stage C has a high conceptual level and needs the least imposed structure. At this stage of development the student is able to choose his or her own level of structure, whether it be high or low structure (Hunt 1974). As the student moves from the unsocialized level (Stage A) to the dependent level (Stage B) to the independent level (Stage C), the degree of structure he/she requires decreases.

Hunt, Joyce, Greenwood, Noy, Reid and Weil (1974) studied the relationship between structural needs of high and low conceptual level students. The results of the study also revealed: 1) low conceptual level students were able to direct their own learning when they followed a step-by-step procedure; 2) high conceptual level students tended

to "pull higher level information segments from the teacher"; and 3) high conceptual level students demonstrated a more favorable attitude about self-directed learning. These results confirm one of Hunt's (1971) premises: "Low conceptual level learners profiting more from high structure and high conceptual level learners profiting more from low structure, or in some cases being less affected by the variation in structure."

2.2.7 Belief Systems and the Conceptual Level Matching Model in Perspective

The theories and research of Harvey and Hunt directly parallel each other. Both refer to stages of conceptual development, both maintain this conceptual development is significantly related to student need for structure, both agree that a more effective means of better matching students to classroom environments according to their conceptual development stages is needed; both also agree that teacher conceptual development stages can influence student academic performance.

There appear to be three major differences between the theories of the two authors. First, Harvey maintains that there is no necessary order of conceptual development in that an individual can move from Belief System 1 to Belief System 3, bypassing Belief System 2. Hunt states that movement from conceptual Stage A, B, C are sequential.
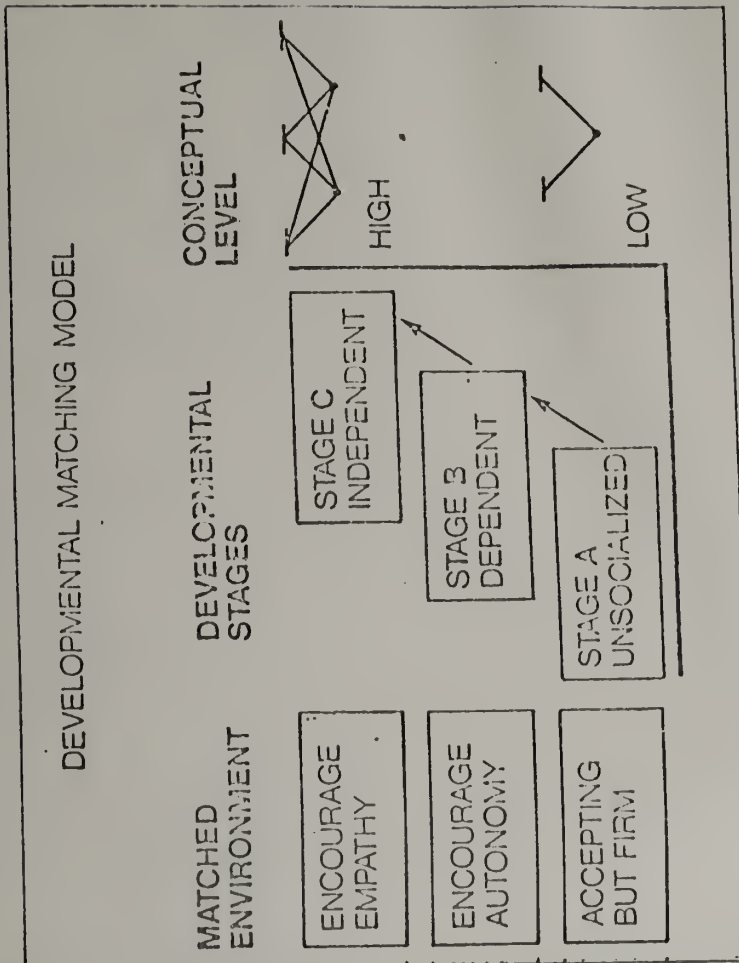
Figure 2.2.1 Developmental Stages of the
Conceptual Level Matching Model (Reprinted,
by permission, Hunt, 1971).

Second, in measuring conceptual development, Hunt Greenwood, Noy and Watson (1973) created the Paragraph Completion Method from which they have eliminated the most abstract stages utilized by Harvey (1974) and Harvey and Hoffmeister (1971).

A third distinction can be seen in their individual perceptions of matched and mismatched environments. Hunt might find it acceptable to match a concrete student with a concrete teacher, whereas Harvey does not find this acceptable.

One or more of these distinctions may appear to be significant. However when considering the potential benefits of putting conceptual development theory in educational practice, these distinctions are not highly significant.

1. The sequential conceptual development of the individual is not the most important issue for educators to consider. Of much more immediate concern is the issue of matching instructional approach to each student's need for structure. Also, it is significant to consider and explore appropriate methods which enhance the likelihood of individual growth from a concrete conceptual stage to a more abstract one.

2. The instruments of the two authors have never been correlated. However, it is safe to assume

that both measure similar personality traits as they related to differentiating stages. Each of these instruments can be used to effectively measure student needs for structure and to better determine which classroom environments are better for which students.

3. Neither Harvey nor Hunt prefer concrete teachers to predominate our educational system. Nevertheless, the fact is that they do. Consequently, both men have faced the important challenges of: a) seeking more effective ways to train teachers to be more flexible and abstract; b) developing constructs through which the optimum learning style of students can be determined; and c) seeking better ways of matching these learning styles to particular modes of instruction.

2.3 Anxiety

The review of anxiety research is organized around the following areas:

1. A definition of anxiety (which is applicable to elementary and secondary education),

2. The state anxiety, self-esteem and failure,

3. The relationship of state anxiety to achievement, and

4. Summary of anxiety research.

2.3.1 A Definition of Anxiety

a. <u>Basic Definitions of Anxiety</u> - Watson (1966) has

defined anxiety as follows:

> Anxiety may be conceived as fear in which the source
> of the fear is vague or somehow obscured. In other
> words, the person, child or adult, is not clearly
> aware of what he is being fearful. In this sense
> the source of the fear, although not the emotional
> state itself may be said to be unconscious. Since
> awareness of the source is not present, it follows
> that the situation about which one is fearful is
> not directly and immediately present to conscious-
> ness (at least not in the form which generates emo-
> tion). Hence anxiety is anticipatory (p. 306).

This analysis concurs with that of Perls (1969):

> Whenever you leave the sure basis of the now and
> become preoccupied with the future, you experience
> anxiety (p. 72).

Allport (1954) describes two types of anxiety. The first

pertains to the individual who is aware of the basic fear:

> Sometimes the source of the fear is correctly per-
> ceived, but the person can do nothing to control
> it (p. 345).

The second type of anxiety occurs when the fear is not

known, repressed or forgotten. In this case, Allport writes:

> Anxiety then is a diffuse, irrational fear, not
> directed at an appropriate target and not controlled
> by self-insight. Like a grease spot, it has spread
> throughout the life and stains the individual's social
> relationships (p. 345).

In summary, these psychologists are associating anxiety

with fear. The discrepancy in the definition lies in the

question of whether one can be aware of the fear (as in

Allport's first example) or whether fear is a product of

the unconscious (as in Watson's definition).

Some psychologists, however, have clearly distinguished anxiety from fear. Sullivan (1956) made this distinction. According to his definitions, anxiety warns the individual of danger from within his or her organization of experience. Fear, on the other hand, is concerned with how the individual deals with external (realistic) danger. Sarason, Lighthall, Davidson, Waite and Ruebush (1960) summarize the distinction:

> We must conclude, therefore, that to distinguish between fear and anxiety in children, at either the conceptual or the practical measurement level, is extremely difficult at the younger age levels, although it becomes (theoretically) increasingly possible with the approach of adolescence and the concomitant acquisition of what Piaget has termed logical thought processes (p. 27).

This uncertainty as to the relationship between anxiety and fear will be clarified in the next section.

b. <u>Defining State and Trait Anxiety</u> - Spielberger (1966) clearly distinguishes between two types of anxiety. State anxiety (A-state) is characterized by "subjective, consciously perceived feelings of apprehension and tension, accompanied by or associated with activation or arousal of the automatic nervous system" (p. 17). State anxiety is concerned with the present. An individual is anxious now, as opposed to having been previously anxious.

Trait anxiety (A-trait) refers to a stable personality trait of the individual. An individual who is generally an anxious person will fit in this category. Trait anxiety

tends to "imply a motive or acquired behavioral disposition that predisposes an individual to perceive a wide range of objectively non-dangerous circumstances as threatening and to respond to these with A-state reactions disproportionate in intensity to the magnitude of the objective danger" (p. 17). In other words, this concept deals with the anxiety proneness of the individual.

One means of viewing state anxiety is through stress. Stress, in fact, is a prime indicator of the fluctuating level of anxiety of an individual. Stress can be measured by heart rate and Palmar Sweat Measure (Hambleton and Traub, 1974) and by Galvanic Skin Responses (Rugel, 1971), as well as by paper and pencil tests. Rugel found that as second and third graders moved into more complex tasks, from independent to instructional to frustration reading levels, a higher rate of skin responses occurred, revealing a higher level of state anxiety.

Naylor and Gaudry (1973) relate stress to trait and state anxiety. "High A-trait persons are also more likely to respond to stressful situations with increased A-state intensity, especially in situations that involve interpersonal relationships which pose some threat to self-esteem" (p. 414).

The effect of stress on anxiety was studied by Mednick (1957). He found intially that there was a difference in

performance between high and low state anxious students. However, no difference was found between high and low anxious students when both groups had prior experience. Sarason (1952) found that the drive of a high state anxious group of students tended to improve performance as the learning process proceeded. These studies indicate that the immediate effect of uncertainty influences student stress which, in turn, influences performance. Castaneda, Palermo and McCandless (1956), found that an intense level of state anxiety will cause the student to become disorganized and, consequently, will affect his/her thinking.

Although this study is not directly concerned with test anxiety (A-trait), it is applicable to briefly mention that stress may even have a greater effect on someone who tends to be anxious. The test anxious student is more likely to experience a concern over the unknown factors of the test. Kowitz (1967) has characterized this feeling:

> What is the unknown threat to which the child reacts
> so violently? He is to be evaluated, significant
> decisions are going to be made about him and he can-
> not be sure that they are or how they will be made (p. 6).

This passage is applicable to any trait anxious student experiencing a high level of state anxiety. The external threat, in this case, the test, is known, but the ramifications of one's interaction with the threat is not known. This seems to be a key factor in stress.

Sarason (1958) found that high anxious students performed significantly poorer than low anxious students under stressful instructional conditions, while without stressful conditions, there were no differences in performance. When Mednick (1957) removed the unknown by giving high anxious students prior experience, the effects of stress were minimized. Wrightsman (1962) found that when students did not perceive an examination as important, degree of stress was minimized and anxiety was unrelated to performance.

Cronbach (1970) points to research which indicates that high anxious students improve performance under relaxed conditions. He writes: "This ties to the theory that there is an optimal level of tension. Putting stress on the low-anxious person may bring him to his peak, whereas, it disrupts the person who is already tense" (p. 549). Korchin and Levine (1957) found that under greater stress, the highly state anxious individual is less inclined to supply an answer. They call this "response inhibition" because of the individual's fear of answering. They distinguish between three types of behavior under the stress of performing a task.

First, the individual can display defensive behavior designated to reduce anxiety and also to serve as interference for the present task. Second, the individual can fall

back on pre-existing (and inappropriate) methods for solving a problem. Third, the individual's behavior becomes dis-organized and primitive and reflects "the lack of integration rather than the interference of either defensive behaviors or irrelevant existing problem behaviors" (p. 235).

Hall (1970) investigated the effectiveness of programmed instructional materials on high and low anxious high school subjects under stress and non-stress conditions. Stress and non-stress conditions were arrived at by informing half of the students that their performance was only for exper-imental purposes and the other half that their performance was related to their intelligence.

The results of this study revealed that stress did not significantly influence the A-state or A-trait levels of these students. One reason for including this study in a review of the literature is to briefly analyze why this study did not reveal hypothesized results. The problem seen by Hall was:

> In accounting for the modest strength of anxiety
> in the experimental situation, the nature of the
> learning task employed was considered. It was felt
> that, by providing a mechanism of immediate feed-
> back under the control of the individual respondent,
> the learning task may have constituted a relatively
> low-threat situation, thereby depressing overall
> anxiety response to the task (p. 16).

This analysis as to the reason for the study's outcomes may be important for consideration. If Hall's reasoning is correct, then prior knowledge that there will be

immediate feedback, even in stressful situations, may reduce levels of state anxiety. Thus, anticipation of immediate feedback may reduce anxiety in some fasion similar to the manner in which prior experience reduces anxiety.

In summary, the difference between state and trait anxiety depends on whether or not the feeling of anxiety is a common personality trait of the individual. State anxiety is concerned with present feeling, while trait anxiety is concerned with the personal make-up of the individual.

c. <u>Clarifying a Definition of Anxiety</u> - In referring back to the previously stated definitions of Watson, Allport and Sullivan and by comparing these definitions with Spielberger's distinctions of state and trait anxiety, several connections can be seen. First, Sullivan and Allport both refer to fear as a present condition of which the individual is aware. There seems to be some similarity between this present awareness and state anxiety. The individual fears some external threat at a given period of time. His/her fear is real in that the observed threat truly represents a danger in the present.

Second, the definitions of Sullivan and Watson and the latter definition of Allport suggest that the individual's anxiety level is part of his permanent make-up. This is consistent with Spielberger's definition of trait anxiety.

Other psychologists, doctors and educators have designated other terms to accompany a present (momentary) level of anxiety and a continuous (personality) level. Orr (1965) defines two types of anxiety. Situational anxiety implies a definite surface state which is available for interpretation; neurotic anxiety refers to a long standing, strongly defended against and a not highly interpretable level. Phillips (1967) distinguishes between school anxiety and neurotic anxiety:

> . . . school anxiety was conceptualized as anxiety which is functionally related to school situations in which a high degree of threat, uncertainty, and failure are experienced. In addition, school anxiety being considered more situational and objective in nature, and neurotic anxiety being considered more generalized and chronic in nature (p. 335).

In analyzing all of the anxiety-related definitions given, each can fall into a category of state or trait-related anxiety. Certainly, this is not to indicate that all listings in a category headed by state anxiety are synonomous with that term. This categorization is only designated to facilitate the task of summarizing definitions of anxiety.

Since this study is concerned with a student's level of anxiety based on his/her classroom environment, the review of the literature, is concentrated on studies oriented toward state or school anxiety-situational anxiety which disrupt the learning process.

d. <u>Measurement of Anxiety</u> - There are several measures
of trait and state anxiety. The <u>Manifest Anxiety Scale</u>
(MAS) developed by Taylor (1953), was designed to measure
general anxiety (trait), as opposed to differing anxiety
levels (state). The scale is made up of fifty true-false
items. The <u>Children's Manifest Anxiety Scale</u> (CMAS)
developed by Castaneda, McCandless and Palermo (1956),
consists of forty-two anxiety items and eleven items to
determine falsified responses. This scale also gives a
trait anxious measure. The <u>General Anxiety Scale for
Children</u> (GASC), developed by Sarason et al., (1960) con-
sists of items related to a non-school setting. The <u>Test
Anxiety Scale for Children</u> (TASC) was also developed by
Sarason et al., (1960); it contains thirty items about the
child's attitudes towards academic performance. The <u>School
Anxiety Scale</u> (SAS), developed by Phillips (1967), combines
items from many anxiety tests. Primarily this test deals
with four factors: fear of taking tests; reaction to stress;
lack of confidence in other's expectations; fear of negative
evaluation.

Finally, the <u>State-Trait Anxiety Inventory</u> (STAI),
developed by Spielberger, Gorsuch, and Lushene (1966), is
designed to measure both a present level of anxiety (state)
and the degree of individual anxiety-proneness (trait).
Each part of the test contains twenty items with four degrees

of response ranging from "not at all" to "very much so"
(on the state anxiety measure) and "almost never" to "almost
always" (on the trait anxiety measure).

2.3.2   State Anxiety, Self-Esteem and Failure

Levitt (1967) writes:

An individual with a high predisposition to anxiety
is one who is more easily threatened than his fellows.
Such a person is likely to have a relatively poor
opinion of himself because he is easily threatened.
The logic of the relationship is most clearly seen
in achievement or test anxiety. Anxiety is high
because the individual doubts his ability to achieve,
to perform successfully on the task or test. The
relationship need have nothing to do with the
individual's actual abilities, only with his percep-
tion of them. Thus, we might say that low self-
esteem is an important cause of high anxiety prone-
ness (p. 159).

Levitt's comments contend that trait anxiety is highly

related to self-esteem. This contention is even more

significant when it is coupled with the writing of Naylor

and Gaudry (1973):

In general, it would be expected that those who are
high in A-trait will exhibit A-state elevations more
frequently than low A-trait individuals because they
tend to perceive a wider range of situations as
dangerous or threatening (p. 414).

Gelfand (1962) studied the relationship of self-

esteem and anxiety to failure. She paired elementary

school subjects with confederates in order to determine

how failure would effect self-esteem. In one group the

tasks were rigged so that the confederates did much better

than the subjects. Gelfand found that subjects in the

failing group rated themselves less favorably than those who were more successful. She also rated students on signs of anxiety as opposed to confidence. The high esteem group displayed one anxiety sign and eighteen confidence signs while the low esteem group gave five confidence signs and eighteen anxiety signs.

Rosenberg (1962) studied the relationship of anxiety and self-esteem in junior and senior high school students. He found, based on self-reporting, an inverse relationship between self-esteem and anxiety.

An anxiety-ridden student will be less likely to view his/her experience at school in a constructive or creative way. The manner in which a student regards himself may be a prime factor in an adverse reaction to the environment. After all, one who expects to fail can only feel safe in a classroom by failing. Lipsitt (1958) gave students a self-concept scale and an Ideal Scale. He subtracted the student's ideal scale responses from the self-concept scale responses and found a high correlation between anxiety and self-concept.

Purkey (1970), in Self-Concept and Academic Achievement, comments that the research demonstrates a definite relationship between self-concept and academic achievement. Hama-check (1971) after an extensive review of the literature summarizes the problem very well:

> There is substantial evidence to link both a stu-
> dent's school behavior and achievement to his feel-
> ing about himself--each student brings to school
> with him a certain attitude about his ability to
> compete and succeed whether the school is grade
> school or college (p. 63).

Failure is a cumulative process. A failing experience can

affect student self-esteem. A trait anxious student may

even be more significantly affected by this process.

Gaudry and Spielberger (1971) write:

> In general, the research literature is consistent
> with the hypothesis that situations which impose
> direct or implied threats to self-esteem produce
> higher levels of A-state in persons with high A-
> trait than in those who are low in A-trait (p. 67).

> These authors go on to say:

> It might be expected, therefore, that academic situ-
> ations and intelligence tests would be especially
> threatening to persons with high A-trait because
> they involve the evaluation of personal adequacy
> and the risk of failure (p. 67).

2.3.3 The Relationship of State Anxiety to Achievement

Research on anxiety and achievement reveals that

a high level of initial state anxiety hinders complex task

performance. However, after continued exposure to a type

of task, performance increases. Spence (1966) found that

high state anxious subjects performed poorly at first, but

later they improved significantly after continued exposure

to the task. In fact, high state anxious subjects surpassed

low state anxious subjects. Mandler and Sarason (1952)

found that the drive of the high state anxious group tended

to improve performance as the learning process proceeded. Otto (1966) found the performances of fourth, fifth and sixth grade students improved on tasks involving digit span once initial apprehension wore off. Ausubel (1953) found that high state anxious subjects made significant improvement on a task involving maze completion after a degree of practice.

Certain research on anxiety has revealed that high state anxious students perform well on simple tasks, but have difficulty with more complex tasks (Palermo, Castaneda and McCandless, 1957). Whereas these results may indicate certain times when a high level of state anxiety is beneficial, it is important to consider that benefits may only exist for simple tasks which require no previous specific learning. Classroom interaction, the acquisition of knowledge and expanding intelligence are among the primary occurrences within classrooms and none of these are simple in nature.

Korchin and Levine (1957) report that university students didn't differ much in performance on simple material, but the performance of high state anxiety students was below that of low state anxiety students on more difficult and unfamiliar material. Korchin and Levine explain the difficulty high anxious students have in performing complex tasks:

The anxious individual can be conceived as generally
less capable of integrative behavior. To perform
well in any learning task, more generally in any
intellectual test situation, an individual must
be able to accept the requirements of the task,
segregate the relevant and important from the trivial
and peripheral, establish and maintain task-appropriate
sets and modify these as the task requires. The
optimal cognitive organization required for adjustive
and ordered behavior is changed under anxiety either
in the one direction or more diffuse and disorganized
behavior or to the other extreme of greater rigidity
(p. 236).

