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The Ohio State University

Ph.D. 1984

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A DESCRIPTIVE STUDY OF THE COGNITIVE
AND PSYCHOSOCIAL DEVELOPMENT OF TEACHER EDUCATORS
AND THEIR TEACHER CANDIDATES

DISSERTATION

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

By

Andrea F. Stuck, B.S., M.A.

*****

The Ohio State University
1984

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To my mom
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CHAPTER ONE

INTRODUCTION

It is not unusual to hear teacher candidates or first year teachers state, no one ever taught me how to teach. (deVoss, 1979)

There appears to be a discrepancy between what teacher education programs proprort and the relevance of those teacher education programs as evaluated by teacher candidates who are involved in teaching practica (e.g. freshmen early field experiences, public school observations) and/or teachers who are involved in their first year of teaching. Teacher candidates enter college expecting that teacher education programs will enhance their chances of becoming knowledgeable about the field of teaching, will enhance their chances of becoming qualified teachers and will enhance their knowledge of the realities of teaching. When teacher candidates are exposed to teacher education programs they often report that they do not see the relevance of the content of the program to their "real world" teaching experience,
whether that real world is in the form of field experiences, practica or the first year of teaching. Therefore, the teacher candidates' perceptions of the teacher education program and the realities of teaching in the real world are perceived as discrepant.

**REASONS FOR THE DISCREPANCY**

Critics of this apparent discrepancy between teacher education programs and the teacher candidates' perception of the program's usefulness suggest the following four explicative hypotheses for the discrepancy: 1) poor design of follow-up studies construction limits the quality of feedback; 2) teacher education does not attend to feedback data, that is teacher education ignores follow-up data; 3) failure to design the teacher education program in terms of a) individual differences and/or b) stage development of students; and 4) the cognitive and psychosocial development of the teacher candidates which may result in the perception of instructional events or activities as not relevant or useful.
I. Design of Follow-up Studies

One hypothesis offered to explain the discrepancy between teacher education programs and the teacher candidates' perceptions of the teacher education programs' usefulness is that follow-up studies have been poorly designed.

The current NCATE standards expressly require teacher education to conduct systematic evaluations of their programs and to use follow-up studies as a key component of the evaluation process (Adam, et. al., 1981). Although the intent of the mandate is exemplary, the response to the mandate is the implementation of follow-up studies which have been problematic. The problems as cited by Katz, et. al. (1981) are: representativeness of the sample; response bias; failure to stipulate the purpose of the follow-up (i.e. to seek employment information or program evaluation per se); poorly stated recommendations that diminish the chances that the evaluation will be utilized; and failure to act on the data. Further, Adams, et. al. (1981) insist that the reliance on anecdotes as the focus of an evaluation report allows the primary data to be overlooked. Adams and Craig (1983) indicate that follow-up results are
really limited data sources because they almost always use single source data collection techniques. Adams and Craig state, "the sole reliance on such single data sources for the evaluation of teacher education programs may pose problems in obtaining accurate and broad based information for decision making" (p. 35). Perhaps the teacher education programs are functioning well and the apparent discrepancy between teacher education programs' intents and the teacher candidates' perception of the program is merely a result of improperly designed evaluation techniques.

II. Ignoring Follow-up Data

A second hypothesis for the discrepancy between the intent of teacher education programs and the teacher candidates' perceptions of the teacher education programs' usefulness has been suggested by Ryan (1979). Ryan contends that teacher educators use only the most impressionistic knowledge of evaluation data when they revise their programs (1979). Haberman and Stinnett (1973) additionally imply that teacher educators act on unexamined assumptions that allow fantasy to serve as program rationale. Additionally, Katz, et. al. (1983) indicate that perhaps teacher education's resistance to
change may be partially due to tradition and/or the context in which the program exists. Regardless of the reason, teacher education programs are usually not changed as a result of follow-up results (which range from barely adequate to poor evaluations) which reflect the need to create more effective programs.

III. (A) Failure to Address Teacher Candidates' Needs

A third hypothesis offered to account for the discrepancy between teacher education programs and their perceived uselessness by teacher candidates. That reason lies in the failure of teacher education programs to address the needs of teacher candidates (Fuller and Bown, 1975).

Fuller and Bown (1975) insist that teacher candidates are obviously different from one another and, yet, those differences (e.g., differences in learning style or life expectations such as having to work one's way through school) which are recognized by teacher educators are rarely used as a basis for designing teacher education programs (1975). Examples of this failure to provide for the individual differences of teacher candidates are as follows:
1. assignments to education professors, courses, laboratory experiences and supervising teachers are uniform and random, or are intuitive and rarely tailored to formally assessed differing student needs in an organized systematic way;

2. teacher education is not speaking to teacher candidates where they are (i.e. or developmental levels, life development, etc). Feelings of frustration and anger about teacher education are typical among most teachers;

3. the process now emphasized in most teacher education programs is awareness of content and method. The teacher candidate is merely exposed to content and method. Awareness is assumed to be adequate and little attention is given to any other process, e.g., synthesis, integration (Fuller and Bown, 1975).

III. (B) Stage Development of Teachers

Fuller and Bown in their article, "On Becoming a Teacher," (1975) state the fourth possible hypothesis for the discrepancy between teacher education programs and their perceived uselessness by teacher candidates. This reason focuses on teacher development over time and asserts that most teacher education programs are out of
sequence with the needs of teacher candidates. To further illustrate, Fuller and Bown explicate a four stage developmental pattern for teachers consisting of:

1. pre-service concerns which deal with the manner in which teacher candidates view their in-service cooperating teachers and the treatment that students within classrooms receive (i.e. are teachers fair to students, are teachers nice, happy, helpful, etc.). This pre-service stage often finds teacher candidates allying with students and against cooperating teachers;

2. survival concerns which deal with classroom discipline, immediate day-to-day concerns within the classroom and with students (i.e., what will I do today, will I really make it, can I control these students, what do these students think of me, etc.);

3. situational concerns which deal with teacher stress issues such as quantity of supplies, aesthetics of the classroom, and having enough varied materials for any and all situations; and

4. pupil concerns which deals with critical educational issues of and for students such as how do I motivate my students and how can I best help them to do their best.
Fuller and Bown's theory of stage of teacher development suggests that perhaps education programs fail teacher candidates because the sequential needs of the teacher candidates are overlooked. For example, at a time when teacher candidates are in a pre-service stage of development (when they worry about how in-service teachers treat their students) or teacher candidates are in a survival stage (when they worry about classroom control), teacher education programs are offering courses on the history and philosophy of education and general education courses. A mis-match results. All of those typical teacher education courses seem both to be offered in the wrong sequence and to be viewed as of little or no use to teacher candidates as is indicated by follow-up studies.

IV. Cognitive and Psychosocial Development

The fourth hypothesis concerns the capability between the levels of cognitive and psychosocial development of the teacher candidates and the teacher educators and the learning activities which they design.

Cognitive developmental theories conceptualize and explain the process of student development in terms of stages of cognitive structure for making meaning of
experiences, that is, cognitive structures influence students perceptions, the organization of perceptions and the evaluation of experiences (Rodgers, 1983). If learning experiences have characteristics which are congruent with cognitive developmental levels, then the learning experiences tend to be evaluated positively. If learning experiences are incongruent, then they tend to be evaluated negatively (Rodgers, 1984).

Psychosocial developmental theories conceptualize and describe the tasks and issues that occupy a person's time and energy during different phases of the life. Issues of intellectual competence, social-interpersonal competence and autonomy, for example, are among the psychosocial tasks of persons 18 to 25 years old, the ages of most teacher candidates (Chickering, 1969). These psychosocial tasks can also relate to how instruction is received and/or perceived. Persons not yet instrumentally autonomous or lacking in assertive interpersonal skills, for example, may have difficulty with instructional learning activities which are relatively unstructured. Thus their evaluations of those activities may be negative (Rodgers, 1984; Chickering, 1969).
In summary, psychosocial development deals with content issues in one's life span, while cognitive development concerns itself with how one thinks about experiences including those issues. Both psychosocial and cognitive development may indeed relate to teacher candidate perceptions of teacher education programs and courses.

It seems safe to assume that in a field such as education, where complex variables interact, that there are probably multiple reasons for the failure of teacher education programs to meet the developmental needs of their students. There may be a discrepancy between teacher education programs and their perceived usefulness by teacher candidates due to: 1) poor follow-up study techniques; 2) teacher educators' use of impressionistic or intuitive notions to guide or modify teacher education programs; 3) a mis-match between teacher candidates and the teacher education program because of poor sequencing; or 4) because of teacher stage development and the characteristics of learning activities.

To know how students learn (cognitive development) should be a basic guide for teachers (Haberman and Stinnett, 1973). Graduates of teacher education programs are expected to be able to describe in general terms, the
physical, emotional, cognitive and social development of the group with which they will teach. This same goal should be inherent in teacher education programs. Yet there is evidence that teacher educators' neglect their own clientele, the teacher candidates (Haberman and Stinnett, 1973). Howsam, et. al. (1976) support this purpose as they stipulate that the education of teachers should emerge principally from the needs of the personnel that teacher education prepares (i.e. the teacher candidate). However, as Fuller and Bown have stated, it seems safe to assume that most teacher education programs meet the needs of teacher candidates in a sequence different from the sequence that the teacher candidates need (1975).

Fuller and Bown insist that the operative question in teacher education is: 
"What kinds of interventions by what kinds of interveners in what context elicit what responses from which subjects?" (1975). They further state that almost nothing is known about teacher education as an intervention or teacher educators as interveners.

In support of the lack of information concerning teacher educators as interveners, Howsam, et. al. (1976) state the following:
1. it is rare that people ever examine closely their theories in use;
2. there is a disjuncture between elegantly espoused theories and theories in use; and
3. there is a void between what educators profess to know and believe and what they actually do (Howsam, et. al., 1976).

Mitzel (1957, 1960) indicates four large classes of variables for research on teaching. Presage variables concern the characteristics of teachers that may be examined such as age, sex, intelligence, teacher training institute, etc. Context variables concern the characteristics of pupils that may be examined such as age, sex, intelligence, socioeconomic status, etc. Process variables concern the actual activities of the classroom teaching—what teachers and pupils actually do in the classroom. Process variables are effected by both presage and contexts variables. The fourth class of variables is the product variables which are the outcomes of the process called teaching.

It would seem that teacher education programs are subject to the same four variables. In this study, the presage variables are the cognitive and psychosocial development of the teacher educators. The context
variables are the cognitive and psychosocial development of the teacher candidates. The process variables is the combination of presage and context variables, the cognitive and psychosocial development of both teacher educator and teacher candidate, as the relationship, if any, effects what is taught and how it is taught and the perception of what is taught and how it is taught. The product variable is the teacher candidate after completion of the course.

Ryan (1979) states that the morale, energy levels, and teaching behaviors of many of our teachers seem strongly effected by what is happening in their private lives and that situational variables outside their classrooms seem to interfere with the effect of their teacher education programs. Perry (1974) states that there exists an interweaving of intellect and identity—there is a connection between cognitive development and psychosocial development and as Ryan stated previously, that very interplay has an impact upon the classroom. Perhaps it is time that the cognitive and psychosocial connection of teacher educators and teacher candidates is described in order to begin the process of determining if the discrepancy between teacher education programs and
their perceived usefulness by teacher candidates may be lessened by more congruent interventions.

To know the teacher candidate is not enough, one must know the teacher educators and their developmental levels; one must know the teacher candidates and their developmental levels and then one must know the characteristics of the learning activities designed by the teacher educators.

**PROBLEM STATEMENT**

The purpose of this study is to examine the issue of whether or not the psychosocial and cognitive-structural developmental levels of teacher candidates and teacher educators relate to their perceptions of the perceived characteristics of and satisfaction with instructional activities used in teacher education courses.

To these ends, this descriptive study has four purposes:

1. to describe the cognitive and psychosocial development of the teacher candidate upon entry into the college of education;

2. to describe the cognitive and psychosocial development of the teacher educator;
3. to compare and contrast the teacher candidates' and the teacher educators' level of cognitive and psychosocial development;

4. to investigate whether learning activities in a beginning teacher education class are characterized similarly by levels of cognitive-structural psychosocial development; and

5. to investigate whether perceived satisfaction with learning activities are related to teacher candidates levels of psychosocial and cognitive-structural development.

The research questions for these purposes can be organized under three broad headings.

I. Teacher Educator Research Questions
   A. What are the cognitive developmental levels of teacher educators?
   B. What are the psychosocial developmental levels of teacher educators?
   C. What relationship, if any, exists between cognitive developmental and psychosocial developmental levels of the teacher educators?
   D. What relationship, if any, exists between the cognitive developmental position and/or
II. Teacher Candidate Research Questions

A. What are the cognitive developmental levels of the teacher candidates?

B. What are the psychosocial levels of the teacher candidate?

C. What relationship, if any, exists between the cognitive developmental and psychosocial developmental levels of the teacher candidate?

D. What relationship, if any, exists between levels of cognitive development and/or the psychosocial development of the teacher candidate and the perceived characterizations of selected learning activities?

III. Teacher Education Program Research Questions

A. To what degree are the cognitive developmental levels of teacher educators and teacher candidates similar?
B. To what degree are the psychosocial levels of teacher educators and teacher candidates similar?

C. What relationship, if any, exists between the teacher educator's characterizations of selected classroom activities and the teacher candidate's characterizations of selected activities?

This major question generates the following four sub-questions:

1. Do teacher educators and teacher candidates who are similar psychosocially characterize selected classroom activities similarly?

2. Do teacher educators and teacher candidates who are similar cognitively characterize selected classroom activities similarly?

3. Are teacher educators and teacher candidates who are similar psychosocially also similar cognitively?

4. Do perceptual characterizations of selected activities have a relationship to the teacher candidates satisfaction with those activities?
Definitions

For the purposes of this study, the following stipulative definitions are used.

A. Teacher educators are the nine professional Introduction instructors during the fall quarter of 1983.

B. Teacher candidates are the one hundred and twenty undergraduate pre-service teachers enrolled in Education 450 during the fall quarter of 1983.

C. Teacher education program is the course, Education 450: An Introduction to Teaching.

D. Learning activities refer to the forty-five individual classroom events listed per description by teacher educators of Education 450. Each teacher educator listed five activities, thus generating forty-five total activities. These activities were kept separated as it was possible, regardless of common title, the activities were implemented differently.

E. Activity Checklist is a perceptual checklist for characterizing learning activities within a classroom. The 22 items in the instrument are derived from the Perry (1970) theories of cognitive-structural development and related literature and are strictly descriptive.
information with no intention of measuring appropriateness of activities.

F. Psychosocial development defined as the tasks and issues that occupy a person's time and energy during different phases of life.

G. Cognitive-structural development defined as the process of development in terms of the individual's thought processes and the influence of those cognitions upon the perceptions, organization and evaluation of experiences (Rogers, 1983).

**Delimitations of the Study**

Any study is limited by its boundaries. The following are the limits or boundaries of this study:
- the study concerns undergraduate teacher candidates and their teacher educators only;
- the study is a a look at the introductory course entitled, Education 450: An Introduction to Teaching, only;
- the study is merely a beginning look at the possible role of cognitive and psychosocial development in the context of this introductory course in the teacher education program at The Ohio State University.
Limitations

Limitations refer to those items which may be deficiencies in the methodology, the research questions and/or the hypotheses. In this respect, the following may be limitations to this study:

- Follow-up studies are cumulative reports concerning four years of a teacher education program. This study deals with only the introductory course within the entire sequence of course known as a teacher education program and it concerns the introductory course at a specific university, therefore, these teacher candidates and teacher educators may or may not hold the same views as do other follow-up subjects. This may mean that these subjects and this particular course is not representative of the total teacher education program or of other follow-up reports. But, as Katz et. al. (1981) explicates, studies should start at the beginning and be systematically applied to each area or course within the teacher education program.

- These teacher educators, because of training in education for public school teaching, as well as special teaching assistant seminars for collegiate teaching may or may not be typical teacher educators, therefore
generalization to teaching assistants, per se, may not be appropriate.
- Due to the limited number of teacher educators involved in the instruction of this introductory course one may not be able to assume that these teacher educator are a representative sample.
- The instruments utilized within this study may have specific flaws. For example, the MER is a fairly new instrument and, therefore, has a limited data base. The SDTI-II is not meant to be a normative quantitative instrument, rather it is meant to be qualitative information for use specifically by the respondent. The Activity Checklist is a first attempt at trying to cognitively assess the events of the classroom by instrumentation and it may or may not adequately address this issue.
- Teacher education is a multi-faceted experience and cognitive and psychosocial development are but two perspectives by which it may be viewed. There may be multiple causal factors for poor follow-up studies, thus this study provides but one perspective which may or may not be valid.
CHAPTER TWO

LITERATURE REVIEW

Introduction

The purpose of this chapter is to provide a review of the research pertinent to human development, specifically the cognitive and the psychosocial dimensions of development as these dimensions relate to teacher candidates and teacher educators. Prior to elaborating on the dimensions of development, an overarching conspectus of development literature will be presented.

Drum (1980) has stated that development is not dormant in the college years. Indeed, the college years seem to be a time of great expansiveness as students try to order the diversity and complexity in their lives. College students can be seen: 1) exploring new ways of thinking; 2) engaging in novel experiences; 3) shifting attitudes, values and beliefs; 4) employing new standards of conscience; 5) seeing a changed sense of
self; 6) setting career directions; and 7) becoming more tolerant of individual differences.

Although it appears that the dimensions of change are many, in actuality these changes may be grouped into four major categories of development. Those four major theories of development are: 1) behavioral theories; 2) structural adaptive theories; 3) psychosocial/psychological theories; and 4) descriptive theories. A brief description of these four overarching views of development follows.

I. Behavioral Theories

Behavioral theories of development are built primarily on the principle of stimulus-response learning theory, wherein the individual is viewed primarily as reactive rather than proactive in dealing with the world (Drum, 1980). Development or change is quantitative rather than qualitative. Theorists, therefore, working from the behavioral point of view search for antecedents of specific action and study the consequences of a given behavior. Rather than adult or child centered, behavioral theories are life-span centered.

In other words, behavioral theories account for individual change through the control of rewards and
punishments found in the environment which tend to either increase the desired behavioral display or decrease the unwanted behavioral display. The frequency of the appropriate behavioral displays is indicative of the quantitative nature of change.

II. **Structural Adaptive Theories**

Structural adaptive theories offer a developmental view of the individual which is highly proactive. According to structural adaptive theories, the individual plays a significant role in structuring, selecting, and organizing stimulus perception and in formulating adaptive responses to the perceived demands (Drum, 1980). Theorists hypothesize that in the process of living, each individual faces innumerable challenges which require increasingly more complex or qualitatively different adaptations or problem solvings. During a person's life-span, the individual is viewed as: 1) developing through stages and undergoing transformations which alter or influence his/her ways of perceiving and formulating response or 2) confronting specific developmental tasks which require new or more complex adaptations.

Thus structural-adaptive theories simply say people face specific challenges which are specific to certain
time frames in a person's life. As one ages, these challenges change and usually become more complicated. Additionally, with each challenge and accomplishment or non-accomplishment in relation to that challenge, a person's perspective changes. The perspective change is not more or the same (quantitative), rather the change in perspective is different than previously known to the person (qualitative).

III. Psychosocial/Psychoanalytical Theories

Maturation is a key concept in psychosocial theory. Instinctual drives and certain developmental tasks are believed to be encoded within the individual according to an approximate timetable (Drum, 1980). These theorists view development as occurring in stages, with each hypothesized stage having discrete psychological characteristics and requirements. Each stage is considered to have unique instinctual qualities or basic conflicts that initiate the need to resolve particular developmental tasks or issues and provide impetus for growth and development. The suggestion is that development is enhanced by successful resolution of conflicts and crises.
Thus age appears to be a determinant of the rightness of "time to develop" with no assurances that the right "age" allows successful growth.

IV. Descriptive Theories

Descriptive theorists classify and describe development according to the key issue or themes that dominate a particular segment of the life-span. Common life themes are identified for those in a certain age range. Adults are the primary focus of descriptive theories.

Descriptive theorists simply describe life-span as having a particular issue which must be faced at a particular period of time. Life is described in terms of coping versus adapting or changing. Descriptive theory is content-oriented versus process-oriented.

The four categories of development, behavioral theories, structural adaptive theories, psychosocial/psychoanalytical theories and descriptive theories, are overarching perspectives about which there are differing opinions. For example, Rodgers' (1980) definition of psychosocial theory is a combination of Drum's psychosocial and descriptive theories. Cognitive development is Rodgers' label for structural/adaptive theory.
Regardless of label or authority cited, this study deals with the two major foci of development: cognitive development and psychosocial development. It is important to note no studies concerning cognitive or psychosocial development concern the specific populations of this study (teacher candidates or teacher educators, per se); therefore the review of literature is selected literature.

To this end, the remainder of this chapter is organized in five major sections. First, a review of the theoretical background concerning cognitive development is presented. Second, studies utilizing cognitive development are cited. Third, a theoretical background concerning psychosocial development is provided. Fourth, studies utilizing psychosocial development are cited. Fifth, a summary of cognitive and psychosocial development is provided.

I. Cognitive Development: Theoretical Background

Cognitive development deals with how a person thinks. Cognitive development is often reflected in the literature as the structural-adaptive viewpoint. As defined by Drum (1980) and Rodgers (1981), cognition is a
person's way of selecting, organizing and perceiving events in order to respond to those events.

**Piaget**

Piaget is credited by many cognitive developmentalists as being the father of cognitive development. Thus it seems fitting to begin this literature review with a brief description of Piaget's contributions to cognitive development. According to King (1977), Piaget's major contributions to cognitive developmental theory are: 1) structural organization—a person is an active interpreter and organizer of the outside world. The interpreter imposes meaningful order onto the stimuli in order to comprehend, solve problems and guide behavior; 2) developmental sequence—development is seen as a hierarchical continuum which is divided into a series of stages; each stage is seen as qualitatively different as it is more differentiated and integrated than the previous stage; 3) interactionism—development is a product of the person with his/her environment; both maturity or readiness within the individual and elements within the environment are necessary for growth to take place; 4) development proceeds at an irregular rate—movement involves two phases: a) a readiness phase in
which the person is prepared or gathers the necessary skills for movement; and b) attainment phase—the individual becomes able to utilize the behaviors characteristic of the next stage; 5) even with attainment of a higher stage, the person may be unable to apply his/her new abilities; there exist within each stage a development known as "horizontal decalage."

Horizontal decalage conceptually refers to the person's gradual expansion of the use of his/her new found higher stage abilities; and 6) decentering—which means that as a person takes on a novel experience, a new stage, there is an accompanying egocentricism; a major part of development includes letting go of the self, shifting the focus from self to the larger world.

