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HOLLAND'S PERSONALITY TYPOLOGY, PERRY'S COGNITIVE SCHEME,
MARCIA'S IDENTITY STATUS, AND THE CAREER DECISIONS
OF ELEMENTARY EDUCATION STUDENTS

By

Bryan Laverne Bolea

A DISSERTATION

Submitted to
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# ABSTRACT

## HOLLAND'S PERSONALITY TYPOLOGY, PERRY'S COGNITIVE SCHEME, MARCIA'S IDENTITY STATUS, AND THE CAREER DECISIONS OF ELEMENTARY EDUCATION STUDENTS
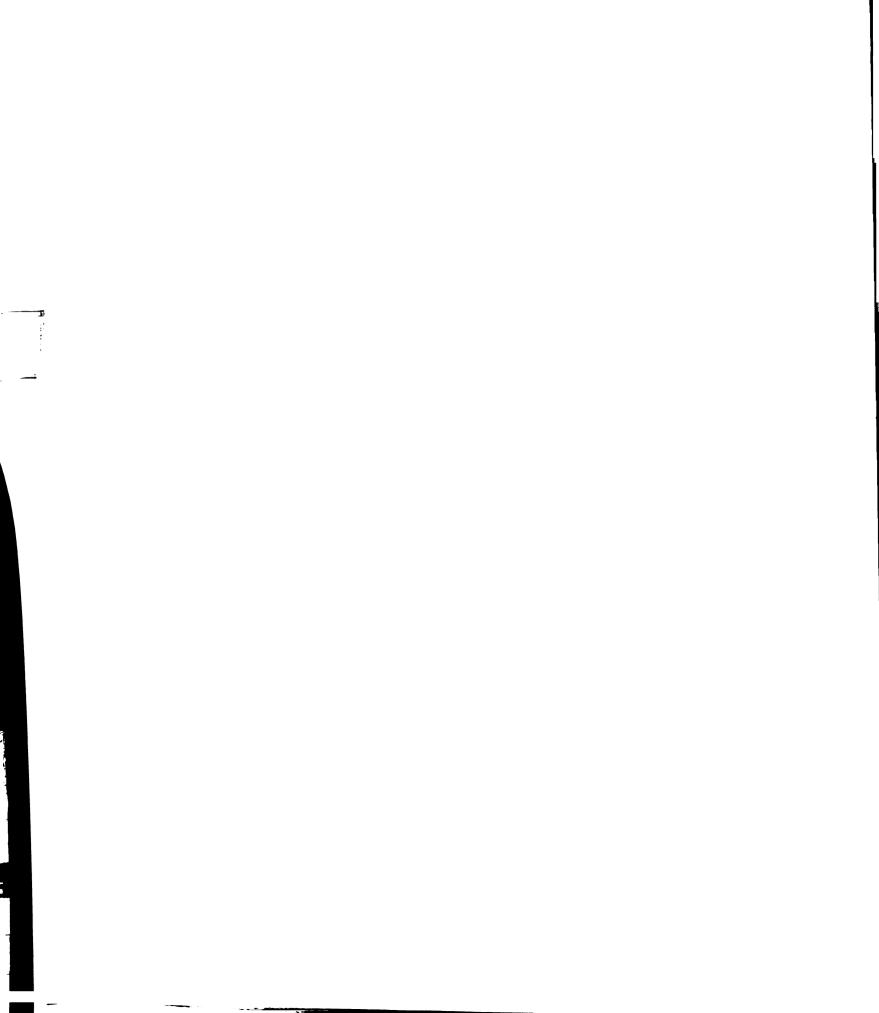
By

Bryan L. Bolea

Teacher education students enter college with a core set of beliefs about teaching that will likely be unchanged by their university experience (Calderhead & Robson, 1991). These beliefs tend to be simplistic, authoritarian, and, generally, the sort that lead to ineffective teaching (Freire, 1971). Unfortunately, efforts to lead students to rethink their preconceptions have not been successful (McDiarmid, 1992). Adhering to conceptual change models, teacher educators believe they have not yet created interventions strong enough to sufficiently challenge their students' beliefs (Feiman-Nemser & Melnick, 1992). Rooted in vocational psychology, this study suggested that conceptual change models do not account for the psychological variables that set teacher education students apart from other students.