Saltz and Hoehn (1957) studied the effects of compe-

tition on the relationship of anxiety and achievement. High

and low anxious students were given two lists--one that was

easy and one that was difficult. Competitive factors were

introduced on the easy list and withdrawn on the difficult

list. High and low-anxious students had similar performances

on easy material, even with competition as a factor. Low

anxious students learned faster than high anxious students

on difficult material, even though very little competition

existed.

Caron (1963) gave high school students a reading assign-

ment and then measured their competence by either being

tested under relaxed conditions designed to induce curiosity

or under formal testing conditions. In each testing situa-

tions students received a rote learning task and a comprehen-

sion task. The results show that high and low anxious

students performed equally well on the rote learning task.

Regarding the comprehension task for the curiosity condition,

again no difference was shown on the performance of high

and low anxious students. However, the formal testing situation, low anxious students performed superior to high anxious students. This lead the author to conclude that under either condition a simple task, such as the rote learning measure, does not significantly affect performance. However, on complex tasks degree of stress does influence performance.

Tennyson and Woolley (1970) found that a person's state anxiety fluctuates according to the difficulty and simplicity of an instructional task. Specifically, their study showed that the subjects exhibited an increase in state anxiety when performing a difficult task. Anxiety level is also related to task difficulty or task simplicity. Low A-state subjects made fewer errors on the difficult tasks, while the high A-state subjects made fewer errors on the easy tasks. These investigators conclude that individuals who have raises in anxiety during difficult tasks might perform more efficiently if they receive instruction composed of slower increases in difficulty.

Gaudry and Spielberger (1971) reviewed twenty-seven studies relating anxiety and academic achievement. The authors draw the following general conclusions:

The most consistent general finding noted in this chapter is that high anxiety is associated with relatively low performance at both the school and university level. This conclusion is based on the negative correlations that were obtained in a number

of different studies between different measures of
anxiety and a variety of measures of academic apti-
tude and achievement.

For elementary school children, the evidence
suggests that negative correlations between anxiety
and achievement tend to increase in size for the
higher grade levels, provided that the anxiety
scales are given in reasonably close proximity to
the achievement test. In addition, the following
three tentative conclusions appear to be supported
by research findings: (1) reading is more strongly
associated with anxiety in the earlier grades than
is arithmetic; (2) arithmetic (mathematics) becomes
increasingly associated with anxiety towards the
end of the elementary grades; and (3) differential
relationships between anxiety and performance for
boys and girls may depend upon situational factors
(p. 42).

In summarizing the existing research on anxiety

and achievement, two factors need to be considered. First,

state anxiety can have a positive effect on accomplishing

a task, provided the individual has had a prior experience

with the task. Second, state anxiety can play a major

role in determining the level of task difficulty an individual

can effectively handle.

Finally, this part of the review of the literature

examines a study concerned with anxiety, achievement and

structure. Grimes and Allinsmith (1970) studied the inter-

action of student personality characteristics with methods of

teaching. More specifically, they researched the relation-

ship of anxiety and compulsivity on reading instruction.

For their study, they singled out two methods of reading

instruction. The phonic approach was considered to be system-

atically structured, while the whole word approach was not

considered systematically structured. The authors predicted
"that if learning experiences are highly structured as in
the phonics method of teaching reading, the child with high
anxiety will make greater progress in school than similar
children in the unstructured setting."

Grimes and Allinsmith's conclusions were: High
anxious children in unstructured schools scored less than
those in structured schools; highly anxious children do as
well as low anxious children in a structured classroom;
highly anxious children in an unstructured classroom perform
poorly. The effect of the unstructured setting on the state
anxious student "is a consequence of the severe condition
of perceived threat that persists unabated for the anxious
child in an ambiguous sort of school environment (p. 141).

Stern (1963) in the Handbook of Research on Teaching
reviewed studies comparing nondirective and directive
teaching and the effect of this on achievement and attitude
change of self and others. Regarding students exposed to
nondirective instruction, Stern concludes: " . . . at least
as many students feel dissatisfied, frustrated, or anxious
in a nondirective classroom as consider it valuable" (p. 428).
Recent research on the structure of instruction indicates
that the conceptual development of the student likely will
influence the type of learning environment from which he/
she will most benefit.

2.3.4 Summary of Anxiety Research

In summarizing the aforementioned research on anxiety certain conclusions can be drawn. These conclusions are delineated below:

1. State anxiety can be inversely related to levels of self-esteem (Gelfand, 1962; Levitt, 1967; Rosenberg, 1962).

2. State anxiety is related to task failure (Feather, 1963).

3. Academic failure is related to rate of learning and achievement (Sullivan, 1927; Alper, 1946; Lantz, 1945; Zeller, 1950).

4. Academic failure is related to performance of highly state anxious students (Lucas, 1952; Sarason, 1960).

5. A high level of state anxiety hinders complex task performance (Ausubel, 1953; Mandler and Sarason, 1952; Otto, 1966; Spence, 1960).

6. State anxiety is effected by structure (Grimes and Allinsmith, 1962).

2.4 General Summary and Rationale for Research Questions

This Chapter has provided a review of the literature regarding belief systems theory and anxiety theory and research. Three general conclusions can be drawn from this review: 1) research has shown that the nature of student belief systems might affect student learning; 2) the teacher's belief system may significantly influence how instruction is approached and the manner in which teacher and student interactions occur; 3) research, also, has shown that increased levels of student state anxiety affect student academic achievement and levels of self-esteem.

In summary, the literature reviewed in this Chapter has indicated the benefits of teacher-student matching and the significant effects an increased level of state anxiety can have on the student in school. This investigation is designed to explore the impact of the interaction between teacher-student conceptual system matches and mismatches and student anxiety. The research questions stated in Chapter I are intended to provide information about this interaction. In review, these research questions are:

Among high trait-anxious students, will state anxiety levels be higher when teacher-student belief systems are mismatched as compared to the situation when these belief systems are matched?

Among high trait-anxious students, will levels of student self-esteem in school be lower when teacher-student belief systems are mismatched as compared to the situation when these belief systems are matched?

Among high trait-anxious students, will academic achievement be lower when teacher-student belief systems are mismatched as compared to the situation when these belief systems are matched?

C H A P T E R   I I I
Methodology

3.1 Overview

This chapter is designed to present the methodology
used in the study. First, the teacher and student sample is
defined. Second, the research instruments needed to conduct
the study are explained, as are their reliability and valid-
ity when applicable. Third, procedural steps for conducting
the study are elaborated.

3.2 Sample

The sample of students participating in the study con-
sisted of 806 students from grades 7 through 12, attending
four different schools in three separate school systems. From
School I, a parochial school in a large eastern city, 67
seventh grade students and 67 eighth grade students partici-
pated, totalling 134 of the entire school population. From
School II, a public secondary school in a small northeastern
town 90 seventh, 78 eighth, and 128 ninth grade students parti-
cipated, totalling 319 of the entire student sample. None of
the teachers in this school took part in the study. From
Schools III and IV, public secondary schools in a large
eastern town, of students participating in the study, 109

were in ninth grade and 192 in tenth grade, totalling 301 students.

All six teachers from School I volunteered to complete an instrument designed to measure learning style and teacher style. Eight teachers from Schools III and IV volunteered to complete the aforementioned instrument. Since teachers participating in the study volunteered to do so, it cannot be presumed that a random cross section of teacher personalities and styles existed in the study.

3.3 Instrumentation

To answer research questions asked in the study, six instruments were used. The This I Believe (TIB) test was given to volunteering teachers to determine preferential degrees of concreteness and abstractness. The Conceptual Systems Test (CST) was given to participating students in order to measure concreteness or abstractness. Students also received the State-Trait Anxiety Inventory (STAI) and the State-Trait Anxiety Inventory for Children (STAIC) which revealed levels of trait and state anxiety. Finally, students completed two questionnaires. The first was designed to explore concreteness and abstractness, and measure degrees of student self-esteem. The second questionnaire was intended to assess student preferences for different teaching styles, their level of stress in classroom situations, and their feelings about what makes them feel good and/or nervous in

class.   Each of the instruments is described next in some
detail.

This I Believe Test (TIB). The This I Believe test
is designed to measure "an individual's level of conceptual
system functioning" by determining his or her belief systems
(Greaves, 1971). Based on a person's responses, he or
she will be described as one of the following four belief
systems, or as an admixture of two belief systems:

System 1 functioning, more completely than that
of any of the four systems, fits the description of
concrete functioning noted earlier. In terms of
their epistemology or ways of knowing, System 1
representatives perhaps epitomize the a priori posi-
tion. For them, truth exists externally, eternally,
finitely and independently of an observer. Rules,
authority prescriptions and customs, especially those
relating to religion, morals and practices of long
standing, tend to be construed by System 1 representa-
tives as having an existence of their own, although
they may be relayed, transmitted and interpreted,
often times incorrectly in the eyes of extreme System
1 representatives, by mortal men.

The System 2 orientation is somewhat more abstract
in that its representatives have taken a first step
toward personal freedom through rebellion against many
of the a priori forms assumed by System 1 representa-
tives as the source(s) of ultimate validity. At the
same time, however, System 2 representatives don't
necessarily reject an ultimate and external truth;
they typically are only dogmatically opposed to the
versions espoused by System 1 individuals. Thus,
System 2 persons don't as often reject the conception
of the existence of God, fate and other extra-personal
or supernatural forces as they do the institutional
depictions of these forces offered by representatives
of System 1.

System 3 functioning, the next to the highest level
of abstractness treated by Harvey et al. (1961), differs
from that of the other systems in a variety of notable
ways. Its representatives are better differentiated in

their cognitive structures and thinking, are more tolerant and less evaluative than individuals of System 1 or System 2. The most central concerns of the System 3 person center around manifesting socially desirable behavior and through this of attaining personal acceptance and approval of themselves and fostering of a kind of dependency of others upon them. The personality dimensions of nurturance and succorance, best treated by Murray are especially germane to the understanding of System 3 functioning. More than representatives of any of the other systems, they appear to have a pervasive and indiscriminate need to be accepted and approved of personally and to receive succorance; and their greatest concern in this regard appears to be to receive approval and endorsement from individuals of high status and high expertise...Their need to have others dependent upon them and to administer nurturance to others seems to be directed most toward individuals of low status and low power, possibly because such individuals are perceived by System 3 persons as being more helpless and consequently more receptive of their overtures toward helping.

System 4 functioning, the most abstract of the four systems, tends in the opposite direction from the characteristics of concrete functioning noted earlier. Representatives of this system are the most differentiated and integrated in their cognitive structures and thought processes, the most creative, the most tolerant of stress and of diverse ideologies and behavior, the least punitive, supportive of others' independence and autonomy, and are characterized by high task orientation, information seeking, exploratory behavior, independence without negativism (Harvey, 1974, pp. 10-16).

The TIB is comprised of nine stimulus statements to which the individual is to write two or more complete sentences in a two minute period. The stimulus statements include: This I believe about people; This I believe about marriage; This I believe about revenge; This I believe about lying; This I believe about friendship; This I believe about

back talk from student or subordinates; This I believe about my power to control the important things in my life.

The TIB is scored by two readers first, the instrument is read through to determine the overall belief system of the individual. Second, the TIB is interpreted according to each of the following seven dimensions:

Openness--by which is meant the respondent's presumed willingness seriously to entertain and possibly accept an idea contrary to his own more central ones.

Candor--which means the assumed forthrightness of self-honesty with which a response is made, which implies low denial and low defensiveness.

Evaluativeness--which refers to the respondents' tendency to make evaluative, good-bad, right-wrong judgments, with obviously pejorative implications.

Externality--which refers to the respondents' tendency to attribute success, failure, or control of his actions to forces over which he has little or no control, including such things as luck, other persons, God, social obstacles, etc.

Cynicism--which indicates an expression of nihilism, that nothing matters anyway, and in general, that the world is a bunch of crap.

Optimism--which refers to an assumed feeling of well-being and in general that things either have or will turn out well for him.

Complexity--which has to do with the number of different themes expressed together with their integration, which, in essence, equals a kind of judged profundity or depth of thought (Harvey, 1975b).

Each dimension is given a rating of one through five--a one refers to the low end of the spectrum and a five the high end. This method of rating is very subjective. To

limit this subjectivity as much as possible, it is important that readers be trained in scoring the TIB. For this investigation, the TIB instruments were scored by Harvey and a trained graduate assistant.

Greaves (1971) writes that because of the subjectivity necessary to score this instrument, interjudge reliability in scoring is very important. Harvey (1969) found an average interjudge reliability figure of .91 when six trained scorers evaluated the same series of instruments. Greaves (1970) randomly selected 82 tests and with another trained scorer found the Kendell coefficient of concordance for independent assessment to be .986.

Harvey (1969) retested one group of subjects one week after initially taking the TIB and retested another group six months later. The stability coefficient was above .85 both times. Greaves (1971) reports that he administered the test to thirty-four college sophomores nine weeks after initially taking the TIB and found a stability coefficient of .94.

The Conceptual Systems Test (CST). The Conceptual Systems Test (Harvey and Hoffmeister, 1971) was developed to provide a more practical instrument for measuring belief systems. The This I Believe instrument sample takes an extensive amount of time to score and therefore is not that practical for large scale use. The final version of the CST was created after seven years of piloting. Harvey (1974) writes:

The items in the CST were derived from statements
made by subjects in their completions of the TIB and
from certain other tests purporting to measure per-
sonality dimensions akin to those within the differ-
ent belief systems (p. 23).

There are six dimensions measured by the Conceptual
Systems Test. These dimensions are: Divine Fate Control;
Need For Structure; Need to Help People; Need for People;
Interpersonal Aggression; and General Pessimism. Hoffmeister
(1975) defines each of the dimensions as follows:

DIVINE FATE CONTROL (DFC)--the conviction that a divine
    being has, and ought to have, control of a person's
    life. DFC is made up of items 4, 10, 16, 22, 28, 31,
    35, and 45. All items but 28 are reversed before
    being accumulated into a total score.

NEED FOR STRUCTURE ORDER (NSO)--the desire for the vari-
    ous aspects and situations of a person's life to be
    highly organized and arranged. NSO is made up of
    items 14, 17, 19, 23, 25, 29, 33, 37, 42, and 44.
    All items are reversed before being accumulated in-
    to a total score.

NEED TO HELP PEOPLE (NHP)--the feeling of satisfaction
    derived from and the importance attached to doing
    things for others. NHP is made up of items 2, 6,
    21, 24, 26, 32, 41, and 47. All items are reversed
    before being accumulated into a total score.

NEED FOR PEOPLE (NFP)--the feeling that contact with
    people is very important and constitutes a primary
    source of one's own satisfaction. NFP is made up
    of items 1, 3, 7, 9, 11, 13, 18, 20, 30, 39, 40,
    and 48. All items except #30 are reversed before
    being accumulated into a total score.

INTERPERSONAL AGGRESSION (IA)--the feeling that a per-
    son will, or is likely to, express hostility toward
    others when they do something the person doesn't
    like. IA is made up of items 5, 8, 27, and 38.
    All items are reversed before being accumulated
    into a total score.

GENERAL PESSIMISM (GP)--the feeling of general dis-
trust of people, especially those in power, such
as politicians. GP is made up of items 12, 15,
34, 36, 43, and 46. All items are reversed
before being accumulated into a total score,
except item #12.

The Conceptual Systems Test consists of forty-eight

statements to which the respondent is to answer on a five

point scale ranging from "I agree completely" to "I disagree

completely" with the middle answer being "I agree and dis-

agree about equally." Because younger people taking this

test might have difficulty comprehending all of the state-

ments, the authors emphasize in their test administration

directions that any statements which are not comprehended

should not be answered. The instrument has been used

successfully with students as young as those in junior high

school.

Seven scores are obtained from the CST: one for each

of the aforementioned dimensions as well as a composite

score. Each of the six dimension scores is converted to

either a one--indicating a low degree of a particular dimen-

sion--or a two--indicating a high degree of a particular

dimension. The composite score is intended to be used to

determine student belief system level. This is determined

by the following criteria:

1. A score of two on the Divine Fate Control dimen-
sion of the CST automatically places the student
in System 1.

2.   A score of two on Interpersonal Aggression and a score of two on General Distrust places the student in System 2.

3.   A score of one on Divine Fate Control and General Distrust and a score of two on Need for People places the student in System 3.

4.   A score of one in all four dimensions places the student in System 4 (Hoffmeister, 1975).

Because one or two dimensions can determine a student's conceptual belief system level, it is important when interpreting results on this instrument to take into consideration the scores on each dimension, as well as the composite belief systems scores.

The Student Questionnaire.   The student questionnaire (found in Appendix A) is comprised of three sections.   The first section is designed to obtain general background information about the student, such as name, age, sex, and grade. The second section contains the Student Value Scale developed by Harvey (1975).   This scale yields four factors which reflect each of the four belief systems described earlier: Need for External Guidance (System 1); Hostility (System 2); Friendship Orientation (System 3); Autonomy (System 4).   This scale was used in order to gain further information about student belief systems and, consequently, their concreteness and abstractness.   The scale is made up of twenty statements to which the respondent answers "yes" or "no."

The third section of the questionnaire is comprised of thirteen statements to measure student self-esteem in school.

These items were composed after a review of self-esteem literature (Cooper-Smith, 1967; Hamachek, 1971; Purkey, 1969).[1]

The thirteen self-esteem items were factor analyzed and the factor pattern subjected to a normal varimax rotation. Items with factor loadings of .35 or greater were considered for inclusion in obtaining a self-esteem score.

Factor I accounts for the largest number of items. With five items in common this factor was entitled Feeling of Personal Worth.[2] These items concentrate on what the student thinks of himself or herself and how the student thinks others view him or her. Each of these items and factor loadings are described below:

Item Number	Factor Loading	Questionnaire Statement
07	.36	I find the suggestions of others to be worthwhile.
15	.47	Most teachers like me.
17	.65	I try to look neat when I come to school.
18	.61	I try to be cooperative in my classes.
19	.40	Other students listen to what I have to say.

---

[1]Six additional items were part of the original questionnaire. Two of these items were related to trait anxiety and three of the items were related to belief systems. These items were not included in the data analysis.

[2]Item number thirteen correlated .36 within this factor. However, after careful consideration, it was determined that this item was ambiguously worded. Therefore, it was eliminated.

Factor II includes items stating an overall negative perception of one's interaction with the environment in school. This factor was entitled Negativism in School. Each of these items and factor loadings are described below:[1]

Item Number	Factor Loading	Questionnaire Statement
06	.46	I get discouraged in school.
10	.60	I feel left out of things in school.
11	.44	I feel tense when I know that I am going to be called on in class.

Factor III is comprised of two items measuring Confidence in School. These two items and factor loadings are described below:

Item Number	Factor Loading	Questionnaire Statement
03	.60	I am sure of myself.
04	.69	I am confident about the work I do in school.

Item fourteen "I like to be called on in class," was eliminated even though it had a loading of .57 in Factor IV. This elimination is based on the failure of this item to show a negative correlation with Factor II. In contrast to this inconsistency, item eleven, "I feel tense when I know I am

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[1]Item number sixteen loaded significantly into both factors I and II, .39 and .46 respectively. Due to the contradictory natures of the categories representing both factors, this item was eliminated.

going to be called on in class," showed a significant negative loading, -.51, in Factor IV.

Using these ten items, a self-esteem in school score was obtained by assigning a point value score of four to one to each item and adding up the totals. Items six, ten and eleven were scored on a scale of one to four because of their negative nature. Thus, self-esteem scores ranged from ten to forty, with ten representing the lowest self-esteem score. Scores were adjusted for individuals who left two or less items blank.

The Self-Esteem in School part of the questionnaire was designed to measure the level of student self-esteem associated with a particular teacher. Self-esteem is conceptualized as both stable and fluctuating. Similar to trait anxiety, one's level of general self-esteem is a function of personality. Similar to State anxiety, one's momentary level of self-esteem will vary, depending on the person's interaction with the environment.

The Student Follow-up Questionnaire. This questionnaire was designed to meet two important goals. The first was to develop an instrument which would provide follow up information on how students perceived their own optimum levels of classroom structure. The second purpose was to develop an instrument which would be useful to teachers and administrators in establishing an initial measure for matching students and teachers.

The questionnaire (included in Appendix A) is divided
into four sections. The first two are specifically con-
cerned with information about student preferential learning
environments. The items in these sections were derived pri-
marily from the work of Hunt (1970, 1971, 1972, 1974, 1975)
and the description of the work completed by Hunt described
in Hunt and Sullivan (1974). This last source discusses
Hunt's work with school officials in the development of
alternative educational environments in two high schools.
One school was more highly structured, while the other was
less structured. Students were given an alternative as to
which school they preferred to attend. In helping students
to choose which of the high schools they wanted to attend,
students were given four basic questions to consider.