Through Piaget's seminal works concerning the cognitive development of children, many adult cognitive developmental theorists arose. Among adult cognitive theorists, one finds such names as Harvey, Hunt and Schroder (1960); Hunt (1960); Perry (1970); and Kitchener and King (1981). The commonality among these authors is that their works focus on "adult" cognitive development. But, for the purpose of this study which concerns teacher candidates and teacher educators, Perry (1970) is most
appropriate as his work was the foundational work concerning cognitive development in the college years.

**Perry**

Perry (1970) and his colleagues at Harvard University formulated a cognitive stage scheme focusing upon the intellectual and ethical development of the college student.

The Perry meaning of stage or position in relationship to cognitive development is reflected in the following statements by Rodgers (1980); Knefelkamp (1978); Widick and Simpson (1978); Widick, Knefelkamp and Parker (1975); and Perry (1970).

1. a cognitive structure is essentially a set of assumptions which act as a filter or set of glasses dictating how an individual will perceive, organize, and evaluate experiences and events in his/her life and, less, directly, how s/he will behave and feel in response to those events.
2. stages are sequential, that is, they are one at a time apparently in the same order.
3. stages are hierarchical, that is, each successive stage includes the previous stage's rationale but
broadens the filter or assumptions such that the persons can make more distinctions and use more categories.

4. stages are qualitatively different. That is to say, the successive changes are not "adding more of the same," but are changes "to a different thing."

5. stages are concerned with structure or how we think and not content or what we think. The structure between two persons may be identical although the content may be very different.

Now that the meaning of position and/or stage has been delineated it is important to know that Perry (1970) and his associates formulated a cognitive stage scheme which focuses upon the intellectual and ethical development which is descriptive of how the college student approaches the learning environment and develops cognitive skills (Rodgers, 1981).

The nine positions of intellectual development may be grouped into three basic levels. Perry's scheme is outlined below.

**Dualism**

The first three positions within Perry's scheme are characterized by a dichotomous structure. The world is viewed in absolute either-or terms. Truth is assumed to
be known and information is processed to fall neatly into
two categories: right or wrong, good or bad, et cetera.
The student perceiving the world from one of these first
three positions views authority figures as the holders of
all truth from whom s/he must learn. Thus there is an
overall reliance upon authority versus one's own ideas in
learning and decision making.

**Position One.** Perry (1970) describes this position
as a pure, closed structure. The world as seen from this
structure is free of conflict since no uncertainty is
perceived. Everything is absolute to the point of
inability to imagine the existence of more than one
answer to a question. Truth is accepted without question
from authority, since authority is always right.

The learner views himself/herself as a container
ready to receive all truth. Hence, s/he has difficulty
with academic tasks requiring recognition of conflicting
points of view or even use of his/her own opinions.

**Position Two.** Diversity or alternatives are
recognized in limited fashion within this structure. The
truth still exists and is surely limited to authorities.
But, two new strands enter in position two. Authorities
place uncertainty before students as a way of helping
them learn truth for themselves. Perry (1970) states
that uncertainty is seen as "temporary, good for the mind, resolvable and therefore ultimately unreal" (p. 78). Learning to find one's own truth is seen by the position two individual as merely a task that requires large quantities of hard work. Thus complexity represents the freedom to explore the process of acquiring truth. The second strand that emerges in position two persons is that since some authorities do not know the truth, those authorities are simply "bad" or "wrong" authorities.

**Position Three.** The advent of uncertainty now brings with it the possibility that some truths are not yet known, therefore it is acceptable for an authority to not know an answer. However, it is important to note that the position three person believes that the truth will eventually come to be known and, therefore, truth is still always knowable. Position three truth may just come to be known at a later point in time. This ability of authorities to not know all truths invites confusion in evaluation matters. Afterall, if authority does not known truth, how does authority evaluate my version of truth? In this confusion over truth that is now yet known, one finds students clinging to the fact that large quantities of work and the authority will lead the way to
that truth which has momentarily eluded both authority and learner.

In terms of cognitive skill, the student in dualistic positions are learning basic information and definitions of words and concepts, learning to identify parts of the whole, beginning to be able to compare and contrast things, learning to provide an explanation of why s/he answered as s/he did. In position three, one sees the emergence of comparing and contrasting tasks and seeing of multiple perspectives. This student can begin to do basic analytic tasks and begins to use supportive evidence (Rodgers, 1981).

**Relativism**

In positions Four, Five and Six one finds that the individual has discarded the old dualistic perspective of absolutism for a new perspective, that of multiple possibilities. Uncertainty replaces absolutism. Since there are now multiple viewpoints, the authority is released from having the all-knowing omnipotent role. In this release, however, one finds the student elevating his/her own ideas to a position of equivalent status. The relativistic position find that there are a variety
of answers and that the answers are dependent upon the context.

**Position Four.** This position is the beginning of the shift from certainty to uncertainty. There are still some areas in which certainty is the perception. This is a mixed zone. In large part, the position four person has no answers or criteria upon which to base judgment or distinguish one opinion from another opinion. The learner seems to focus his/her thoughts on learning to think the way the authority wants him/her to do so and/or on thoughts about thinking, itself.

**Position Five.** Perry (1970) states that in position five, "the student perceives all knowledge and values (including the authority's) as contextual and relativistic and subordinates dualistic right-wrong functions to the status of a special case, in context (p. 9). Thus, opinions can be judged as better or worse depending upon the existence of supportive evidence. Authorities are now seen as people who are experienced at searching for the truth within a given context. The learner is now capable of introspection and detachment. The ability to evaluate and thus choose is a fearful state as it signals the learner that there may be a narrowing of his/her options."
Position Six. In order to avoid disorientation, the learner realizes that in the sea of relativistic thought one must ultimately choose. One actually affirms one's self through establishing a context in which one's identity may become known. The position six person recognizes the need for commitment, but has not yet acted upon that knowledge.

In terms of cognitive skills, a student in position four is capable of analysis and can do some synthesis. The student can do both positive and negative critiques and use supportive arguments well. The student can relate learning to other issues in other classes or to issues in real life (Rodgers, 1981).

In positions five and six, the student can relate learning in one context to learning in another context with some ease and looks for relationships in learning. The student can evaluate, conclude, and support his/her own analysis, as well as, synthesize various points of view. Finally, a student can expand concepts because s/he understands the concepts.

Commitment in Relativism

Positions seven, eight and nine are positions of psychosocial development rather than cognitive
development. In these three positions, the student gradually accepts responsibility of himself or herself and establishes his/her identity by acts of commitment and developmental task resolution.

Position Seven. Position Seven marks the time of initial commitment in some aspect of life such as career, relationship or values. This initial commitment is an examined act which presupposes the exploration of alternatives.

Position Eight. In this position the student experiences the implications of commitment and explores the issues of responsibility. The major focus might be the style with which to enact one's commitment. The recognition in the fullest sense of relativism is that choosing is an infinite event.

Position Nine. The student experiences the affirmation of identity among multiple responsibilities and realizes commitment is an ongoing, unfolding activity through which s/he expresses life style (Perry, 1970).

Additionally, Perry provides three alternatives to the forward progression throughout the positions. One, temporizing, in which a student delays in a position, explicitly hesitating to take the next step. Two, escape, in which the student avoids the responsibility of
commitment, seeking refuge in relativism. Three, retreat, in which a student returns to dualism, perhaps to find the security and the strength to cope with a too-challenging environment. (King, 1981). Thus development, or forward progress, cannot be taken for granted, as deflections to development may also take place.

Although Perry (1970) lists nine positions in his scheme of intellectual development, many authors (Kurfiss, 1975; Knefelkamp and Widick, 1977; Rodgers, 1983; and Taylor, 1983) believe that there is little or no cognitive growth after position five. That is to say, that ultimate development in a cognitive sense is complete at position five. The remaining positions in the Perry scheme are then devoted to the psychosocial task of the development of identity primarily through professional and career commitments.

In summarizing the theoretical background of cognitive development, it is apparent that there are perhaps philosophical differences among cognitive developmental theorists about the specific agenda of each stage or position. But, what is apparent is that whether one speaks of Piaget, Perry, Kitchener and King or any other cognitive developmentalist what is really being
said is: 1) stages or positions of adult cognitive development exist; 2) stages are sequential; and 3) stages are hierarchical in a qualitative sense.

The following portion of this document pertains to studies in which cognitive development has been utilized as the focal point of research.

**II. Cognitive Developmental Research Studies and Teacher Education**

Validating a developmental theory is a difficult undertaking and requires a careful integration of results from numbers of studies. (King, 1977)

This review of cognitive developmental studies begins with related studies concerning cognitive development and continues until the studies address the specific population of this study.

Kurfiss (1977) in her article "Sequentiality and Structure in a Cognitive Model of Student Development," suggested that the developmental tasks of the college student are threefold. One, a student's absolutistic thought and authoritarian beliefs are broken down by the diversity of ideas in a college setting. Two, after abandonment of absolutistic thought, the student then
faces the task of developing intellectual tools for coping with the pluralism of ideas. And, third, ultimately the student's commitment to his or her choices is seen as a flexible, creative process in a relativistic context (p. 565).

The Kurfiss study (1977) investigated the comprehension of ideas representing each of Perry's positions of intellectual development, evidence underlying structure and whether or not interviewees show a tendency to prefer higher positions of reasoning or lower positions of reasoning.

Findings support the assertion that: 1) Perry's positions form a sequence of increasingly complex ideas; 2) development is uneven; variations in rate of progress can be expected as growth proceeds in various content areas (areas in which the student is persistently engaged are those most likely to advance first); and, 3) the tendency to prefer higher levels of thinking is not as strong as might be expected (p. 269).

King (1977) provides a basic review of research on Perry's theory. The following studies and findings are explicated therein.

Meyer (1975, 1977) hypothesized that private college freshmen would be more dualistic that public college
freshmen; that private college seniors would be more committed than their public college counterparts; and that freshmen at both colleges would be lower on the Perry positions than seniors. The findings of Meyer's study (1977) are: 1) there were no significant differences in position scores by class across colleges; and 2) freshmen did score statistically lower than seniors on the Perry positions.

Blake's (1976) inquiry concerned whether students in a science-oriented curriculum would show upward movement in Perry position scores over their college years. A significant upward trend over the college years was present with freshmen scoring 2.84; sophomores scoring 3.13; juniors scoring 3.48; and seniors scoring 3.55.

Clinchy, Lief and Young (1977) queried about the relation between types of schooling and the way high school girls reason about moral and epistemological issues. Findings indicated that seniors scored significantly higher than sophomores at progressive schools, but not at traditional schools.

King (1977), Kitchener (1977), and Kitchener and King (1978) have investigated the construct of Reflective Judgment, which focuses on how people reason and arrive at a point of view. How people consider the nature and
the role of evidence in their arguments, how they analyze and synthesize available evidence and what role authorities and experts play in making judgments (p. 43). Once again, a consistent upward progression of scores was found across groups.

Findings from all of these studies indicate that intellectual development continues and can be traced through the post-adolescent years and cannot be accounted for by either formal operational reasoning skills or verbal aptitude (King, 1977).

King (1978) has made application of the Perry scheme in the classroom by designing programs to promote student development. King states that the Perry scheme is helpful in three major ways: establishing program goals, planning the steps in implementing the program and in evaluating the expectations of the program (pp. 44-45).

One of the first major intervention programs based upon the Perry scheme was conducted at the University of Minnesota (Knefelkamp, 1974; Widick, Knefelkamp and Parker, 1975). The basic hypotheses of these authors were: 1) college students would respond differentially to varying instructional approaches as a function of their level of intellectual development; and 2) that both academic achievement and personal growth could be
facilitated by proper matching of student developmental levels with instructional approach (p. 45). Indeed, the findings substantiate greater intellectual movement in the experimental class and provides evidence for progression along the scheme when appropriate instructional approaches were utilized by the instructor.

Once this foundational study was provided and validated, others developed and substantiated intervention programs. Touonton, Wetheimer, Cornfeld and Harrison (1977) conducted a program whose purpose was to increase the complexity with which students think about career issues. Knefelkamp-Slepitza (1976) developed a Career Development Model based upon Perry's scheme. Mason (1978), Stepitzel (1976) and Wertheimer (1976) helped establish the validity of the Career Development Model.

Mentkowski (1983) states that human development can supply the unifying purpose for higher education. She further stipulates that: 1) development is differential; 2) change is gradual; 3) change can be attributed to student performance in the curriculum; 4) faculty understanding of developmental theory is critical if it is to function; 5) opportunities are necessary for faculty to experience and practice responding to
student styles of learning and modes of thinking; and
6) faculty need to collaborate to build learning
activities across the curriculum to facilitate student
development (pp. 2-6).

Widick and Simpson (1978) designed yet another
classroom intervention program based upon the Perry
scheme. The themes of this study were: developmental
progress, subject matter mastery and learner
satisfaction. Results indicate that: 1) the treatment
section had the greatest number of individuals showing
stage movement; 2) the developmental approach seems to
have a positive effect on subject-matter mastery; and
3) the developmentally designed class was a positive
experience for the learners (p. 54-55).

Welfel (1982) utilized the Reflective Judgment model
to investigate career counseling of college students.
Welfel found that when intellectual/cognitive development
is utilized there is provided another way to understand
and organize clients responses, thus the counselor is
more adequate in understanding the client and providing
patterns for movement for that client.

Phillips (1980) has used the Perry model to assess
college of education students finding all of the
undergraduates assessed to be in high dualistic positions.

Sprinthall and Sprinthall (1980) in an effort to evaluate teachers for growth utilized a cognitive developmental perspective. Findings in this study indicate that psychological stage development does effect performance in complex human tasks (p. 281).

Hart (1976, 1978) suggested that effective learning environments represent complicated three way interactions among the stage of the pupils, the stage of the teachers and the materials.

Sprinthall (1979) states that measures of academic achievement and scholastic aptitude fail to predict adult success, but measures of cognitive development do indeed predict adult success. Sprinthall cites Sullivan et. al. as stating that higher more complex conceptual levels allow teachers to be more adequate and competent. Higher conceptual level teachers respond to pupils in a thoughtful, feeling, democratic, flexible approach and are more apt to vary in structure and teaching methods.

As one can readily see, the studies concerning cognitive development are numerous, diverse and cross-disciplinary. Applications of the theory and the results of the studies are many and most promising.
The following section of this document concerns the theoretical background of psychosocial development.

III. Psychosocial Development: Theoretical Background

According to Drum (1980) and Rodgers (1981), psychosocial development concerns the content issues in a person's life. Theorists ascribe to relative spans of time or ages in which specific issues present themselves to individuals. Persons who successfully resolve or negotiate these content issues or challenges enhance their chances of positive growth.

College students have a great deal of difficulty relating their course work to the major issue— the search for meaning in their lives (Widick, Knefelkamp, Parker 1975). Perhaps this is because in practice the classroom is almost exclusively reserved for matters of the mind. This "mind" practice places the undergraduate between two mutually exclusive environments-- the classroom for the mind and the peer culture which effects personality growth (Korn, 1968).

Erickson (1968), Chickering (1969) and Sanford (1967) have commented extensively on the difficulty that colleges have had in making education personally meaningful. Sanford (1967) has persuasively argued that
the proper role of the educational institution is to foster individual development, "to promote an identity based on qualities such as flexibility, creativity, openness to experience and responsibility" (p. 9). Sanford (1966) conceptualized the college as a developmental community with the task of presenting the student with "strong challenges, appraising accurately his/her ability to cope with these challenges, and offering him/her support when s/he becomes overwhelmed (p. 41).

Development, it seems, has long been a much talked about collegiate task, albeit duty. The following is a presentation of a theoretical background for psychosocial development. The works of Erickson and Chickering will be presented.

Erickson

As Piaget fathered cognitive development, Erickson fathered psychosocial development. Historically, the most important developmental theorist has been Erik Erickson (1968), who laid the foundational cornerstone for other theorists, in his eight stage model of psychosocial development (Widick, Knefelkamp, Parker, 1975). Erickson's observations and theoretical
constructs are primarily concerned with psychosocial development.

In his book, *Childhood and Society*, Erickson suggested that: 1) "side by side with the stage of psychosexual development described by Freud, were psychosocial stages of ego development in which the individual had to establish new basic orientations to himself (herself) and his (her) social world; 2) that personality development continued throughout the whole life cycle; and 3) that each stage had a positive as well as a negative component" (Erickson, 1970, p. 19).

The following eight stages are employed by Erickson's psychosocial life cycle theory: 1) Trust vs. Mistrust; 2) Autonomy vs. Doubt; 3) Initiation vs. Guilt; 4) Identity vs. Inferiority; 5) Identity vs. Role Confusion; 6) Intimacy vs. Isolation; 7) Generativity vs. Self-Absorption; and 8) Integrity vs. Despair and Disgust. In each stage there is a new dimension of social interaction possible, that is, there is a new dimension in a person's interaction with self and with his/her social environment.

Specifically, the stages of Identity vs. Role confusion and Intimacy vs. Isolation concern this study, thus these stages will be expanded and defined.
Identity vs. Role Confusion

Erickson's stage of Identity vs. Role Confusion extends from ages twelve through eighteen and from ages eleven through fourteen of this stage the corresponding Freudian stage is the puberty stage. The major tasks of this stage of development are: 1) finding a romantic partner; 2) dealing with a variety of new ways of looking at and thinking about the world; and 3) striving to develop a theory or philosophy which will bring all the varied and conflicting parts of society into a working and peaceful whole. As Erickson states, "the adolescent is an impatient idealist who believes that it is as easy to realize an ideal as it is to imagine it" (p. 21).

The development of identity will take place if the young person can integrate the different images of self into a whole that makes sense and shows continuity with what was (the past) while preparing for what might be (the future).

Although the influence of parents is much more indirect at this age/stage, it is critical to note that preparation for successful identity formation took place early on with the formation of trust, autonomy,
initiation and industry—all of which were fostered or not fostered by parents from the birth of the child.

Although it is obviously important that the individual bring positive stage development with him/her to this stage of Identity Formation, it is important to note that the environment in which the individual finds him or herself is also a critical factor in the attainment of personal identity. For example, Elkind (1970) cites the fact that in America women are often viewed as second class citizens, thus it may be harder for females to arrive at a sense of psychosocial identity. Likewise, Straub (1980) found that identity formation for women did not follow the same pattern as males—identity took place much later in the female life span.

The opposite end of the spectrum in this stage is role confusion. Herein, the individual has a sense of not knowing who s/he is, where s/he belongs or to whom s/he belongs.

Equally important is knowing that one may seek a negative identity (such stereotypes such as hippie, junky, hood, delinquent, etc. come to mind). Having an identity whether positive or negative appears to be preferable to no identity at all.
Once again, it seems important to realize that life is in a state of constant change and that confronting problems at one stage is not a guarantee against the reappearance of these same problems at a later stage, or against finding new solutions to them.

**Intimacy vs. Isolation**

Age delineation and Freudian stages now exit the life cycle pattern proposed by Erickson. Stage six, Intimacy vs. Isolation, is considered to be young adulthood. Young adulthood being the period of courtship and early family life, the extension of which is from late adolescence till middle age.

Intimacy means "the ability to share with and care about another person without the fear of losing one's self in the process" (p. 73). Intimacy not only involves sexuality, but also includes the relationship between friends.

The extreme in a negative direction is a sense of isolation, being alone without anyone to share or the fear of caring.

Erickson's eight stages of psychosocial development from birth to old age trace the options that are available to humankind. The journey is filled with the hope that
one may develop, have all of the opportunities needed to resolve problems and come to live life in a very healthy manner, while always lingering is the thought that non-resolution will lead to an unhealthy life span. As with all things, good and bad are present, it is with hope that each of us receives the most significant positive growth potentials from our parents in order that each of us may healthfully accept the challenges of life and grow into the positive responsibilities of adulthood, Elkind (1970).

B. Chickering

Chickering concerns himself with the psychosocial development of the individual within the college years. Chickering strives to delineate the developmental tasks facing the college student; show that colleges can make a difference in relation to the positive growth of students; and establish what it is within the college environment that facilitates or hinders student development (Heidke, 1982).

As the reader has seen, Erickson, the father of psychosocial theory, concerns himself with life development from birth to old age whereas Chickering (1969, 1972) concerns himself, primarily, with the seven
major dimensions of development pertinent to the psychosocial development of college students. Those seven dimensions of development are: competence, emotions, autonomy, identity, interpersonal relationships, purpose and integrity.

Chickering asserts that "universal higher education has created another developmental period" (1972, p. 1). He furthers his thought by stating that developmental changes do take place during this period (seventeen through the late twenties) and that: 1) this may be the last opportunity for major change before the stability generated by more fixed social, interpersonal and occupational roles and responsibilities take over; 2) some of these changes are shared by those who do not attend colleges; but, 3) colleges do make major differences; and 4) the patterns established at this persist long into adulthood.

Chickering relied upon a variety of data-gathering techniques to formulate his developmental theory. Included in these techniques were: interviews; questionnaires, personality inventories, environmental assessments, vocational interest measures, and studies of institutional documents. This extensive research is reported in his paramount work: *Education and Identity*. 
In essence, Chickering's seven vectors of development may be thought of as follows:

1. Upon entry into college the freshman is working on the vectors of competence, managing emotions and autonomy.

2. Mastery of competence, managing emotions and autonomy are all necessary for successful formation of the vector called identity which is the primary task for the college sophomore;

3. Identity formation, in turn, provides the necessary framework for the junior who must work on the vectors of: freeing interpersonal relationship, developing purpose and developing integrity;

4. Mastery of freeing interpersonal relationships, developing purpose and developing integrity are the work of the senior and the graduate student.

Thus, the freshman and the sophomore student have as their work, the psychosocial tasks of achieving competence, managing emotions, developing autonomy, all of which aid in the formation of identity. While the junior and the senior and the graduate student wrestle with the vectors of freeing interpersonal relationships, developing purpose and developing integrity.
Now that the vectors of development have been enumerated, their order established and who works on what vector and when that work is to be done, what are the definitions of each vector?

1. Competence. Competence is a three-fold process. Once must have intellectual, physical and social competence in order that one have a real sense of complete competence. A sense of competence is defined as "the confidence one has in his/her ability to cope with what comes and to achieve successfully what s/he sets out to do" (Chickering, 1972; p. 9).

**Intellectual competence** concerns the acquisition of information, improvement of mental ability, as well as, the development of critical thinking.

**Physical and manual competence**, as a contributor to the vector of competence, simply refers to the ability to engage in: a) athletics/intramurals and compete under predetermined conditions that **usually** include the presence of the other competitors and a measurement of some kind (time, points, weight, etc.) and/or b) having experiences in which skills are developed in the arts and the crafts.
Engagement in physical (athletic) or manual (arts/crafts) activities promote productive carry-over to other areas and tangible and visible creations offer clear evidence of achievement and progress both of which contribute to identity formation (Chickering, 1972).

Interpersonal competence is indicated in every action or interaction with another person. "Each action directed toward another consciously or unconsciously, has an effect of some kind, and the extent to which it produces this effect can be taken as the measure of competence" (Chickering, 1972, pp. 31-32). To be interpersonally competent one must listen as well as be heard, weigh one's role in response to the conditions and avoid excessive impositions of one's own views (Chickering, 1972).