From a reading of the teacher education literature, it was hypothesized that elementary education students would be classified as social types and not investigative types on Holland's Vocational Preference Inventory (Holland, 1985), as dualists on the Measure of Epistemological Reflection (Taylor, 1983) based on Perry's cognitive scheme, and as foreclosures on the revised version of the Extended Objective Measure of Ego Identity Status (Bennion & Adams, 1986)

based on Marcia's model of identity development. It was also hypothesized that these categorizations would set elementary education students apart from non-education students.

Forty-seven junior-level, female, elementary education students and seventy-two junior-level, non-education students responded to a randomized mailing. As hypothesized, the elementary education students were more social, less investigative, and more dualistic than would be expected by chance alone. Contrary to initial expectations, elementary students were not significantly foreclosed. Analyses also found that the elementary education students were significantly more social and less investigative than their peers, but were equally dualistic and equally foreclosed.

This dissertation is dedicated to

my wife, Patricia Stow Bolea, and to

my parents, Raymond and Irene Bolea

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There are many individuals who possess greater interest, ability, and motivation than I do. Unfortunately, because of financial, or other personal responsibilities, they are unable to embark on the luxury that is graduate education. I have tried, everyday, to honor the blessing that I have been offered, and want to acknowledge those who have helped make it possible.

I thank the Counseling Psychology faculty, as well as the staff at the Counseling Center, for the opportunities, tutelage, and supervision I received here at Michigan State University. Included in this group are the members of my dissertation committee: Anna Neumann, Ph.D., Richard Prawat, Ph.D., and Robbie Steward, Ph.D. I specifically need to highlight the impacts of Linda Forrest, Ph.D., who served both as my advisor and as the director of my dissertation committee, and of John Powell, Ph.D., who served as my primary supervisor and mentor. The guidance and support that each of you gave, and continue to give, will stay with me long after I leave this campus.

Next I need to thank the many friends who have supported me in ways, and at times, they cannot know. I especially need to thank my best friends, Troy and Kelly Paino. Maybe I could have done this without you around, but what would have been the point?

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Finally, I need to thank my wife, Patricia Stow Bolea. Any joy and satisfaction that I have experienced through this process pales in comparison to the joy and fulfillment I experience through our relationship. This would mean nothing if it were not cradled in the life we have created together.

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# CHAPTER ONE

## INTRODUCTION

Before taking their first note in their first class on their first day at college, teacher education students develop a core set of beliefs about teaching that will likely be unchanged by their university experience (Calderhead & Robson, 1991). This at a time when "there seems to be substantial agreement that teachers are not now as good as they used to be and that schools are no longer turning out students of comparable quality" (Horton Jr. & Summers, 1985, p. 252). This agreement is fueled "by the results of several international surveys [which suggest that] in math and science, in particular, U.S. students lag far behind students in other countries at every grade level" (Prawat, 1992, p. 354).

Many theorists and researchers believe that many of the problems in today's schools are directly related to the nature of the beliefs teacher education students develop before starting their professional training. The teacher education literature uses words such as "traditional", "conservative", and "authoritarian" to describe these beliefs which are said to follow from the logical positivist tradition. Many teacher educators contend that positivist thought diminishes education to a banking proposition in which teachers

deposit information into their students' accounts (Freire, 1971). Such a conceptualization is said to leave students with a static, disconnected understanding not only of subject matter, but of the world and their place in it (Kennedy, 1991; Wilson, 1992).