1. Has it been your experience that you are happier
    in an atmosphere where the academic requirements
    and the requirements of behavior are very clear
    to you and your teachers?

2. Has it been your experience that you learn better
    in a program which is presented in a logically
    and orderly fashion?

3. Are you the kind of student who can find real
    satisfaction in your growth as an individual by
    contributing your best to your school community
    while developing your own personal aims?

4. Are you the kind of student who finds that suc-
    cess means more to you when you face and overcome
    difficulties rather than avoiding them?

Since the purpose of sections one and two was to find out

student perceptions of an academic environment, the first

two of these four questions served as a model for these sections. Items three and nine referring to the student's desire to make day to day classroom decisions was adapted from a questionnaire developed by Harvey (1975).

Each of the twelve items in sections one and two presented students with a question followed by two possible responses. The responses were dichotomous in nature. Section one was concerned with the type of learning environment in which the students felt most comfortable. Section two was concerned with the type of learning environment in which students felt they learned the most.

The third section of the questionnaire was designed to reveal what types of situations cause students to worry the most. (Students were directed to read a series of school-related situations and to respond to each by answering Almost Always, Often, Sometimes or Never.) Based upon individual student responses, each student received a score ranging from fifteen to sixty, with sixty representing the least amount of worrying. Two items in this part, "I worry about going to the dentist after school" and "I worry about being laughed at by other students," were added to the fifteen worry scale items to serve as a "lie-scale."

The final section of the questionnaire was created to draw upon the degree to which students perceived mismatches as interfering with their learning. This section is comprised

of six questions, four of which direct students to circle the most appropriate choices and two of which are open-ended questions. It was believed that the information obtained from this section would be extremely useful to school administrators in matching teachers and students.

The State-Trait Anxiety Inventory (STAI). The STAI developed by Spielberger, Gorsuch, and Lushene (1966), is designed to measure both a present level of anxiety (referred to as state anxiety) and the degree of individual anxiety-proneness (called trait anxiety). Each part of the inventory contains twenty items. For items measuring state anxiety, there are four possible responses: VERY MUCH SO; MODERATELY SO; SOMEWHAT; NOT AT ALL. For items measuring trait anxiety, there are a different set of four responses: ALMOST ALWAYS; OFTEN; SOMETIMES; ALMOST NEVER.

In scoring the STAI, certain items are worded so that a rating of four indicates high anxiety and others are worded so that a rating of four indicates a low anxiety level. The A-State Scale has ten reversed items, and the A-Trait Scale has seven reversed items. Provisions are also made for adapting test scores when all items are not answered. In addition, the designers of the test have determined that an individual reading at the sixth grade level should have no problems responding to questions.

Spielberger and his colleagues have standardized their Form X of the instrument by testing over 3,000 high school

and college students. Data was also obtained from 600
neuropsychiatric and medical patients and for nearly 200
young prisoners. Based on a sample of 197 college students
test retest correlations for the A-Trait Scale were .73 to
.86. The authors in testing the A-State portion of the
Inventory exposed students to a series of tasks after the
initial testing: relaxation; a difficult I.Q. test; a
violent film. A-State correlations, based on a retest an
hour later ranged from .16 for females to .33 for males.
Twenty days later correlations ranged from .27 for females
to .54 for males. Reliability for internal consistency was
measured by the Kuder-Richardson formula 20 and reliability
coefficients for the A-State portion ranged from .83 to .92.

Concurrent validity for the STAI was determined by
correlations with the Taylor Manifest Anxiety Scale (TMAS)
(1953), and the Zucherman Affect Adjective Checklist (AACL)
(1960), General Form of the IPAT Anxiety Scale (Cattell and
Sheier, 1963). With IPAT, concurrent validity was .75 for
college females and .76 for college males; with the TMAS it
was .80 for college females and .85 for college males; with
the AACL it was .52 for college females and .57 for college
males.

The authors comment in the manual that "The correla-
tion between the STAI A-State and the STAI A-Trait portions
of the Inventory will depend upon the type and the amount of
stress that characterize the condition under which the A-State

scale is given" (p. 12). Correlations between the scales are usually higher among A-Trait males than A-Trait females. The authors conclude:

> In general larger correlations are obtained between the scales under conditions which pose some threat to self-esteem or under circumstances in which personal adequacy is evaluated than when measurements are obtained in situations characterized by physical danger" (p. 12).

State-Trait Anxiety Inventory for Children (STAIC). The STAIC was developed by Spielberger, Edwards, Lushene, Montouri, and Platzek (1970). Like the STAI, it is also designed to measure levels of present anxiety (state anxiety) and anxiety-proneness (trait anxiety). The state anxiety part of the instrument is comprised of twenty items, each beginning with the phrase "I feel." Following each "I feel" phrase, students are to choose which of three responses best describes how they feel at that particular moment. The trait anxiety part of the instrument (C-2) is comprised of twenty statements to which the student responds "hardly ever," "sometimes," and "often."

In scoring the STAIC each response is given a rating of three, two, or one. Individual scores for trait and state anxiety are obtained by totalling the rating scores for each portion of the test.

To measure the test-retest reliability for the STAIC, the authors administered the instrument to 246 elementary school students in grades four through six. For the 132 males,

the reliability coefficients were .65 for trait anxiety and
.31 for state anxiety. For the 114 females, the coeffi-
cients were .71 for trait anxiety and .47 for state anxiety.
The differentiation between trait and state anxiety is under-
standable, as one's level of state anxiety is likely to
fluctuate depending upon the levels of stress perceived at
a given time. The test-retest reliability coefficients for
trait anxiety are significantly higher than those for state
anxiety, but were less than the test-retest reliability
coefficients for the STAI. To this point the authors write:

> The test-retest correlation for the A-Trait scale were
> only moderate, which probably reflects both a limita-
> tion in the psychometric properties of the scale and
> the instability of personality structure in children
> of this age" (Spielberger, et al., 1973, p. 8).

In measuring internal consistency the authors found
that the alpha reliability of the state anxiety scale was
.82 for males and .87 for females. For the trait anxiety
scale, the alpha coefficients were .78 for males and .81 for
females.

In studying concurrent validity, the authors found a
correlation of .75 between the trait anxiety scale of the
STAIC and the Children's Manifest Anxiety Scale (Castaneda,
et al., 1956) and a correlation of .63 between the A-Trait
scale and the General Anxiety Scale for Children (Sarason,
et al., 1960).

Construct validity of the state anxiety scale was
determined by administering the instrument to the same group

of 900 fourth, fifth, and sixth graders under two conditions. The first condition involved administering the scale using standard instructions. The second condition involved instructing them to complete the scale assuming they were about to take a final examination in an important subject. Under the first condition the mean scores were 31.10 for males and 31.03 for females. Under the second condition the mean scores were 41.76 for males and 43.79 for females.

3.4 Additional Data Available

Academic achievement scores were obtained from Site I. Measures were derived from two sources: the Metropolitan Achievement Test (Durost, Bixler, Wrightstone, Prescott, Balow, 1972) and course grades. Scores on the Metropolitan Achievement Test used in the data analysis included reading comprehension, mathematical problem solving, and total mathematics. Course grades are divided into two components. The first component measures academic achievement as assessed by the classroom teacher. The second component measures student effort in the class or classes in which the grade(s) were obtained (see Appendix B). In addition, mental ability scores (Otis and Lennon, 1967) were also obtained.

Instrumentation for this study was conducted in student home rooms. Since students did not receive academic grades for time spent in their home rooms, course grades were selected from the academic class or classes of the home

room teacher where instrumentations were administered. In
cases where an instructor taught more than one class to a
student, course grades were averaged for a composite figure.
The school report card contains five dimensions, ranging
from Excellent to Poor. Each of these dimensions was
assigned a number on a scale from five to one, respectively.

The Metropolitan Achievement Test was also adminis-
tered in home rooms. Therefore, the relationship between
levels of State Anxiety and scores on this instrument were
considered important for investigation.

3.5 Instrumental Usage

The majority of the instruments used in this study
were professionally marketed. Therefore, they were purchased
from the appropriate publishing companies. The self-esteem
in school questionnaire and the student follow-up question-
naire were piloted and revised several times before admin-
istration. Most of the data were collected during February
and March. The follow-up questionnaire was administered
through the mail to a group from Site I in July. Accompany-
ing this questionnaire in the mail was a cover letter from
the principal of site I (see Appendix A).

3.6 Procedural Steps

This study was organized in such a fashion that
nearly all data was collected during February and March of
1976. Different initial procedural steps were followed for

each of the three school systems involved. Regarding School I, the Parochial School, two initial meetings took place between the investigator and the school principal. These meetings were followed by a presentation to the school faculty explaining the purpose of the study, the school's involvement in the study, and potential benefits a participating school might gain. All seventh and eighth grade teachers agreed to participate in the study.

Regarding School II, the public secondary school in a small eastern town, the investigator had two meetings with the Director of Pupil Personnel Services and two meetings with the secondary school principal. Following this, the investigator met with department chairpersons to explain the study and its potential benefits. Although the general population of seventh, eighth, and ninth grade students participated in the study, only five of eighteen teachers agreed to participate fully.

In Schools III and IV, the secondary schools in a large mideastern town, the investigator first met with the Assistant Superintendent in charge of curriculum and the Director of English Programs. Additional meetings were scheduled with members of the English departments in each school. From a total of twenty-four teachers attending the meetings, eight agreed to participate in the study. Only the students of participating teachers received student instrumentation.

In all schools it was agreed that the investigator would conduct a series of follow-up workshops to discuss the definition and implications of study anxiety and conceptual systems measures.

Within all schools, the testing was conducted in a similar fashion. A class period was chosen during which the instruments would be administered to each grade level. Students received the state portion of the State-Trait Anxiety Inventory (STAI) or the State-Trait Anxiety Inventory for Children (STAIC), and then the trait portion of the same instruments. Finally, during the same session, students completed the Conceptual Systems Test (CST). Total testing time for the three instruments was approximately forty minutes. Within two weeks after these instruments were completed, 481 of the original 806 students received the Student Questionnaire which they finished in the first part of a class period.

The This I Believe test (TIB) was administered to teachers on several separate occasions. Each administration period lasted for about twenty minutes. The Teacher Questionnaire was distributed to participating teachers and returned upon completion.

The Student Follow-Up Questionnaire was sent by mail to seventy-one eighth grade students from School I during

the summer of 1976. A cover letter written by the principal of the school explaining the purpose of the questionnaire accompanied the questionnaire (see Appendix B).

C H A P T E R   I V
Results and Discussion

4.1 Introduction

This Chapter has been divided into four sections; in the first three we have reported the research results for each site, respectively, while the fourth section provides a discussion of the overall results. Each of the first three sections includes the complete analysis of data collected at one of the research sites. Within each section, the research results have been organized to present, first, the descriptive statistical analysis of teacher and student data, and secondly, research results with a bearing on the research questions investigated in this study.

4.2 Site I

Site I is a parochial school in an eastern city. Participating students were in grades seven and eight. The following data was collected from the student population: trait anxiety scores; state anxiety scores; Conceptual Systems Test scores; Student Value Scale dimensional scores; self-esteem scores; standardized test scores in reading and mathematics; intelligence quotient scores; course grades; and class effort.

4.2.1 Results of the Descriptive Statistical Analysis

In Table 4.2.1 are summarized the means and standard deviations for the data collected. The mean raw scores of participating students from Site I were compared with the norm table in the manual of the State-Trait Anxiety Inventory for Children (STAIC). The mean trait anxiety was in the fortieth to fiftieth percentile range. The mean state anxiety raw score was in the 60-70th percentile range.

The correlations among the student variables are reported in Table 4.2.2. Several correlations were of particular interest. The correlations between trait and state anxiety, .52, is highly significant, and expected, given the way the two measures are defined. The positive correlations between trait anxiety and self-esteem, .25, and state anxiety and self-esteem, .19, provide some supporting evidence for the construct validity of the STAIC instrument. (High scores on the self-esteem measure correspond to low levels of self-esteem).

The intercorrelations among the dimensions of the Conceptual Systems Test reflect the following results significant to this study: Divine Fate Control correlates with Need For People and Need To Help People .19 and .27 respectively; Need For Structure correlates .19 with Need To Help People, .28 with Need For People, and -.23 with Interpersonal Aggression; General Pessimism correlates .53 with Interpersonal Aggression.

Table 4.2.1

Descriptive Statistical Analysis of Student Data Collected in Site I

Variable	Grade 7			Grade 8			Grade 7 & 8 Combined		
	N	$\overline{X}$	SD	N	$\overline{X}$	SD	N	$\overline{X}$	SD
Personality									
Trait Anxiety	66	36.79	6.90	67	36.31	7.10	133	36.55	6.98
State Anxiety	59	32.29	5.08	62	30.94	5.53	121	31.60	5.33
Self-Esteem	66	28.53	5.73	67	31.39	6.14	133	29.97	6.09
Conceptual Systems Test									
Divine Fate Control	67	3.11	1.30	65	3.10	.95	132	3.10	1.14
Need For Structure	67	3.62	.69	65	3.47	.67	132	3.54	.68
Need Help People	67	3.89	.59	65	3.71	.65	132	3.80	.63
Need For People	67	3.76	.57	65	3.77	.51	132	3.77	.54
Interpersonal Aggression	67	3.22	.74	65	3.06	1.08	132	3.14	.92
General Pessimism	67	3.31	.41	65	3.07	1.05	132	3.20	.80
Student Value Scale									
Need External Guidance	57	5.80	.91	55	5.89	1.13	112	5.85	1.02
Hostility	57	4.91	1.09	55	4.61	.73	112	4.77	.94
Friendship Orientation	57	7.25	.69	55	7.41	.71	112	7.33	.70
Autonomy	57	4.70	.98	55	4.62	.87	112	4.66	.93
Academic Achievement									
Reading Comprehension	66	5.99	1.91	67	7.52	1.87	133	6.76	2.04
Total Reading	66	6.35	1.80	67	7.56	1.85	133	6.96	1.92
Math Concepts	66	5.03	1.35	67	6.13	1.73	133	5.59	1.65
Math Problem Solving	66	6.08	1.72	67	7.47	1.80	133	6.78	1.88
Total Mathematics	66	5.67	1.48	67	7.10	1.68	133	6.39	1.73
Intelligence Quotient	66	93.62	11.40	67	95.39	19.50	133	94.51	15.96
Course Grade	59	3.54	1.00	61	2.09	1.88	120	2.80	1.67
Course Effort	59	3.63	1.27	61	2.07	1.98	120	2.84	1.84

Table 4.2.2

Intercorrelations Among the Student Measured Variables for Site I

(Grades 7 and 8 Combined)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Trait Anxiety		.52**	-.25**	-.21	.08	.27**	.08	.04	.10	.03	.14	-.16	-.08	-.28	-.29	-.17	-.21	-.17	-.28*	-.06	-.0
2. State Anxiety			-.19*	.10	.01	.34**	.11	.14	-.00	-.17*	.19*	-.11	-.09	-.21*	-.22*	-.23**	-.24**	-.18*	-.16*	-.13	-.1
3. Self-Esteem				.00	.25**	.03	.09	-.13	-.21*	.08	-.25**	.20*	.06	.28*	.18*	.22*	.28**	.23**	.13	.05	.1
4. Divine Fate Control					.17*	.19*	.27**	-.02	-.00	-.01	.03	.09	.10	.13	.14	.05	.07	.06	-.24*	.12	.1
5. Need for Structure						.19*	.28**	-.23**	-.12	.33**	-.09	-.12	-.12	-.04	-.04	-.05	-.12	-.11	-.19*	.43**	.4
6. Need Help People							.38**	.23**	-.07	-.09	.02	.03	-.02	-.07	-.06	-.12	-.20	-.16	-.26*	.05	.0
7. Need for People								-.14	-.15	-.09	.01	.13	.13	-.09	-.06	-.05	-.10	-.08	-.19	.14**	.1
8. Interpersonal Aggression									.53**	-.10	.20*	-.11	-.08	.07	.10	.04	.11	.07	.22*	-.17**	-.6
9. General Pessimism										-.03	.09	-.03	-.04	.04	.09	-.08	-.05	-.07	.33**	-.47**	-.3
10. Need External Guidance											.06	-.31**	-.38**	-.04	-.04	.05	.03	-.14	.03	.09	.1
11. Hostility												-.11	-.03	-.21*	-.23**	-.09	-.15	.13	-.15	-.04	-.0
12. Friendship Orientation													.52**	.09	.09	.12	.15	-.02	-.04	-.06	.0
13. Autonomy														-.05	-.08	-.00	-.01	-.00	.00	.05	
14. Reading Comprehension															.95**	.66**	.66**	.71**	.65*	-.13	-.1
15. Total Reading																.66**	.67**	.71**	.67*	-.12	-.0
16. Math Concepts																	.76**	.91**	.55*	-.09	
17. Math Problem Solving																		.91**	.49*	-.05	
18. Total Mathematics																			.57**	-.08	
19. Intelligence Quotient																				.03	
20. Course Grades																					
21. Course Effort																					

** p < .01
* p < .05

Two important correlations between scores derived from dimensions on the Conceptual Systems Test and dimensions of the Student Value Scale were obtained. A highly significant correlation of .38 occurred between Need For Structure and Need For External Guidance. Also the correlation between Interpersonal Agression and Hostility was .20.

Among the dimensions of the Student Value Scale, Need For External Guidance was significantly negatively correlated with Autonomy, -.38. This further confirms that the items attributed to each of these dimensions are properly clustered. Hostility was significantly negatively correlated with reading comprehension (-.21). The strong correlation between Friendship Orientation and Autonomy, .52, might indicate that among older students, the items comprising each of these dimensions are not distinguishable. Further evidence for this rests with the similar correlation between Friendship Orientation and Need For External Guidance (-.31).

4.2.2 Investigation of the Research Questions

This section is designed to report the research results as they pertain to the research questions stated in Chapter 1: specifically, this section provides empirical data of matched and mismatched teacher-student belief system levels and belief system dimensional levels in regards to state anxiety, self-esteem in school, and academic achievement. High trait

anxious students were defined as those whose raw scores were at the seventy-fifth percentile in the norms table for the State-Trait Anxiety Inventory for Children. Low trait-anxious students were defined as those whose raw scores fell at the twenty-fifth percentile or below in the norms table.

Descriptive statistical analyses of state anxiety, self-esteem, course grade, and course effort scores for high and low trait anxious students matched and mismatched with teacher belief systems are reported in Tables 4.2.3, 4.2.4, 4.2.5, and 4.2.6.

Among the high trait anxious group, in nine cases the teacher's belief system was greater than that of the student, in ten cases the teacher and student belief systems were equal and in one case the student's belief system was greater than that of the teacher. Because of the small sample size, this last situation was eliminated from the analysis. Concerning the other two groupings, an insignificant amount of difference was found between the mean state anxiety and self-esteem scores. That is, there were no statistically significant differences in either state anxiety scores or self-esteem scores between high trait anxious students matched and not matched in belief systems with their teachers. There were also minimal differences for course grades and student effort.

Table 4.2.3

Descriptive Statistical Analysis of State Anxiety and Self-Esteem Scores
for High Trait Anxious Students Matched and Mismatched
with Teacher Belief Systems in Site I

(Grades 7 and 8 Combined)

Teacher-Student Belief System Match			Sample Size	State Anxiety		Self-Esteem	
Teacher		Student		$\overline{X}$	SD	$\overline{X}$	SD
Belief System	>	Belief System	9	36.44	6.56	29.22	5.14
Belief System	=	Belief System	10	36.00	6.13	26.80	2.97
Belief System	<	Belief System	1	39.00	--	26.00	--

Table 4.2.4

Descriptive Statistical Analysis of State Anxiety and Self-Esteem Scores
for Low Trait Anxious Students Matched and Mismatched
with Teacher Belief Systems in Site I

(Grades 7 and 8 Combined)

Teacher-Student Belief System Match Teacher / Student		Sample Size	State Anxiety $\overline{X}$	SD	Self-Esteem $\overline{X}$	SD
Belief System	> Belief System	19	28.37	3.50	31.74	3.75
Belief System	= Belief System	18	29.72	3.32	30.56	4.15
Belief System	< Belief System	--	--	--	--	--

Table 4.2.5

Descriptive Statistical Analysis of Course Grade and Course Effort For
High Trait Anxious Students Matched and Mismatched with
Teacher Belief Systems for Site I

(Grades 7 and 8 Combined)

Teacher-Student Belief System Match			Sample Size	Course Grade		Course Effort	
Teacher		Student		X̄	SD	X̄	SD
Belief System	>	Belief System	8	3.35	.90	3.31	1.41
Belief System	=	Belief System	5	3.46	.69	3.20	1.15
Belief System	<	Belief System	--	--	--	--	--

Table 4.2.6

Descriptive Statistical Analysis of Course Grade and Course Effort For
Low Trait Anxious Students Matched and Mismatched with
Teacher Belief Systems for Site I

(Grades 7 and 8 Combined)

| Teacher–Student Belief System Match | | | Sample Size | Course Grade | | Course Effort | |
Teacher		Student		$\overline{X}$	SD	$\overline{X}$	SD
Belief System	>	Belief System	19	4.01	.79	4.37	.91
Belief System	=	Belief System	8	3.95	.52	3.69	.92
Belief System	<	Belief System	--	--	--	--	--

Although not formally part of the study, we also looked at the low trait anxious students. Among the low trait-anxious group similar results were found. In nineteen cases the teacher's belief system was greater than that of the student and in eighteen cases the teacher-student belief systems were equal. There were no significant differences in either state anxiety or self-esteem scores. Also, course grades were similar. The only significant difference occurred between the degree of student effort viewed by the teacher. For teachers with higher belief systems than students, the mean student effort score was 4.37. For teachers with belief systems equal to those of students, the mean student effort score was 3.69.