Thus competence is made up of three sub-vectors: intellectual, physical and interpersonal competence. Once one learns the skills of the sub-vectors, then the sense of competence as "the fitness or ability to carry on those transactions with the environment which results in the maintainence of self, growing and flourishing" (Chickering, 1972, p. 74) can take place.
2. **Managing Emotions.** Managing emotions focuses on the emotions of sex and aggression in the seventeen to twenty-five year age range and it is definable directionally (Rodgers, 1980). The vector of managing emotions moves through the following phases: 1) release of rigid controls over emotions by the external rules of one's heritage or peer group; 2) achievement of an awareness and acceptance that these emotions are legitimate and normal; 3) trust in one's feelings as a basis for action— that is, appropriate action is often an integration of logic and these emotions; 4) acting on these emotions, both vicariously and for real, and receiving feedback; 5) acting and receiving feedback repeatedly; and 6) reflecting on one's experience with sex and aggression and integrating and internalizing a personalized control (Rodgers, 1980).

3. **Developing Autonomy.** There seem to be three components that contribute to the development of autonomy. Those components are: development of emotional independence, development of instrumental independence and recognition of interdependence.
Emotional independence begins with disengagement from the parents, reliance on peers and ends with personal autonomy (Chickering, 1972).

Instrumental independence has two components:
1) the ability to carry out activities on one's own; and
2) the ability to leave a place and get to another if one wishes.

Interdependence might more appropriately be defined as mature dependence. Mature dependence is the state of having relationships of reciprocal respect and helpfulness with parents and peers such that the strength and weaknesses of self and others are recognized and mutually satisfying (Chickering, 1972).

It seems fair to say that when one masters the skills of emotional and instrumental independence, then one forms mature dependence and can more readily accomplish the tasks of interdependence all of which leads to the accomplishment of the growth vector called autonomy.

4. Establishing Identity. Establishing identity is only achievable if and when the previous three vectors of achieving competence, managing emotions and developing
autonomy are mastered. Establishing identity may
simplistically be defined as an increasing sense of self.
Three variables involved in the accomplishment of a sense
of self are: the acceptance of body and appearance;
clarification and acceptance of sexual identity; and
varied, direct experiences and roles accompanied by
meaningful achievement (Erickson, 1960; Sanford, 1966).

5. Freeing Interpersonal Relationships. With the
emergence of the vector of freeing interpersonal
relationships, one leaves the freshman and sophomore
years and embarks on the tasks of the junior, senior and
graduate years.

Freeing interpersonal relationships is arrived at
through increased tolerance/acceptance of others who are
different from ourselves and increased ease in
relationships with peers and adults which implies an
increased depth in intimacy. The implications are that
friendships are established, significant other persons
are found and cultural differences are allowed. All of
the above mentioned accomplishments proceed on the basis
of increased intimacy and the diminished state of
stereotyping. "There is indeed a sense of fusion with
the essence of other people" (Erickson, 1950, p. 114).
6. **Developing Purpose.** Development of purpose requires formulating plans for action and a set of priorities that integrate three elements: 1) avocational and recreational interests; 2) pursuit of vocational interests; and 3) dealing with life style issues including concerns for marriage and family. Increasing integration gives shape to experiences, meaning to existence and release of energy for coordinated action (Chickering, 1972, p. 108).

In essence, developing purpose entails: what one will be or not be, with whom one will be or not be, how one will spend leisure time and what one's values are. All of these questions and choices when answered and made, re-answered and re-made are indicative of commitment in adult life stages.

7. **Developing Integrity.** The development of integrity involves the development of standards by which one appraises the self and in terms of which self-esteem varies as a consequence of the appraisal (Chickering, 1972).

Two integral variables in the development of integrity are: humanizing values and personalizing values. When one humanizes values, one realizes that
rules and their purposes do not have absolute connections. But, whatever the values by which one lives are, those values are internalized. Personalizing values refers to the congruency between one's behavior and one's values. Words equal deeds and thoughts and that in turn comprises the vector and quality called integrity. Achieving congruence is a life time task which is sorely tested and sometimes shattered.

In summarizing Chickering's notion of psychosocial development, it is important to realize the following items in relationship to vectors.

1. A vector has content (i.e. managing of emotions).
2. A vector has directionality—that is it moves toward an adequate resolve.
3. A vector comes into being at a certain time/age (i.e. freshman year).
4. A vector must be resolved at a certain time/age (i.e. two to seven years).
5. A vector accomplishment or non-accomplishment lasts throughout life.
6. A vector accomplishment or non-accomplishment continues after its time of prominence in our lives and may re-occur.
7. A vector's resolve or non-resolve has an effect upon the rest of one's life and the accomplishment of subsequent vectors.

8. A vector's resolution can be either adequate or inadequate. (Rodgers, 1983)

The sources of environmental influence on development as discussed by Chickering are: 1) friends, groups and student culture; 2) faculty and administration; 3) residence hall arrangements; 4) curriculum, teaching and evaluation; 5) institutional size; and 6) clarity of institutional objectives and internal consistency.

The theoretical background set forth by Erickson (1968) and Chickering (1969, 1972) seems to highlight the fact that development in adulthood is a viable event. That stages are definable is evident. Regardless of theoretician, both Erickson and Chickering imply that hope and despair loom life-long before us all.
There are only two or three human stories and they go on repeating themselves as fiercely as if they have never happened before. 

Willa Cather

There are constant criticism of Chickering's work. It appears impossible to separate Chickering's own personal views about student growth from his empirical findings (Widick, Parker, Knefelkamp, 1978). But those authors do conclude that Chickering's findings do substantiate the growth patterns hypothesized by the vector model of development.

It is important to note that development according to Chickering occurs through cycles of differentiation and integration as well as the characteristics of the person who encounters the experience.

Increased differentiation occurs when one comes to see the interacting parts of something formerly seen as unitary, when one distinguishes among concepts formerly seen as similar, when actions are finely responsive to purposes or to outside conditions, when interests become more varied, tastes more diverse, reactions more subtle. In short, we become more complex human beings...

But increasing differentiation must be accompanied by increasing integration... Relationships among parts must be perceived or constructed so more complex wholes result. Concepts from different disciplines must be brought to bear on one another and connected in ways appropriate to
varied tasks and problems. Consistencies between word and deed, must be achieved. Impulse and emotion must pull together with conscience and reason. Short run hedonism must coordinate with long-run purposes. (1969, p. 292)

Chickering's theory may be validated through studies which were not specific to his theory. For example, Astin (1977) and Feldman and Newcomb (1969) concluded from studies on student characteristics and behaviors that Chickering's vectors were supportable (Straub, 1982). Cognitive theorists substantiate individual vectors. Loevinger (1976) substantiates the vectors of managing emotions and freeing interpersonal relationships; Perry (1970) substantiates the vectors of intellectual competence; and Kohlberg (1971) substantiates the vector of integrity (Straub, 1982). From career development literature, Holland (1966) supports the vector of purpose.

With such diverse research serendipitously establishing the validity of Chickering's theory, extensive efforts have been made to clarify and directly substantiate the theory. Winston, Prince and Miller (1979) developed the Student Developmental Tasks Inventory (SDTI-I and STRI-II). This instrument behaviorally assesses the Chickering vectors of:
Developing Autonomy, Freeing Interpersonal Relationships and Developing Purpose.

In 1978, The University of Iowa undertook the development of three additional assessment instruments: 1) the Erwin Identity Scale; 2) the Mines-Jensen Interpersonal Relationship Inventory; and 3) the Barratt Developing Purpose Inventory. These instruments are still exploratory concerning reliability and validity estimates (Straub, 1982).

However, Heidke (1982) utilized all three instruments in his assessment of college students at Kenyon and The Ohio State University. Heidke found Ohio State students to be more successful at identity achievement than Kenyon students. His use of the Mines-Jensen Interpersonal Relationship Inventory instrument revealed a relatively high advancement between the freshman and senior years at Ohio State and a relatively low-level change at Kenyon. The use of the Barratt Developing Purpose inventory revealed Ohio State students as having slightly greater mastery than Kenyon students.

Psychosocial research has been carried out by many authors, but obviously not always in relation to Chickering's theory. In reviewing psychosocial development studies (simultaneously known as life-span
literature or life cycle literature) the author finds that research in this area is in its fundamental stages. The existing studies are descriptive studies with empirical validation far off in the future. Therefore, the studies cited in this review are considered seminal works based upon Erickson and Chickering's theories.

**Additional Psychosocial Studies**


**Levinson**

Levinson (1978) established in his study of white males ages thirty-five through forty-five a repetitive cycle of stability and transition. A Levinson stage or stability cycle is a period of time lasting from three to seven years. Levinson's periods of transition last for approximately five years with overlapping from the last stable period and into the next stable period.
Life-span appears at follows according to Levinson:

*________ T _______ T _______ T _______ T _______

birth 17 22  S 28  33  S 40 44  S 50 55  S 60 65

T = transition period
S = stable period

The life span in Levinson's study has four basic eras: 1) childhood from birth to around age twenty-two; 2) early adulthood from ages twenty-two through about age forty-five; 3) middle adulthood from forty-five through about age sixty-five; and 4) late adulthood from about age sixty-five through death. Each of these eras of life has its own unique and unifying qualities. These qualities have to do with the character of living—the biological, the psychological, and the social aspects of each person's life.

"The characteristics of early adulthood are: fullness of energy (biological), capability and potential (psychological) as well as external pressures (social). In early adulthood, personal drives and societal requirements are powerfully internalized, at times reinforcing each other and at times in stark contradiction with each other" (Levinson, 1978, p. 23).
Middle adulthood sees crucial developmental change. These changes are reflected in three contrasting perspectives: 1) changes in biological and psychological functioning; 2) the sequence of generations; and 3) the evolution of careers and enterprises.

Late adulthood is an era of decline as well as an opportunity for development. One arrives at the appraisal of his (the Reader is reminded that the study is based on an all male population) life's work and value in his life and comes to terms with death.

Whatever the period of transition or stability, the developmental tasks have two major thrusts. First, one may work on structure. One may structure build which means to make a choice, build life around that choice and enrich that period of choosing. Or one may structure change which means to re-appraise, explore new possibilities and make a choice for the next stage. Second, one may work on a specific component of the life structure such as one's occupation, family, mentoring relationship, mutual friendships, life dreams, etc.

Farrel and Rosenberg

Farrel and Rosenberg (1978) found in their study of males ages twenty-five through thirty and ages
thirty-eight through forty-eight that four developmental paths took place. Farrel and Rosenberg state that those developmental paths are related to psychological and social situations. The paths of development are: transcedent generative, pseudo-developed, midlife crisis and disenchanted types.

A transcedent generative male will openly admit to crisis and deal with it, respond and adapt.

A pseudo-developed male attempts to cope by adapting and saying that everything in his life is fine. He pretends he has everything under control and is all probability a rigid authoritarian.

A midlife crisis path male exhibits signs of disintegration, has no coping mechanisms, superficial relationships and is stagnated.

A punitive, disenchanted type has gradual exhibitions of crisis symptoms and has no escape mechanisms. The male seems to be chronically disenchanted.

Males in Farrel and Rosenberg's study seem to be able to achieve stability and work roles, but are much less likely to be all right with intimate roles such as friendships and spouses.
Valliant

Valliant's (1977) study is often said to be the study of the best and the brightest. This study is a look into the adaptive styles of 268 males. Basically, Valliant established a hierarchy of adaptive ego mechanisms. Those mechanisms are: psychotic, immature, neurotic and mature.

Whether one looks at Levinson (1978), Farrel and Rosenberg (1978) or Valliant (1977) one sees patterns that are emergent in the male. Some patterns are age related, some patterns are theme related, and some patterns are adjustment/coping related. But, patterns there are. The most crucial aspect of the patterning behaviors of males is that 67-75% of the males at midlife are not developing in healthy patterns (Farrel and Rosenberg, 1977). In Farrel and Rosenberg's terminology, most men at midlife are developmentally dying.

Psychosocial developmental studies which have enlightened the life span of both males and females with one study have been contributed by Neugarten (1968), Lowenthal (1975) and Sheehy (1976).
Neugarten's (1968) focus was on males and females from age forty through age seventy-five. Her major findings were:

1. there is a difference between males and females. Males view themselves in their careers and females view themselves in terms of family;

2. the shift in midlife is in terms of time remaining, time is now considered to be finite and one must now re-examine life;

3. a crisis is not a predictable event, if an event is predictable, then one can plan for it and then cope with it much more easily;

and

4. there are four basic personality types each of which will predict how one will age.

Those four personality types are: integrated, armor defended, passive-submissive and uninterrupted. An integrated personality type means that one deals with aging effectively. An armor defended personality type means that one denies aging, resents aging and handles life as if s/he were not aging. A passive/submissive personality type means that one needs an emotional crutch
to handle aging. An uninterrupted personality type means that one cannot deal with the process of aging at all.

**Lowenthall**

Lowenthall's (1975) study deals with both males and females, but is really only representative of the middle class. The concepts that are important to psychosocial development according to Lowenthall are:

1. the individual has or has not the ability to cope with transitions;
2. intimacy is the buffer crisis;
3. good social interaction is a prerequisite to good competency and coping;
4. there are two high risk groups: a) post parental women; and b) males without intimate relatives;
5. low socioeconomic status males are much more susceptible to crisis;
6. the importance in development is life events versus age of transition;
7. if one can anticipate change it is helpful; and
8. males and females seem to be in inverse patterns.
**Sheehy**

Sheehy's (1976) study is a journalistic adventure through the life span of both males and females. The Sheehy stages of development are as follows: picking up roots, provisional adulthood, age thirty transition, putting down roots, midlife transition and restablishing and flowing.

The entire Sheehy expose: *Passages: Predictable Crises of Adult Life*, focuses on periods or stages within adult life span. Sheehy explicates both the positive resolution potentials of life challenges as well as the trauma of failure to resolve life's challenges.

The following chart summarizes the major authors delineated in this literature review. The chart explicates the demographics of the studies and the methodologies of the various studies.
<table>
<thead>
<tr>
<th></th>
<th>LEVINSON</th>
<th>VALLIANT</th>
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Studies which further these seminal descriptive works are: Reinke (1982); Otero (1982); DiCicco (1982); Sherrill (1983); and Helpert (1981).

Reinke (1982) found that 78% of the females in her study showed major psychosocial changes between ages 27-30 in the form of personal disruption, reassessment and reorientation with increased focus on self and increased psychosocial development.

Otero (1982) defined competence as a self-efficacy, optimistic trust in interpersonal relationship and the ability to cope with life's events. Otero found that competent subjects were less involved with path stressful events and had positive emotional involvements with decreased thoughts about negative events. The competent person had the potential to adapt as well as grow from negative events.

DiCiccio found that female development differs in important ways from that of male development, particularly in the roles of affiliation and achievement. Additionally, early mothers are less exploratory and much more committed than single women or late mothers.

Sherrill (1983) established that autonomy is related to satisfaction with work relationships.
Halpert (1981) found that based on Levinson's theory the Age Thirty Transition shows increased career commitment especially when compared with the 21-27 age span of Entering the Adult World. Occupational formation is not accomplished until one is well into the thirties and ego identity is not achieved until after the Age Thirty Transition.

In summary, psychosocial development may be a function of what Erickson (1968) calls the epigenetic principle. That is, there are three major forces working within and upon the individual: 1) biological or physiological factors and changes; 2) psychological factors and changes such as society, gender, psychological make-up; and 3) external pressures such as environmental pressures, norms and institutions. It appears as if the internal and the external stimuli may coincide or collide. Coinciding stimuli yields a new period. Collisions of stimuli yield transitions. Thus each new stage is borne of collisions or conflict between the external and the internal.

Each stage is qualitatively different in its developmental tasks. Some stages deal with who one is, other stages deal with whether one really wants to be who
s/he is; while other stages deal with the question of the value of the lived life.

College graduates have the highest probability of positive resolution throughout life (Rodgers, 1983).

Marcia (1956, 1966) studied resolution adequacy and found four major ways in which to deal with life crises. One, a person may be in **moratorium** which means that one is working on the problem, but has yet to solve or resolve the event. Two, **foreclosure** which means that the person is locked in. In essence, a foreclosed person does not make the correct choice and sees no way out or no way to help one's self without gigantic risks. Three, **diffusion** which means that a person refuses to recognize or know that there is a crisis existing, therefore, s/he will not experience the crisis. And, four, **identity** which means that a person has accomplished dealing with the crisis. Of the four ways of dealing with transition or crisis, only identity will allow a positive developmental growth pattern to emerge.

In essence, psychosocial development is defined as within and between persons' orientations to developmental issues, tasks or life events. Orientations are functions of how one resolves or does not resolve or adapt. Therefore, psychosocial development is a description of
issues, tasks and/or life events and the pattern of resolutions of given persons (Rodgers, 1983).

V. Summary of Cognitive and Psychosocial Development

The importance of cognitive and psychosocial development can not be ignored by colleges especially if colleges take seriously the charge of being a "developmental community."

It is obvious that students are individuals with separate specific needs, but as Chickering states,

"it is not that all students change along all vectors, not that environmental conditions operate with equal force for all students at all institutions, but that changes do occur for some students and that they can occur more frequently for others. Environmental conditions at some institutions do foster or inhibit such changes and support the modification that can increase the frequency of the valued development."

(1969, p. 5)

Fuller and Bown (1975) have placed this issue of development clearly within the hands of teacher education programs and teacher educators by asking the question: What kinds of interventions by what kinds of interveners under what conditions for which students will enhance those students?

The literature is revealing to teacher education in many ways. One, Rodgers (1979) and Phillips (1981)
clearly indicate that the overall population of undergraduates as well as the specific population of teacher candidates are dualistic upon entry into colleges. The same dualistic condition exists upon exit for 85% of the same population. This statistic alone points to the failure of colleges to facilitate cognitive growth.

Two, psychosocial literature clearly delineates the tasks that present themselves to persons. Teacher education has these persons both as clients (teacher candidates) and as employees (teacher educators). Yet, there exists few, if any, research studies directly examining those populations within teacher education. How does teacher education proport to enhance the growth of individuals if who those persons are psychosocially is still unknown? There appears to be existing theoretical information that has yet to be extrapolated and put to work in the area of teacher education.

These difficulties point to the need for seminal work in the areas of cognitive and psychosocial development as they pertain specifically to teacher candidates, teacher educators and teacher education programs. Little, if anything is documented concerning the developmental aspects of the interveners (teacher
educators) or the interventions (courses, course content, teaching methods, etc.).

The next section of the document deals with the methods utilized in the collection of data for this study and the analysis of that data.
CHAPTER THREE

METHODOLOGY

Introduction

The purpose of this study is to describe the developmental levels of teacher candidates and teacher educators, to describe the relationship between levels of development of teacher candidates and teacher educators, and to describe the relationship of these measures to the characterization of selected classroom activities and the teacher candidates' satisfaction with those activities. The measures of development refer to the cognitive and the psychosocial dimensions of personal development.

The concept of cognitive development refers to the way in which persons think—how people deal with issues. The concept of psychosocial development refers to the developmental tasks and issues with which people must deal within their life span. The concepts are logically connected in that psychosocial development deals with the "what" of the life cycle while cognitive development deals with the "how" of those life span events.
The methodology involved in the connection of these dimensions of development will be described in detail in the following pages. But, prior to this description, it is critical that one has an understanding of the context of this study.

**Context**

This descriptive study involving the dimensions of cognitive and psychosocial development takes place within the following setting.

The Ohio State University College of Education Teacher Education Program is the overarching context. Specifically, the setting is limited to the introductory component of The Ohio State University's Teacher Education Program. This introductory component of the teacher education program is a course entitled, Education 450: An Introduction to Teaching. Education 450 is a core requirement for all undergraduate teacher preparation programs, regardless of specialty. Therefore, all majors in the field of education may be found within this course.

The subjects within this study therefore were: the teacher educators involved in the instruction of Education 450 and the undergraduate teacher candidates
enrolled in Education 450 during one quarter of its operation. Specifically, there were nine teacher educators (eight of whom are doctoral students ranging from zero years to four years of collegiate teaching experience), one of whom was a full professor with twenty-eight years of collegiate teaching experience; the teacher educator and the teacher candidates.

After securing permission from the program coordinator and receiving a favorable review from Human Subjects Research Committee, the investigator met with the teacher educators responsible for the instruction in the introductory professional preparation class. Each teacher educator was informed about the purpose of the study and his/her role within the study. Each teacher educator was given a participant's packet which contained two instruments, a participant's consent form, and answer sheets.

The instruments contained within the packet were the Measure of Epistemological Reflection (MER) which is designed to elicit information concerning cognitive development according to the Perry scheme, and the Student Development Tasks Inventory II (SDTI-II) which is designed to collect information regarding the psychosocial development of an individual as viewed by
Chickering. (See Appendix for copies of both instruments.)

Identical participant's packets were provided for each teacher candidate within the participating teacher educator's classes. These participant packets were provided on the first day of classes. In addition to the instruments, answer sheet and consent forms, the instructors received a handout with appropriate instructions for their students. Each instructor was to inform his/her teacher candidates about the purpose of the study as well as the voluntary nature of the students' participation.

The total administration time for the MER and the SDTI-II was estimated to be between ninety and one hundred and twenty minutes.

To ascertain information regarding the characterization of instruction, during the sixth week of the quarter an Instructor's Checklist (see Appendix) was provided for each of the nine participating instructors. The Instructor's Checklist consisted of a cover letter and five (5) identical checklists. Instructors were informed that they should choose five major events of the quarter (i.e. lectures, activities, movies, field trips, etc.). Those five major activities of the quarter were
to be characterized according to the guidelines provided by the checklist. The Instructor's Checklists were then collected and each of the activities listed, per instructor, were then listed upon a **Student's Activity Checklist**. The Student's Activity Checklists were then given to each of the teacher candidates involved in the study. Each teacher candidate was asked to complete a checklist for each of the five activities that his/her instructor had already characterized. The Instructor's Checklist and the Student Activity Checklist were identical in nature with the exception of a satisfaction rating completed by the students (see Appendix).

Completion of the activity checklist by both instructor and students ended participation in the study.

**INSTRUMENTATION:**

I. **Student Developmental Tasks Inventory II**

There are four major instruments available which measure psychosocial development. Those instruments are: the Omnibus Personality Inventory, the IOWA instrument, the Erwin Identity Scale and the Student Developmental Tasks Inventory.
The Student Developmental Tasks Inventory - II was chosen because:

1) the Omnibus Personality Inventory is not directly related to the theory. Thus it has only face validity and it cannot be interpreted developmentally without a longitudinal study; 2) the IOWA and the Erwin instruments are logical alternatives, but pragmatically when combined with the Measure of Epistemological (MER) used to assess the cognitive development of the subjects, administration time would triple; 3) no instrument measures all of the vectors of development described by Chickering; the SDTI-II measures more of the vectors than any other instrument in the least amount of time; and 4) the SDTI-II has a technical manual and reasonably acceptable data on validity and reliability.