Most teacher educators believe a philosophic shift away from the traditions of logical positivism that have dominated Western thought to a more constructivist stance is needed (e.g., Ammon, Hutcheson, & Black, 1985; Kennedy, 1991; Prawat, 1992). Such a shift would be consistent with the contemporary intellectual zeitgeist that is critical of the foundational assumptions of positivist thought (Howard, 1986; Rosenau, 1992). The cornerstone of constructionist thought is its challenge to positivist views concerning "truth" and "knowledge." Whereas a positivist epistemology assumes that "hard, cold facts" exist outside the individual, and are merely waiting to be discovered; constructivist philosophy contends "that persons or systems constitute or construct reality" (Kegan, 1982). Although not necessarily arguing against the existence of a "real world" (Rosenau, 1992), constructivists do argue that the "real world" is never finally knowable because "man looks at his world through transparent patterns of templets which he creates and then attempts to fit over the realities of which the world is composed" (Kelly, 1963, p. 9). In place of "traditional" views of teaching and learning, constructivists argue for "a dramatic change in the focus of teaching, putting the students' own efforts to understand at the center of the educational enterprise" (Prawat, 1992, p. 357). From the constructivist perspective, teaching is seen as an "interactive" endeavor in

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which teachers interact with students around content areas which are best understood as "living entities" ever "growing and changing" (Prawat, 1992, p. 360; Phillips & Soltis, 1985, p. 59). A growing literature supports the contention that constructivist teaching strategies lead to deeper understandings in students (e.g. Bredderman, 1983; Shuell, 1990; Dole, Duffy, Roehler, & Pearson, 199-).

Constructivists acknowledge that such concepts are difficult to translate into instructional strategies. However, they believe "most of the problems associated with implementing a constructivist approach to teaching could be overcome if teachers were willing to rethink not only what it means to know subject matter, but also what it takes to foster this sort of understanding in students" (Prawat, 1992, p. 361).

## Statement of Problem

According to several authors, teacher educators' efforts to foster the rethinking noted above have met with little success. (e.g., Campbell, 1985; Kagan, 1992; McDiarmid, 1992; Zeichner & Tabachnick, 1981). Subsequently, teacher education students continue to leave the university with their traditional preconceptions still intact. The students' preconceptions are believed to have formed during their 12 plus years of typically traditional education (Feiman-Nemser & Melnick, 1992; Kennedy, 1991; Lortie, 1975; Thelen, 1973). Adhering to conceptual change models, teacher educators explain their failed efforts by suggesting that they have not yet created interventions strong enough to

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sufficiently challenge the students' preconceptions (Feiman-Nemser & Melnick, 1992; Kagan, 1992).

Teacher educators have created a vast literature which details the reasons individuals want to teach, and the specific conceptualizations they have of teaching and learning (e.g., Brookhart & Freeman, 1992; Kennedy, 1991). However, the need for and interest in such inquiry seems to have peaked as several writers are calling for studies that "address deeper and more informative questions" (Brookhart & Freeman, 1992, p. 38; Bullough, 1990; Featherstone, 1992; Guddemi, Swick, & Brown, 1987; Veenman, 1984).

Though teacher educators recognize that the field is in need of "fresh insights, experimentation, and new conceptions" (Lieberman, 1992, p. vii), they continue to seek these innovations from a limited number of sources. Specifically, teacher educators draw from "research and theory on learning, on teaching practice, on the relationship between education and society, and on the nature of school subject matter" (Kennedy, 1991, p. 1). This is consistent with Scarr's (1985) belief that scientists are led by the theories of their specific discipline to "focus on some pet variables and invent some facts and not others" (p. 510). This tendency leaves us "blind' to the theories and facts of other disciplines, even those based on the same observations" (Scarr, 1985, p. 510).

However, because events do not belong to any particular system, they may be freely interpreted by any number of theories (Perry, 1963, p. 12). The usefulness of any particular interpretation "depends both on shared

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perceptions of the 'facts' (consensual validation) and on whether they work for various purposes, some practical and some theoretical" (Scarr, 1985, p. 499).

Developing a Counseling Psychology Conception

In accord with Lieberman's (1992) call for "new conceptions" (p. vii), I propose to bring the templets of counseling psychology to the meaning-making dialogue concerning the repeated observation that "teachers acquire many beliefs about teaching before they begin professional study and that these beliefs remain relatively unchanged by their experiences in teacher education" (National Center for Research on Teacher Learning, 1992).