To provide some additional insights into the student-teacher matching process, we also considered matches on the basis of each of the dimensional scores. Dimensional scores were derived by recording teacher scores as high or low. A teacher dimensional score of one, two or three received a low ranking, while a dimensional score of four or five received a high ranking. Student dimensional raw scores were also recorded into high and low rankings for each dimension on the Conceptual Systems Test. The results reported in Table 4.2.7 of dimensional matches and mismatches reveal that teacher-student scores followed a specific pattern. For example, the same students who were equal to their

Table 4.2.7

Descriptive Statistical Analysis of State Anxiety and Self-Esteem
Scores for Various Matches and Mismatches Between
Teacher and Student Belief System Dimensions

(Grades 7 and 8 Combined)

Teacher-Student Match			Sample Size	State Anxiety		Self Esteem	
Teacher		Student		X	SD	X	SD
Openness	>	Need to Help People	1	31.00	--	20.00	--
Openness	=	Need to Help People	12	33.33	4.74	22.00	4.00
Openness	<	Need to Help People	11	38.82	5.62	21.24	4.34
Candor	>	Need to Help People	1	31.00	--	20.00	--
Candor	=	Need to Help People	12	33.33	4.74	22.00	4.00
Candor	<	Need to Help People	11	38.82	5.62	21.24	4.34
Evaluativeness	=	Need to Help People	8	31.25	3.11	21.13	3.44
Evaluativeness	<	Need to Help People	16	38.00	5.47	22.00	4.39
Cynicism	=	Need to Help People	8	31.25	3.11	21.13	3.44
Cynicism	<	Need to Help People	16	38.00	5.47	22.00	4.39
Optimism	=	Need to Help People	8	31.25	3.11	21.13	3.44
Optimism	<	Need to Help People	16	38.00	5.47	22.00	4.39

teachers when Openness and Divine Fate Control were com-
pared also were equal to their teachers when Candor and
Divine Fate Control were compared. The same students who
were equal to their teachers when Evaluativeness and Need
For Structure were compared, also were equal to their tea-
chers when Cynicism and Need For Structure were compared
(see Appendix C).

Of the twenty-seven dimensional pairings investigated,
only five showed significant differences in mean state
anxiety scores. All of these pairings occurred when the five
teacher dimensions, Openness, Candor, Evaluativeness, Cynicism
and Optimism, were compared to the student dimension of Need
To Help People. The differences in the mean state anxiety
scores indicate that students who scored high on Need To
Help People had a higher level of classroom state anxiety
when their teachers are low in terms of Openness and Candor.
These results also indicate that a student who scored high
on Need To Help People had an increased level of state anxiety
when the teacher was low on Evaluativeness, Cynicism and
Optimism.

The Student Follow-Up Questionnaire was designed to
provide information on how students perceived 1) their own
need for structure and 2) the degree to which teacher-student
matches and mismatches affect their learning. Also included
in the questionnaire was a worry scale which sought to mea-
sure the extent to which certain situations occurring in
school cause students to worry.

The questionnaire was mailed to seventy-one eighth grade students. A cover letter written by the principal of site I explained that the purpose of the questionnaire was to find out more information on how students learn best. Of those questionnaires mailed out, forty-eight students responded, thirty-seven of whom had participated in the earlier part of the research.

The first two parts of the questionnaire were designed to measure student need for structure on two dimensions: student preference and optimal student learning. It was expected that a strong correlation would exist between parallel questions from parts one and two. This was the case, as the following correlations occurred: .68, .42, .64, .65, .65, and .53, between items one and seven, items two and eight, and so on, respectively. Each of these correlations was significant at the .001 level. The correlations among each pair of items in Part I and Part II of the questionnaire are shown in Table 4.2.8. From these results it is clear that the students tended to view a preferential instructional style as the one through which they learned the most, although the relationship was far from perfect. This point is further exemplified by the results reported in Table 4.2.9.

Table 4.2.8

Intercorrelations Among Part I and Part II
of the Student Follow-up Questionnaire

Item Number	1	2	3	4	5	6	7	8	9	10	11	12
1		.02	.16	.19	-.08	-.04	.68**	.21	.27	.13	-.21	.05
2			-.14	.10	.15	.01	.06	.42**	-.12	-.01	.24	.08
3				.03	.14	-.19	.26*	-.18	.64**	.19	.06	-.11
4					-.10	-.04	.19	.01	-.19	.65**	-.28*	.16
5						-.01	.07	.20	.12	-.12	.65**	-.08
6							-.15	.12	-.14	-.15	0	.53**
7								.29*	.35**	.24*	-.06	.06
8									.02	-.22	-.20	.21
9										-.13	.02	-.19
10											-.13	.0
11												-.09
12												

** $p < .01$
* $p < .05$

Table 4.2.9   87

Student Responses to Part I and Part II
of the Student Follow-up Questionnaire

Question (Part I)	Percentage of Student Response
1. To which of the following types of classes do you most look forward to going?	
a. a class where the teacher tells you how you are to do your work assignments	45.9
b. a class where the teacher lets you choose how you are to do your work assignments	54.1
2. Which do you prefer?	
a. a teacher who makes all of the day to day decisions in class for you	8.1
b. a teacher who lets you make some of the day to day decisions in class	91.9
3. Which do you prefer?	
a. to have your teacher give you problems to solve	91.7
b. to solve problems you have thought of yourself	8.3
4. Which do you prefer?	
a. a teacher who carefully guides you through the solution to a problem	47.2
b. a teacher who gives you some information and lets you find the answers to a problem yourself	52.8
5. Which do you prefer?	
a. a lecture by your teacher on a topic	13.5
b. a class discussion on a topic	86.5
6. Which do you prefer?	
a. a classroom in which the students talk to the teacher about a class topic	45.9
b. a classroom in which the students talk to each other about a class topic	54.1

Table 4.2.9 (Continued)

Question (Part II)	Percentage of Student Response
7. In which of the following types of classes do you learn best?	
a. a class where the teacher tells you how you are to do your work assignments	62.2
b. a class where the teacher lets you choose how you are to do your work assignments	37.8
8. How would you learn best?	
a. from a teacher who makes all of the day to day decisions in class for you	18.9
b. from a teacher who lets you make some of the day to day decisions in class	81.1
9. How would you learn best?	
a. from a teacher who gives you problems to solve	91.7
b. from a teacher who lets you solve problems you have thought of yourself	8.3
10. How would you learn best?	
a. from a teacher who carefully guides you through the solution to a problem	54.1
b. from a teacher who gives you some information and lets you find the answers to a problem yourself	45.9
11. How would you learn best?	
a. from a lecture by your teacher on a topic	32.4
b. from a class discussion on a topic	67.6
12. How would you learn best?	
a. from a classroom in which the students talk to the teacher about a class topic	47.2
b. from a classroom in which the students talk to each other about a class topic	52.8

However, it is important to note the trend by the students toward the selection of more structured responses when assessing how they learn best. This is seen when one compares corresponding items in parts one and two. It is also interesting to note that most students indicated a preference for participating in classroom decision-making, while at the same time prefering teachers to supply them with problems. Such a result might indicate the vagueness of question three in Part I, or it may indicate the unwillingness of students to take greater responsibility for their own learning.

An analysis was also conducted of the relationships between the Need For Structure component on the <u>Conceptual Systems Test</u> and student responses to the items in parts one and two of the questionnaire. The results of this analysis however revealed no significant relationships between student preferences for structure as measured by the questionnaire and student scores on the Need For Structure dimension.

Based on Part III of the questionnaire, we correlated student worry scores with trait and state anxiety scores on the <u>State-Trait Anxiety Inventory for Children</u>.

A correlation of .47, significant at the .01 level, existed between worry scores and trait anxiety scores. A correlation of .24, significant at the .08 level, occurred between the worry scores and student state anxiety scores. Because of the small sample size, any correlational relationship is tentative. Nevertheless, it was encouraging to note the reasonably high correlation between trait anxiety and the worry scale scores. The lower correlation with state anxiety scores was also to be expected.

The final part of the questionnaire was designed to determine if students perceived themselves as more anxious in mismatched classroom situations than in matched classroom situations. The initial data analysis for part four was concerned with simply reporting the responses of students to certain questions. The responses of thirty-seven of the forty-eight students were recorded. To the question "Do some teachers make you more nervous than other teachers?" twenty-seven responded "yes" and ten responded "no."

To the third item in this part, "Let us suppose that you are in a class with a teacher who makes you nervous," twenty-five students answered that they learned less, eleven answered that they learn about the same and one responded to learning more. To the same item, twenty-four students

responded that they feel worse about school, eleven stated
they felt the same as in other classes and one responded
to feeling better about school. Also to the third item,
twenty students answered that they feel worse about them-
selves, fourteen answered that they felt the same about
themselves and two responded that they felt better about
themselves.

Questions four and five were designed to encourage
students to state those teacher behaviors most advantageous
and least advantageous to their learning. To question four,
"What things do your teachers do that make you feel ner-
vous?" students gave eighteen varied responses. The three
most predominant responses were that the teacher needlessly
yelling at students (eleven responses), the teacher asking
students questions they cannot answer (six responses), and
the teacher requesting students to read difficult material
in front of the class (five responses).

To question five, "What things do your teachers do
that make you feel relaxed?" students gave twenty-six
different responses. No one response was given more than
four times. Several of the responses suggested a student
preference for being treated as an equal by the teacher.
These responses included: the teacher treating students
like adults; the teacher talking openly with students;
the teacher acting normally; the teacher being friendly.

Other student responses were the teacher explaining misunder-
stood work, the teacher conducting class discussions and
the teacher making jokes.

To the sixth item, "Suppose you are in a class where
the teacher presents material in a way you do not like,"
two students answered that their learning was affected "a
great deal," ten responded "a good amount," twenty-one
answered "a little bit," and three circled "not at all."
Regarding how this situation makes them feel, three answered
"very nervous," six answered "nervous," nineteen answered
"somewhat nervous," and eight answered "not nervous at all."

Correlations between part four items and trait anxiety,
state anxiety, self-esteem and academic achievement scores
were also determined. The correlation between item two
measuring student nervousness in school, "How do you usually
feel in school?", and trait anxiety was .44, significant at
the .003 level. With state anxiety, the correlation coeffi-
cient was .35, a correlation significantly different from
.00 at the .016 level. With self-esteem, the correlation
coefficient was -.34, significant at the .019 level.

Regarding item six, both parts of the question produced
significant correlations. To the question, "How much does
this affect your learning of the material?", a correlation
of .40 suggested a highly significant relationship between
those who were most affected in their learning of material and

trait anxiety. Strangely, a highly significant relation-
ship, .43, also occurred between the amount by which stu-
dents were affected in learning and their course grades.
Finally, to the question, "How does this make you feel?"
student nervousness was highly correlated, .51, with trait
anxiety and .34 with state anxiety.

The percentages of student responses to Part IV of
the questionnaire are shown in Table 4.3.10. In this table,
the percentages of responses are also reported for students
separated into low and high levels on three variables:
STAIC measure of trait anxiety, the worry scale, and the
nervous rating question (No. 2) in Part IV of the Student
Questionnaire. The cutting score for separating students
into high and low levels on each variable was as follows:
the mean trait anxiety score in the general population for
the STAIC measure, the mean worry score of the sample being
studied for the worry scale, and the mid point of the 4-
point rating scale to the nervous rating question.

Reported in Table 4.2.11 for the same groups men-
tioned above are the results for Part I and II of the
questionnaire.

Table 4.2.10

Student Responses to Part IV of the
Student Follow-up Student Questionnaire

Question (Part IV)	Percentage of Response (N=37)	STAIC Trait Anxiety		Worry Scale		Nervous Rating (Part IV, Question #2)	
		High (N=21)	Low (N=16)	High (N=12)	Low (N=25)	High (N=32)	Low (N=5)
1. Do some teachers make you more nervous than other teachers?							
a. yes	73.0	76.2	68.8	66.7	76.0	68.8	100.0
b. no	27.0	23.8	31.2	33.3	24.0	31.3	0
2. How do you usually feel in school?							
a. very nervous	5.5	9.5	0	16.7	0	--	--
b. nervous	8.1	9.5	6.3	25.0	0	--	--
c. somewhat nervous	45.9	52.4	37.5	41.7	48.0	--	--
d. not nervous at all	40.5	28.6	56.3	16.7	52.0	--	--
3. Let us suppose that you are in a class with a teacher who makes you nervous. How does this affect your learning?							
a. I learn more	2.7	0	6.3	0	4.0	3.1	0
b. I learn less	67.6	71.4	62.5	75.0	64.0	62.5	100.0
c. I learn about the same as in other classes	29.7	28.6	31.3	25.0	32.0	34.4	0

Table 4.2.10 (continued)

Question (Part IV)	Percentage of Response (N=37)	STAIC Trait Anxiety High (N=21)	STAIC Trait Anxiety Low (N=16)	Worry Scale High (N=12)	Worry Scale Low (N=25)	Nervous Rating (Part IV, Question #2) High (N=32)	Nervous Rating (Part IV, Question #2) Low (N=5)
3. (continued)							
How does this affect your feeling about school?							
a. I feel better about school	2.8	5.0	0	8.3	0	0	20.0
b. I feel worse about school	66.7	65.0	68.8	66.7	66.7	67.7	60.0
c. I feel about the same as in other classes	30.6	30.0	31.2	25.0	33.3	32.3	20.0
How does this affect your feelings about yourself?							
a. I feel better about myself	5.6	5.0	6.2	8.3	4.2	6.5	0
b. I feel worse about myself	55.6	65.0	43.8	66.7	50.0	54.8	60.0
c. I feel the same about myself as in other classes	38.9	30.0	50.0	25.0	45.8	38.7	40.0
6. Suppose you are in a class where the teacher presents material in a way you do not like.							
How much does this affect your learning of the material?	(N=36)	(N=21)	(N=15)	(N=12)	(N=24)	(N=31)	(N=5)
a. a great deal	5.6	9.5	0	16.7	0	0	40.0
b. a good amount	27.8	23.8	33.3	33.3	25.0	32.3	0
c. a little bit	58.3	61.9	53.3	41.7	66.7	58.1	60.0
d. not at all	8.3	4.8	13.3	8.3	8.3	9.7	0

Table 4.2.10 (continued)

Question (Part IV)	Percentage of Response (N=37)	STAIC Trait Anxiety		Worry Scale		Nervous Rating (Part IV, Question #2)	
		High (N=21)	Low (N=16)	High (N=12)	Low (N=25)	High (N=32)	Low (N=5)
5. (continued) How does this situation make you feel?							
a. very nervous	8.3	14.3	0	16.7	4.2	3.2	40.0
b. nervous	16.7	19.0	13.3	16.7	16.7	16.1	20.0
c. somewhat nervous	52.8	52.4	53.3	41.6	58.3	54.8	40.0
d. not nervous at all	22.2	14.3	33.3	25.0	20.8	25.8	0

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Table 4.2.11

Student Responses to Part I and Part II of the
Student Follow-up Student Questionnaire

Question (Part I)	Percentage of Response (N=37)[1]	STAIC Trait Anxiety High (N=21)	STAIC Trait Anxiety Low (N=16)	Worry Scale High (N=12)	Worry Scale Low (N=25)	Nervous Rating (Part IV, Question #2) High (N=32)	Nervous Rating (Part IV, Question #2) Low (N=5)
1. To which of the following types of classes do you most look forward to going?							
a. a class where the teacher tells you how you are to do your work assignments	45.9	38.1	56.2	50.0	44.0	40.0	46.9
b. a class where the teacher lets you choose how you are to do your work assignments	54.1	61.9	43.8	50.0	56.0	60.0	53.1
2. Which do you prefer?							
a. a teacher who makes all of the day to day decisions in class for you	8.1	4.8	12.5	8.3	8.0	0	9.4
b. a teacher who lets you make some of the day to day decisions in class	91.9	95.2	87.5	91.7	92.0	100.0	90.6
3. Which do you prefer?	(N=36)	(N=21)	(N=15)	(N=11)	(N=25)	(N=4)	(N=32)
a. to have your teacher give you problems to solve	91.7	95.2	86.7	90.0	92.0	75.0	93.7
b. to solve problems you have thought of yourself	8.3	4.8	13.3	9.1	8.0	25.0	6.3
4. Which do you prefer?	(N=36)	(N=20)	(N=16)	(N=12)	(N=24)	(N=5)	(N=31)
a. a teacher who carefully guides you through the solution to a problem	47.2	40.0	56.2	41.7	50.0	60.0	45.2
b. a teacher who gives you some information and lets you find the answers to a problem yourself	52.8	60.0	43.8	58.3	50.0	40.0	54.8

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Table 4.2.11 (continued)

Question (Part I)	Percentage of Response (N=37)[1]	Trait Anxiety High (N=21)	Trait Anxiety Low (N=16)	Worry Scale High (N=12)	Worry Scale Low (N=25)	Nervous Rating (Part IV, Question #2) High (N=32)	Nervous Rating Low (N=5)
5. Which do you prefer?							
a. a lecture by your teacher on a topic	13.5	19.0	6.3	16.7	12.0	20.0	12.5
b. a class discussion on a topic	86.5	81.0	93.8	83.3	88.0	80.0	87.5
6. Which do you prefer?							
a. a classroom in which the students talk to the teacher about a class topic	45.9	47.6	43.8	50.0	44.0	60.0	43.8
b. a classroom in which the students talk to each other about a class topic	54.1	52.4	56.3	50.0	56.0	40.0	56.2
7. In which of the following types of classes do you learn best?							
a. a class where the teacher tells you how you are to do your work assignments	62.2	57.1	68.8	50.0	68.0	40.0	65.6
b. a class where the teacher lets you choose how you are to do your work assignments	37.8	42.9	31.3	50.0	32.0	60.0	34.4
8. How would you learn best?							
a. from a teacher who makes all of the day to day decisions in class for you	18.9	23.8	12.5	25.0	16.0	40.0	15.6
b. from a teacher who lets you make some of the day to day decisions in class	81.1	76.2	87.5	75.0	84.0	60.0	84.4
9. How would you learn best?	(N=36)	(N=21)	(N=15)	(N=11)	(N=25)	(N=4)	(N=31)
a. from a teacher who gives you problems to solve	91.7	95.2	86.7	81.8	96.0	75.0	93.8
b. from a teacher who lets you solve problems you have thought of yourself	8.3	4.8	13.3	18.2	4.0	25.0	6.2

Table 4.2.11 (continued)

Question (Part I)	Percentage of Response (N=37)[1]	STAIC Trait Anxiety High (N=21)	Low (N=16)	Worry Scale High (N=12)	Low (N=25)	Nervous Rating (Part IV, Question #2) High (N=32)	Low (N=5)
10. How would you learn best?							
a. from a teacher who carefully guides you through the solution to a problem	54.1	47.6	62.5	50.0	56.0	60.0	53.1
b. from a teacher who gives you some information and lets you find the answers to a problem yourself	45.9	52.4	37.5	50.0	44.0	40.0	46.9
11. How would you learn best?	(N=34)	(N=18)	(N=16)	(N=12)	(N=22)	(N=5)	(N=29)
a. from a lecture by your teacher on a topic	32.4	38.9	25.0	33.3	31.8	40.0	31.0
b. from a class discussion on a topic	67.6	61.1	75.0	66.7	68.2	60.0	69.0
12. How would you learn best?	(N=36)	(N=20)	(N=16)	(N=12)	(N=24)	(N=5)	(N=31)
a. from a classroom in which the students talk to the teacher about a class topic	47.2	45.0	50.0	50.0	45.8	80.0	41.9
b. from a classroom in which the students talk to each other about a class topic	52.8	55.0	50.0	50.0	54.2	20.0	58.1

[1] For question three, four, and nine, there was one missing value; for question eleven there were three missing values; for question twelve there was one missing value. Different sample sizes are noted for these questions.