The Student Developmental Task Inventory II (SDTI-II) was designed as a basic assessment tool to aid students in post-secondary educational institutions to become active participants in their own learning and developmental processes. The SDTI-II represents a sample of behaviors which students can be expected to demonstrate when they have satisfactorily achieved certain developmental tasks on Chickering's scheme (Winston, Miller, Prince, 1979).
The SDTI-II characterizes three basic developmental tasks. Those developmental tasks are developing autonomy, developing purpose and developing mature interpersonal relationships. Each of these developmental tasks is defined by three subtasks. Mastery of the subtasks leads to achievement of the basic tasks.

Chickering's notions of psychosocial task development were explained in Chapter Two. The manner in which Chickering's notions manifest themselves in the SDTI-II is explained as follows.

**Definition of Tasks:**

1. Developing Autonomy means three distinct accomplishments take place.
   a. One is free from the continual and pressing needs for reassurance, affection or approval by peers or authority figures;
   b. One has the ability to carry on activities and to cope with problems without seeking help. The ultimate goal is to develop and demonstrate a capacity for self-sufficiency and self-support. This is known as instrumental autonomy; and
   c. One has the capacity for mature dependence which is simply the realization that one cannot dispense with
parents, cannot accept support without working first, cannot receive benefits from a social structure without contributing to that structure and that loving and being loved are complementary.

2. Developing Purpose means that the following three distinct accomplishments have taken place.
   a. One has appropriate educational plans which means that one has consciously formulated a well-defined and personally meaningful set of educational goals and developed an ability to see the relationship between education and other life aspects.
   b. One has mature career plans which allow an awareness of the world of work, accurate understanding of one's abilities, limitations and motivations applicable to occupation and a tentative commitment to a chosen career.
   c. One has mature life style plans which means there is a balance between vocational aspirations, avocational interests and future life-style plans.

3. Developing Mature Interpersonal Relationships which means that the following three subtasks have been accomplished.
a. One has intimate relationships with the opposite sex which requires development of a sensitivity and awareness of feelings necessary to establish close meaningful relationships with members of the opposite sex;

b. One has mature relationships with peers which allows for greater trust, independence and individuality; and

c. One has tolerance with allows one to respond to persons in their own right versus stereotypic responses.

An underlying assumption of the SDTI-II is that growth is continuous and cumulative in nature. The above tasks and subtasks represent a way of describing human development in understandable patterns.

Reliability and Validity of the SDTI-II

Reliability measures refer to the degree to which results from an instrument are attributable to systematic sources of variance (Standards for Educational and psychological Tests, 1974). The SDTI-II has been subjected to both test-retest reliability and internal consistency reliability. Both measures of reliability are in the nineties, .92 and .90 respectively (Prince, Winston, Miller, 1979).
The SDTI-II has been subjected to both concurrent validity checks as well as contrasting group validity. There is statistical significance concerning concurrent validity with the College Student Questionnaire and The Career Development Inventory (Prince, Winston, Miller, 1979).

MEASURE OF EPISTEMOLOGICAL REFLECTION

There are a variety of instruments that are available to assess one's cognitive development on the Perry scheme. The Measure of Epistemological Reflection (MER) was chosen as the measure of cognitive development for the following reasons: 1) the MER is the most current instrument available and as such is highly respected in the field; 2) the MER is a refinement of previous instruments and as such seems to more accurately assess cognitive-structural development; 3) the MER is the most understandable and clear instrument which exists; 4) the MER follows better test construction principles than any other instruments on the Perry scheme; 5) the MER is a production versus recognition instrument, thus it is a more accurate assessment of one's cognitive development; 6) the MER has a technical manual and some data on reliability and validity; and
7) the MER takes about an hour to complete and when combined with the SDTI-II, the total administration time is kept under two hours.

The Measure of Epistemological Reflection (MER) was designed to provide an improved measure (an improvement over existing instruments such as the KNIWI) of intellectual development on the Perry scheme (Taylor, 1983). The MER is a production instrument designed to elicit responses from college students, freshmen through adult students. The instrument is designed to stimulate responses from students along six domains which are evident in the Perry literature. Those domains of interest are: 1) choosing or decision-making; 2) role of the learner; 3) role of peers; 4) evaluation; 5) role of instructor; and 6) view of knowledge, truth or reality. A detailed discussion of cognitive developmental positions is found in Chapter Two.

These six domains of interest as well as the five levels of responses according to the Perry scheme of cognitive development are contained in the following chart. This chart indicates the differing perspectives that persons in various stages of development might have in relationship to the six domains of interest.
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<th>DOMAINS</th>
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<tr>
<td>Choosing</td>
<td>only one perceived available</td>
<td>right choice just need to find it, A’s know</td>
<td>use process for finding right choice</td>
<td>numerous choices available, can’t decide</td>
<td>numerous choices some better &amp; can be supported</td>
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<td>Role of Learner</td>
<td>obtain the truth in the easiest way possible</td>
<td>obtain the truth-good for you to find answers yourself</td>
<td>obtain the truth in concrete realms, use process to search in unknown realms</td>
<td>learn a way to think, think independently to expand possibilities</td>
<td>genuine search for truth in a context, evaluate to choose better explanations</td>
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<td>Role of Instructor</td>
<td>give information &amp; explain it*</td>
<td>make sure students understand information</td>
<td>help students learn process for discovering unknowns</td>
<td>model way to think &amp; provide forum for exchange of ideas</td>
<td>mutually explore &amp; evaluate evidence with students</td>
</tr>
<tr>
<td>Role of Peers</td>
<td>none</td>
<td>ask questions to get answers for class</td>
<td>interaction with peers is a way to learn better</td>
<td>share ideas to expand possibilities</td>
<td>share &amp; critically assess ideas and gather information to evaluate ideas</td>
</tr>
<tr>
<td>Evaluation</td>
<td>whether students know right answers</td>
<td>whether students know material and do their work</td>
<td>confusing-instructor should consider individual differences &amp; be sure it’s fair</td>
<td>a) total confusion b) any method as long as student has an influence in process</td>
<td>based on expertise in a context-whether one can critically evaluate ideas support thoughts</td>
</tr>
<tr>
<td>Knowledge, Truth, Reality</td>
<td>all absolute</td>
<td>2 categories: right and wrong</td>
<td>2 categories: known, unknown as of yet</td>
<td>everything is uncertain, no criteria to judge</td>
<td>exists in a context, can be supported by evidence</td>
</tr>
</tbody>
</table>

(Taylor and Porterfield, 1983)
As the chart clearly indicates, there are six domains of interest to cognitive researchers. Those domains are: 1) choosing; 2) role of the learner; 3) role of the instructor; 4) role of peers; 5) evaluation; and 6) knowledge, truth and reality. There are five levels or positions along the developmental spectrum. These positions are indicated by the numbers one through five and those numbers represent the Perry positions of cognitive development. The chart allows one to compare and contrast the levels of development along positions and among domains. (The chart is a reproduction of Taylor and Porterfield, 1983.)

The MER provides a focusing question for each domain followed by a series of probing questions which elicit elaborations concerning the domain. Each of the six domains is handled separately and the total protocol is given a rating known as a total protocol rating or TPR. The total protocol rating is reflective of the respondents' cognitive developing according to the Perry scheme of development.

As was stated earlier, the MER was chosen as the instrument by which cognitive development would be assessed for several reasons. First, this is the only instrument in existence that provides an opening stimuli
per domain and proceeds to force elaboration by a series of probing questions which specifically concern that domain. This method of separation of questions followed by probing questions is recommended by Tamashiro (1981) and is more likely to produce more accurate information. Additionally, the exploration of the six domains provides an adequate picture of the respondent's thinking (Taylor, 1983). Second, Rodgers (1983) in seminar sessions regarding cognitive development stated that the MER was now the most rigorously developed instrument available. Third, extensive reliability and validity tests have been conducted by Taylor and Porterfield. Fourth, the MER is generated from an extensive theory base, as well as, being the "next step" in more precise instrumentation for the measure of cognitive development (Taylor, 1983).

Reliability and Validity of the MER

Inter-rater reliability between highly trained experts within one stage or level of development is in the 80%-90% range and; therefore, discrepancies of more than one position are minimal (Taylor, 1983). Total protocol ratings, reflective of the entire measure show correlations significant at the p ≤ .0001 level (Taylor, 1983).
The Chronbach alpha coefficient for internal consistency is .76 and indicates a fairly high degree of internal consistency between domains and the total protocol rating (Taylor, 1983).

Validity of the MER was established theoretically as indicated in the Perry scheme. Perry indicates that complexity of thinking increases as individuals encounter more complex experiences, thus higher levels of education should have different cognitive developmental levels. Statistical significance using two way analyses of variance at the $p \leq .001$ was obtained.

III. Perception of Activity

The third instrument utilized within this study was Activity Checklist. This instrument was created by the researcher in an attempt to provide a more standard behavioral description of selected classroom activities on the Perry scheme. The use of this instrument was purely descriptive.
Activity Checklist

Derivation of the Checklist

Widick and Simpson (1978) in "Developmental Concepts in College Instruction" delineated the components of instruction which would be appropriate for dualistic learners as well as relativistic learners. Hunt (1972) indicates that for developmental instruction to be developmental the design of the instructional approach must "match" the learner's developmental status. Widick, Knefelkamp, Parker (1975) enumerated factors in instructional design which would indeed be developmental for the dualistic and relativistic learner. Sanford (1966) indicated that developmental growth would only transpire in an environment which contained appropriate challenges (dissonance) and supports.

In synthesizing the information provided by these authors, the following appear to be major foci necessary for the matching of learner needs and the production of developmental growth: 1) the number of viewpoints (or the number of ways of talking about an idea or issue) provided to the learner; 2) the structure inherent within the activity; 3) the classroom atmosphere (personal or
impersonal); 4) the processing (discussing what took place and its impact on the learner) of the event, activity or assignment; 5) and the actual type of activity (experiential or abstract).

Widick and Simpson (1978), Widick, Knefelkamp and Parker (1975) and Rodgers (1983) all indicate that dualistic learners need: 1) moderate numbers of viewpoints presented to them; 2) direct or experiential learning; 3) high amounts of structure for the activity or assignment; 4) processing of the experience as soon as possible after the experience occurs; and 5) a personal classroom atmosphere.

With these needs in mind, the following items were placed on the Activity Checklist:

**Viewpoints Indicative of Dualism**

1. activity or assignment gives the student a single way of viewing an issue
2. activity or assignment gives the student two or three ways of viewing an issue

**Structure Indicative of Dualism**

1. The activity, assignment or classwork has an explicit due date.
2. There is an outline provided for the activity or assignment.
3. Written directions or descriptions of the requirements are given.
4. Written direction concerning "how to do" assignments are given.

**Atmostphere Indicative of Dualism**

1. Personal atmosphere is established (i.e. self-disclosure among and between peers, small group work, personal logs with personal responses from instructor, etc.).

**Processing Indicative of Dualism**

1. Activity or assignment is discussed immediately after it takes place.
2. Activity or assignment is discussed one or two days after it takes place.

**Activity Indicative of Dualism**

1. Experiential learning (i.e. structured discussions, group experiences, role playing, field trips with structured observation, students are involved and do things, etc.).
Conversely, the relativistic learner's needs are: multiple viewpoints given, but commitment to a personal point of view stressed; abstract experiences, extensive freedom with very low structure, personalized classroom atmosphere and immediate processing of the event, assignment or activity.

Therefore, the items placed on the Activity Checklist that were appropriate for a relativistic learner were:

**Viewpoints Indicative of Relativism**

1. Activity or assignment gives the student four or more ways of viewing an issue.

**Structure Indicative of Relativism**

1. Student weighs the pros and cons of the alternatives in conversation with peers or instructors.

2. Individual contracts may be made by each student within the class.

3. Student analyzes, synthesizes or evaluates using abstract theory.
4. There is flexibility on due dates through negotiation between student and instructor.

5. Assignment may be negotiated by the student.

Atmosphere Indicative of Relativism

1. Personal atmosphere is established (i.e. self-disclosure among and between peers, small group work, personal logs with personal responses from instructor, etc.).

Processing Indicative of Relativism

1. Activity or assignment is discussed immediately after it takes place.

2. Activity is discussed one or two days after it takes place.

Activity Indicative of Relativism

1. Abstract, indirect, vicarious learning (i.e. lectures, silent readings, written assignments, student works alone, students hear teacher tell about things instead of doing things themselves, etc.).

The Activity Checklist was piloted in the fall quarter of 1983 by an instructor in the History
Department and fifty (50) students of either sophomore or junior standing. All of their comments were considered and the appropriate changes in the Activity Checklist were made.

Data for this study were then collected. Afterward, an expert on the Perry scheme analyzed the instrument and rated five items as systematically ambiguous based upon Perry criteria. Hence, the author chose to use factor analysis in scoring and interpreting this instrument.

Procedures for Completion of Instrument

The instructors were asked to characterize five major activities of the quarter according to their perception by checking characteristics of each activity on separate checklists. The students were then asked to characterize the same five activities according to their own perception. After both teacher educator and teacher candidate characterized the activity, comparisons concerning the activities' ratings according to cognitive developmental levels as perceived by teacher and student could be made.

The Activity Checklist follows.
CHARACTERISTICS CHECKLIST

ACTIVITY: ____________________________

Directions: Please check off all of the items which you feel apply to the activity or learning experience listed at the top of this page. If you would like to explain your answer(s) please use the back of the page.

Characteristics:

VIEWPOINTS

_____ Activity or assignment gives the student a single way of viewing an issue
_____ Activity or assignment gives the student two or three ways of viewing an issue
_____ Activity or assignment gives the student four or more ways of viewing an issue

STRUCTURE

_____ The activity, assignment or classwork has an explicit due date
_____ There is an outline provided for the activity or assignment which provides the student the order in which things will be done
_____ Written directions or descriptions of the requirements are given
_____ Verbal explanations of the requirements are given
_____ Written descriptions concerning "how to do" assignments are given
_____ Verbal explanations concerning "how to do" assignments are given
_____ Student is allowed to choose from among tasks
_____ Student is allowed to choose how to do or complete the task
_____ Student weighs the pros and cons of alternative tasks in conversation with peers and/or instructor
_____ Student is asked to analyze, synthesize or evaluate from his/her own experiences, biographies or characters in the literature
Student verbally shares his/her experience of the activity or assignment with the class
Student analyzes, synthesizes or evaluates using abstract theory (hearing about it then talking about it instead of doing it then talking about it)
Unstructured group experience (students could do the task any way they wanted)
The content of the syllabus was negotiated with the class
Assignment may be negotiated by the student (i.e. what the student will do, how s/he will do it, when it will be due, etc.)
Individual contracts may be made by each student within the class
Instructor acts as a resource person for student when asked to do so by the student
Instructor acts as a resource person for the student when the instructor thinks it is needed
There is flexibility on due dates through negotiation between student and instructor

ATMOSPHERE

Personal atmosphere is established (i.e. self-disclosure among and between peers, small group work, personal logs with personal responses from instructor, etc.)
Impersonal atmosphere utilized (i.e. there are few personal examples given, lecture is often used, only written work is done with little instructor feedback, student role is listening, etc.)

PROCESSING EVENT

Activity or assignment is discussed immediately after it takes place
Activity is discussed one or two days after it takes place
Activity is discussed longer than two days after the event takes place
Activity is not discussed
ACTIVITY

- Experiential learning (i.e. structured discussions, group experience, role playing, field trips with structured observation, students are involved and do things, etc.)
- Abstract, indirect, vicarious learning (i.e. lecture, silent reading, written assignments, student works alone, students hear the teacher tell about things instead of doing things, etc.)

SATISFACTION

- Student was very satisfied with activity
- Student was satisfied with activity
- Student was not satisfied with activity
- Student was very dissatisfied with activity
Scoring the Activity Checklist

In order to allow the Activity Checklist information to become usable, the data was condensed into a more manageable and interpretable form. This was accomplished through factor analysis procedures.

A factor analysis is an attempt to break a set of variables into groups. Each group contains a subset of variables which are strongly correlated with each other and weakly correlated with variables in other groups. Each group of variables is interpreted as representing a certain underlying construct, or factor. Therefore, the twenty-three variables contained on the original Activity Checklist is contained in only seven factors. This number of factors was chosen because seven factors seemed to account for a reasonable amount of the total variation present in the original data. These seven factors were generated by examining the principle components on the scree plot of Eigenvalues. At an Eigenvalue of one or less, the scree plot was flat. Therefore, seven factors were determined to best describe the original twenty-three variables. The Eigenvalues for these seven factors ranged from 1.2 to 3.2.
Trying to interpret the data within the seven factors was the next step. From the rotated factor patterns the information was examined as follows:

1. all relatively high factor "loadings" were identified;
2. for each factor, an attempt was made to understand what a high score on the variables indicated for that factor or what was revealed about the information contained in the original data;
and
3. these implications then stood for the actual interpretations of the factors.

The seven usable factors and their interpretations follow.

**Factor One: Structure:**

<table>
<thead>
<tr>
<th>factor loading</th>
<th>indicated variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>.6</td>
<td>assignment has explicit due date</td>
</tr>
<tr>
<td>.7</td>
<td>outline for activity provided</td>
</tr>
<tr>
<td>.8</td>
<td>written requirements are given</td>
</tr>
<tr>
<td>.7</td>
<td>written descriptions of methods given</td>
</tr>
</tbody>
</table>
For a high score there is an explicit due date; an outline for the activity; written descriptions of the requirements and methods. On the other hand, a low score would mean there was no explicit due date, no outline, no descriptions of the requirements or how to do the assignment. This factor may then be interpreted as a measure of structure provided in terms of due dates and written instructions concerning how to do assignments. These factors are mostly indicative of dualistic structure (refer to generation of items earlier in this chapter). Thus Factor One (F1) will be labeled Structure.

**Factor Two: Teacher Rigidity:**

<table>
<thead>
<tr>
<th>factor loading</th>
<th>indicated variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>-.4</td>
<td>number of ways an issue is viewed</td>
</tr>
<tr>
<td>-.5</td>
<td>student verbally shares experiences</td>
</tr>
<tr>
<td>.8</td>
<td>atmosphere</td>
</tr>
<tr>
<td>.5</td>
<td>processing event</td>
</tr>
<tr>
<td>.8</td>
<td>activity</td>
</tr>
</tbody>
</table>

A high score on this factor presents a single viewpoint; no verbal sharing; an impersonal environment; no discussion of the activity and a vicarious learning
experience. On the other extreme, a low score on this factor is indicative of four or more ways of viewing the issue; verbal sharing; a personal atmosphere; experiential event and immediate discussion. This factor might be interpreted as a measure of the rigidity of the teacher and the learning environment. In a cognitive developmental sense, this activity appears mixed in terms of recommended practices for dualistic and relativistic student needs. Thus Factor Two (F2) will be labeled Teacher Rigidity.

**Factor Three: Student Task Accomplishment:**

<table>
<thead>
<tr>
<th>factor loading</th>
<th>indicated variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>.7</td>
<td>student can choose from among tasks</td>
</tr>
<tr>
<td>.8</td>
<td>student can choose how to do task</td>
</tr>
<tr>
<td>.6</td>
<td>unstructured group experience</td>
</tr>
<tr>
<td>.4</td>
<td>assignment may be negotiated by student</td>
</tr>
</tbody>
</table>

A high score would indicate that the above variables were checked off by the student or teacher. A low score would indicate an absence of those characteristics. This factor may be interpreted as a measure of the student's involvement in the means to achieve desired outcomes.
and/or objectives. These variables seem to be more indicative of a relativistic than a dualistic activity. Thus **Factor Three (F3)** will be labeled **Student Task Accomplishment**.

**Factor Four: Teacher Verbal Structure:**

<table>
<thead>
<tr>
<th>factor loading</th>
<th>indicated variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>.8</td>
<td>verbal explanations of requirements given</td>
</tr>
<tr>
<td>.7</td>
<td>verbal explanation concerning &quot;how to do&quot; assignments given</td>
</tr>
<tr>
<td>.5</td>
<td>instructor is resource if asked by the student</td>
</tr>
</tbody>
</table>

High score on this factor indicate that the above variables were identified by students or teachers as characteristics of the activity. In contrast to **Factor One** which indicated written information from teacher to student, this variable may be indicative of less structure in that it is descriptive of verbal information. This factor appears mixed according to Perry criteria and thus **Factor Four (F4)** will be labeled as **Teacher Verbal Structure**.
Factor Five: Student Sharing:

<table>
<thead>
<tr>
<th>factor loading</th>
<th>indicated variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>.4</td>
<td>number of ways an issue is viewed</td>
</tr>
<tr>
<td>.5</td>
<td>student discussed alternative tasks</td>
</tr>
<tr>
<td>.6</td>
<td>student evaluates issues by life experiences</td>
</tr>
<tr>
<td>.6</td>
<td>student evaluates from abstract theory</td>
</tr>
<tr>
<td>.4</td>
<td>student verbally shares experiences</td>
</tr>
</tbody>
</table>

A high score would indicate four or more viewpoints in addition to the other above listed variables. A low score would indicate a single viewpoint in addition to the other above listed variables. This variable appears to be indicative of use of peer sharing and analysis of events either from theory or from a life standpoint. This factor is mixed according to Perry criteria. Thus Factor Five (F5) will be labeled Student Sharing.

Factor Six: Student Involvement:

<table>
<thead>
<tr>
<th>factor loading</th>
<th>indicated variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>.5</td>
<td>content of syllabus negotiated by class members</td>
</tr>
<tr>
<td>.6</td>
<td>assignments may be negotiated by students</td>
</tr>
<tr>
<td>.7</td>
<td>negotiable due dates</td>
</tr>
</tbody>
</table>
A high score would indicate a "yes" answer to the above characteristics. This factor appears to be a measure of student involvement within the development of objectives for the class. This factor might be an indicator of a relativistic framework. Thus Factor Six (F6) will be labeled Student Involvement.

**Factor Seven: Student-Teacher Interaction:**

<table>
<thead>
<tr>
<th>factor loading</th>
<th>indicated variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>.4</td>
<td>student evaluates using abstract theory</td>
</tr>
<tr>
<td>.5</td>
<td>individual contracts may be made</td>
</tr>
<tr>
<td>-.3</td>
<td>instructor is a resource if asked by student</td>
</tr>
<tr>
<td>.8</td>
<td>instructor is resource when instructor thinks it is necessary</td>
</tr>
</tbody>
</table>

This factor appears to be a measure of student-instructor interaction before, during and after the activity. This factor may be interpretable as a mixed indicator of the Perry schema, but might be interpretable as a relativistic framework. Thus Factor Seven (F7) will be labeled Student-Teacher Interaction.

A summary of the factor analysis results follows. Factor analysis was performed in an attempt to make the
information contained in the original data more manageable and interpretable. Seven factors seem to account for most of the variation in the original data. The factor loadings within each factor and the rotated factor pattern were examined to determine those factors which were relatively large (positively or negatively) and the indicated variables were examined as a group. Using this technique, the following interpretations of the factors were made:

**Factor One (F1): Structure:** a measure of how well the students were informed of the objectives and methodology in a written way. Perhaps an indicator of a dualistic activity.