Percentages of responses were similar for students classified by either the trait anxious measure or the worry scale. This was as expected, considering the high correlation between the two instruments. The results of the student self-perceptions of nervousness in school are reported but should not be compared to the other results because of the very small sample size in the low nervous group.

To the first question in Part IV, 73 percent of both high and low trait-anxious and worry scale groups responded that some teachers make them more nervous than others. The percentage of agreement is similar for high and low groups, with 76.2 percent of the high trait-anxious group and 68.8 percent of the low trait-anxious group responding "yes," and 66.7 percent of the high worry scale gorup and 76 percent of the low worry scale group also responding yes.

To question two, 86.4 percent of the students re-sponded either "somewhat nervous" or "not nervous at all." Of the high trait anxious group, only 28.6 percent of the students answered "not nervous at all," while 56.3 percent of the low trait anxious students selected this answer.

Of the high worry scale group, 41.7 percent responded to this question by choosing "very nervous" or "nervous." Even though this group is quite small, this figure is significant when considering that no members of the low worry scale group responded in this fashion. Fifty-two percent of the low worry scale group selected "not nervous at all."

Questions three and six sought to determine how high and low trait anxious and worry-scale groups perceived themselves in mismatched situations. There are no major differences between high and low group responses to question three. The primary response to all parts of question three acknowledges that a teacher who makes the students nervous negatively affects student learning, feelings about school and self-concept. This result is consistent with student responses to question one.

There also were minimal differences to the responses of high and low trait-anxious students to question six. The highly trait anxious group did indicate that a disadvantageous presentation of material does tend to make them more nervous than the low trait anxious group. However, when considering the primary responses to question item six, both groups answered almost identically. There were some differences between high and low worry scale groups. Most notably, fifty percent of the high worry scale group expressed

that a disadvantageous presentation of material did affect them significantly. However, in general, distinctions between high and low worry scale groups were not significant.

Table 4.2.11 describes the percentage of responses by high and low trait-anxious and worry scale groups to Part I and Part II of the questionnaire. Again, student responses to self-perceptions of nervousness in school produced a small number of students in one of the groups and so the results will not be further elaborated.

For five out of six items in Part I, the high trait-anxious group has indicated a preference for a less structured approach. The low trait-anxious group also showed a preference for less structure, but this preference was not as strong as that of the high trait-anxious group. Responses to questions were generally similar for high and low trait-anxious groups. However, distinct differences did occur on questions one, four, ten, and eleven.

The only major difference between high and low worry scale groups was in their responses to question seven. Responses between high and low trait-anxious and worry scale groups were generally similar. High and low groups did show a definite overall preference for more or less structure, although specific items indicate a strong preference.

4.3 Site II

Site II is a public school in a small eastern town. Students in grades seven through nine participated in the

investigation. The following data were collected from this population: trait anxiety scores; state anxiety scores; Conceptual Systems Test dimensional and composite scores.

4.3.1 Results of the Descriptive Statistical Analysis

In Table 4.3.1 are summarized the means and standard deviations for data collected and organized for grades seven, eight, seven and eight combined, and grade nine students.

The mean raw scores of participating seventh and eighth grade students from site II were compared with the norm table in the manual of the State-Trait Anxiety Inventory thirty to fiftieth percentile range. The mean state anxiety score was in the seventy to seventy-fifth percentile range in the norms table.

The mean raw scores of participating ninth grade students from site II were compared with the norm table in the manual of the State-Trait Anxiety Inventory. Both the mean trait anxiety score and the mean state anxiety score were in the fiftieth to sixtieth percentile range of the norms table.

The correlations among the student variables for grades seven and eight are presented in Table 4.3.2.

Those intercorrelations among dimensions of the Conceptual Systems Test most pertinent to this study are: a .19 correlation between Divine Fate Control and Need To

Table 4.3.1

Descriptive Statistical Analysis of Student Data Collected in Site II

Variable	Grade 7			Grade 8			Grade 7 & 8			Grade 9		
	N	$\overline{X}$	SD	N	$\overline{X}$	SD	N	$\overline{X}$	SD	N	$\overline{X}$	SD
Anxiety												
Trait Anxiety	90	36.76	8.12	74	34.43	6.96	164	35.71	7.69	127	39.67	8.71
State Anxiety	90	33.72	7.09	74	32.35	5.82	164	33.10	6.57	127	39.15	10.35
Conceptual Systems Test												
Divine Fate Control	90	2.66	1.35	78	2.38	1.53	168	2.53	1.44	128	2.56	1.23
Need Structure	90	3.21	.94	78	3.18	.79	168	3.20	.87	128	3.24	.72
Need Help People	90	3.84	.72	78	3.67	.85	168	3.77	.79	128	3.83	.72
Need For People	90	3.63	.61	78	3.58	.57	168	3.61	.60	128	3.54	.53
Interpersonal Aggression	90	2.90	.86	78	3.07	.90	168	2.98	.88	128	2.91	.77
General Pessimism	90	2.74	.97	78	2.78	.91	168	2.76	.94	128	2.84	.89

Table 4.3.2

Intercorrelations Among the Student Measured Variables for Site II

(Grades 7 and 8 Combined)

Variable	Variable								
	1	2	3	4	5	6	7	8	9
1. Trait Anxiety		.54**		.07	.04	.28	.04	.06	.01
2. State Anxiety				-.03	-.06	.00+	-.14*	.07	.03
3. Self-Esteem									
Conceptual Systems					.36**	.19**	.11	.04	.40
4. Divine Fate Control						.40**	.33**	-.14*	.17*
5. Need For Structure							.49**	-.27**	.05
6. Need Help People								-.15*	-.11
7. Need For People									.29**
8. Interpersonal Aggression									

**p<.01
*p<.05

Help People, a .36 correlation between Divine Fate Control and Need For Structure, and a .40 correlation between Divine Fate Control and General Pessimism; Need For Structure correlates .40 with Need To Help People and .33 with Need For People; a correlation of -.27 between Need To Help People and Interpersonal Aggression; a .29 correlation between Interpersonal Aggression and General Pessimism.

The correlation matrix for the ninth grade population is presented in Table 4.3.3. The intercorrelations among dimensions on the Conceptual Systems Test are similar to those described above. The major difference is that the correlation between Need To Help People and General Pessimism is .23.

4.3.2 Investigation of the Research Questions

Because of the unavailability of This I Believe Scores, it was not possible to investigate any of the primary research questions in Site II.

4.4 Site III

This site is comprised of ninth and tenth grade English students and teachers from two high schools in a large mid-eastern town. The following data were collected from the student population: trait anxiety scores; state anxiety scores; self-esteem scores; Conceptual Systems Test dimensional and composite scores; Student Value Scale dimensional scores.

Table 4.3.3

Intercorrelations Among the Student Measured Variables for Site II

(Grade 9)

Variable	1	2	3	4	5	6	7	8	9
1. Trait Anxiety		.65**		-.10	-.06	.17	-.07	.11	.08
2. State Anxiety				-.13	-.10	.18*	0.05	.00+	.14
3. Self-Esteem									
Conceptual Systems									
4. Divine Fate Control					.19*	.26**	.19*	.21**	.17*
5. Need For Structure						.18*	.29**	.15*	.06
6. Need Help People							.50**	.12	.23**
7. Need For People								.14	.01
8. Interpersonal Aggression									.22**
9. General Pessimism									

**p<.01
*p<.05

4.4.1 Results of the Descriptive Statistical Analysis

Table 4.4.1 summarizes the means and standard deviations for the data collected. The mean trait anxiety score was in the fifty-fifth to sixty-fifth percentile range when compared with the norming group for the State-Trait Anxiety Inventory. The mean state anxiety score was in the seventieth to eightieth percentile range.

The correlations between the variables are summarized in Table 4.4.2. The correlations of .18 and .15 between trait anxiety and both Interpersonal Aggression and General Pessimism, respectively, are especially worthy of mention because of the potential benefits of using observed student aggressive and pessimistic behaviors as predictors of high trait anxiety levels.

The Self-Esteem In School measure correlated significantly with many variables. A correlation of .44 with trait anxiety and .31 with state anxiety, reflected the utility of this instrument as a quick assessment of how the student perceives his or herself in the school environment.

Interpersonal Aggression correlated significantly with many variables: with Need To Help People (-.31); with Need For People (-.14); with General Pessimism (.42); with Hostility (.49) and with Friendship Orientation (-.19).

As was the case in site I, Need For Structure correlated significantly with Need For External Guidance (.22).

Table 4.4.1

Descriptive Statistical Analysis of Student Data Collected in Site III

Variable	Grade 9			Grade 10			Combined		
	N	$\overline{X}$	SD	N	$\overline{X}$	SD	N	$\overline{X}$	SD
Personality									
Trait Anxiety	114	41.17	8.07	205	42.94	9.71	319	42.30	9.19
State Anxiety	114	40.98	10.57	205	43.50	11.34	319	42.60	11.12
Self-Esteem	114	28.89	3.99	205	28.59	4.50	319	28.69	4.32
Conceptual Systems Test									
Divine Fate Control	115	3.32	.87	211	3.12	1.18	326	3.19	1.08
Need Structure	115	3.43	.62	211	3.41	.69	326	3.42	.67
Need Help People	115	3.70	.58	211	3.83	.67	326	3.79	.64
Need For People	115	3.72	.56	211	3.75	.57	326	3.74	.57
Interpersonal Aggression	115	3.05	.90	211	2.97	.90	326	3.00	.90
General Pessimism	115	3.12	.64	211	3.15	.82	326	3.14	.76
Student Value Scale									
Need External Guidance	109	5.57	1.07	192	5.53	1.03	301	5.54	1.04
Hostility	109	4.70	.99	192	4.70	.99	301	4.70	.99
Friendship Orientation	109	7.31	.81	192	7.27	.94	301	7.29	.90
Autonomy	109	4.75	.94	192	4.98	.92	301	4.90	.93

Intercorrelations Among the Student Measured Variables for Site II

(Grades 9 and 10 Combined)

Variable		1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Trait Anxiety		.56**	.44**	.01	.08	.11*	-.08	.18**	.15**	.14**	.05	-.00*	.00*
2.	State Anxiety			.31**	-.11*	.03	.07	-.10*	.05	.14**	.07	.01	-.03	-.09
3.	Self-Esteem Conceptual Systems				.19**	.07	.18**	.28**	-.24**	-.15**	-.32**	.08	.15**	-.01
4.	Divine Fate Control					.11*	.14*	.06	-.04	.04	.09	-.03	.02	.00*
5.	Need For Structure						.21**	.17**	-.07	.02	.22**	.00*	-.00	-.15**
6.	Need Help People							.50**	-.31**	-.26**	.03	-.28**	.29**	.19**
7.	Need For People								0.14**	.18**	-.01	-.18**	.45**	.31**
8.	Interpersonal Aggression									.42**	.07	.49**	-.19**	-.10*
9.	General Pessimism Student Value Scale										.03	.25**	-.19**	-.19**
10.	Need External Guid.											.05	-.09	-.26**
11.	Hostility												-.21**	-.08
12.	Friendship Orient.													.55**
13.	Autonomy													

**p<.01
*p<.05

It also correlates negatively with Autonomy (-.15). This latter result is consistent with the opposing definitions of Need For External Guidance and Autonomy.

4.4.2   Investigation of the Research Questions

Among the high trait anxious group, in forty-four cases the teacher's belief system was greater than that of the student, in forty-six cases both belief systems were equal and in five cases the student's belief system was greater than that of the teacher. The research results are reported in Table 4.4.3. Concerning the two larger groupings of students, those students with belief systems equal to those of their teachers did have lower average level of state anxiety than did those students whose belief systems were lower than those of their teachers. The difference in means was 3.04. However, this difference was not statistically significant. Little difference existed in self-esteem scores.

Among the low trait anxious group of students, in ten cases the teacher's belief system was greater than that of the student and in thirty-two cases the belief systems were equal, and in five cases the student's belief system was greater than that of his or her teacher. The research results are reported in Table 4.4.4. Within the group of students matched with their teachers, the student mean state anxiety score was higher (35.09) than in the group where the

Table 4.4.3

Descriptive Statistical Analysis of State Anxiety and Self-Esteem
Scores for High Trait Anxious Students Matched and Mismatched
with Teacher Belief Systems in Site III

(Grades 9 and 10 Combined)

Teacher-Student Belief System Match Teacher		Student	Sample Size	State Anxiety X	SD	Self-Esteem X	SD
Belief System	>	Belief System	44	51.71	10.89	27.45	4.29
Belief System	=	Belief System	46	48.67	10.64	26.50	3.69
Belief System	<	Belief System	5	46.80	4.76	26.80	3.83

Table 4.4.4

Descriptive Statistical Analysis of State Anxiety and Self-Esteem
Scores for Low Trait Anxious Students Matched and Mismatched
with Teacher Belief Systems in Site III

(Grades 9 and 10 Combined)

Teacher-Student Belief System Match Teacher Student	Sample Size	State Anxiety $\overline{X}$	SD	Self-Esteem $\overline{X}$	SD
Belief System	>	Belief System	10	32.10	3.28	31.70	4.69
Belief System	=	Belief System	32	35.09	9.79	31.67	4.08
Belief System	<	Belief System	5	34.40	7.70	30.00	5.34

teacher's belief system was greater than that of their students. Again, there was very little difference in self-esteem mean scores occurred between the two groups of students.

To provide some additional insights into the teacher-student matching process, we also considered matches on the basis of each of the dimensional scores. The results of this analysis are reported in Table 4.4.5. As was the case for site I, teacher dimensional scores were recoded as high or low to be comparable with the recoding of student dimensional scores. The results of dimensional matches and mismatches reveals a general inconsistency in the relationship between most teacher and student dimensions. (See Appendix C for a summary of these results.)

Two dimensional pairings appeared independent of these inconsistencies and also revealed significant differences in levels of state anxiety. When the teacher dimension of Complexity was greater than the student dimension of Need For Structure, the mean state anxiety score was significantly lower (43.90) than when these dimensions are equal (50.08) or when Complexity is less than student Need For Structure (51.16). The other dimensional pairing worthy of mention is between the teacher dimension of Optimism and the student dimension of Need For People. When Optimism was greater than Need For People, the mean state

Table 4.4.5

Descriptive Statistical Analysis of State Anxiety and Self-Esteem Scores
for Various Matches and Mismatches Between Teacher and Student
Belief System Dimensions

(Grades 9 and 10 Combined)

Teacher-Student Match			Sample Size	State Anxiety		Self-Esteem	
Teacher		Student		$\bar{X}$	SD	$\bar{X}$	SD
Complexity	>	Need For Structure	10	43.90	7.03	23.10	3.28
Complexity	=	Need For Structure	72	50.08	10.50	23.19	4.43
Complexity	<	Need For Structure	25	51.16	11.38	24.24	4.47
Optimism	>	Need For People	6	58.33	13.19	26.50	4.42
Optimism	=	Need For People	64	48.47	10.96	23.28	4.44
Optimism	<	Need For People	37	50.60	8.79	23.19	4.07

anxiety score (58.33) was significantly higher than when the two dimensions were equal (48.47) or when teacher Optimism was less (50.60). In both cases, little difference existed among self-esteem scores.

4.5 Discussion of the Results

The section is comprised of two parts. In the first part we will discuss the correlations among the variables studied. In the second part, the results pertaining to research questions investigated in this study will be considered.

Many of the correlations common among two or three of the sites revealed significant results. Considering the dimensions of both the Conceptual Systems Test and the Student Value Scale are based upon highly specific definitions, it is important to assess if correlations between like and contrary dimensions were as expected. A discussion of these correlations takes on further meaning because the dimensional raw scores of the Conceptual Systems Test have never been correlated with those of the Student Value Scale.

The CST is a complex instrument in that its dimensional questions are not always easy to comprehend and because some of its questions are very personal and, consequently, highly threatening. A student forced to take this instrument might tend to resent the highly personal nature of the test items. The Student Value Scale is not as in-depth

an instrument as the CST, but its simplicity makes it con-
siderably easier to read, and the items on the instrument
tend not to be as threatening. Therefore, in certain in-
stances, the <u>Student Value Scale</u> might be preferred over
the <u>Conceptual Systems Test</u>.

Three groups of correlations between the two instru-
ments were significant. The correlation between Interper-
sonal Aggression and Hostility was significant at the .05
level for site I (.20) and at the .01 level for site III
(.49). The correlation between Need For Structure and
Need For External Structure was significant at the .01 level
for both site I and III, with correlations of .38 and .22,
respectively. For site I, the correlations between Need For
People and both Friendship Orientation and Autonomy (.13
and .13) showed a positive relationship, although not signi-
ficant at the .05 level. In site III, the correlations
between Need For People and both Friendship Orientation and
Autonomy (.45 and .31) were both significant at the .01
level. Further investigation is needed to assess the pre-
dictability between dimensions of the two instruments.
The results do reveal that some significant relationships
exist and that certain dimensions on each instrument are
measuring similar personality traits, but the correlations
are not as high as might be expected.

The significant correlations between both course grades and classroom effort and Need For Structure may have occurred partially because of the structured nature of the site I school. However, it is important to note that three of the six participating teachers were rated as falling into the categories of belief system three or four. In addition, these results are consistent with those of Harvey (1966b) who found that belief system one students generally did receive higher grades. Schools tend to be geared for the student who can perform well in an environment with someone else telling him or her what to do. The highly significant positive correlations between self-esteem in school and Need For Structure and the correlations between Need For Structure and both course grades (.30) and classroom effort (.29) give further support to this proposition.

Regarding the correlations between Interpersonal Aggression and Pessimism with course grades and classroom effort, an interesting result occurred. Each of the correlations is significant at the .01 level. More aggressive students received lower grades (-.41) and a lower classroom effort assessment (-.35). Students who rated high on General Pessimism received lower grades (-.30) and also a lower classroom effort assessment (-.23). Given the highly significant correlation (.53) between Interpersonal Aggression and General Pessimism, the similar results for both

CST dimensions are not surprising. These results indicate that teachers are aware of students who are more aggressive and pessimistic. Whether or not this aggressiveness or pessimism is causing the student to do poorer in his or her academic performance or whether these two traits are causing the teacher to be negatively biased towards the student's academic work can not be determined.

The primary research question which this study investigated was concerned with the relationship between matched and mismatched teacher-student belief systems on levels of state anxiety among high trait anxious students. Data were collected in sites I and III to address the research question. The trends of the mean state anxiety scores are similar for both sites. However, for site I the differences between the mean scores were minimal whereas the differences in site III were larger and in the hypothesized direction. Because site I used the State-Trait Anxiety Inventory for Children and site III used the State-Trait Anxiety Inventory, it is difficult to compare the differences in mean scores between sites. Nevertheless, in neither site did the results show a significant difference.

In site III, where the greatest differentiation between matches and mismatches occurred, situations where the teacher's belief system was greater than that of the student produced the highest level of state anxiety. This

result seems contrary to the theories of both Harvey and
Hunt. According to these theories, teachers with higher
belief systems should be more flexible to students' needs.
It would appear to hold true that this grouping should be
able to effectively minimize student state anxiety levels.
This is especially true since no teacher involved in this
study was classified as part of belief system two.

The results of this part of the investigation are
inconsistent with the belief system theory of Harvey and
the Conceptual Level matching model of Hunt. Within the
two mismatched situations it would seem more likely that
student with belief systems greater than those of their
teachers should have a higher level of state anxiety, as
compared to the situation where the teacher has the greater
belief system.

The results from comparing individual dimensions on
both the TIB and the CST were also inconclusive. Although
some significant differences were demonstrated, the pattern-
ing of teacher-student matches and mismatches across dimen-
sions makes these results questionable. Part of the prob-
lem may have been caused by the recoding technique used for
dimensions on the TIB. It might have been worthwhile to
eliminate all teacher dimensional scores of three, as these
scores reflect the middle of the one through five continuum.
This would have more truly recoded high and low variables.

However, with the substantial number of dimensional scores
of three, the population would have been reduced sizeably
(See Appendix C).

This study also sought to investigate the differences
in levels of self-esteem in school for matched and mismatched
teacher-student belief systems among trait anxious students.
The instrument used to measure self-esteem in school was
created for this study. Based on the factor analysis results
and the predicted correlations between the instrument and
other variables, there is substantial evidence to indicate
the instrument's validity.

Clearly, there were no significant differences in
either site I or site III, regarding self-esteem levels.
In hindsight, there is some question as to whether self-
esteem ought to be perceived as a constant or as a fluctuating
trait. In the latter instance, a given environment would
influence one's self-esteem level; in the former instance,
the environment would not measurably influence the self-
esteem level. The Self-Esteem In School instrument sought
to measure how the student perceived him or herself within
the school environment. Student self-esteem may be viewed
as both stable and fluctuant. Like trait anxiety, stu-
dents maintain a constant level of self-esteem which is a
function of their personality-like state anxiety, students
also have a fluctuating self-esteem level contingent upon
interaction with the environment. The Self-Esteem In School
instrument falls into the latter category.