**Factor Two (F2): Teacher Rigidity:** a measure of the rigidity of the teacher and the learning environment. A mixed factor according to Perry criteria, but perhaps a tentative indicator of a relativistic activity.

**Factor Three (F3): Student Task Accomplishment:** a measure of student involvement in the means to achieve desired outcomes. A mixed factor according to Perry criteria, but perhaps an indicator of a relativistic activity.
Factor Four (F4): Teacher Verbal Structure: a measure of how well students were informed of objectives and methodologies in a verbal way. A mixed factor according to Perry schema.

Factor Five (F5): Student Sharing: a measure of the potential the learning environment had for encouraging analysis and sharing. This is a mixed factor according to Perry scheme.

Factor Six (F6): Student Involvement: a measure of student involvement in determining objectives and methods for classroom outcomes. This may be indicative of a relativistic framework.

Factor Seven (F7): Student-Teacher Interaction: a measure of student-teacher interaction. Another mixed factor according to Perry criteria but may be an indicator of a relativistic framework.

Due to the mixed nature of the factors one must be careful of the interpretations of these factors within the context of the Perry scheme.

Additionally, a Chronbach's Alpha which is a statistic for determining internal consistency was calculated. The value obtained for the Chronbach's Alpha
was .53 which is moderately acceptable. For the purposes of this study, a .53 was considered acceptable as the purpose of the Activity Checklist was to provide a common format for characterizing selected activities versus utilizing the checklist as a measure of constructs central to the study.

**Analysis**

Due to the unbalanced nature of the data, nine (9) teacher educators and 120 teacher candidates multiple non-parametric statistics were employed in the analysis of the data.

First, a factor analysis and a rotated factor analysis of the Activity Checklist with the 45 earning activities was performed (refer to previous discussion within this chapter).

Second, descriptive statistics were obtained for both the cognitive developmental scores and the psycho-social scores of teacher educators and teacher candidates. Descriptive statistics refer to means, modes, medians, percentages and standard deviations.

Third, analysis of variance (ANOVA), as well as, multiple analysis of variance (MANOVA) were employed to analyze the difference between teacher educator and
teacher candidate scores on both cognitive and psychosocial scores. Additional analysis of variance was performed to determine relationships of cognitive development, psychosocial development, activity ratings and student satisfaction.

Fourth, in order to analyze the relationships between specific teacher educators and their specific teacher candidates among the variables of cognitive development, psychosocial development and activity rating similarity indices were calculated and log linear analysis performed.

Lastly, a series of correlational analyses was performed among all of these variables for both teacher educators and teacher candidates. The variables analyzed were the seven factors generated from the Activity Checklist, cognitive development score, and psychosocial scores for each of the three tasks of development.

A discussion of the results of the analyses of the data is found in Chapter Four of this document.
CHAPTER FOUR

ANALYSIS AND DISCUSSION OF THE DATA

To reiterate, the purpose of this study was to describe the relationship between two measures of development of teacher candidates and teacher educators, and the relationship of these measures to the characterizations of selected classroom activities and the teacher candidate's satisfaction with those activities. The measures of development under investigation were cognitive and psychosocial development. The use of an Activity Checklist was employed in order that both teacher educators and teacher candidates could have a common way of revealing perceptions of instructional events within the classroom.

The discussion of the analysis will proceed as follows: 1) teacher educator research questions will be discussed; 2) teacher candidate research questions will be discussed; and 3) teacher education program research questions will be discussed.

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I. TEACHER EDUCATOR RESEARCH QUESTIONS

The appropriate teacher educator research questions that were delineated in Chapter One were:

A. What are the cognitive developmental levels of teacher educators?

B. What are the psychosocial developmental levels of teacher educators?

C. What relationship, if any, exists between the cognitive developmental and psychosocial developmental levels of the teacher educators?

and

D. What relationship, if any, exists between the cognitive developmental position and/or psychosocial developmental levels and selected learning activities?

A discussion of the analysis and interpretation of the data relating to the above questions follows.

**Question A:** What are the cognitive developmental levels of teacher educators?

Cognitive developmental levels were determined by the completion of the MER. The MER is a production instrument which invites the user to answer several questions pertaining to the issues: role of peers, role
of instructor, truth, process of evaluation, decision making and role of the student.

The MER was constructed to obtain cognitive developmental information according to the Perry schema (see Chapter Two) for use with both undergraduate and graduate students. For the purpose of this study, dualism was defined as any score which contained the position numbers of one, two, three or combinations of scores one, two and three. Multiplism was defined as any score which contained combinations of position numbers three and four or the combination of three, four and five. Relativism is represented by position scores of combinations of four and five \([4(5);(4)5;4-5]\) and/or position five.

<table>
<thead>
<tr>
<th>Table 3 Definitions of Cognitive Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DUALISM</strong></td>
</tr>
<tr>
<td>1;2;3; combinations thereof</td>
</tr>
<tr>
<td><strong>MULTIPLISM</strong></td>
</tr>
<tr>
<td>combinations of 3&amp;4; 345</td>
</tr>
<tr>
<td><strong>RELATIVISM</strong></td>
</tr>
<tr>
<td>4; 4(5); (4)5; 4-5 or 5</td>
</tr>
</tbody>
</table>
The mean cognitive developmental position of the teacher educators involved in this study was 3.67. The standard deviation of this sample was 1.02. The lowest position score was 2.50 while the highest position score was 5.00.

Table 4 Descriptive Data:

<table>
<thead>
<tr>
<th>Teacher Educator Cognitive Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
</tr>
<tr>
<td>3.67</td>
</tr>
</tbody>
</table>

The distribution of the cognitive developmental positions of the teacher educators involved in this study was: three (3) dualists or 33.33%; four (4) multiplists or 44.44%; and two (2) relativists or 22.22%.
Table 5  Teacher Educator Cognitive Development by Percent Distribution

<table>
<thead>
<tr>
<th>COGNITIVE LEVEL</th>
<th>TEACHERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MULTIPLIST</td>
<td>44.45%</td>
</tr>
<tr>
<td>RELATIVIST</td>
<td>33.33%</td>
</tr>
<tr>
<td>DUALIST</td>
<td>22.22%</td>
</tr>
</tbody>
</table>

Discussion

As has been reported, the cognitive developmental level of the teacher educators involved in this study was 3.67. The entire developmental spectrum was represented by this population with 3.33% being dualists, 44.44% being multiplists and 22.22% being relativists.

When reflecting about the construct of cognitive development of teacher educators, per se there is minimal literature. In fact, there is a sparsity of literature regarding graduate students, in general. There is literature which reflects the state of cognitive
development for public school, in-service (practicing professional) teachers.

In general, experts in the field (Perry, 1974; Knefelkamp and Widick, 1977; Rodgers, 1983; and Taylor, 1984) indicate that higher cognitive developmental positions may be expected to occur as a function of the number of years in colleges. This particular sample of teacher educators certainly have minimally five years of college and maximally eight to nine years of college as students. The cognitive scores of this group of teacher educators shows 55.55% of the group as multiplistic to relativistic. This scoring appears to be supported by the above mentioned factors.

Additionally, those same authors indicate sex, age as non-related to cognitive development. Sprinthall (1980) indicates traditional measures of success such as intelligence quotient (IQ); Graduate Record Exams (GRE) and Grade Point Average (GPA) not to be as reliable or valid as predictor of success as cognitive developmental scores. There is a paucity of information, however, regarding the actual relationship between IQ, GPA, GRE, etc. and cognitive development. There is even less known about cognitive development and the non-collegiate
population. With such minimal information in existence, discourse is virtually impossible.

Regarding in-service teachers in public schools, many researchers have formulated hypotheses concerning teacher's information processing based on cognitive developmental theory. Hunt and Joyce (1967); Murphy and Brown (1970); Rathbone (1970); Sprinthall and Sprinthall (1980) have all indicated a high level of development to be characterized by such things as "greater empathy in interpersonal skills and by more capability in generating alternatives when making decisions" (Harvey, Hunt, and Schroder, 1961, p. 72). Hence, teachers at higher cognitive positions may be more effective in classrooms when compared with teachers at lower cognitive positions. If this conclusion can be legitimately applied to teacher educators involved in higher education, then 55.55% of these teacher educators could be said to have the potential to be more effective teacher educators than teacher educators with lower cognitive scores.

Within this particular sample of teacher educators, an interesting event arises. A trend appears when a comparison takes place between the number of years of college teaching and cognitive developmental scores. Teacher educators who were beginning their collegiate
teaching career (and simultaneously their graduate school courses) were by-and-large dualistic or at lower cognitive positions. Whereas, as the number of years in teaching in higher education increased so, too, did cognitive developmental positions. As two of these teacher educators were no longer graduate students, the questions arise: Is there a relationship between number of years of higher education as a teacher and cognitive development? Is there a difference between the number of years of teaching in higher education and cognitive development compared with the number of years—public school teaching (K-12) and cognitive development?

Table 6 illustrates the teacher educator years of teaching trend.

Table 6 Comparison: Cognitive Development and Years of College Teaching
Question B: What are the psychosocial developmental levels of teacher educators?

The psychosocial developmental level of the teacher educator was determined through the use of the SDTI-II. The SDTI-II was designed as a basic assessment tool to aid students in post-secondary institutions to become active participants in their own learning and developmental processes (Winston, Prince and Miller, 1979). The developmental tasks which the SDTI-II measures are: Developing Autonomy; Developing Purpose and Developing Mature Interpersonal Relationships. Developing Autonomy is defined as being free from the continual pressing needs for reassurance, affection or approval; having the ability to carry on activities and cope with problems without seeking help; and having the capacity for mature interdependence. Developing Purpose is defined as having appropriate educational plans; having an awareness of the world, accurate understanding of one's abilities, limitations and motivations applicable to occupation and a tentative commitment to a chosen career; having mature life style which is a balance between vocational aspirations, avocational interests and future family plans. Developing Mature
Interpersonal Relationships is defined as having intimate relationships with peers and having tolerance which allows one to respond to persons in their own right versus stereotypic responses.

These three developmental tasks are scored individually in continuous fashion, therefore an individual could have a score ranging from zero to forty-eight points on each of the tasks with the exception of Developing Mature Interpersonal Relationships because tolerance has an upper limit of twelve points instead of sixteen points. The range in Developing Mature Interpersonal Relationships is therefore, zero to forty-four points. A high score is indicative of one who has accomplished the developmental task.

The descriptive analysis of the psychosocial data for teacher educators reveals a mean score of 34.22 points with a standard deviation of 6.09 for the task of Developing Autonomy. The minimum value for this task was twenty-three (23) points and the maximum value was forty-one (41) points.

The mean score for Developing Purpose was 38.66 points with a standard deviation of 5.29. The minimum score was twenty-seven (27) points and the maximum score was forty-seven (47) points.
The mean score for *Developing Mature Interpersonal Relationships* was 36.11 points with a standard deviation of 2.47. The minimum score was thirty-two (32) points and the maximum score was thirty-nine (39) points.

**Table 7 Descriptive Psychosocial Data for Teacher Educators**

<table>
<thead>
<tr>
<th>TASK</th>
<th>MEAN</th>
<th>SD</th>
<th>MIN.</th>
<th>MAX.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTONOMY</td>
<td>34.22</td>
<td>6.09</td>
<td>23</td>
<td>41</td>
<td>9</td>
</tr>
<tr>
<td>PURPOSE</td>
<td>38.66</td>
<td>5.29</td>
<td>27</td>
<td>41</td>
<td>9</td>
</tr>
<tr>
<td>RELATIONSHIPS</td>
<td>36.11</td>
<td>2.47</td>
<td>32</td>
<td>39</td>
<td>9</td>
</tr>
</tbody>
</table>

**Discussion:**

The SDTI-II is an instrument designed for use with a population whose age range is eighteen to twenty-two years. As was stated in the section concerning limitations of this study (Chapter Three), the teacher educator sample was older than the specified age range. The SDTI-II manual specifically states that the means for the sample group upon which its reliability and validity were established should not be used as normative data and
could not be a valid comparison group due to the age difference.

Therefore speculative discussion follows. The teacher educator mean score for the task of Developing Autonomy was $34.22 \pm 6.09$. Thus 68\% of the teacher educator sample would score from 28.13 points to 40.31 points or 58.60\% to 83.98\% accomplishment of task. The teacher educator mean score for the task of Developing Purpose was $38.66 \pm 5.29$. Thus 68\% of the teacher educator sample would score from 33.37 points to 43.95 points or 69.95\% to 91.56\% accomplishment of task. The teacher educator mean score for the task of Developing Mature Interpersonal Relationships was $36.11 \pm 2.47$. Thus 68\% of the teacher educator sample would score from 33.64 points to 38.58 points or 76.45\% to 87.68\% accomplishment of task. Therefore the average teacher educator in this sample ranges from a low score of 58.6\% accomplishment with respect to Developing Autonomy and a high score of 91.56\% accomplishment with respect to Development Purpose.

As one can readily see, these teacher educators appear to be well on the way to accomplishing the developmental tasks assessed by the SDTI-II.
The question remains: What does the accomplishment of development mean? First, if one refers to psychosocial developmental literature (in Chapter Two) the obvious conclusion is that this particular group of teacher educators as individuals appear to be rather successful in dealing with the content issues represented by the three tasks of Developmental Autonomy, Developmental Purpose and Developmental Mature Intepersonal Relationships. There is little quantitatively known about comparison data between this age group and similar age groups either within college or in non-collegiate populations. However, Chickering states "members of the faculty and administration have an impact upon students in four major vectors: intellectual competence and sense of competence, autonomy, purpose and integrity" (1969, p. 233).

These teacher educators through being accomplished at tasks of development, in turn, have an influential status on their specific teacher candidates. Task accomplishment for teacher candidates may be fostered by these accomplished teacher educators by the examples set by the teacher educators, themselves, by the demands that the teacher educators make and by the encouragement that the teacher educators offer (Chickering, 1969). Teacher
educator competence seems to have relevance for helping teacher candidates clarify their purposes. As Chickering (1969), Greely (1962), and Griggs (1962) indicate, faculty (teacher educators) not only help students clarify career plans but also respond to more general future plans as well.

Sanford (1966) and Chickering (1969) indicate that a student's (teacher candidate) relationship with an older person (teacher educator) can temper total reliance on peer groups and provide perspective for these relationships. Thus more autonomous teacher educators can actually foster autonomy in his/her teacher candidates.

As is indicated throughout the above discussion, more psychosocially accomplished teacher educators appear to have greater potential in fostering those same qualities in their teacher candidates. This fostering of qualities may take the form of role modeling (setting examples); higher expectations and demands as well as providing support and encouragement. Perhaps much the same hypotheses may be made for psychosocial development as was made for cognitive development: the more highly developed one is psychosocially, the greater the chance
for positive influence/effectiveness with teacher candidates.

**Question C:** What relationship, if any, exists between cognitive developmental and psychosocial developmental levels of the teacher educators?

Table 8 is a matrix containing all eleven variables (seven activity factors, three psychosocial development vectors and the continuous cognitive development score) of the teacher educators. According to the correlational analysis performed, there were no significant relationships between the tasks of psychosocial development and the cognitive development of these teacher educators. The level of significance was set at \( p < .05 \).

**Figure 8** Correlational Analyses for All Eleven Variables

For Teacher Educators
Table 9 Correlational Analyses between Psychosocial And Cognitive Development of Teacher Educators

<table>
<thead>
<tr>
<th></th>
<th>AUTONOMY</th>
<th>PURPOSE</th>
<th>RELATION</th>
<th>COGNITIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTONOMY</td>
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<td>PURPOSE</td>
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<td>* .0001</td>
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<td>-.05831</td>
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</tbody>
</table>

* Significant at p ≤ .05

Discussion:

The fact that there is no relationship between the cognitive and psychosocial development of these teacher educators may have different plausible explanations. First, for these teacher educators cognitive and psychosocial development may be independent domains. At first thought, it would seem that a higher cognitive position would indicate a person's ability to function with multiple choices and make reasoned judgments, but there is no assurance that this ability to see more and judge within context assures one a "better" choice or a quality accomplishment.

Thus, one may turn to the sample, itself, and understand that it may be too small for relationships to
be established. Additionally, the SDTI-II was not intended to be utilized with populations over the age of twenty-two; therefore, the measure may be fallacious (as indicated in the limitation of this study). Also, turning to Super (1963) in career development literature and Knowles (1975) in adult education literature, one finds variance among adults to be the key to their sameness. Both authors indicate that as one ages, differences become more and more apparent, life experiences are so diverse that diversity is the problem in trying to make meaning of adults and how best to approach them. Hence, variation among these teacher educators may be the very reason for the lack of a linear relationship between their psychosocial and cognitive development.

Additionally, resolution of psychosocial tasks can be accomplished for several meaning-making structures.

**Question D:** What relationship, if any, exists between the cognitive developmental position and/or psychosocial developmental levels and selected learning activities?

In order to ascertain an answer to this question a correlational analysis was performed. The acceptable
level of significance was set at \( p \leq .05 \). The analysis was performed for each of the seven factors generated from the Activity Checklist, the cognitive scores and the three psychosocial development scores by task. There were no significant relationships found between any of the seven factor activity characterizations and the cognitive development of the teacher educator.

Only one of the correlations proved significant (\( p \leq .05 \)) between the activity characterizations and the psychosocial development of the teacher educator. That significant relationship existed between Factor Seven (F7) Student–Teacher Interaction and the task of Developing Purpose, \( r = -0.38032 \) and \( p = 0.01 \).

Table 10 Correlational Analyses between Factor Activity Characterizations and Cognitive Scores of Teacher Educators

<table>
<thead>
<tr>
<th>COGNITIVE</th>
<th>FACTOR1</th>
<th>FACTOR2</th>
<th>FACTOR3</th>
<th>FACTOR4</th>
<th>FACTOR5</th>
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<th>FACTOR7</th>
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* SIGNIFICANT AT \( p \leq .05 \)
### Table 11 Correlational Analyses between Psychosocial Development and Factor Characterizations of Teacher Educators

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<th>FACTOR3</th>
<th>FACTOR4</th>
<th>FACTOR5</th>
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</tbody>
</table>

* Significant at p < .05

### Discussion:

The Activity Checklist was generated to ascertain how teacher educators characterized their instruction for five major activities within a quarter course entitled Education 450, An Introduction to Teaching. The characterizations of those selected activities were drawn from the works of Widick and Simpson (1978), Widick, Knefelkamp and Parker (1975), and Rodgers (1983). All of these experts indicate the way of characterizing classroom activities developmentally revolves around five
overarching variables. Those variables are: number of viewpoints presented; amount of structure present within the class or activity; atmosphere within the class; how quickly the assignment or activity was discussed; and whether the activity was abstract or experiential.

There were theoretically grounded assumptions inherent in the derivation of the checklist. One, a dualistic activity is limited in numbers of viewpoints (one or two); is experiential (hands-on); is carried out in a personal atmosphere; is talked about immediately; and is highly teacher-structured. Two, conversely a relativistic activity has many viewpoints; is abstract (theoretical or thought about versus manipulated or done); is carried out in a personal atmosphere; is talked about, but not necessarily immediately and is loosely teacher-structured.

Keeping these assumptions in mind and the mixed nature of the factors according to Perry criteria, the following integration appears plausible and perhaps theoretically sound. The higher cognitive position teacher educators may be more capable of creating, instructing and thus characterizing activities in a variety of ways. If this were so, then indeed no relationship would exist. A teacher educator with a
higher cognitive position could characterize an activity in simple or complex ways. Somewhat conversely, a teacher educator with lower cognitive position logically and theoretically might not be as able to create or effectively instruct using abstract or complex learning experiences. Whether a teacher educator at lower levels of meaning-making could accurately perceive and then describe abstract tasks is less clear. Therefore it was unclear as to whether a dualistic or lower cognitive position teacher educator would characterize learning activities differently than relativists. As was stated, no relationships existed between the activity characterizations and cognitive development. That outcome was expected for higher cognitive positions, and appears to be the case for lower cognitive-structural positions also. Additionally, this could be a direct result of the finite number of teacher educators (9). With a sample this small, variance is lacking.

There was a significant \( p = .01 \) negative relationship \( r = -.38032 \) between Factor Seven (F7), Student-Teacher Interaction, and the psychosocial task of Developing Purpose.

Once again, Developing Purpose is defined as having appropriate educational plans, having an awareness of the
world, accurate understanding of one's abilities, limitations and motivations applicable to occupation and a tentative commitment to a chosen career; and having a mature life style which is a balance between vocational aspirations, avocational interests and future family plans.

The negative relationship between a teacher educator who is accomplished at the above task and his/her ability to create, instruct and characterize classroom activities seems at first glance illogical. A person who has a mature, appropriate plan/life with an awareness of the world, one would think might be able to instruct in such a manner that would allow the student a larger more collaborative role in the class than one who is less mature, capable and aware. Conversely, however, this negative relationship may indicate that a discrepancy between the teacher and teacher candidate's psychosocial levels may make it more difficult to understand and interact with each other. Therefore, the teacher's needs are at one level (a higher level) and the student's needs are at another level (a lower level). Interaction and collaboration may be negated due to the very nature of development.
Summary

The following statements summarize the investigation of the questions concerning teacher educators, themselves. Suffice it to say, it is important to understand the data about the teacher educators first, as individuals. But greater meaning is apparent when this data is interfaced with teacher candidate data as is reflected in section three of the analysis of data.

In summary:
1. Teacher educators were described by their cognitive developmental positions according to the Perry schema and were found to have a mean score 3.67, thus these teacher educators were basically multiplistic.
2. Teacher educators were described psychosocially according to Chickering's theory as represented by the SDTI-II and were found to show 58.60% to 91.56% accomplishment of task. Without normative data there is little known about the relative goodness or badness of these percentages. However speculation indicates these are accomplished teacher educators.
3. No correlation of significance ($p \leq .05$) was found between the cognitive developmental positions of the teacher educator and the psychosocial levels of the
teacher educators and plausible explanations were discussed:

4. Activity Checklist factors were correlated with cognitive development and psychosocial development. No significant relationships ($p \leq .05$) existed between cognitive scores and factors characterizations.

5. One significant relationship ($p = .01$) was found between the task of Developing Purpose and Factor Seven (F7) Student-Teacher Interaction ($r = -.38032$). Logical thought might indicate that a more mature, aware teacher educator would be more likely to have an increased student role in the class, but the inverse nature of this relationship indicates the converse to be more likely.

The following section concerns the analysis of data pertinent to teacher candidates.

II. TEACHER CANDIDATE RESEARCH QUESTIONS

The research questions pertaining to the teacher candidate were:

A. What are the cognitive developmental levels of the teacher candidates?

B. What are the psychosocial levels of the teacher candidates?
C. What relationship, if any, exists between the cognitive developmental and the psychosocial developmental levels of the teacher candidate?

and

D. What relationship, if any, exists between levels of cognitive development and/or the psychosocial development of the teacher candidate and the perceived characterizations of selected learning activities?

**Question A:** What are the cognitive developmental levels of the teacher candidates?

The cognitive development of the teacher candidate was assessed through the completion of the MER (see Appendix). The analysis of the cognitive developmental data revealed teacher candidates involved in this study to have a mean score of 2.57. The standard deviation was .5. The minimum score was 1.0 and the maximum score was 4.0. These data indicate that on the average, the teacher candidates involved in the study were dualistic. These undergraduate teacher candidates were much like other undergraduate teacher candidate students (Phillips, 1981). However, utilized Rodgers (1983) study of undergraduate in general, these teacher educators may be significantly more dualistic than the general student.

**Figure 12 Cognitive Development of Teacher Candidates**

<table>
<thead>
<tr>
<th>MEAN</th>
<th>SD</th>
<th>MIN</th>
<th>MAX</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.57</td>
<td>.50</td>
<td>1.0</td>
<td>4.0</td>
<td>120</td>
</tr>
</tbody>
</table>

The distribution of teacher candidates by percentage within category is: dualistic, 91.67%; multiplistic, 8.33%; and relativistic, 0.0%.

**Table 13 Teacher Candidate Percent Distribution**

<table>
<thead>
<tr>
<th>COGNITIVE LEVEL STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>91.67% DUALIST</td>
</tr>
<tr>
<td>8.33% MULTIPLIST</td>
</tr>
<tr>
<td>0% RELATIVIST</td>
</tr>
</tbody>
</table>
Discussion:

Since the teacher candidate population in this study appears to be largely dualistic (92%), there are many implications for their teacher educators. First, these teacher candidates would learn best in highly teacher-structured activities and assignments. The candidates would need to be told "how to do" most of the tasks assigned them. Similarly, they would need this structure as a form of support (Sanford, 1966) for both intellectual and personal growth. These dualists would need a personal atmosphere within their classes, opportunities to discuss the how's and why's of topics and assignments, hands-on experiential activities, and limited numbers of viewpoints or alternatives placed before them. All of the above if practiced within classrooms seem to provide the foundational supports needed for learning, satisfaction, and development.

Teacher educators would be remiss, however, if they simply provided support. Support is indicative of no positive growth (Sanford, 1966; Rodgers, 1983) unless it is accompanied by appropriate challenges. Therefore, once a stable secure environment for learning and growth is established, the teacher educator would need to strive
to provide a cognitively challenging environment for these dualistic teacher candidates. In essence, a stretching must take place. Challenge can be introduced by increasing the number of viewpoints or choices presented, decreasing the amount of teacher-imposed structure, processing experiential learning activities abstractly, and maintaining a personal atmosphere.

It is imperative to assess the teacher candidates developmental levels in order for the teacher educators both to support and challenge the candidates in appropriate ways.

**Question B:** What are the psychosocial levels of the teacher candidate?

The psychosocial development of the teacher candidates was ascertained through the use of the SDTI-II. The SDTI-II delineates psychosocial development by indicating an individual's mastery of three tasks. Those tasks are: Developing Autonomy; Developing Purpose and Developing Mature Interpersonal Relationships. A high score is indicative of one who has accomplished the tasks associated with each developmental vector.

The developmental scores of the teacher candidate were as follows:
1. Developing Autonomy: The mean score was 29.11 points. The standard deviation was 5.48 points. The minimum score was 18 points and the maximum score was 43 points.

2. Developing Purpose: The mean score was 30.76 points. The standard deviation was 6.05 points. The minimum score was 18 points and the maximum score was 43 points.

3. Developing Mature Interpersonal Relationships: The mean score was 31.25 points. The standard deviation was 5.15 points. The minimum score was 18 points and the maximum score was 43 points.

The above data is graphically presented below.

Table 14  Psychosocial Task Data for Teacher Candidates

<table>
<thead>
<tr>
<th>TASK</th>
<th>MEAN</th>
<th>SD</th>
<th>MIN.</th>
<th>MAX.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTONOMY</td>
<td>29.11</td>
<td>5.48</td>
<td>18</td>
<td>43</td>
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<tr>
<td>PURPOSE</td>
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<td>18</td>
<td>43</td>
<td>120</td>
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<tr>
<td>RELATIONSHIPS</td>
<td>31.52</td>
<td>5.15</td>
<td>18</td>
<td>43</td>
<td>120</td>
</tr>
</tbody>
</table>
Discussion:

The SDTI-II manual warns the user not to interpret the data gathered on the performance sample used to establish reliability and validity as normative (Winston, Prince and Miller, 1979). Straub (1982), however, found the mean scores of women in her sample to be 26.5 points for Developing Purpose and 30.0 points for Developing Mature Interpersonal Relationships. The sample of teacher candidates reflected by this research project appears to be within the same range as was Straub's sample of women. It appears that the teacher candidates are working on the developmental tasks indicative of their point in the life-span as indicated by Chickering (1969). Chickering asserts that freshmen tend to deal with the tasks of competence, managing emotions and autonomy (the Chickering task measured by the SDTI-II). Sophomores tend to work on the task of identity. Juniors, seniors and graduate students work on the task of interpersonal relationships, purpose (two Chickering vectors measured by the SDTI-II) and integrity.

Hence, according to Chickering's theory, this teacher candidate sample consisting of over 75% juniors should be well accomplished on the task of Developing
Autonomy and less accomplished on the tasks of Developing Purpose and Mature Interpersonal Relationships. This is not the case, however.

Teacher candidates’ mean score for Developing Autonomy was 29.11 ± 5.48. Thus 68% of the teacher candidates scored from 23.63% to 34.59 points, or 49.23% to 72% accomplishment of task. It appears clear that these teacher educators are becoming accomplished at being autonomous versus are autonomous. Teacher candidates’ mean score for Developing Purpose was 30.76 ± 6.05. Thus 68% of the teacher candidates scored from 24.71 points to 36.81 points, or 51.48% to 76.69% accomplishment of task. These percentages indicate that the teacher candidates are certainly still working on accomplishing the development of purpose, yet appear to be more accomplished at Developing Purpose than Developing Autonomy. This is not the sequence espoused by Chickering (1969) but is the sequence also found by Straub for women college students.

Again, teacher candidates’ mean score for Developing Mature Interpersonal Relationships was 31.52 ± 5.15. Thus 68% of the teacher candidates scored from 26.37 points to 36.67 points, or 59.93% to 83.34% accomplishment of task. Once again, these teacher
candidates appear to be more developmentally able in relation to Mature Interpersonal Relationships than the development of Autonomy. This, too, is not in keeping with the explicated Chickering sequence (1969), but is consistent with Straub's findings.

Recalling Widkick's criticism of Chickering (Chapter Two), one cannot readily tell if Chickering is reporting actual data or hypotheses. Given both these results and Straub's (1982), one must ask the questions: In what sequence does development occur and what difference might that make?

Question C: What relationship, if any, exists between the cognitive developmental and psychosocial developmental levels of the teacher candidate?

A correlational analysis was performed between the tasks of psychosocial development and the cognitive developmental positions of the teacher candidates. The acceptable level of significance was set at $p \leq .05$. Table 15 displays the correlational analysis for all variables (seven factors from Activity Checklist, three psychosocial vectors and cognitive development score) for teacher candidates.
Table 15  Correlational Analyses for all Variables
For Teacher Candidates

<table>
<thead>
<tr>
<th>FACTOR1</th>
<th>FACTOR2</th>
<th>FACTOR3</th>
<th>FACTOR4</th>
<th>FACTOR5</th>
<th>FACTOR6</th>
<th>FACTOR7</th>
<th>AUTONOMY PURPOSE</th>
<th>RELATED COGNITIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0184</td>
<td>0.00113</td>
<td>0.0148</td>
<td>0.00794</td>
<td>0.0704</td>
<td>0.00114</td>
<td>0.00166</td>
<td>0.01662</td>
<td>0.2386</td>
</tr>
<tr>
<td>0.0751</td>
<td>0.00113</td>
<td>0.0148</td>
<td>0.00794</td>
<td>0.0704</td>
<td>0.00114</td>
<td>0.00166</td>
<td>0.01662</td>
<td>0.2386</td>
</tr>
<tr>
<td>0.0113</td>
<td>0.00406</td>
<td>0.00113</td>
<td>0.0148</td>
<td>0.00794</td>
<td>0.0704</td>
<td>0.00114</td>
<td>0.00166</td>
<td>0.2386</td>
</tr>
<tr>
<td>0.01326</td>
<td>0.01301</td>
<td>0.0148</td>
<td>0.00794</td>
<td>0.0704</td>
<td>0.00114</td>
<td>0.00166</td>
<td>0.01662</td>
<td>0.2386</td>
</tr>
<tr>
<td>0.01628</td>
<td>0.01331</td>
<td>0.0148</td>
<td>0.00794</td>
<td>0.0704</td>
<td>0.00114</td>
<td>0.00166</td>
<td>0.01662</td>
<td>0.2386</td>
</tr>
<tr>
<td>0.01628</td>
<td>0.01331</td>
<td>0.0148</td>
<td>0.00794</td>
<td>0.0704</td>
<td>0.00114</td>
<td>0.00166</td>
<td>0.01662</td>
<td>0.2386</td>
</tr>
<tr>
<td>0.01628</td>
<td>0.01331</td>
<td>0.0148</td>
<td>0.00794</td>
<td>0.0704</td>
<td>0.00114</td>
<td>0.00166</td>
<td>0.01662</td>
<td>0.2386</td>
</tr>
<tr>
<td>0.01628</td>
<td>0.01331</td>
<td>0.0148</td>
<td>0.00794</td>
<td>0.0704</td>
<td>0.00114</td>
<td>0.00166</td>
<td>0.01662</td>
<td>0.2386</td>
</tr>
</tbody>
</table>

Unlike the teacher educators, there were significant relationships (p ≤ .05) existing. The psychosocial tasks of Developing Purpose and Developing Autonomy and cognitive development were significantly correlated. (The correlation between Developing Purpose and cognitive development was r = -.115 and p = .0047.) The correlation between Developing Autonomy and cognitive development was r = .079 and p = .0539)
Table 16 Teacher Candidate Correlational Analyses Between Psychosocial and Cognitive Development Scores

<table>
<thead>
<tr>
<th>AUTONOMY</th>
<th>PURPOSE</th>
<th>RELATION COGNITIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTONOMY</td>
<td>1</td>
<td>.43302</td>
</tr>
<tr>
<td>PURPOSE</td>
<td>.43302</td>
<td>1</td>
</tr>
<tr>
<td>RELATIONS</td>
<td>.52746</td>
<td>.19583</td>
</tr>
<tr>
<td>COGNITIVE</td>
<td>.07874</td>
<td>-.11515</td>
</tr>
</tbody>
</table>

* * SIGNIFICANT AT p<.05

Discussion:

There were two significant relationships (p ≤ .05) found between the teacher candidates' psychosocial and cognitive-structural development. Those relationships existed between Developing Purpose and cognitive development and Developing Autonomy and cognitive development. The first relationship was negative (r = -.115) and the second relationship was positive (r = .079). As a teacher candidate's cognitive development increased so, too, did his/her development of autonomy. Clearly, if one reviews what transpires in both cognitive development and the development of autonomy, one may readily see a connection existing between the two
concepts. As one develops cognitively, one leaves the world of the finite, of the black/white or right/wrong and assumes multiple viewpoints which become more and more considered prior to commitment. As one develops a sense of autonomy, a sense of self, one learns to be free of the need for parental or authority's guideline (one leaves other mandated right/wrong; good/bad). One becomes more and more able to rely on the self through reasoned judgments and commitments. Ultimately, one passes from being dependent and "other-controlled" to being independent and "self-controlled" to being interdependent and "committed-integrated-controlled".

This same shift from outward exterior control to inward self-control is associated theoretically with cognitive-structural development. Dualists, at the lower end of cognitive-structural development, rely on authority to tell them what to do and how to do it. Dualists are "other-controlled" thus less autonomous. Multiplists begin to allow multiple viewpoints and ultimately see all viewpoints as being of equal value. The "I'm okay, you are okay" stage parallels the psychosocial "self-controlled" world. The relativist sees options and chooses the line of best fit resulting in reasoned contextual commitment, and the
characteristics of commitment within context are not unlike the psychosocial construct of interdependence. Hence, these factors could account for the significant positive relationship between the variables of Developing Autonomy and cognitive development. Developing Autonomy may be an occasion for simultaneously developing from dualism to multiplicity or from multiplicity to relativism.

There was a significant inverse relationship which existed between the task of Developing Purpose and cognitive-structural development. This indicates that a low Developing Purpose score is related to increased cognitive-structural scores, at least up to multiplicists, and vice versa. There also appears to be a plausible theoretical explanation for this phenomenon.

Developing Purpose is defined as having appropriate educational plans, mature career plans and mature life style plans. For persons who are limited in perspectives (i.e. lower stages of cognitive development) there exists but one correct choice. Hence, it is no wonder because there is no question about one's purpose. Such persons are indeed "becoming" lawyers, teachers, etc. without question usually because some other authority (e.g. mom, data, teacher or a test) told them to make the choice.
An individual with cognitive scores in multiplicism or relativism has the ability to understand multiple viewpoints on a question such as career choices. They have the ability to pose the questions necessary to exploration of the issue of purpose in life. They can envision several possible outcomes. Hence, their scores on psychosocial measure of Purpose tend to decrease.

As is indicated by the inverse relationship between Developing Purpose and cognitive position, a person with lower Developing Purpose scores may indeed have high cognitive scores. This phenomenon may take place simply because this higher cognitive person does not like making the black/white choice required by the SDTI-II. These black/white choices contradict one's higher cognitive ability to explore and discuss.

**Question D:** What relationship, if any, exists between levels of cognitive development and/or the psychosocial development of the teacher candidate and the perceived characterizations of selected learning activities?

In order to obtain evidence on this question, correlational analysis was employed. Significance was set at $p \leq .05$. This analysis was performed between the
seven factor scores (those factors were: F1, Structure; F2, Teacher Rigidity; F3, Student Task Accomplishment; F4, Teacher Verbal Structure; F5, Student Sharing; F6, Student Involvement; F7, Student-Teacher Interaction), the cognitive development position and the three task scores from the SDTI-II.

The correlational analysis between the factor scores from the Activity Checklist and cognitive development of teacher candidates revealed Factor Four (F4, Teacher Verbal Structure) to be significantly (p = .0097) and positively (r = .106) related to the teacher candidate's cognitive development.

The correlational analysis between the seven factor scores and the three psychosocial task scores revealed the following:

1. Factor One (F1, Structure), which consisted of a measure of how well the teacher candidates were informed in writing concerning how to do assignments, the requirements and the explicit due dates was significantly related (p = .0475) in a negative fashion (r = -.081) to the tasks of Developing Autonomy. Developing Mature Interpersonal Relationships was significantly (p = .0196)
related in a negative fashion \((r = -0.095)\) to Factor One (Fl, Structure).

2. **Factor One (Fl, Structure)** was significantly \(p = 0.0325\) related positively \((r = 0.087)\) to the task of Developing Purpose.

3. **Factor Two (F2, Teacher Rigidity)**, which consisted of a measure of the rigidity of the teacher and the learning environment indicative of high structure was significantly \(p = 0.0059\) related in a negative fashion \((r = -0.112)\) to the task of Developing Mature Interpersonal Relationships.

4. No other significant relationships were found.

**Figure 17** Correlational Analyses between Teacher Candidate Psychosocial Development and Factor Characterization

<table>
<thead>
<tr>
<th>FACTOR 1</th>
<th>FACTOR 2</th>
<th>FACTOR 3</th>
<th>FACTOR 4</th>
<th>AUTONOMY</th>
<th>PURPOSE</th>
<th>RELATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1152</td>
<td>0.0863</td>
<td>0.0599</td>
<td>0.0473</td>
<td>0.0325</td>
<td>0.0144</td>
<td>0.0011</td>
</tr>
<tr>
<td>0.0822</td>
<td>0.0577</td>
<td>0.0473</td>
<td>0.0325</td>
<td>0.0144</td>
<td>0.0011</td>
<td>0.0035</td>
</tr>
<tr>
<td>0.0599</td>
<td>0.0473</td>
<td>0.0325</td>
<td>0.0144</td>
<td>0.0011</td>
<td>0.0035</td>
<td>0.0086</td>
</tr>
<tr>
<td>0.0473</td>
<td>0.0325</td>
<td>0.0144</td>
<td>0.0011</td>
<td>0.0035</td>
<td>0.0086</td>
<td>0.0130</td>
</tr>
<tr>
<td>0.0325</td>
<td>0.0144</td>
<td>0.0011</td>
<td>0.0035</td>
<td>0.0086</td>
<td>0.0130</td>
<td>0.0191</td>
</tr>
<tr>
<td>0.0144</td>
<td>0.0011</td>
<td>0.0035</td>
<td>0.0086</td>
<td>0.0130</td>
<td>0.0191</td>
<td>0.0252</td>
</tr>
</tbody>
</table>

*significant at p < 0.05*
Discussion:

There was a positive relationship \((p = .106)\) between Factor Four (F4, Teacher Verbal Structure), and the teacher candidate's cognitive development. Higher Factor Four score related to lower cognitive scores and vice versa. Factor Four (F4, Teacher Verbal Structure) consists of verbal explanations of methods and requirements and the ability to ask the instructor for help when needed or wanted. Verbal explanations may be considered to be less structured than formal written directions. Thus there is a lessening of teacher control.
and more latitude for student interpretation of events. The responsibility for asking for help moves the control issue from the external authority to the student. Thus, as least multiplistic reasoning would be implied. In other words, low cognitive scores represent persons who view teachers as authority figures who must know all things, thus these low cognitive persons may not readily respond to the ambiguity presented through the spoken word. This person would also not venture to the teacher for assistance even if sorely needed. This speculative explanation may account for the positive relationship between Factor Four (F4, Teacher Verbal Structure), and cognitive development.

Factor One (F1, Structure), was negatively correlated with Developing Autonomy (p = -.081) and Developing Mature (r = -.095) Interpersonal Relationships. Thus, if a teacher candidate indicates that the activity had an explicit due date, an outline provided, written requirements pertaining to the activity or assignment and written descriptions of how to do the activity or assignment, there would be a high factor score. This high factor score would correspond to low scores on the tasks of Developing Purpose and Developing Mature Intepersonal Relationships. The converse would
also hold true. A low factor score would indicate "freedom" from the teacher's demands and corresponding high scores on the tasks of Developing Autonomy and Developing Mature Interpersonal Relationships.

There is a plausible theoretical interpretation of this relationship also. If one achieves an autonomous state, then being told explicitly how to do activities and when to do them may be an afront. An autonomous state may be defined by one who is free from overriding needs for reassurance, approval, affection; free from having to seek help with problems; and freely contributes one's self to the social structure in order that s/he is a responsible receiver of goods from that society. Thus, highly developed autonomous persons reveal little use for "other imposed" structure as signified by high Factor One scores. Whereas, persons who lack autonomous skills would be in much greater need of those same "other-imposed" structures. This inverse relationship seems clearly understandable.

The same type of logic may be employed to speculate concerning the inverse relationship that exists between Factor One (Fl, Structure) and Developing Mature Interpersonal Relationships. The major tenents of Developing Mature Interpersonal Relationships are:
tolerance of others versus stereotypic responses; greater trust in others; independence; individuality and sensitive mutually supportive commitments (Winston, Prince and Miller, 1979). All of the listed qualities appear to be logical factors in a relationship that affords mutual communication and respect. A high score on Developing Mature Interpersonal Relationships would indicate personal exchanges and mutual understanding, none of which are represented by the "other-controlled" highly authoritarian nature of the variables which constitute Factor One (Fl, Structure). Conversely, a low Developing Mature Interpersonal Relationships score might be indicative of a person who is limited in the ability to assert one's self or want one's own agenda and format. Once again, this indicates that someone else must be responsible and accounts for the inverse nature of this relationship.

A significant positive relationship existed between Factor One (Fl, Structure) and the task of Developing Purpose ($r = .087$). If Developing Purpose is defined as having well-defined goals, awareness of the world of work, commitment to a career and taking steps to strive toward success (Winston, Miller and Price, 1979), then high degrees of structure as indicated by a high Factor
One (F1, Structure) score may be logically related. Accomplishment in terms of one's career may be associated with accomplishing work within the school setting, achieving high grades by doing exactly what the teacher wants. For example, a student with a high Developing Purpose score may actually be contemplating classroom work in a framework which says "do everything the way the teacher wants it done, when the teacher wants it." In essence, the message of success and commitment to career may be "don't rock the boat or I'll never receive the grade and my goals will be less attainable."

A high score on Factor Two (F2, Teacher Rigidity), indicates that there was only one viewpoint presented, no verbal sharing, an impersonal atmosphere, the activity was not talked about with the students, and the activity was abstract. This appears to give one a profile of a highly teacher-controlled activity which is quite narrow or rigid. Once again, the inverse relationship may be explained by looking at the constituent parts of Developing Mature Interpersonal Relationships and the variables of Factor Two (F2, Teacher Rigidity). A person who values and is accomplished at the interplay between individuals would hardly like to be subjected to the rigidity that is reflected by a high Factor Two score. A
person who is limited in the capacity to share, trust or extend one's self apparently needs the rigid control indicated by a high Factor Two score.

Summary

The following statements summarize the investigation of questions concerning teacher candidates, themselves. Suffice it to say, it is important to understand the data about these teacher candidates, first, as individuals. But greater meaning is apparent when the data is interfaced with teacher educator data as is reflected in section three of the analysis of data.

1. Teacher candidates involved in this study were found to be dualistic (91.7%);

2. Teacher candidates were found to be striving for accomplishment of the psychosocial tasks of Developing Autonomy, Purpose and Mature Interpersonal Relationships; however, the sequence suggested by Chickering (1969) always supported;

3. Significant relationships were found between the psychosocial tasks of Developing Autonomy ($r = .079$;
p = .0539) and Developing Purpose (r = -.115; p = .0047) and the teacher candidate's cognitive development;

4. Significant relationships were found between Factor One (F1, Structure) and all three psychosocial tasks;

5. Factor Two (F2, Teacher Rigidity) was significantly related to Developing Mature Interpersonal Relationships (r = -.112; p = .0059);

and

6. Factor Four (F4, Teacher Verbal Structure) was significantly (p = .0097) related to the teacher candidate's cognitive developmental position.

The following section of this paper explicates the findings of this study as they relate to the teacher education program.

III. TEACHER EDUCATION RESEARCH QUESTIONS

The research questions that were pertinent to this study were:

A. To what degree are the cognitive developmental levels of teacher educators and teacher candidates similar?
B. To what degree are the psychosocial levels of teacher educators and teacher candidates similar?

C. What relationship, if any, exists between the teacher educator's characterizations of selected classroom activities and the teacher candidate's characterizations of selected activities?