One problem with the self-esteem measure in regards
to this study, is that it directs students to respond to
items based on their general school experience and not in
terms of their experience in the classroom where the matches
and mismatches were being measured. The student's percep-
tions of other classes and of the school environment in
general may have altered certain responses. At any rate,
there was no significant difference between mean self-esteem
scores of students in matched or mismatched combinations.

This study also looked at the academic achievement
of high trait anxious students in matched and mismatched
situations. Both when the teacher's belief system was
greater and when teacher - student belief systems were equal,
little difference in course grades and classroom effort
were found. With such a limited population as existed for
site I, it is difficult to draw any conclusions. The cell
with potentially the most interesting mismatches, that of
students with greater belief systems, contained no students.

One interesting tendency among the low trait anxious
population was that when teachers had higher belief systems
than those of their students, they perceived students as
putting forth a greater effort, although little difference
existed in class grades. This result would seem to be con-
sistent with the writings of Harvey and Hunt.

The results of the follow-up student questionnaire suggested that most of the thirty-seven students completing the questionnaire are aware that certain teachers make them noticeably nervous in class. The results also indicate that the majority of the thirty-seven students believed that a teacher-student mismatch which created a heightened level of student nervousness would inhibit learning and lessen self-esteem. The results also revealed that high trait-anxious students who completed the questionnaire tended to become more nervous than low trait-anxious students when their teacher presents material in an undesirable fashion. Similarly, students who scored high on the worry scale perceived that their learning was more negatively affected when the teacher presented material in an undesirable fashion than students who scored low on the worry scale.

The results of the follow-up questionnaire are the most encouraging achieved in the study. This study sought to determine if a mismatch between teacher and student adversely affects student state anxiety, self-esteem and learning. When formal instrumentation was used to investigate the effects of mismatches, no significant results occurred. However, the data from the follow-up questionnaire indicates that a significant number of students are aware of mismatches affecting their behavior in school.

CHAPTER   V

Summary, Conclusions, and Suggestions For Further Research

5.1   Summary of the Study

In recent years a great deal of interest has occurred among educators and psychologists to better match teachers and students so as to maximize student learning. Similarly these groups have long regarded anxiety as a major factor influencing student academic and social development. Specifically, heightened levels of student state anxiety will adversely effect degrees of student learning.

This study has primarily investigated the effects of matched and mismatched teacher-student belief systems on levels of student state anxiety. The study has also examined impact of matched and mismatched teacher student belief systems on self-esteem and academic achievement. The following research questions were investigated:

Among high trait anxious students, will state anxiety levels be higher when teacher-student belief systems are mismatched as compared to the situation when these belief systems are matched?

Among high trait anxious students, will levels of student self-esteem in school be lower when teacher-student belief systems are mismatched as compared to the situation when these belief systems are matched?

Among high trait anxious students, will academic achievement be lower when teacher-student belief systems are

mismatched as compared to the situation when these belief systems are matched?

The study was conducted in the Spring of 1976. Students and teachers from three different sites participated. In total, there were 806 students and 14 teachers in the study. In attempting to answer the three research questions, six instruments were utilized. The This I Believe test was used to assess teacher belief system levels. The Conceptual Systems Test was given to participating students in order to measure student belief system levels. The State-Trait Anxiety Inventory and the State-Trait Anxiety Inventory for Children were given to participating student to measure levels of state and trait anxiety. Finally two questionnaires were developed. The first was designed to informally assess conceptual levels and to measure levels of student self-esteem in school. This questionnaire was administered to students in two of the three sites where the study was conducted. The second questionnaire was designed to primarily measure student perceptions of their own learning styles and was administered in only one of the sites.

There were no significant differences in student anxiety when teacher-student belief systems were matched or mismatched. Similarly, levels of self-esteem in school and academic achievement did not fluctuate with matched or mismatched belief systems. Even though no significant

results occurred, an important trend did occur in site III where higher levels of student state anxiety existed in cases when the teacher belief system scores were greater than those of students. It was also found that among low trait-anxious students, teachers with belief systems higher than those of their students perceived the students as putting forth the greater effort in class.

The second questionnaire was administered to thirty-seven students from site I. The results of this questionnaire revealed that both high and low trait anxious students are aware that certain teachers make them nervous and that when placed in a classroom with such a teacher, their academic achievement and self-esteem decline. Results from the questionnaire also revealed that high trait-anxious students perceive themselves as being more negatively affected by mismatches than low trait anxious students.

The rest of this Chapter is divided into four sections. First, the limitations of the study are explored. Second, we will discuss the Conceptual Systems Theory and Applications. Third, we present a discussion of teacher workshops concerned with enhancing teacher and administrator understanding of conceptual systems theory and how the matching principle can alleviate levels of student state anxiety.

The final section presents implications for further research based upon the results of this study.

5.2 Limitations of the Study

It is probable that there were several unexpected factors influencing the results of this study. Perhaps the most significant factor was related to problems with the instruments and in their administration. First, the state anxiety part of the State-Trait Anxiety Inventory and the State-Trait Anxiety Inventory for Children may not have accurately reflected one's level of state anxiety in a normal classroom situation. Even though the teachers were trained by the investigator in how to administer the instruments, their personal attitudes toward the instrument might have influenced pupil responses. Also, because the state measures were given at the beginning of the class period, student responses might have been influenced by certain factors such as a late start. Finally, the fact that the state anxiety instrument was administered only once probably reduced the usefulness of the derived test scores. Originally it had been hoped to administer the state measures three times over a six week period. Unfortunately, participating schools wanted all the test administrations to be

completed within a much shorter period of time. Future
researchers might consider the value of administering the
state measure several times to produce a more reliable and
valid indicator of student stress in the classroom.

Second, the Conceptual Systems Test contains numerous
personal items which may be perceived as threatening by
a large group of students. In this study, participating
teachers reported that items clustered under the dimension
of Divine Fate Control were especially recognized by some
students as threatening. Such perceptions can tend to bias
responses.

The greatest problem with the CST is its scoring.
With a score of high on Divine Fate Control, the student
is automatically placed in belief system one, in which over
seventy percent of participating students were categorized.
Mainly this instrument represents the most sophisticated
objective measure of belief systems. The problem may not
rest just with this instrument, but with any objective instru-
ment designed to measure such an individual concept as one's
level of concreteness and abstractness.

Also, influencing the results of this study might
have been the method of recoding used for the teacher
dimensions. In the future, researchers comparing these

sets of dimensions might request that the scorers of the
This I Believe instrument avoid scoring dimensions as
three, if possible, in order to have a more clear cut dif-
ference between high and low scores.

The investigator relied totally upon the results of
the TIB to determine teacher personality traits. Perhaps
the TIB is less than ideal for this purpose. Dimensional
scores on the TIB or total belief system scores should only
be used as indicators of the degree of flexibility used in
instruction. Some means of classroom observation would be
beneficial so as to reinforce or dispute the information
provided by the TIB scores.

While the limitations discussed above are primarily
conjectural, there is limited evidence available to support
the validity of each.

If the research results of a study do not hold up,
it is either because of problems in the research methodology,
or because the basic presumptions on which the study is
built are not correct (or some combination). This section
has thus far been concerned with problems in research method-
ology. Below is a brief discussion of the possibility that
matched and mismatched teacher and student belief system
does not significantly affect levels of student state anxiety,
self-esteem or academic achievement.

One explanation for this possibility may rest with
the notion that matched or mismatched teacher-student belief

systems do not determine the emotional attachment a student may have for a teacher. If it is possible for a system three student to feel emotionally attached to a system one teacher, then the student's level of state anxiety in that teacher's class can be expected to be low. The student's feeling of affiliation may heighten his or her fluctuant level of self-esteem and, also, academic achievement. Similarly, certain personality characteristics such as honesty, forthrightness, and integrity may supercede one's belief systems level. Such characteristics may strengthen a student's respect for a teacher and subsequent productivity.

Secondly, any particular classroom is one of many environments within the school, and any school is one of many environments the students encounters daily. One's level of state anxiety or motivation for learning at a given time may have less to do with a particular teacher than with a previous event.

5.3 Discussion of the Conceptual Systems Theory and Applications

The theories of Harvey and Hunt have great potential for enhancing student academic development. Their theories would indicate that proper of matching teachers and students can be used to minimize negative psychological variables such as anxiety and to maximize positive variables such as student motivation. Matching can also be a productive means

of increasing student learning by placing the student with
a teacher who will gear instruction to his or her optimum
level of academic structure. More flexible teachers will
be able to differentiate structure according to the varying
needs of students. Less flexible teachers will tend to in-
struct in one mode, being less adept at altering lessons.
The former, the more flexible teacher, can be matched with
differing types of students. The latter, the less flexible
teacher, can be matched with a group of students from a
similar structural range.

With these potential benefits, it is important to
consider the extent to which conceptual systems theory can
be applied effectively in the classroom. Perhaps present instru-
mentation does not adequately measure belief system or
conceptual levels. This instrumentation is either subjec-
tively scored, as in the case of the This I Believe test
and the Paragraph Completion Method (Hunt, Freenwood,
and Noy and Watson, 1973) or scored based on the predomin-
ance of one dimension as in the case of the Conceptual
Systems Test. Also important is the fact that none of these
instruments is designed to be instructional for the individual
completing the instrument. This refers to the fact that
individuals do not see the results of the instrument and,
therefore, no opportunity exists for them to gain impor-
tant insights into their perceptions of education and, more
generally, their world. Educators and psychologists need

to consider ways of implementing the theory of matching
without subjecting teachers and students to psychological
instruments such as the ones described above. Hunt has begun
to investigate means for this type of implementation (Hunt,
1974; Hunt, 1975). However, a greater effort in this direc-
tion is needed.

A great deal of time and energy needs to be spent
on developing ways to present the concept of matching in
an honest and open fashion without threatening teachers and
administrators with discussion of the notion that certain
types of personalities are better than others. In an attempt
to initiate some work in this area, the author of this study
conducted a series of workshops with one group of teachers
and administrators participating in the research component
of this study.

5.4 Teacher Workshops

The general purpose of the workshops was to increase
teacher and administrator awareness. It was hoped that by
enhancing individual and group awareness, participants
might become more sensitive to teacher-student interactions
in their own classrooms and professional situations.

Prior to commencing these workshops, consideration was
given to the direction which should be taken in presenting
material. Two major considerations became the focal point.
First, to what extent should the investigator attempt to

present material in a fashion which is purposely designed to alter one's belief system? Second, to what extent should the investigator attempt to merely share information with participants in a manner by which that information could be comfortably integrated into the cognitive structure of each participant?

With only four workshops scheduled, the first consideration was impossible. This particular strategy may be commonplace in the future. Nevertheless, if the goal of an in-service program should be to alter one's belief system, a moral question does arise in terms of impinging certain values on another.

The second consideration seemed the more appropriate. In such a short time, it was the investigator's intention to expose participants to relevant theory and research on the aforementioned topics. It was hoped that participants would leave the workshops with a greater understanding of important educational questions of interest to them.

Harvey and his associates have produced research supporting the implementation of this strategy. This research states that belief system four teachers are superior to belief system one teachers in terms of classroom teaching (Harvey, White, Prather, Alter and Hoffmeister, 1966; Harvey, Prather, White and Hoffmeister, 1968; Coates, Harvey and White, 1969; Byrne, 1972). Discussing this point, Harvey (1974) writes:

> This is not to say that the methods of the system
> 1 instructor may not effectively inculcate certain
> responses catechismically and as conditioned re-
> sponses, but they cannot produce learning with in-
> sight and the ability to be open, independent, flex-
> ible and creative individuals (p. 41).

Harvey strongly asserts through his writings the importance

of bringing more abstract teachers into our school systems

and the negative ramifications of highly concrete teachers

on students.

Each workshop was designed to present a theoretical

and empirical overview of the topic being considered, and

then to discuss the relevance of each topic to each parti-

cipant involved. At the time of the workshops, the This I

Believe tests had not been scored. Therefore, based on

previous interactions, the investigator attempted to assess

the manner in which presentations might be most effective.

In determining beneficial presentation styles the

investigator created a matrix of possible alternative ways

to present material. This matrix is described in Figure

5.4.1. The term Range refers to the particular content

subsumed under a particular heading.

The first heading is developed for a more concrete

individual who prefers to have information presented uni-

laterally and dichotomously. The second heading is developed

for a less concrete individual who can view the information

in terms of both the student and him or herself. The third

heading is appropriate for the least concrete individual or

RANGE 1	RANGE 2	RANGE 3
Lessons can be varied in style to meet the same objectives.	Each individual has certain personality characteristics that determine classroom adaptability.	The relationship between the cognitive and affective make-up of my personality with that of students will determine optimum structure.
Using Lewin as a tool for analyzing degree of structure to meet objectives.	Using Lewin's paradigm as a means of determining individual and group behavior.	Using B-P-E to better comprehend how I interact with others & others with me, how these interactions influence my professional career and personal development
Learning more about how anxiety can interfere with the achievement of classroom objectives.	The function of anxiety as a variable which influences one's behaviors.	How anxiety affects each of us within ourselves and how we interact with others.

Figure 5.4.1 The Hierarchical Make-up of
In-Service Presentations

group. Each of the three ranges is designed to present parallel ideas in a fashion most consistent with one's capability of processing information.

For all group interactions, workshops concentrated in Range 1 were implemented. This was decided because the investigator wanted to make sure he was understood by all. He believed that less concrete individuals can process information presented concretely in accordance with Range 2 or Range 3. Regarding individual interactions related to the in-service program, the investigator attempted to utilize the Range most appropriate with the personality of that teacher.

In all, there were four workshops. The first workshop provided an overview of the relationship between anxiety and conceptual systems theory. The second workshop concentrated on how to utilize Lewin's Paradigm to assess beneficial levels of classroom structure (see Hunt and Sullivan, 1974). The third workshop provided some background to the topic of student anxiety. The fourth workshop concentrated on the premise that differentiating classroom structure will reduce levels of student state anxiety.

Although no formal assessment was made of the workshops, informal discussions with participants revealed that the workshops were perceived as worthwhile. In general, the workshops shed some light on the problems discussed in this dissertation and increased the awareness of some

participants as to the negative effects of heightened levels of state anxiety in school, and that they do have some control over these heightened levels.

5.5   Implications for Further Research

The results of this study are inconclusive. Further research would be beneficial in clarifying the impact of matched and mismatched teacher-student belief systems on levels of student state anxiety and self-esteem. Productive research may be conducted within school systems and schools of education.

The research questions in this study were based upon what was considered to be an important link between anxiety theory and research and conceptual systems theory and research. Although the results were statistically not significant, there were signs to indicate a relationship between the effects of teacher belief system levels and student state anxiety. Future research is needed to further clarify the influence of matching teacher-student belief systems on classroom anxiety. This is especially important considering the amount of stress which exists in today's world. The secondary student's academic performance may substantially depend upon a learning environment in which he or she can feel safe.

In-service and pre-service training in the theories and research of Harvey and Hunt might be beneficial in

making teacher and teacher trainees more sensitive to the individual needs of students. Important research could be conducted in the area of developing strategies for increasing teacher flexibility. Hunt (1974) has begun this process. He has identified steps for guiding teachers and administrators toward making better decisions regarding matching students to optimum learning environments. These steps are: 1) provide a base for specifying objectives; 2) describe what information about students to look for; 3) describe the dimensions or categories for student classification; 4) state the matching principle which coordinates student characteristics and the educational approach; and 5) describe specific examples of generally prescribed educational approaches.

Hunt (1974, 1975) has documented the effects of "student pull" on teacher behavior. This study has investigated how teacher behavior affects student levels of state anxiety. Future research might focus on how student behavior affects teacher attitudes and performance which in turn are affecting student attitudes and behavior.

This study found that academic achievement in terms of course grades was similar when teachers and students had matched or mismatched belief systems. This criterion measure focused on how the teacher perceived the student. Harvey (1976a) focused on how the student perceived the teacher. More research of this kind is needed.

The classroom is only one of many places within the school where student levels of state anxiety fluctuate. In turn, the school is only one of many places within the community that student state anxiety levels may vary. In each of the environments within a student's life the level of stress perceived by him or her will vary, depending upon the degree of safety felt. Research is needed which will provide guidance personnel with information and strategies to help students minimize levels of state anxiety regardless of the environment. The theories of Harvey and Hunt may be useful in accomplishing this goal in that by design these strategies can attempt to enhance student flexibility. An individual who can more openly interact with differing environments might tend to have lower levels of state anxiety.

Finally, extensive research needs to be done on how to best match students to teachers and, at the same time, foster student conceptual growth. Harvey (1970b) touches on the importance of this approach:

> To foster growth in a System 1 child, for example, one should probably give him, at the outset, high structure and detailed teacher guidance. Gradually the external guides and pressures should be removed and the child encouraged to be independent and to react to the absence of external guides and constraints by generating his own approaches and solutions. A Systems 2 child should also be provided a great deal of structure at the outset, but it must be coupled with warmth, fairness and functional explanations for rules and the teacher's behavior instead of these being imposed and exercised without

apparent reason.   Gradually, but at a pace probably
faster than that for a System 1 child, the System
2 child is moved toward independence--the inclina-
tions toward which he already strongly possesses.
Similarly the System 3 child should not be forced
to give up his dependency behavior abruptly but should
be encouraged more and more to be independent and
do things for himself (p. 6).

The greatest danger of such a preplanned approach is that

in the hands of the wrong people it becomes extremely

inflexible.

REFERENCES

Allport, G. W. Personality: A Psychological Interpretation. New York: Holt, 1937.

Allport, G. The Nature of Prejudice. Reading, MA. Addison Wesley, 1954.

Allport, G. W. Becoming. New Haven: Yale University Press, 1955.

Alper, T. G. Memory for completed and incompleted tasks as a function of personality: An analysis of group data. Journal of Abnormal & Social Psychology, 1946, 41, 403-421.

Angelino, H., Dollins, J., & Mech, G. V. Trends with fears and worries of school children as related to socio-economic status and age. Journal of Genetic Psychology, 1956, 89, 263-276.

Ashton-Warner, S. Teacher. New York: Simon and Schuster, 1963.

Ausubel, D., Schiff, H. M., & Goldman, M. Qualitative characteristics in the learning process associated with anxiety. Journal of Abnormal & Social Psychology, 1953, 48, 537-547.

Ausubel, D. Educational Psychology: A Cognitive View. New York: Holt, 1968.

Blackie, J. Inside the Primary Classroom. London: H. M. S. O., 1967.

Brown, G. Human Teaching for Human Learning. New York: Viking Press, 1971.

Byrne, C. J. Optimal matching of teachers and students by conceptual systems in an introductory psychology course using student achievement as criterion. Unpublished doctoral dissertation, University of Michigan, 1973.

Bracht, G. H. Experimental factors related to aptitude treatment interaction. Review of Educational Research, 1970, 40, 627-645.

Caron, A. J. Curiosity, achievement, and avoidant motivation as determinants of epistemic behavior. Journal of Social Psychology, 1963, 67, 53-59.

Castaneda, A., Palermo, D. S. & McCandless, B. R. Complex learning and performance as a function of anxiety in children and task difficulty. Child Development, 1956, 27, 327-332.

Castenada, A., McCandless, B. R. & Palermo, D. S. The Children's Form of the Manifest Anxiety Scale. Child Development, 1956, 27, 317-326.

Cattell, R. B. & Scheier, I. H. Handbook for the IPAT Anxiety Scale (Second Edition). Champagne, Illinois: Institute for Personality and Ability Testing, 1963.

Coopersmith, S. The Antecedents of Self-Esteem. San Francisco: W. H. Freeman, 1967.

Cowen, E. L. The relation of anxiety in school children to school record, achievement and behavioral measures. Child Development, 1965, 36, 685-695.

Cronbach, L. J. Essentials of Psychological Testing. (Third Edition). New York: Harper Row, 1970.

Dennison, G. The Lives of Children. New York: Ramdom House, 1969.

Dunn, J. & Schelhun, R. School anxiety and cognitive functioning: Exploratory studies. Midwest Research Center. Ann Arbor: University of Michigan, 1967.

Durost, W. N., Bixter, H. N., Wrightstone, J. W., Prescott, G. A., Balow, I. H. Metropolitan Achievement Test. New York: Harcourt Brace Jovanovich, 1972.

Feather, N. T. The effect of differential failure on expectation of success, reported anxiety, and response uncertainty. Journal of Personality, 1963, 31, 289-312.

Fromm, E. Escape From Freedom. New York: Holt, 1969.

Gagné, R. The Conditions of Learning. New York: Holt, 1965.

Gaudry, E. & Speilberger, C. D. Anxiety and Educational Achievement. Sydney: Wiley 1971.

Gelfand, D. M. The influence of self-esteem on rate of verbal conditioning and social matching behavior. Journal of Abnormal & Social Psychology, 1962, 65, 259-265.

Getzels, J. W. Educational new and editorial comment. Elementary School Journal, 1955, 55, 427-434.

Getzels, J. W. & Jackson, P. W. Teacher's personality and characteristics. In N. L. Gage (Ed.), Handbook of Research on Teaching. Chicago: Rand McNally, 1963, p. 506-582.

Glasser, W. Schools Without Failures. New York: Harper Row, 1969.

Greaves, G. Conceptual system functioning and selective recall of information. Unpublished doctoral dissertation, Georgia State University, 1970.

Greaves, G. Harvey's "This I Believe" Test: Studies of reliability. Psychological Reports, 1971, 28, 387-390.

Grimes, J. W. & Allinsmith, W. Compulsivity, anxiety, and school achievement. In Mussen, Conger, Kagen, (Eds.), Readings in Child Development and Personality. New York: Harper & Row, 1970, p. 242-256.

Groom, R. R. & Endler, N. S. The effect of anxiety on academic achievement. Journal of Educational Psychology, 1960, 51, 299-304.

Hall, B. Anxiety, stress, task difficulty and achievement via programmed instruction. A paper presented at the annual meeting of the American Educational Research Association, Minneapolis, 1970.

Halverson, C. F. Interpersonal perception: Cognitive complexity and trait implication. Journal of Consulting & Clinical Psychology, 1970, 34, 86-90.

Hamacheck, P. Encounters with the Self. New York: Holt, 1971.

Hambleton, R. K. & Traub, R. E. The effects of item order on test performance and stress. Journal of Experimental Education, 1974, 43, 40-46.

Harvey, O. J. Ends, means, and adaptability. In O. J. Harvey (Ed.), Experience, Structure & Adaptability. New York: Springer Publishing Co., Inc. 1966a, 3-12.

Harvey, O. J. System structure, flexibility and creativity. In O. J. Harvey (Ed.), Experience, Structure & Adaptability. New York: Springer Publishing Co., Inc. 1966b, 39-66.

Harvey, O. J. Belief Systems and Education: Some implications for change. Unpublished manuscript. University of Colorado, 1969.

Harvey, O. J. Belief Systems and Education: Some Implications for Change. In J. Crawford (Ed.), The Affective Domain. Washington, D. C.: Communication Service Corporation, 1970a.

Harvey, O. J. Belief and behaviors: Some implications for education. The Science Teacher, 1970b, 37, 1-6.

Harvey, O. J. This I Believe Test. Boulder, Colo.: University of Colorado, 1974.

Harvey, O. J. The Nature of Belief Systems. Unpublished manuscript. University of Colorado, 1974.

Harvey, O. J. A study conducted for the Shoreham-Wading River School District, Long Island, New York. Report to School District, 1976a.

Harvey, O. J. Student Value Scale Clusters. Factor analysis of Clusters. Unpublished manuscript. University of Colorado, 1976b.

Harvey, O. J. and Hoffmeister, J. K., Conceptual Systems Test. Boulder, Colo.: Test Analysis and Development Corporation, 1971.

Harvey, O. J., Hunt, D. E. Schroder, H. M. Conceptual Systems and Personality Organization. New York: Wiley, 1961.

Harvey, O. J., Prather, M., White, B. J., & Hoffmeister, J. C. Teachers beliefs, classroom atmosphere and student behavior. American Educational Research Journal, 1968, 5, 151 - 166.

Harvey, O. J., Wells, K., Schmidt, C. & Grimm, C. Effects of subject matter, the belief system and sex of teachers and students upon students' grade achievement and perception of teacher. Unpublished manuscript. University of Colorado, 1973.

Harvey, O. J., White, B. J., Prather, M., Atter, B. D., & Hoffmeister, J. C., Teachers' belief systems and preschool atmospheres. Journal of Educational Psychology, 1966,57, 373-381.

Hoffmeister, J. K.   Directions for scoring The Conceptual
        Systems Test. Boulder, Colo: Test Analysis and
        Development Corporation, 1975.

Hoffmeister, J. K., TARP Manual. Boulder, Colo: Test
        Analysis and Development Corporation, 1976.

Holcomb, M. Anxiety, acceptance and achievement in 7th
        grade children. Master of Science Thesis, Iowa
        State University, 1972.

Horowitz, F. D.   The relationship of anxiety, self-concept,
        and sociometric status among 4th, 5th and 6th grade
        children. Journal of Abnormal & Social Psychology,
        1962, 65, 212-214.

Hunt, D. E.   A Conceptual Systems Change Model and its appli-
        cation to education. In O. J. Harvey (Ed.), Experience,
        Structure & Adaptability. New York: Springer Pub-
        lishing Co., Inc. 1966, 277-302.

Hunt, D. E.   A conceptual level matching model for coordin-
        ating learner characteristics with educational
        approaches Interchange, 1970, 1, 63-82.

Hunt, D. E.   Matching models in Education: The coordination
        of teaching methods with student characteristics.
        Toronto: Ontario Institute for Studies in Education,
        1971.

Hunt, D. E.   Learning style and teaching strategies. A paper
        presented at the meeting of the National Council for
        the Social Studies, Boston, Mass., November 21, 1972.

Hunt, D. E.   Teachers' adaptation to students: from implicit
        to explicit matching. Monograph, Stanford Center for
        Research and Development, 1974.

Hunt, D. E.   Person-environment interaction: a challenge
        found wanting before it was tried. Review of Educa-
        tional Research, 1975, 45, 209-230.

Hunt, D. E. and Hardt, P. N.   The Role of Conceptual Level
        and Program Structure in Summer Upward Bound Programs.
        Paper presented at Eastern Psychological Association
        Meeting, April 1967, at Boston, Mass.

Hunt, D. E. Greenwood, J., Noy, J. & Watson, N. Paragraph
        Completion Method. Toronto: Ontario Institute for
        Studies in Education, 1973.

Hunt, D. E., Joyce, B. R., Greenwood, J., Noy, J. E., Reid, R., & Weil, M. Student conceptual level and models of teaching: Theoretical and empirical coordination of two models. Interchange, 1974, 5, 19-30.

Joyce, B. R. & Weil, M. Models of Teaching. Englewood Cliffs: Prentice Hall, 1972.

Kohl, H. 36 Children. New York: Norton, 1968.

Korhchin, S. J. & Levine, S. Anxiety and verbal learning. Journal of Abnormal & Social Psychology, 1957, 54, 234-240.

Kowitz, G. T. Test anxiety and self-concepts. Childhood Education, 1967, 44, 162-164.

Kozol, J. Death at an Early Age. New York: Bantam, 1968.

Krause, M. S. The measurement of transitory anxiety. Psychological Review, 1961, 68, 178-189.

Lantz, B. Some dynamic aspects of success and failure. Psychological Monograph, 1945, 59, No. 1.

Levitt, E. E. The Psychology of Anxiety. New York: Bobbs-Merrill, 1967.

Lewin, K. Principals of Topological Psychology. New York: McGraw-Hill, 1936.

Lipsitt, R. A self-concept scale for children and its relationship to the Children's Manifest Anxiety Scale. Child Development, 1958, 29, 463-472.

Lucas, J. D. The interactive effects of anxiety, failure and intraserial duplication. American Journal of Psychology, 1952, 65, 59-66.

MacDonald, J. B., Zaret, E. A study of openness in classroom interaction. In R. T. Hyman (Ed.) Teaching: Vantage Points of Study, Newport: Lippincott, 1968.

Mandler, G. & Sarason, S. B. A study of anxiety and learning, Journal of Abnormal & Social Psychology. 1952, 47, 166-173.

Maslow, A. H. Toward A Psychology of Being. New York: Van Nostrand Reinhold, 1962.

McCandless, B. R., Casteneda, A. & Palermo, D. S. Anxiety in children and social status. Child Development. 1956, 27, 385-391.

McLachlan, J. F. C. & Hunt, D. E. Differential effects of discovery learning as a function of conceptual level. Canadian Journal of Behavioral Science, 1973, 5, 152-160.

Mednick, S. A. Generalization as a function of manifest anxiety and adaptation to psychological experiments. Journal of Consulting Psychology, 1957, 21, 491-494.

Mehrabian, A. An Analysis of Personality Theories. Englewood Cliffs, N. J.: Prentice Hall, 1968.

Murphy, P. D. & Brown, M. M. Conceptual systems and teaching styles. American Educational Research Journal, 1970, 7, 529-540.

Naylor, F. D. & Gaudry, E. The relationship of adjustment, anxiety, and intelligence to mathematics performance. Journal of Educational Research, 1973, 66, 413-417.

Neill, A. S. Summerhill. New York: Hart, 1960.

Orr, D. Professional Counseling on Human Behavior: Its Principle and Practices. New York: F. Watts, 1965.

Otis, A. S. Lennon, R. T. Otis-Lennon Mental Ability Test. New York: Harcourt Brace Jovanorich, 1967.

Otto, W., Anxiety and motivation as factors in inhibiting potential. A paper presented at the annual meeting of the American Educational Research Association, Chicago, 1966.

Perls, F. S. Gestalt Therapy Verbatim. New York: Bantam, 1969.

Phillips, B. Anxiety as a function of early school experience. Psychology in the Schools, 1967, 4, 335-340.

Phillips, M.   Conceptual systems and educational environ-
     ment: relationships between teacher conceptual
     systems, student conceptual systems, and classroom
     environment as perceived by fifth and sixth grade
     students.   Unpublished doctoral dissertation, Univer-
     sity of Massachusetts, Amherst, 1972.

Prather, M., Harvey, O. J., and Coates, C.   The effects of
     the belief systems of teachers and K-6 students on
     students' perception of teachers.   Unpublished manu-
     script, University of Colorado, 1970.

Progel, B. B.   Advance and concurrent organizers for detailed
     verbal passages used with elementary school pupils.
     Journal of Educational Research,   1973, 66, 451-456.

Purkey, W. W.   Self-Concept and Academic Achievement.
     Englewood Cliffs: Prentice Hall, 1969.

Reed, H. B.   Anxiety: The ambivalent variable.   Harvard
     Educational Review, 1960, 2, 141-153.

Rogers, C. R.   On Becoming A Person.   Boston: Houghton
     Mifflin, 1961.

Rogers, C.   Freedom to Learn.   Columbus, Ohio: Merrill,
     1969.

Rokeach, M.   The Open and Closed Mind.   New York: Basic
     Books, 1960.

Rosenberg, M.   The association between self-esteem and anxiety.
     Journal of Psychiatric Research,   1962, 1, 135-151.

Rosenshine, B. and Furst, N., Research in teacher performance
     criteria. In B. O. Smith (Ed.), Research in Teacher
     Education: A Symposium,   Englewood Cliffs, N. J.:
     Prentice Hall, 1971, 37-72.

Rugel, R. P.   Arousal and levels of reading difficulty,
     Reading Teacher,   1971, 24, 458-460.

Ryans, D. G.   Characteristics of Teachers, Their Descrip-
     tion, Comparison, and Approaisal: A Research Study.
     Washington: American Council on Education, 1960.

Saltz, E. & Hoehn, A. J.   A test of the Taylor-Spence theory
     of anxiety.   Journal of Abnormal & Social Psychology,
     1957, 54, 114-117.

Saltz, E. Manifest anxiety: Have we misread the data? *Psychological Review,* 1970, 77, 568-573.

Salyachivan, S. Change in interrational understanding as a function of similarity. Unpublished doctoral dissertation, University of Toronto, 1972.

Sarason, I. G. Test anxiety, general anxiety and intellectual performance. *Journal of Consulting Psychology,* 1957, 21, 485-490.

Sarason, I. G., Effects on verbal learning of anxiety, reassurance, and meaningfulness of material. *Journal of Experimental Psychology,* 1958, 56, 472-477.

Sarason, S. B., Davidson, K. S., Lighthall, F. F., Waite, R. R. A test anxiety scale for children. *Child Development,* 1958, 29, 105-113.

Sarason, S. B., Lighthall, F. F., Davidson, K. S., Waite, R. R., & Ruebush, B. K. *Anxiety in Elementary School Children.* New York: Wiley, 1960.

Schutz, W. C. *FIRO: A Three-Dimensional Theory of Interpersonal Behavior.* New York: Holt, 1960.

Silberman, C. E. *Crisis in the Classroom.* New York: Vintage Books, 1970.

Spielberger, C. D. & Katzenmeyer, R. Manifest anxiety, intelligence, and college grades. *Journal of Consulting Psychology,* 1959, 23, 278.

Spielberger, C. D. The effects of anxiety on complex learning and academic achievement. C. D. Spielberger, (ed.), *Anxiety and Behavior.* New York: Academic Press, 1966, 361-396.

Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E., *State-Trait Anxiety Inventory.* Palo Alto, California: Consulting Psychologists Press, 1970.

Spielberger, C. D., Edwards, C. D., Lushene, R. E., Montouri, J. & Platzek, D. *State-Trait Anxiety Inventory for Children,* Palo Alto: Consulting Psychologists Press, 1973.

Stauffer, R. G. Reading as cognitive functioning. In H. Singer & R. B. Ruddell (Eds.), *Theoretical Models and Processes of Reading.* Newark, Del.: International Reading Association, 1970.

Stern, G. S. Measuring non-cognitive variables in research on teaching. In N. L. Gage (Ed.), Handbook of Research on Teaching, 1963, 398-447.

Suchman, R. J., Inquiry and education. In L. N. Nelson (Ed.), The Nature of Teaching. Waltham, Mass.: Blaisdell, 1969, 214-229.

Sullivan, E. B. Attitude in relation to learning. Psychological Monograph, 1927, 36, No. 3.

Sullivan, H. S. Clinical Studies in Psychiatry. New York: Norton, 1956.

Taba, H. Teaching strategies and thought processes. In L. N. Nelson (Ed.), The Nature of Teaching. Waltham, Mass.: Blaisdell, 1969, 214-229.

Taylor, J. A. A. A personality scale for manifest anxiety. Journal of Abnormal and Social Psychology, 14, 1953, 285-290.

Tennyson, R. D. & Wooley, F. R. Interaction of anxiety with performance on two levels of task difficulty. Journal of Educational Psychology, 1971, 62, 463-467.

Thorndike, E. L. & Woodyard, E. The influence of the relative frequency of successes and frustrations on intellectual achievement. Journal of Educational Psychology, 1934, 25, 241-250.

Tuckman, B. W. A study of the effectiveness of directors, non-directive vocational teachers as a function of student characteristics and course format. U. S. Office of Education Final Report, 1968.

Waite, R. B. Sarason, S. B., Lighthall, F. K., Davidson, K. S. A study of anxiety and learning in children. Journal of Abnormal & Social Psychology, 1958, 57, 267-270.

Watson, R. I. Psychology of the Child. New York: Wiley, 1966.

Wehling, L. J. and Charters, W. W. Jr. Dimensions of teacher beliefs about the teaching process. American Educational Research Journal, 1969, 6, 7-30.

Wolfe, R. The role of conceptual systems in cognitive functioning at varying levels of age and intelligence. Journal of Personality, 1963, 31, 108-123.

Wrightsman, L. S., The effects of anxiety, achievement motivation, and task importance upon performance on an intelligence test. _Journal of Educational Psychology_, 1962, 53, 150-156.

Zeller, A. F. An experimental analogue of repression: The effect of individual failure and successes on memory measured by relearning. _Journal of Experimental Psychology_, 1950, 40, 411-422.

Zuckerman, M. The development of an affect adjective check list for the measurement of anxiety. _Journal of Consulting Psychologists_, 1960, 24, 457-462.

APPENDIX A

Instruments Developed for the Study

STUDENT QUESTIONNAIRE

This student questionnaire has been designed by a team of researchers from the University of Massachusetts and is intended to help them study how you feel about school and many school-related experiences. The information received from your answers and the answers of other students in the school district will be used to help them better understand student learning. It is important to keep in mind that there are <u>no</u> "right" or "wrong" answers. The best and only correct answers are <u>YOUR PERSONAL OPINIONS</u>. What the researchers really want to know is <u>HOW YOU FEEL</u> about things.

SECTION A

Directions: This section of the questionnaire has been designed to provide some background information. Please print your answers to questions 1, 2, and 3. For the remaining questions please circle the number beside your answer to each question.

1. Name _____
          last   first   middle initial

2. Teacher's Name _____
    (of the class you are in at this moment)

3. What is your present age? (in years)   ____ ____

4. What is your sex? (circle one)

               (1) Male   (2) Female

5. What grade are you in at the present time? (circle one)

               (1) 7th   (4) 10th

               (2) 8th   (5) 11th

               (3) 9th   (6) 12th

SECTION B

Directions: The following statements are about your feelings and opinions. This is <u>not</u> a test and, therefore, there are <u>no</u> right or wrong answers. Please answer each question by answering yes or no. If you agree with a statement, check (✓) "yes". If you disagree, check (✓) "no".

1. I like almost everybody in my class.   yes_____   no_____

2. I like to work with other kids.   yes_____   no_____

3. When the class is noisy, it bothers me.   yes_____   no_____

4. I like to be told exactly what to do.   yes_____   no_____

5. I'd like to fight anyone who pushes me around.   yes_____   no_____

6. I get along well with my teachers.   yes_____   no_____

7. I like to work by myself.   yes_____   no_____

8. Other kids can hang around when I'm working.   yes_____   no_____

9. If I could, I'd fight with lots of people.   yes_____   no_____

10. Most kids are fun to play with.   yes_____   no_____

11. I don't like to be told what to do.   yes_____   no_____

12. I feel bad when other kids get mad at me.   yes_____   no_____

13. It's O.K. if other kids talk to me or hang around when I am working. yes_____   no_____

14. I get along well with the other kids in my class.   yes_____   no_____

15. I like to have a lot of friends.   yes_____   no_____

16. I get worried when I'm not sure what's going on.   yes_____   no_____

17. Sometimes I get mad at my teacher.   yes_____   no_____

18. I like it when I can do things my own way.   yes_____   no_____

19. Kids should do exactly what their teachers tell them.   yes_____   no_____

20. I get mad at other kids a lot.   yes_____   no_____

SECTION C

Directions: In this section there are 19 statements that are about your general school experiences and your experiences in this class. After each statement there are four choices. These choices are: ALMOST ALWAYS; OFTEN; SOMETIMES; ALMOST NEVER. Place a check "✓" in the box to the right of each statement which best tells HOW YOU FEEL about the statement. Remember that there are no "right" or "wrong" answers.

Sample:

	Almost Always	Often	Sometimes	Almost Never
I like to talk on the phone.				

Place a "✓" in the box that describes your feelings about the statement.

The statements in this section are about your general experiences in school. They deal with how you feel about everyday life in school. Place a "√" in the box to the right of each statement that best describes How You Feel.

	Almost Always	Often	Sometimes	Almost Never
1. I like a teacher who tells me what to do in school.	☐	☐	☐	☐
2. I do well in school.	☐	☐	☐	☐
3. I'm sure of myself.	☐	☐	☐	☐
4. I am confident about the work I do in school.	☐	☐	☐	☐
5. I accept teachers' opinions.	☐	☐	☐	☐
6. I get discouraged in school.	☐	☐	☐	☐
7. I find the suggestions of others to be worthwhile.	☐	☐	☐	☐
8. I am easily influenced by teachers.	☐	☐	☐	☐
9. I like to feel pressure when doing an assignment or taking a test.	☐	☐	☐	☐
10. I feel left out of things in school.	☐	☐	☐	☐
11. I feel tense when I know that I am going to be called on in class.	☐	☐	☐	☐

	Almost Always	Often	Sometimes	Almost Never
12. I like a teacher who is willing to change his or her mind.	☐	☐	☐	☐
13. I get down on myself when I do poorly on a school activity.	☐	☐	☐	☐
14. I like to be called on in class.	☐	☐	☐	☐
15. Most teachers like me.	☐	☐	☐	☐
16. I worry about what my classmates think of me.	☐	☐	☐	☐
17. I try to look neat when I come to school.	☐	☐	☐	☐
18. I try to be cooperative in my classes.	☐	☐	☐	☐
19. Other students listen to what I have to say.	☐	☐	☐	☐

Dear Student,

In March, Sr. Ann, Mrs. Carroll and Mr. Murphy asked you to answer some questions about school and about your likes and dislikes.

I hope that the answers you gave to us will help us to make the courses and teaching better for you.

But I need one more thing from you. Would you take just a few minutes and carefully answer the questions I'm sending with this letter. If you do it without thinking, it won't help at all.

1. Please put your name on the top.
2. Fill in your answer.
3. Use the envelope in this letter to send it back to school right away.

Please do this today so I can get all the papers to the man who will add everything up and give me a picture of how you feel about school.