For the purpose of this study, it is important to realize that a single education course entitled Education 450: Introduction to Teaching is the referent called the teacher education program. Second, the interaction between the variables of cognitive development, psychosocial development and activity characterizations for both teacher candidate and teacher educator are being scrutinized as reflections of the teacher education program. A step-by-step examination of those interactions follows.

**Question A:** To what degree are the cognitive developmental levels of teacher educators and teacher candidates similar?

In order to determine the answer to this question, a T-test was run to determine differences in the means of the teacher educator and teacher candidate's cognitive
developmental positions. The mean score for teacher educators was 3.67. The mean score for teacher candidates was 2.57. The T-test revealed a T value of $-3.2126$, and the p-value equalled $0.0119$ which indicated that the mean continuous score for teacher educators was significantly (significance was set at $p \leq 0.05$) higher than the mean continuous score for teacher candidates.

<table>
<thead>
<tr>
<th>ROLE</th>
<th>MEAN</th>
<th>SD</th>
<th>MIN.</th>
<th>MAX.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
<td>3.67</td>
<td>1.01</td>
<td>2.50</td>
<td>5.00</td>
<td>9</td>
</tr>
<tr>
<td>Student</td>
<td>2.57</td>
<td>.50</td>
<td>1.00</td>
<td>4.00</td>
<td>120</td>
</tr>
</tbody>
</table>

A comparison of teacher educators and teacher candidates by percentages within stages of cognitive development reveals: teacher candidates 91.7% dualistic; teacher educators 22.22% dualistic; teacher candidates 8.33% multiplistic; teacher educators 44.44% multiplistic; and teacher candidates 0% relativistic; teacher educators 33.33% relativistic.
Table 20 Distribution of Teacher Educators/Teacher Candidates by Cognitive Development Positions

Discussion:

This significant difference between teacher educators and teacher candidates' cognitive position is consistent with reports on similar populations on the Perry scheme of cognitive development. The teacher educators have spent more years in formal education and years in school is indicative of higher cognitive positions.

Question B: To what degree are the psychosocial levels of teacher educators and teacher candidates similar?
Ascertaining an answer to this question required an analysis of each of the tasks of psychosocial development for both teacher educator and teacher candidate. Individual analysis of variance (ANOVA) were run for each of the tasks. A multiple analysis of variance (MANOVA) was run for the purpose of comparing all three task scores simultaneously.

The ANOVA by task revealed:

1. Task One, Developing Autonomy had an F-value of 7.18 with a PR > F of .0084 which is significant;

2. Task Two, Developing Purpose had an F-value of 14.50 and a PR > F of .0002 which is significant;

3. Task Three, Developing Mature Interpersonal Relationships had an F-value of 7.01 and a PR > F of .0091 which is also significant;

4. Using a Hotelling-Lawley Trace MANOVA for viewing all three tasks simultaneously there was an F approximation of 5.93 with a significance of .0009.

The direction of the significance between teacher educators and teacher candidates was always in favor of the teacher educators.
Table 21 Comparison of Task Scores for Teacher Educators and Teacher Candidates

As the Table 21 indicates, the teacher educator mean scores are higher than the mean scores for teacher candidates. Those higher means are significant at $p \leq .05$.

**Discussion:**

There is a significant difference between the psychosocial development of teacher educator and teacher candidates both by individual task and overall total scores measured by the SDT-II. The most plausible explanation of this finding lies in age or experience differences between the two groups. It is obvious that the teacher educators are older and have more years of
schooling than do the teacher candidates. The added time and schooling may serve to allow the teacher educators more experiences of either the same or different types which, in turn, allows for greater opportunity to better accomplish the tasks of development.

Additionally, Chickering (1969) asserts that autonomy is a precursor to identity. Identity forms a foundation for the tasks of Developing Purpose and Mature Interpersonal Relationships. Since the teacher educators are more accomplished at the task of Developing Autonomy, their foundation is more stable for the accomplishment of the other two tasks of development.

Both of these explanations may account for the difference between the scores of teacher educators and teacher candidates.

**Question C:** What relationship, if any, exists between the teacher educator's characterizations of selected classroom activities and the teacher candidate's characterizations of selected activities?

The above question contains three explicit questions concerning the constructs under investigation. Ultimately, the questions of interest were:
1. Do teacher candidates and teacher educators who are similar psychosocially characterize classroom activities similarly?

2. Do teacher candidates and teacher educators who are similar cognitively characterize classroom activities similarly?

3. Are teacher candidates and teacher educators who are similar psychosocially also similar cognitively?

In order to ascertain answers to these questions, multiple statistical procedures were required. First, a way was needed to determine and quantify the degree of similarity between teacher educator instrument responses and teacher candidates instrument responses. This would measure how similarly teacher educators and teacher candidates characterized classroom activities. The method chosen was to calculate similarity indices.

These similarity indices were calculated as follows:

1. Any of the twenty-three variables contained on the Activity Checklist that were non-binary were collapsed into a binary variable (i.e., 0 or 1 valued);
2. For each of the five learning activities, a teacher candidate's instrument was compared to his/her teacher educator's instrument for that activity, variable by variable. Since each variable was binary, a comparison for a given variable would yield the following four possibilities:

<table>
<thead>
<tr>
<th>Teacher Candidate</th>
<th>Teacher Educator</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0</td>
<td>0</td>
</tr>
<tr>
<td>b. 0</td>
<td>1</td>
</tr>
<tr>
<td>c. 1</td>
<td>0</td>
</tr>
<tr>
<td>d. 1</td>
<td>1</td>
</tr>
</tbody>
</table>

a (0,1) or a (1,0) was considered a mismatch and the number of these mismatches per learning activity was counted for each teacher candidate;

3. Next, for each teacher candidate, a sum of all the mismatches with their teacher educator across all activities was made. This amounted to adding the five counts per student as in Step Two above;

4. Finally, this total was subtracted from the maximum number of teacher candidate-teacher educator mismatches possible for a single teacher candidate. That number was
115. The answer obtained was indeed the actual number of matches between student and teacher (i.e., (1,1) or (0,0)) and provided a measure of how similarly a student and his/her teacher characterized the selected learning activities.

Next, a method was needed to determine how similar a student and teacher were psychosocially. Was again, similarity indices were computed. The psychosocial similarity index was computed as follows:

1. A Euclidean distance formula was used to determine how far apart a student and teacher were on the three tasks of development. That formula was:

\[ \sqrt{\left(\frac{x_1 - y_1}{1}\right)^2 + \left(\frac{x_2 - y_2}{2}\right)^2 + \left(\frac{x_3 - y_3}{3}\right)^2} \]

where

- \(x_1\) = teacher's score on task one
- \(y_1\) = student's score on task one
- \(x_2\) = teacher's score on task two
- \(y_2\) = student's score on task two
- \(x_3\) = teacher's score on task three
- \(y_3\) = student's score on task three
2. The maximum distance between a student and teacher possible was 254. Therefore, the Euclidean distance was subtracted from this to yield a measure of how similar student and teacher were psychosocially.

And, of course, similarity indices were also needed for the teacher and student on the cognitive variable. This index was computed as follows:

1. The distance between a student and his/her teacher on the cognitive variable was the absolute value of the difference between the teacher's continuous score and the student's continuous score.

2. This distance was subtracted from the maximum possible distance of 4.00 to obtain the similarity index.

At this point, the questions listed above could be answered by finding out whether the appropriate pairs of similarity indices were significantly correlated. Non-parametric (Spearman-Rank) correlations coefficients were computed because of the scale differences of the different types of similarity indices.

It was found that the similarity indices for the Activity Checklist characterizations were not significantly correlated with the indices for
psychosocial tasks. The probability of getting a correlation coefficient with absolute value greater than the computed value of .14128 under the null hypothesis of no correlation was .1238. One would need for this probability to be less than or equal to .05 in order to reject the null hypothesis of no correlation. Therefore, there was insufficient evidence to conclude that the teacher candidates and teacher educators who were similar psychosocially characterized activities similarly.

Again, under the null hypothesis of no correlation between similarity indices for the Activity Checklist characterizations and the indices for cognitive development, the probability of getting a correlation coefficient with absolute value greater than .06376 was .4897. Once again, there was insufficient evidence to conclude that teacher candidates and teacher educators who had similar cognitive developmental positions also characterized activities similarly.

Finally, under the null hypothesis of no correlation between similarity indices for psychosocial tasks and cognitive development, the probability of getting a correlation coefficient with a more extreme value than plus or minus .19851 was .0297 which is less than .05. Therefore, the hypothesis of no correlation was rejected.
And, since the correlation coefficient was negative (-.19851), one could conclude that a high degree of similarity psychosocially was associated with a low degree of similarity in cognitive development.

To summarize:

a. similarity indices were computed for all students in each data set;

b. a non-parametric correlation analysis was run for each pair of similarity indices in an effort to answer the questions of importance to this research; and

c. there was no evidence to conclude that teachers and students who were alike psychosocially characterized the same activities in the same manner or that teachers and students who were alike cognitively characterized the same activities in the same manner. But, there was evidence to conclude that teachers and students who were alike psychosocially were quite dissimilar cognitively and vice versa.

Additionally, the researcher wanted to know whether or not teacher candidates and teacher educators who did characterize activities similarly were similar in cognitive development and/or psychosocial development.
In order to ascertain an answer to this question, a log-linear analysis was employed.

First, the number of Activity Checklist matches and mismatches between teacher educator and student candidate was generated. Second, using the match/mismatch information from the Activity Checklist the number of match/mismatches were computed for both cognitive and psychosocial data.

Table 22 Match/Mismatch Information

<table>
<thead>
<tr>
<th>Symbol Used</th>
<th>Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Activity Rating Match</td>
</tr>
<tr>
<td>C</td>
<td>Cognitive Match</td>
</tr>
<tr>
<td>P</td>
<td>Psychosocial Match</td>
</tr>
</tbody>
</table>

This table was analyzed:

<table>
<thead>
<tr>
<th>Activity Rating A</th>
<th>Cognitive C</th>
<th>Psychosocial (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Match</td>
<td>Match</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Mismatch</td>
<td>18</td>
</tr>
<tr>
<td>Mismatch</td>
<td>Match</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Mismatch</td>
<td>19</td>
</tr>
</tbody>
</table>

The total frequency is 120
Using the log-linear model of analysis, the model of best fit with the data is the PC,A model. This tells one that psychosocial (P) and cognitive (C) findings are significantly related, but that Activity (A) Checklist characterizations are independent of either P or C.

Upon examination of the nature of the relationship that exists between P and C for those students and teachers who matched in activity characterizations, it would once again seem that the conclusion is that those students who match their teachers Activity Checklist characterizations of selected classroom activities are significantly and inversely related on the variables of psychosocial and cognitive development.

Table 23 Psychosocial and Cognitive Matches for
Matches on Activity Characterizations

<table>
<thead>
<tr>
<th>Psycho-Social</th>
<th>Match</th>
<th>Mismatch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Match</td>
<td>18</td>
<td>34</td>
</tr>
<tr>
<td>Cognitive</td>
<td>*(23.8)</td>
<td>*(28.2)</td>
</tr>
<tr>
<td>Mismatch</td>
<td>37</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>*(31.2)</td>
<td>*(36.8)</td>
</tr>
</tbody>
</table>

* = expected value
Discussion

It appears that there is no significant relationship between:

1. teachers and students who are similar psychosocially and the manner in which activities were characterized; or
2. teachers and students who were similar cognitively and the manner in which activities were characterized.

It appears that significant relationships exist between:

1. students and teachers who are similar psychosocially and their cognitive development. This relationship is inverse in nature. However,
2. when activity characterization similarity is the independent variable, these students and teachers follow the same inverse relationship between cognitive development and psychosocial development.

The non-significant relationships above may be due to: 1) the small number of teacher educators involved in this study (there is no assurance that these nine teacher
educators are representative of teacher educators in general); 2) there may be a flaw or flaws in the Activity Checklist which might account for this lack of agreement; 3) there may be other factors creating "noise" in this study such as role interference (students may be characterizing activities in a manner that they deem more or less acceptable to their teachers); and/or 4) as Parker (1977) states, theories are merely average reflections of complicated events and in reality it may be that no one fits the average description; therefore, one's extreme characteristics even though similar to another person on the average may be enough to make them fundamentally different. Perhaps the real issue brought forth by this study is: examining the complicated interactions between student and teacher might better be served by documenting this phenomenon qualitatively instead of confining those events to one dimensional scores.

When interpreting the significant relationships that exist between teacher candidates and teacher educators psychosocially, and considering activity matches between teacher candidate and teacher educator and in relation to cognitive and psychosocial development, one finds inverse relationships in both cases. The inverse relationship
might be interpreted as describing the fact that the task of describing learning activities is simple enough that persons at various psychosocial and cognitive developmental levels can accurately describe events in the same way.

The inverse relationship might also be contributed to teacher educators being significantly more developed cognitively than their undergraduate counterparts. This increased cognitive development may allow those teacher educators to arrange more developmentally sound experiences (i.e., activities that are level appropriate) or enjoyable experiences for the teacher candidates thus generating similar activity characterizations. Therefore, this explanation would account for those students who are similar in both activity characterization and psychosocial development but a mismatch cognitively.

The match on psychosocial levels may be attributable once again to the occurrence of certainty on the part of lower cognitive levels and uncertainty or inability to wish to confine one's self to true/false answers if one has a higher cognitive level.
Question D: Was there a significant difference in the teacher candidate's satisfaction with learning activities if: a) teachers and students characterized the activities in the same way?; b) teachers and students were similar psychosocially?; or c) teachers and students were similar cognitively?

A full ANOVA was run for all of the match/mismatch variables for activity characterizations, cognitive levels and psychosocial levels between students and teachers. The General Liner Model of SAS was used to generate answers to these questions due to the wide range of class sizes for the different teacher educators. In all cases satisfaction on the part of students had no significant relationships to activity characterization similarity, cognitive similarity or psychosocial similarity.

Discussion

When considering the issue of student satisfaction as a function of similarity between or among activity characterizations, cognitive development or psychosocial development, no significant relationships were found. This is not to say that students were not satisfied with classroom activities. On the contrary, of the 600
activities ratings completed by these students, 91.1% of the time students were satisfied or very satisfied. Only fifty-three (53) responses or 8.9% were dissatisfied or very dissatisfied. This result may be attributable to the lack of variance within the teacher candidate population.

After finding no relationship between or among the variables within consideration in this research project, the question became: To what might one attribute teacher candidate satisfaction? Looking at the Activity Checklist characterizations of the selected classroom activities, one common denominator appeared. For each of these fifty-three negative ratings on satisfaction there appeared the item: **impersonal atmosphere**. Thus it appears that it is important to these teacher candidates to feel that their teachers are personal with them. Additionally, this course offers what may be a novel experience for students at this large midwestern university. That novel experience is a teacher-student ratio of no more than 1:24. The possibilities of knowing each student personally may be enhanced by this teacher-pupil ratio.
Summary

A summary of the analysis of Teacher Education Program Questions follows:

1. Analysis revealed the teacher educators' cognitive development to be significantly higher than the teacher candidates' cognitive development; teacher candidates tend to be dualistic (92%) while teacher educators tend to be multiplists or relativists (55%).

2. Analysis revealed the teacher educator's psychosocial development to be significantly higher than the teacher candidate's psychosocial development on each task of development;

3. Analysis revealed similarity on activity characterization by teacher educator and teacher candidate to be independent of cognitive development and psychosocial development;

4. Analysis revealed a significant inverse relationship existing between the cognitive development and the psychosocial development of teacher educators and teacher candidates. This relationship held true for those
students who were either similar or dissimilar in Activity Checklist characterizations;

and

4. Analysis revealed student satisfaction to be independent of cognitive similarity, psychosocial similarity and/or perception of learning event similarity. Rather, satisfaction appeared to be a function of classroom atmosphere as defined by either a personal or impersonal atmosphere.
CHAPTER FIVE

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Teacher education has been subjected to a plethora of criticism. That criticism has been leveled by persons both within and outside of the profession, as well as the clientele of teacher education, the undergraduate teacher candidate.

This criticism points to an urgent need to review existing practices, the existing state of the art in teacher education. It would seem that teaching on any level consists of at the very least three fundamentally distinct entities. Those entities are: teachers, students and the interfacing of the two (this may be a curriculum, a topic of discussion, a classroom activity, etc.). It would seem imperative to teacher education to begin an introspection around the existing problem of discrepancy between what teacher education proports to do and the evaluations of these programs. This introspection must begin by revealing the reality of what is currently taking place. This introspection may
then inform theory and change versus merely change from impressionistic whims.

Grounded Formal Theory (Glaser, 1962) warns the change agent (researcher, program revisor, etc.) to not make the classic error of assuming s/he knows the populations with whom s/he deals. Curriculum experts such as Eisner (1979) continually inform the change agent of the dangers of assuming that one can alter part of the trilogy (teachers, students and interactions between) without considering the entire chain of events. Yet, traditionally teacher education programs are altered based upon what appears to be the "accumulated wisdom" of leading experts in the field (Ryan, 1979; Nash and Ducharme, 1983).

Therefore, it was the intention of this research project to explore teacher education as it exists. The variables of exploration were cognitive development and psychosocial development of teacher educators and teacher candidates and the interfacing of those variables as they may or may not manifest themselves within the context of the classroom.
The purpose of this study was to describe the relationship between two measures of development of teacher candidates and teacher educators, and the relationship of these measures to the characterizations of five selected classroom activities and the teacher candidates' satisfaction with these activities. The measures of development refer to the cognitive and the psychosocial dimensions of personal development. The purpose of describing teacher candidates and teacher educators according to these two measures of development was to enable the researcher to generate plausible hypotheses concerning teacher candidates, teacher educators and teacher education programs using these two dimensions of development.

The research questions that were important to the study were:

I. Teacher Educator Research Questions

A. What are the cognitive developmental levels of teacher educators?

B. What are the psychosocial developmental levels of teacher educators?
C. What relationship, if any, exists between cognitive developmental and psychosocial developmental levels of the teacher educators?

D. What relationship, if any, exists between the cognitive developmental position and/or the psychosocial developmental levels and selected learning activities?

II. Teacher Candidate Research Questions

A. What are the cognitive developmental levels of the teacher candidates?

B. What are the psychosocial levels of the teacher candidate?

C. What relationship, if any, exists between the cognitive developmental and psychosocial developmental levels of the teacher candidate?

D. What relationship, if any, exists between levels of cognitive development and/or the psychosocial development of the teacher candidate and the perceived characterizations of selected learning activities?
III. Teacher Education Program Research Questions

A. To what degree are the cognitive developmental levels of teacher educators and teacher candidates similar?

B. To what degree are the psychosocial levels of teacher educators and teacher candidates similar?

C. What relationship, if any, exists between the teacher educator's characterizations of selected classroom activities and the teacher candidate's characterizations of selected activities?

This major question generates the following four sub-questions:

1. Do teacher educators and teacher candidates who are similar psychosocially characterize selected classroom activities similarly?

2. Do teacher educators and teacher candidates who are similar cognitively characterize selected classroom activities similarly?

3. Are teacher educators and teacher candidates who are similar psychosocially also similar cognitively?
4. Do perceptual characterizations of selected activities have a relationship to the teacher candidates satisfaction with those activities?

The findings of this study are reported in the conclusion section which follows.

Conclusions

The specific conclusions of this research project are discussed below in relation to the three broad areas of interest presented above: teacher educator research questions, teacher candidate research questions and teacher education program research questions.

I. TEACHER EDUCATOR RESEARCH QUESTIONS

The teacher educators in this study were distributed along the cognitive development spectrum (22.22% dualists; 44.44% multiplists; and 33.33% relativists). On the average, these teacher educators were significantly more cognitively developed than their undergraduate counterparts. This information is in keeping with studies which help validate developmental theory. Additionally, a trend between years of college teaching and cognitive development seemed to appear within this sample of
teacher educators. This leads one to speculate about the role of graduate studies in the promotion of cognitive development, wonder about the differences between graduate study and undergraduate study, or wonder if there is a cyclical pattern connected to cognitive development.

The teacher educators in this study were psychosocially more developed than their undergraduate counterparts. This finding appears to be theoretically grounded (Chickering, 1969; Rodgers, 1983).

When using cognitive development and psychosocial development as variables around which the characterization of selected classroom activities may evolve, there were no significant relationships found. Minimally, this leads one to conclude that descriptions of events may be done by various levels of development. However, that in no way indicates that growth, content mastery or satisfaction is enhanced by accurate descriptions.

II. TEACHER CANDIDATE RESEARCH QUESTIONS

Teacher candidates in this study were overwhelmingly dualistic (91.7%). Slightly over eight per cent (8.3%) of these students were multiplistic and zero per cent
were relativistic. These results appear to be grounded in theory. Additionally, it seems important to note that these findings concerning undergraduate teacher candidates have now been verified repeatedly (Phillips, 1981; and Stuck, 1984). It seems safe to assume that undergraduate teacher education candidates are dualistic as is the undergraduate population on the whole. These teacher education candidates, however, were more dualistic than the general freshmen population. Hence, teacher education may be attracting a less cognitive-structural developed population. One can also speculate about the legitimacy of using grade point average comparisons versus cognitive development comparisons between and among different majors and post-college success (Sprinthall, 1980). As well as, proffer plausible developmentally more appropriate curricular approaches to dualistic teacher candidates.

Teacher candidates appear to be working on the appropriate psychosocial tasks for their age range and are significantly less psychosocially developed than their graduate counterparts. This difference in score seems to be valid, yet the order of accomplishing these tasks is in question (Chickering, 1969; Rodgers, 1983).
Unlike the teacher educators, there exist significant relationships between the characterization of selected learning activities and the teacher candidate's psychosocial development. Factor One (F1, Structure), Factor Two (F2, Teacher Rigidity) and Factor Four (F4, Teacher Verbal Structure) are significantly related to one or more of the tasks of psychosocial development (Developing Autonomy, Developing Purpose and Developing Mature Interpersonal Relationships). These findings cannot help but pose the question: Now that significant relationships have been found to exist for teacher candidates between how teacher candidates characterize selected activities and their life-span development, what is the power of that relationship? Could these relationships in some way account for the teacher candidate being so critically negative about his/her teacher education program?

Factor Four (F4, Teacher Verbal Structure) also shows a significant relationship to cognitive development whereas, no factors related to the teacher educator's cognitive development.

Satisfaction is not related to any of the variables under investigation in this study. This may be due to lack of variance among teacher candidates'
cognitive-structural levels. Serendipitously, satisfaction appears to be related to the relative personalization or impersonalization within the classroom.

III. TEACHER EDUCATION PROGRAM RESEARCH QUESTIONS

The use of an Activity Checklist served as a common way for teacher educators and teacher candidates to characterize selected classroom activities. From this common characterization, conclusions were drawn concerning this characterization and its relationship to the cognitive and the psychosocial development of teacher educators and teacher candidates.