I need everyone's help. Please do this now and send it back today or tomorrow.

I hope that you are having a good summer. The teachers told me to tell you that they miss you all already.

Thank you for your help,

Mr. Sharkey

This questionnaire is being sent to you in order to find out more information on how you learn best. The questionnaire is divided into four parts.

Part 1: Each question is followed by two possible answers. Place a check "√" to the left of the answer that best describes you.

1. To which of the following types of classes do you most look forward to going?

_____ a class where the teacher tells you how you are to do your work assignments

_____ a class where the teacher lets you choose how you are to do your work assignments

2. Which do you prefer?

_____ a teacher who lets you make some of the day to day decisions in class

_____ a teacher who makes all of the day to day decisions in class for you

3. Which do you prefer?

_____ to have your teacher give you problems to solve

_____ to solve problems you have thought of yourself

4. Which do you prefer?

_____ a teacher who carefully guides you through the solution to a problem

_____ a teacher who gives you some information and lets you find the answers to a problem yourself

5. Which do you prefer?

_____ a lecture by your teacher on a topic

_____ a class discussion on a topic

6. Which do you prefer?

_____ a classroom in which the students talk to each other about a class topic

_____ a classroom in which the students talk to the teacher about a class topic

Part II: Each question is followed by two possible answers. Place a check "√" to the left of the answer that best describes you.

7. In which of the following types of classes do you learn best?

____ a class where the teacher tells you how you are to do your work assignments

____ a class where the teacher lets you choose how you are to do your work assignments

8. How would you learn best?

____ from a teacher who lets you make some of the day to day decisions in class

____ from a teacher who makes all of the day to day decisions in class for you

9. How would you learn best?

____ from a teacher who gives you problems to solve

____ from a teacher who lets you solve problems you have thought of yourself

10. How would you learn best?

____ from a teacher who carefully guides you through the solution to a problem

____ from a teacher who gives you some information and lets you find the answers to a problem yourself

11. How would you learn best?

____ from a lecture by your teacher on a topic

____ from a class discussion on a topic

12. How would you learn best?

____ from a classroom in which the students talk to each other about a class topic

____ from a classroom in which the students talk to the teacher about a class topic

Part III: Below is a list of situations that make some students worry in school. Beside each situation are four possible answers: ALMOST ALWAYS; OFTEN; SOMETIMES; ALMOST NEVER. Place a check "√" in the box to the right of each situation which best describes you fully.

	Almost Always	Often	Sometimes	Almost Never
1. I worry about completing my homework.	□	□	□	□
2. I worry about taking classroom tests.	□	□	□	□
3. I worry about working with other students.	□	□	□	□
4. I worry about having to answer a teacher's questions.	□	□	□	□
5. I worry about going to the dentist after school.	□	□	□	□
6. I worry about being called on to read orally in class.	□	□	□	□
7. I worry about having to take part in class discussions.	□	□	□	□
8. I worry about finishing class assignments on time.	□	□	□	□
9. I worry about not having the right answer to a teacher's question.	□	□	□	□
10. I worry about being bored in class.	□	□	□	□
11. I worry about getting good grades.	□	□	□	□
12. I worry when the principal wants to talk to me.	□	□	□	□
13. I worry about being liked by a teacher.	□	□	□	□
14. I worry about being liked by other students.	□	□	□	□
15. I worry about being corrected in class by a teacher.	□	□	□	□
16. I worry about being laughed at by other students.	□	□	□	□
17. I worry about making mistakes in school.	□	□	□	□

1. Do some teachers make you more nervous than other teachers? (circle one answer)

                    yes   no

2. How do you usually feel in school? (circle one answer)

    · very nervous   nervous   somewhat nervous   not nervous at all

3. Let us suppose that you are in a class with a teacher who makes you nervous.

    How does this affect your learning? (circle one answer)

    I learn more.   I learn less.   I learn about the same
                                                  as in other classes.

    How does this affect your feeling about school? (circle one answer)

    I feel better   I feel worse   I feel about the same
    about school.   about school.   as in other classes.

    How does this affect your feelings about yourself? (circle one answer)

    I feel better   I feel worse   I feel the same about
    about myself.   about myself.   myself as in other classes.

4. What things do your teachers do that make you feel nervous?

    _____

    _____

    _____

5. What things do your teachers do that make you feel relaxed?

    _____

    _____

    _____

6. Suppose you are in a class where the teacher presents material in a way you do not like.

    How much does this affect your learning of the material? (circle one)

    a great deal   a good amount   a little bit   not at all

    How does this situation make you feel? (circle one)

    very nervous   nervous   somewhat nervous   not nervous at all

APPENDIX B

This I Believe Test

Student Report Card

Student Value Scales Clusters

THIS I BELIEVE TEST
(Form TIB-74)

Name _____ Age _____ Sex _____

School Attending _____

Major _____

Fr.   Soph.   Jr.   Sr.   Grad.
        (circle one)

INSTRUCTIONS

In the following pages you will be asked to write your opinions or beliefs about several topics. Please write at least two (2) sentences about each topic. You will be timed on each topic at a pace that will make it necessary for you to work rapidly.

Be sure to write what you genuinely believe.

You must write on the topics in the order of their appearance. Wait to turn each page until the experimenter gives you the signal. And once you have turned a page, do not turn back to it.

PLEASE DO NOT OPEN THIS BOOKLET UNTIL YOU ARE INSTRUCTED TO BEGIN.

This I believe about the American way of life:

This I believe about religion.

This I believe about people.

This I believe about marriage.

This I believe about revenge.

This I believe about lying.

This I believe about friendship.

This I believe about back talk from students or subordinates.

This I believe about my power to control the important things in my life.

East Boston Central Catholic School

Evaluation of Progress
Grade 7-8

Name _____

Attendance

	1	2	3
Days Absent			
Days Late			

Reading Level

1. Comprehension
2. Vocabulary
3. Independent Reading
4. Effort

Language

1. Composition
2. Grammar
3. Effort

Mathematics Level

1. Use of Concepts
2. Computation
3. Solves Word Problems
4. Effort

Science

1. Basic Understanding
2. Research & Experiments or Demonstrations
3. Ability to Apply Scientific Method
4. Daily Effort

Social Studies

1. Understanding of Basic Concepts
2. Independent Research
3. Participation in Group
4. Completes Assigned Work
5. Effort

Religion

1. Understands Doctrine Taught
2. Takes Part in Discussion

Social Growth

1. Self Control and Conduct
2. Shows Respect for
   a. persons
   b. property
   c. regulations
3. Accepts Responsibility
4. Works Well with Others

1st TERM						2nd TERM						3rd TERM				
Excellent	Good	Satisfactory	Needs Improvement	Poor		Excellent	Good	Satisfactory	Needs Improvement	Poor		Excellent	Good	Satisfactory	Needs Improvement	Poor

_____

Homeroom Teacher's Signature

Cluster 1   Need for External Guidance   Oblique Factor
                                                                 Coefficient

Item 19.   Kids should do exactly what their teachers tell
           them.
       4. I like to be told exactly what to do.   .76
       3. When the class is noisy it bother me.   .54
      17. Sometimes I get mad at my teacher.   .45
                                                                   -.38

Cluster 2   Hostility

Item 9.   If I could, I'd fight with lots of people.
       5. I'd like to fight anyone who pushes me around.   .75
      20. I get mad at other kids a lot.   .58
       6. I get along well with my teachers.   .48
                                                                  -.37

Cluster 3   Friendship Orientation

Item 8.   Most kids are fun to play with.
      14. I get along well with the other kids in my class.   .62
       1. I like almost everybody in my class.   .60
      15. I like to have a lot of friends.   .51
                                                                   .27

Cluster 4   Autonomy

Item 13.   It's OK if other kids talk to me or hang around when I
           am working.
      10. Other kids can hang around when I am working.   .73
       3. When the class is noisy it bother me.   .57
                                                                  -.47

[1]Originally hostility was cluster one and Need For External Guidance Cluster
two. To remain consistent with the correspondence of clusters to belief systems,
clusters one and two were reversed, so that hostility became cluster two and
Need For External Guidance became cluster one.

[2]A fifth cluster labelled Seclusiveness was not used in this study. This
cluster included Items 2, 7 and 11.

APPENDIX C

Descriptive Statistical Analysis of State Anxiety and Self-Esteem
Scores for Various Matches and Mismatches Between Teacher and
Student Belief System Dimensions Among High Trait
Anxious Students for Site I and III

Table C1

Descriptive Statistical Analysis of State Anxiety
and Self-Esteem Scores for Various Matches
and Mismatches Between Teacher and
Student Belief System Dimensions
Among High Trait Anxious Students
for Site I

Site I	High Trait	State Anxiety	Self- Esteem	Sample Size
	(Divine Fate Control)			
openness >	DFC			
openness =	DFC	38.00	23.75	4
		5.03	5.44	
openness <	DFC	35.94	21.75	16
		6.33	3.84	
candor >	DFC			
candor =	DFC	38.00	23.75	4
		5.03	5.44	
candor <	DFC	35.94	21.75	16
		6.33	3.84	
cynicism >	DFC			
cynicism =	DFC	39.00	24.00	1
cynicism <	DFC	36.21	22.05	19
		6.16	4.21	
optimism >	DFC			
optimism =	DFC	39.00	24.00	1
optimism <	DFC	26.31	22.05	19
		6.16	4.21	
	(Need For Structure)			
openness >	NFS	35.00	24.00	3
		6.93	6.08	
openness =	NFS	36.00	21.54	13
		4.22	4.26	
openness <	NFS	35.63	21.25	8
		7.98	3.10	
evaluativeness >	NFS			
evaluativeness =	NFS	35.85	22.23	13
		4.81	4.90	
evaluativeness <	NFS	35.64	21.18	11
		6.93	2.86	
cynicism >	NFS			
cynicism =	NFS	35.85	22.23	13
		4.81	4.90	

Site I	High Trait	State Anxiety	Self-Esteem	Sample Size
cynicism <	NFS	35.64	21.18	11
		6.93	2.86	11
complexity >	NFS	35.00	24.00	3
		6.93	6.08	
complexity =	NFS	36.00	21.54	13
		4.22	4.26	
complexity <	NFS	35.63	21.25	8
		7.98	3.10	
	(Need to Help People)			
openness >	NHP	31.00	20.00	1
openness =	NHP	33.33	22.00	12
		4.74	4.09	
openness <	NHP	38.82	21.24	11
		5.62	4.34	
candor >	NHP	31.00	20.00	1
candor =		33.33	22.00	12
		4.74	4.09	
candor <	NHP	38.82	21.64	11
		5.62	4.34	
evaluativeness >	NHP			
evaluativeness =	NHP	31.25	21.13	8
		3.11	3.44	
evaluativeness <	NHP	38.00	22.00	16
		5.47	4.39	
cynicism >	NHP			
cynicism =	NHP	31.25	21.13	8
		3.11	3.44	
cynicism <	NHP	38.00	22.06	16
		5.47	4.39	
optimism >	NHP			
optimism =	NHP	31.25	21.13	8
		3.11	3.44	
optimism <	NHP	38.00	22.06	16
		5.47	4.39	
openness >	NHP	34.00	22.00	2
	NHP	4.24	1.41	
openness =	NHP	35.64	23.09	11
		4.30	4.89	

Site I	High Trait	State Anxiety	Self-Esteem	Sample Size
openness <	NHP	36.18	20.36	11
		7.40	3.08	
candor >	NHP	34.00	22.00	2
		4.24	1.41	
candor =	NHP	35.64	23.09	11
		4.30	4.89	
candor <	NHP	36.18	20.36	11
		7.40	3.08	
evaluativeness >	NHP			
evaluativeness =	NHP	35.11	23.00	9
		3.48	4.24	
evaluativeness <	NHP	36.13	21.00	15
		6.84	3.87	
cynicism >	NHP			
cynicism =	NHP	35.11	23.00	9
		3.48	4.24	
cynicism <	NHP	36.13	21.00	15
		6.84	3.87	
optimism >	NHP			
optimism =	NHP	35.11	23.00	9
		3.48	4.24	
optimism <	NHP	36.13	21.00	15
		6.84	3.87	
	(Interpersonal Aggression)			
openness >	IA	36.20	23.00	5
		5.22	4.85	
openness =	IA	34.60	20.00	10
		5.25	3.94	
openness <	IA	36.78	23.00	9
		6.87	3.35	
candor >	IA	36.20	23.00	5
		5.22	4.85	
candor =	IA	34.60	20.00	10
		5.25	3.94	
candor <	IA	36.78	23.00	9
		6.87	3.35	
evaluativeness >	IA			
evaluativeness =	IA	35.43	21.07	14
		5.17	4.50	
evaluativeness <	IA	36.20	22.70	10
		6.73	3.30	
cynicism >	IA			

Site I		High Trait	State Anxiety	Self-Esteem	Sample Size
cynicism =	IA				
			35.43	21.07	14
cynicism <	IA		5.17	4.50	
			36.20	22.70	10
optimism >	IA		6.73	3.30	
optimism =	IA				
			35.43	21.07	14
optimism <	IA		5.17	4.50	
			36.20	22.70	10
complexity >	IA		6.73	3.30	
			36.20	23.00	5
complexity =	IA		5.22	4.85	
			34.60	20.00	10
complexity <	IA		5.25	3.94	
openness >	GP		36.78	23.00	9
			36.20	23.00	5
			5.21	4.85	
openness =	GP		35.83	20.75	12
openness <	GP		35.83	23.83	6
cynicism >	GP				
cynicism =	GP				
			36.25	21.50	16
			6.56	3.95	
cynicism <	GP		35.14	23.27	7
			3.93	3.64	
optimism >	GP				
optimism =	GP				
			36.25	21.50	16
			6.56	3.95	
optimism <	GP		35.14	23.27	7

Table C2

Descriptive Statistical Analysis of State Anxiety and Self-Esteem Scores for Various Matches and Mismatches Between Teacher and Student Belief System Dimensions Among High Trait Anxious Students for Site III

Site III	High Trait	State Anxiety	Self-Esteem	Sample Size
	(Divine Fate Control)			
openness >	DFC			
openness =	DFC	43.70	24.10	10
		5.56	3.84	
openness <	DFC	50.55	23.00	89
		10.90	4.24	
candor >	DFC			
candor =	DFC	43.70	24.10	10
		5.56	3.84	
candor <	DFC	50.55	23.00	89
		10.90	4.24	
cynicism >	DFC			
cynicism =	DFC	43.70	24.10	10
		5.56	3.84	10
cynicism <	DFC	50.55	23.00	89
		10.90	4.24	
optimism >	DFC	42.67	26.67	3
		4.16	4.04	
optimism =	DFC	49.89	22.30	27
		11.53	4.54	
optimism <	DFC	50.16	23.28	69
		10.50	4.24	
	(Need for Structure)			
openness >	NFS			
openness =	NFS	48.84	22.96	76
		10.27	4.02	
openness <	NFS	52.00	24.58	31
		11.04	4.92	
evaluativeness >	NFS			
evaluativeness =	NFS	48.84	22.96	76
		10.27	4.02	
evaluativeness <	NFS	52.00	24.58	31
		11.04	4.92	
cynicism >	NFS			
cynicism =	NFS	48.84	22.96	76
		10.27	4.02	
cynicism <	NFS	52.00	24.58	31
		11.04	4.92	
complexity >	NFS	43.90	23.10	10
		7.03	3.28	

Site III	High Trait	State Anxiety	Self-Esteem	Sample Size
complexity =	NFS	50.08	23.19	72
complexity <	NFS	10.50	4.43	
		51.16	24.24	25
		11.38	4.47	
	(Need to Help People)			
openness >	NHP			
openness =	NHP	47.66	25.55	47
		11.33	3.82	
openness <	NHP	51.40	23.33	60
		9.66	4.73	60
candor >	NHP			
candor =	NHP	47.66	25.55	47
		11.33	3.82	
candor <	NHP	51.40	23.33	60
		9.66	4.73	
evaluativeness >	NHP			
evaluativeness =	NHP	47.66	25.55	47
		11.33	3.82	
evaluativeness <	NHP	51.40	23.33	60
		9.66	4.73	
cynicism >	NHP			
cynicism =	NHP	47.66	25.55	47
		11.33	3.82	
cynicism <	NHP	51.40	23.33	60
		9.66	4.73	
optimism >	NHP	50.90	24.70	10
		15.25	4.92	
optimism =	NHP	47.76	22.68	50
		9.99	3.87	
optimism <	NHP	51.64	23.96	47
		9.81	4.62	
openness >	NHP			
openness =	NHP	49.74	24.28	53
		11.69	4.27	
openness <	NHP	49.78	22.59	54
		9.40	4.27	
candor >	NHP			
candor =	NHP	49.74	24.28	53
		11.69	4.27	
candor <	NHP	49.78	22.59	54
		9.40	4.27	
evaluativeness >	NHP			
evaluativeness =	NHP	49.74	24.28	53
		11.69	4.27	
evaluativeness <	NHP	49.78	22.59	54
		9.40	4.27	

Site III	High Trait	State Anxiety	Self-Esteem	Sample Size
cynicism >	NHP			
cynicism =	NHP	49.74	24.28	53
		11.69	4.27	
cynicism <	NHP	49.78	22.59	54
		9.40	4.27	
optimism >	NHP	58.33	26.50	6
		13.19	4.42	
optimism =	NHP	48.47	23.28	64
		10.96	4.44	
optimism <	NHP	50.60	23.19	37
		8.79	4.07	
	(Interpersonal Aggression)			
openness >	IA			
openness =	IA	50.66	23.41	76
		9.76	4.12	
openness <	IA	47.55	23.48	31
		12.16	4.90	
candor >	IA			
candor =	IA	50.66	23.41	76
		9.76	4.12	
candor <	IA	47.55	23.48	31
		12.16	4.90	
evaluativeness >	IA			
evaluativeness =	IA	50.66	23.41	76
		9.76	4.12	
evaluativeness <	IA	47.55	23.48	31
		12.16	4.90	
cynicism >	IA			
cynicism =	IA	50.66	23.41	76
		9.76	4.12	
cynicism <	IA	47.55	23.48	31
		12.16	4.90	
optimism >	IA	50.78	22.67	9
		7.12	5.24	
optimism =	IA	50.64	23.36	81
		10.89	4.16	
optimism <	IA	45.00	24.18	17
		9.45	4.84	
complexity >	IA	48.25	24.19	16
		9.67	4.90	
complexity =	IA	51.30	23.20	60
		9.76	3.91	
complexity <	IA	47.55	23.48	31
		12.16	4.90	

Site III	High Trait	State Anxiety	Self-Esteem	Sample Size
	(General Pessimism)			
openness	GP			
openness	GP	49.79	22.80	80
		10.39	3.69	
openness	GP	49.00	24.83	24
cynicism	GP			
cynicism	GP	49.79	22.80	80
		10.39	3.69	
cynicism	GP	49.00	24.83	24
		11.34	4.75	
optimism	GP	48.31	22.00	16
		10.64	5.39	
optimism	GP	50.75	23.11	71
		10.82	3.22	
optimism	GP	46.06	25.12	17
		8.96	5.16	

APPENDIX D

<u>This I Believe</u> Test Teacher Dimensional Scores

Frequencies of Student Dimensional Scores on the
<u>Conceptual Systems</u> Test

Table Dl

This I Believe Test Teacher Dimensional Scores

Sex	Belief System Score	Openness	Candor	Evaluativeness	Externality	Cynicism	Optimism	Complexity
F	4	4	4	2	1	1	3	4
F	4	4	5	1	2	1	3	4
M	1	3	3	2	1	1	3	3
M	1	2	3	3	3	3	3	3
F	1	3	3	2	2	1	3	2
M	3	3	2	2	2	2	3	3
M	1	3	3	2	1	2	3	3
M	1	3	2	3	2	1	3	3
F	3	3	3	1	3	1	3	3
M	3	3	3	2	2	1	4	3
F	1	3	3	3	2	2	3	4
F	3	3	3	2	2	1	3	3
M	1	3	2	3	1	1	3	3
F	1	2	3	4	2	2	2	3
M	1	3	2	3	3	2	3	3

Table D2

Frequencies of Student Dimensional Scores on the Conceptual Systems Test

Student Score	Divine Fate Control (DFC)		Need for Structure (NFS)		Need to Help People (NHP)		Need for People (NFP)		Interpersonal Aggression (IA)		General Pessimism (GP)	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
Score 1 (low on dimension)	123	15.26	553	68.61	332	41.19	392	48.64	609	75.57	659	81.76
Score 2 (high on dimension)	587	72.83	248	30.77	470	58.32	413	51.24	193	23.94	115	14.27
Score 0 (indeterminable score)	96	11.91	5	.62	4	.49	1	.12	4	.49	32	3.97
Total	806	100%	806	100%	806	100%	806	100%	806	100%	806	100%