Findings indicate that no significant relationships exist between these two groups and their characterizations of selected learning activities. However, a significant inverse relationship exists between these two groups and the variables of cognitive development and psychosocial development. This appears to be true in general and in specific for teacher educators and teacher candidates who are similar in activity characterization.

Recommendations

If as Sprinthall (1980) has indicated, the higher the cognitive levels of teachers, the more likely the
teacher's ability to make critical analysis of the pupils and the classroom context and respond to those findings, then cognitive development must be considered as a critical variable in teacher education. Cognitive development would appear critical in the promotion of that development within the undergraduate teacher candidate population as they, in turn, will obtain teaching positions and influence pupils. Cognitive development appears to be crucial to teacher education in the examination of the graduate schooling of its teacher educators. An investigation seems warranted pertaining to the difference between undergraduate and graduate schooling.

Further investigation must be carried out. Teacher education must explore the issue of deliberate developmental intervention to promote cognitive growth as well as psychosocial growth on the part of its undergraduates. Teacher education must begin to ascertain who, how, with whom and under what conditions cognitive and psychosocial development can be promoted.

Psychosocial developmental issues face the same generic challenges, but there is a more severe drawback in this arena. There appears to be a somewhat less developed body of knowledge regarding this variable.
Some vectors in Chickering's schema have yet to have an instrument or any other valid way of assessing an individual's achievements within these developmental tasks or vectors. The instruments that do exist are limited in the applicability with older populations. A large part of the challenge within this area is valid and reliable assessment techniques.

Considering the findings of this study, psychosocial development appears to have much to do with the characterizations of selected learning activities by undergraduates. That life events have an impact on persons is not a new finding, but leads one to pose the question concerning the power of these life events as they present themselves within the context of the classroom. Intuition can no longer hedge our bets about our teacher candidates. Teacher education must begin to give merit to the connection between the lives of its actors and the impact of those lives upon their learning.

Logically, it seems fundamental that more well developed persons may have better chances of handling life tasks. It would seem a goal of teacher education, and for that matter, any education to enhance the lives and minds of their clientele. This goal has long been
professed, the time it would seem has come to begin documenting the specifics of this enhancement.

It becomes fundamentally clear, that with each investigation into cognitive development that process not content is the issue. It becomes fundamentally clear that with each investigation into psychosocial development that content not process is the issue. It is time that the interfacing of these two constructs be explored toward the integration of content and process in the curriculum of teacher education programs.
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APPENDIX A
PLEASE NOTE:

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation, however, in the author's university library.

These consist of pages:

205-209, STUDENT DEVELOPMENTAL TASK INVENTORY
MEASURE OF EPSTEMOLOGICAL REFLECTION

INSTRUCTIONS: The questionnaire that follows has to do with your perspective on a number of concerns related to college students. Each of the questions on the following pages asks for your opinion or choice on a given subject, and the REASONS why you have that particular perspective or opinion. We are interested in understanding your perspective as fully as possible. Please give as much detail as you can to describe how you feel about each question. Feel free to use the backs of pages if you need more space. Thank you.

NAME _______________________
AGE ______ CLASS RANK ______
SEX (circle) MALE FEMALE
COLLEGE MAJOR ______
FATHER'S JOB ______
MOTHER'S JOB ______
DATE _______________________
COURSE: ____________________
SECTION: ____________________

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CODE # ________
(for office use only)
Think about the last time you had to make a major and difficult decision in which you had a number of alternatives (e.g., which college to attend, college major, career choice, etc.). What was the nature of the decision?

What alternatives were available to you?

How did you feel about these alternatives?

How did you go about choosing from the alternatives?

What things were the most important considerations in your choice? Please give details.
DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT YOU BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.
During the course of your studies, you have probably had instructors with different teaching methods. As you think back to instructors you have had, describe the method of instruction which had the most beneficial effect on students.

What made that teaching method beneficial? Please be specific and use examples.

Were there aspects of that teaching method which were not beneficial? If so, please talk about some of the aspects and why they were not beneficial.

What are the most important things you learned from the instructor's method of teaching?

Please describe the type of relationship with an instructor that would help you to learn best and explain why.
DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

________________________________________________________________________

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF A CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.
SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?
INSTRUCTION INFORMATION

Instructor's Name ____________________________

Course: 450 ______ 451 ______

1. Number of times these courses have been taught by you:
   450 ______ 451 ______

2. Number of years in college teaching ______

3. Number of years in K-12 teaching ______

4. What is your major area of study? ______
   (i.e. teacher education, curriculum, etc.)

5. When instructing this education course, do you deliberately follow or are you aware of any of the following theoretical frameworks?
   Deliberately follow    Aware of
   Blocker _______ ______
   Harvey _______ ______
   Hunt _______ ______
   Perry _______ ______
   Schroeder _______ ______
   Sprinthall _______ ______
   Personal theory _______ ______
   Any others: _______ ______

6. If you utilize a theoretical framework, whether your own or another's, briefly describe the major ideas that enter your instruction that are from this framework. Use the back of this page for that description.

7. Throughout the quarter, you have instructed various learning activities. Please list the five major activities of the quarter and provide a brief description of each. Use the back of the page if needed.

   1. ____________________________
   2. ____________________________
   3. ____________________________
8. For each of the above activities, please complete a separate checklist which will characterize the activity as you view it. (You will find five checklists following this page.)
CHARACTERISTICS CHECKLIST

ACTIVITY:

Directions: Please check off all of the items which you feel apply to the activity listed at the top of this page. If you would like to explain your answer please use the back of this sheet.

Characteristics:

VIEWPOINTS

Activity or assignment gives the student a single way of viewing an issue
Activity or assignment gives the student two or three ways of viewing an issue
Activity or assignment gives the student four or more ways of viewing an issue

STRUCTURE:

The activity, assignment, or classwork has explicit due date
There is an outline provided for each activity or assignment which provides an order in which things will be done
Written descriptions of all requirements are given
Verbal explanations of all requirements are given
Written descriptions concerning "how to do" assignments are given
Verbal explanations concerning "how to do" assignments are given
Student is allowed to choose from among tasks
Student is allowed to choose how to do task
Student weighs the pros and cons of alternative tasks in conversation with peers or instructor
Student is asked to analyze, synthesize, or evaluate from his/her own experiences, biographies, or characters in literature
Student verbally shares his/her experience of the activity or assignment with the class
Student analyzes, synthesizes or evaluates using abstract theory (from hearing about something instead of doing a task and then thinking about what you did)
Unstructured group experience (student(s) could do the task any way s/he (they) wished)
The content of the syllabus was negotiated with the student
Assignment may be negotiated by the student (i.e. what the assignment will be, how to do it, when it will be handed in, etc.)
Individual learning contracts may be made by each student within the context of the class
Instructor acts as a resource person for student when
Instructor acts as a resource person for the student when the instructor thinks that it is needed. 

There is flexibility on due dates through negotiation between student and instructor.

**Atmosphere:**

- Personal atmosphere is established (i.e. self-disclosure among and between peers, small group work, personal logs with personal responses from instructor, etc.)
- Impersonal atmosphere utilized (i.e. there are no personal examples given, lecture is often used, only written work is done with no instructor feedback, all students do is listen, etc.)

**Processing Event:**

- Activity is discussed immediately after it takes place
- Activity is discussed one or two days after it takes place
- Activity is discussed longer than two days after the event takes place
- Activity is never discussed

**Activity:**

- Experiential learning (i.e. structured discussions, group experience, role playing, field trips with structured observation, students are involved and doing things, etc.)
- Abstract, indirect, vicarious learning (i.e. lecture, silent reading, library work, student works alone, written assignment, students hear the teacher tell about things, etc.)
CHARACTERISTICS CHECKLIST

ACTIVITY:

Directions: Please check off all of the items which you feel apply to the activity listed at the top of this page. If you would like to explain your answer please use the back of this sheet.

Characteristics:

VIEWPOINTS

Activity or assignment gives the student a single way of viewing an issue
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Instructor acts as a resource person for student when
Instructor acts as a resource person for the student when the instructor thinks that it is needed.

There is flexibility on due dates through negotiation between student and instructor.

**ATMOSPHERE:**
- Personal atmosphere is established (i.e. self-disclosure among and between peers, small group work, personal logs with personal responses from instructor, etc.)
- Impersonal atmosphere utilized (i.e. there are no personal examples given, lecture is often used, only written work is done with no instructor feedback, all students do is listen, etc.)

**PROCESSING EVENT:**
- Activity is discussed immediately after it takes place
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- Activity is discussed longer than two days after the event takes place
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- Abstract, indirect, vicarious learning (i.e. lecture, silent reading, library work, student works alone, written assignment, students hear the teacher tell about things, etc.)
**ACTIVITY:**

**Directions:** Please check off all of the items which you feel apply to the activity listed at the top of this page. If you would like to explain your answer please use the back of this sheet.

**Characteristics:**

**VIEWPOINTS**
- Activity or assignment gives the student a single way of viewing an issue
- Activity or assignment gives the student two or three ways of viewing an issue
- Activity or assignment gives the student four or more ways of viewing an issue

**STRUCTURE:**
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- The content of the syllabus was negotiated with the student
- Assignment may be negotiated by the student (i.e. what the assignment will be, how to do it, when it will be handed in, etc.)
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- Instructor acts as a resource person for student when
Instructor acts as a resource person for the student when the instructor thinks it is needed.

There is flexibility on due dates through negotiation between student and instructor.

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**PROCESSING EVENT:**
- Activity is discussed immediately after it takes place
- Activity is discussed one or two days after it takes place
- Activity is discussed longer than two days after the event takes place
- Activity is never discussed

**ACTIVITY:**
- Experiential learning (i.e. structured discussions, group experience, role playing, field trips with structured observation, students are involved and doing things, etc.)
- Abstract, indirect, vicarious learning (i.e. lecture, silent reading, library work, student works alone, written assignment, students hear the teacher tell about things, etc.)
**CHARACTERISTICS CHECKLIST**

**ACTIVITY:**

Directions: Please check off all of the items which you feel apply to the activity listed at the top of this page. If you would like to explain your answer please use the back of this sheet.

**Characteristics:**

**VIEWPOINTS**

- Activity or assignment gives the student a single way of viewing an issue
- Activity or assignment gives the student two or three ways of viewing an issue
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**STRUCTURE:**

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- Student verbally shares his/her experience of the activity or assignment with the class
- Student analyzes, synthesizes or evaluates using abstract theory (from hearing about something instead of doing a task and then thinking about what you did)
- Unstructured group experience (student(s) could do the task any way s/he (they) wished)
- The content of the syllabus was negotiated with the student
- Assignment may be negotiated by the student (i.e. what the assignment will be, how to do it, when it will be handed in, etc.)
- Individual learning contracts may be made by each student within the context of the class
- Instructor acts as a resource person for student when
Instructor acts as a resource person for the student when the instructor thinks that it is needed.

There is flexibility on due dates through negotiation between student and instructor.

ATMOSPHERE:
- Personal atmosphere is established (i.e. self-disclosure among and between peers, small group work, personal logs with personal responses from instructor, etc.)
- Impersonal atmosphere utilized (i.e. there are no personal examples given, lecture is often used, only written work is done with no instructor feedback, all students do is listen, etc.)

PROCESSING EVENT:
- Activity is discussed immediately after it takes place
- Activity is discussed one or two days after it takes place
- Activity is discussed longer than two days after the event takes place
- Activity is never discussed

ACTIVITY:
- Experiential learning (i.e. structured discussions, group experience, role playing, field trips with structured observation, students are involved and doing things, etc.)
- Abstract, indirect, vicarious learning (i.e. lecture, silent reading, library work, student works alone, written assignment, students hear the teacher tell about things, etc.)
CHARACTERISTICS CHECKLIST

ACTIVITY:

Directions: Please check off all of the items which you feel apply to the activity listed at the top of this page. If you would like to explain your answer please use the back of this sheet.

Characteristics:

VIEWPOINTS

Activity or assignment gives the student a single way of viewing an issue
Activity or assignment gives the student two or three ways of viewing an issue
Activity or assignment gives the student four or more ways of viewing an issue

STRUCTURE:

The activity, assignment, or classwork has explicit due date
There is an outline provided for each activity or assignment which provides an order in which things will be done
Written descriptions of all requirements are given
Verbal explanations of all requirements are given
Written descriptions concerning "how to do" assignments are given
Verbal explanations concerning "how to do" assignments are given
Student is allowed to choose from among tasks
Student is allowed to choose how to do task
Student weighs the pros and cons of alternative tasks in conversation with peers or instructor
Student is asked to analyze, synthesize, or evaluate from his/her own experiences, biographies, or characters in literature
Student verbally shares his/her experience of the activity or assignment with the class
Student analyzes, synthesizes or evaluates using abstract theory (from hearing about something instead of doing a task and then thinking about what you did)
Unstructured group experience (student(s) could do the task any way s/he (they) wished)
The content of the syllabus was negotiated with the student
Assignment may be negotiated by the student (i.e. what the assignment will be, how to do it, when it will be handed in, etc.)
Individual learning contracts may be made by each student within the context of the class
Instructor acts as a resource person for student when
| asked by the student for help |
| Instructor acts as a resource person for the student when the instructor thinks that it is needed |
| There is flexibility on due dates through negotiation between student and instructor |

**ATMOSPHERE:**
- Personal atmosphere is established (i.e. self-disclosure among and between peers, small group work, personal logs with personal responses from instructor, etc.)
- Impersonal atmosphere utilized (i.e. there are no personal examples given, lecture is often used, only written work is done with no instructor feedback, all students do is listen, etc.)

**PROCESSING EVENT:**
- Activity is discussed immediately after it takes place
- Activity is discussed one or two days after it takes place
- Activity is discussed longer than two days after the event takes place
- Activity is never discussed

**ACTIVITY:**
- Experiential learning (i.e. structured discussions, group experience, role playing, field trips with structured observation, students are involved and doing things, etc.)
- Abstract, indirect, vicarious learning (i.e. lecture, silent reading, library work, student works alone, written assignment, students hear the teacher tell about things, etc.)
APPENDIX D
CHARACTERISTICS CHECKLIST

ACTIVITY:

Directions: Please check off all of the items which you feel apply to the activity or learning experience listed at the top of this page. If you would like to explain your answer(s) please use the back of the page.

Characteristics:

VIEWPOINTS

Activity or assignment gives the student a single way of viewing an issue
Activity or assignment gives the student two or three ways of viewing an issue
Activity or assignment gives the student four or more ways of viewing an issue

STRUCTURE

The activity, assignment or classwork has an explicit due date
There is an outline provided for the activity or assignment which provides the student the order in which things will be done
Written directions or descriptions of the requirements are given
Verbal explanations of the requirements are given
Written descriptions concerning "how to do" assignments are given
Verbal explanations concerning "how to do" assignments are given
Student is allowed to choose from among tasks
Student is allowed to choose how to do or complete the task
Student weighs the pros and cons of alternative tasks in conversation with peers and/or instructor
Student is asked to analyze, synthesize or evaluate from his/her own experiences, biographies or characters in literature
Student verbally shares his/her experience of the activity or assignment with the class
Student analyzes, synthesizes or evaluates using abstract theory (hearing about it then talking about it instead of doing it then talking about it)
Unstructured group experience (students could do the task anyway they wanted)
The content of the syllabus was negotiated with the class
Assignment may be negotiated by the student (i.e. what the student will do, how s/he will do it, when it will be due, etc.)
Individual contracts may be made by each student within the class
Instructor acts as a resource person for student when asked to do so by the student
Instructor acts as a resource person for the student when the instructor thinks it is needed
There is flexibility on due dates through negotiation between student and instructor
ATMOSPHERE
- Personal atmosphere is established (i.e., self-disclosure among and between peers, small group work, personal logs with personal responses from instructor, etc.)
- Impersonal atmosphere utilized (i.e., there are few personal examples given, lecture is often used, only written work is done with little instructor feedback, student role is listening, etc.)

PROCESSING EVENT
- Activity or assignment is discussed immediately after it takes place
- Activity is discussed one or two days after it takes place
- Activity is discussed longer than two days after the event takes place
- Activity is not discussed

ACTIVITY
- Experiential learning (i.e., structured discussions, group experience, role playing, field trips with structured observation, students are involved and do things, etc.)
- Abstract, indirect, vicarious learning (i.e., lecture, silent reading, written assignments, student works alone, students hear the teacher tell about things instead of doing things, etc.)

SATISFACTION
- Student was very satisfied with activity
- Student was satisfied with activity
- Student was not satisfied with activity
- Student was very dissatisfied with activity
CHARACTERISTICS CHECKLIST

ACTIVITY:

Directions: Please check off all of the items which you feel apply to the activity or learning experience listed at the top of this page. If you would like to explain your answer(s) please use the back of the page.

Characteristics:

VIEWPOINTS

Activity or assignment gives the student a single way of viewing an issue
Activity or assignment gives the student two or three ways of viewing an issue
Activity or assignment gives the student four or more ways of viewing an issue

STRUCTURE

The activity, assignment or classwork has an explicit due date
There is an outline provided for the activity or assignment which provides the student the order in which things will be done
Written directions or descriptions of the requirements are given
Verbal explanations of the requirements are given
Written descriptions concerning "how to do" assignments are given
Verbal explanations concerning "how to do" assignments are given
Student is allowed to choose from among tasks
Student is allowed to choose how to do or complete the task
Student weighs the pros and cons of alternative tasks in conversation with peers and/or instructor
Student is asked to analyze, synthesize or evaluate from his/her own experiences, biographies or characters in literature
Student verbally shares his/her experience of the activity or assignment with the class
Student analyzes, synthesizes or evaluates using abstract theory (hearing about it then talking about it instead of doing it then talking about it)
Unstructured group experience (students could do the task anyway they wanted)
The content of the syllabus was negotiated with the class
Assignment may be negotiated by the student (i.e., what the student will do, how s/he will do it, when it will be due, etc.)
Individual contracts may be made by each student within the class
Instructor acts as a resource person for student when asked to do so by the student
Instructor acts as a resource person for the student when the instructor thinks it is needed
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ACTIVITY:

Directions: Please check off all of the items which you feel apply to the activity or learning experience listed at the top of this page. If you would like to explain your answer(s) please use the back of the page.

Characteristics:

VIEWPOINTS

- Activity or assignment gives the student a single way of viewing an issue
- Activity or assignment gives the student two or three ways of viewing an issue
- Activity or assignment gives the student four or more ways of viewing an issue

STRUCTURE

- The activity, assignment or classwork has an explicit due date
- There is an outline provided for the activity or assignment, which provides the student the order in which things will be done
- Written directions or descriptions of the requirements are given
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CHARACTERISTICS CHECKLIST

ACTIVITY:

Directions: Please check off all of the items which you feel apply to the activity or learning experience listed at the top of this page. If you would like to explain your answer(s) please use the back of the page.

Characteristics:

VIEWPOINTS

Activity or assignment gives the student a single way of viewing an issue
Activity or assignment gives the student two or three ways of viewing an issue
Activity or assignment gives the student four or more ways of viewing an issue

STRUCTURE

The activity, assignment or classwork has an explicit due date
There is an outline provided for the activity or assignment, which provides the student the order in which things will be done
Written directions or descriptions of the requirements are given
Verbal explanations of the requirements are given
Written descriptions concerning "how to do" assignments are given
Verbal explanations concerning "how to do" assignments are given
Student is allowed to choose from among tasks
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ATMOSPHERE

- Personal atmosphere is established (i.e., self-disclosure among and between peers, small group work, personal logs with personal responses from instructor, etc.)
- Impersonal atmosphere utilized (i.e., there are few personal examples given, lecture is often used, only written work is done with little instructor feedback, student role is listening, etc.)

PROCESSING EVENT

- Activity or assignment is discussed immediately after it takes place
- Activity is discussed one or two days after it takes place
- Activity is discussed longer than two days after the event takes place
- Activity is not discussed

ACTIVITY

- Experiential learning (i.e., structured discussions, group experience, role playing, field trips with structured observation, students are involved and do things, etc.)
- Abstract, indirect, vicarious learning (i.e., lecture, silent reading, written assignments, student works alone, students hear the teacher tell about things instead of doing things, etc.)

SATISFACTION

- Student was very satisfied with activity
- Student was satisfied with activity
- Student was not satisfied with activity
- Student was very dissatisfied with activity
ACTIVITY:

Directions: Please check off all of the items which you feel apply to the activity or learning experience listed at the top of this page. If you would like to explain your answer(s) please use the back of the page.

Characteristics:

VIEWPOINTS
- Activity or assignment gives the student a single way of viewing an issue
- Activity or assignment gives the student two or three ways of viewing an issue
- Activity or assignment gives the student four or more ways of viewing an issue

STRUCTURE
- The activity, assignment or classwork has an explicit due date
- There is an outline provided for the activity or assignment, which provides the student the order in which things will be done
- Written directions or descriptions of the requirements are given
- Verbal explanations of the requirements are given
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- There is flexibility on due dates through negotiation between student and instructor
ATMOSPHERE

_____ Personal atmosphere is established (i.e. self-disclosure among and between peers, small group work, personal logs with personal responses from instructor, etc.)

_____ Impersonal atmosphere utilized (i.e. there are few personal examples given, lecture is often used, only written work is done with little instructor feedback, student role is listening, etc.)

PROCESSING EVENT

_____ Activity or assignment is discussed immediately after it takes place

_____ Activity is discussed one or two days after it takes place

_____ Activity is discussed longer than two days after the event takes place

_____ Activity is not discussed

ACTIVITY

_____ Experiential learning (i.e. structured discussions, group experience, role playing, field trips with structured observation, students are involved and do things, etc.)

_____ Abstract, indirect, vicarious learning (i.e. lecture, silent reading, written assignments, student works alone, students hear the teacher tell about things instead of doing things, etc.)

SATISFACTION

_____ Student was very satisfied with activity

_____ Student was satisfied with activity

_____ Student was not satisfied with activity

_____ Student was very dissatisfied with activity
APPENDIX E
CONSENT FOR PARTICIPATION IN
SOCIAL AND BEHAVIORAL RESEARCH

I consent to participating in (or my child's participation in) research entitled:
The Cognitive and Psychosocial Development of Teacher Candidates and Teachers

Andrea E. Stuck
(Principal Investigator)
or his/her authorized representative has
explained the purpose of the study, the procedures to be followed, and the expected duration of my (my child's) participation. Possible benefits of the study have been described as have alternative procedures, if such procedures are applicable and available.

I acknowledge that I have had the opportunity to obtain additional information regarding the study and that any questions I have raised have been answered to my full satisfaction. Further, I understand that I am (my child is) free to withdraw consent at any time and to discontinue participation in the study without prejudice to me (my child). The information obtained from me (my child) will remain confidential unless I specifically agree otherwise by placing my initials here _________.

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

Date: ___________________________ Signed: ________________________________
(Fragment)

Signed: _________________________ Signed: ________________________________
(Principal Investigator or his/her Authorized Representative) (Person Authorized to Consent for Participant - If Required)

Witness: __________________________

MS-027 (Nov. 1964) - To be used only in connection with social and behavioral research.