Counseling psychology is that field of psychology traditionally concerned with facilitating individual and family progression through "normal" developmental and life-space issues. Historically, one of the defining foci of counseling psychology has been its interest in career development. By utilizing the theories and "pet constructs" (Scarr, 1985) of counseling psychology to "organize and make sense" (Kegan, 1982) of the teacher education literature, I will invent new, alternative "facts." More specifically, I will reconstrue the problem as an issue of career development rather than of conceptual change. From this perspective, the teacher education student will be viewed as a meaning-making individual who, is not developing in his or her chosen field as the profession's gate-keepers would like.

I want to acknowledge that certain assumptions of counseling psychology may run contrary to those of teacher education. I do not, however, believe this should prematurely silence a potentially profitable conversation as efforts

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to shed new light on old problems almost always challenge time-honored beliefs and solutions. Furthermore, I do not believe that the career development constructions I will offer contradict teacher education's conceptual change interpretation. Instead, I believe that "by beginning earlier in the psychological chain" (Dweck & Legget, 1988, p. 268); by specifically focusing on the internal psychological variables that may have influenced individuals' decisions to enter teacher preparation programs, counseling psychology based constructions may offer insights into the robust nature of these students' preconceptions. In this way, the career development constructions I am proposing incorporate and subsume the conceptual change interpretations delineated in the teacher education literature.

Horton, Jr. and Summers (1985) extended an open invitation to counseling psychology to join the dialogue concerning teacher education reform when they wondered if "perhaps an intangible factor exists which helps to attract a certain quality of individual into the profession" (p. 24). Although Kuder (1977) acknowledged that "there may be as many occupations as there are persons in them (Zytowski & Hay, 1984, p. 25), "it is generally accepted that occupations are reasonably homogeneous within themselves and heterogeneous with respect to each other; that the similarities within them are greater than the differences between them" (Zytowski & Hay, p. 242). With this basic tenet of career development theory in mind, I propose that certain types of individuals are attracted to teaching. Furthermore, I propose that the constructs and theories of vocational theorists offer new insights into these types. Insights

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that offer new interpretations of students' robust preconceptions about teaching and learning. In the following paragraphs I will detail the process I went through in formulating my model. This will be followed by a brief discussion of the proposed model and the research questions developed to test it.

Teacher Education's Description of Preservice Teachers

I began my exploration of the teacher education literature by reading several published reviews related to the characteristics of education majors (e.g. Brookhart & Freeman, 1992; Carter, 1990; Guddemi et al., 1987; Nemser, 1983; Pigge & Marso, 1987). The reviews suggest that there may be some important differences between elementary and secondary education students and between early and late deciders (that is those who committed to teacher education early in their collegiate careers and those who transferred to teacher education from other disciplines) (Brookhart & Freeman, 1992). I have elected to focus on early deciding elementary education majors because this group appears to be more homogeneous than the larger group of elementary and secondary teachers (Brookhart & Freeman; Feiman-Nemser & Melnick, 1992).

The reviews suggest that elementary education majors are "mostly white, middle-class, females from small, homogeneous communities and highly conventional schools" (Feiman-Nemser & Melnick, 1992, p. 7). For the most part these individuals decided early (e.g. in high school) that they wanted to teach (Brookhart & Freeman, 1992), and did so mainly because they "like to work with people" (Lortie, 1975, p. 27) and saw teaching as "an opportunity [to render] important service " (Lortie, p. 28). When discussing the actual role of

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teaching, most "tend to emphasize the affective rather than the academic sides of teaching" (Feiman-Nemser & Melnick, p. 4), and tend to "believe that teaching subject matter is largely a matter of telling or showing" (McDiarmid, 1992, p. 37). Many of these students believe they already know enough to begin teaching and do not expect to gain much from their university course-work (Wilson, 1992).

Though simple and cursory, the above description summarizes the existing body of literature related to the characteristics of those who enter certification programs in elementary education. With this description in mind, I began to apply the theories and constructs of counseling psychology to the problems associated with teacher educators' mostly unsuccessful efforts to modify their students' traditional conceptions of teaching and learning.

Applying Counseling Psychology's Theories and Constructs

At its broadest, vocational choice and subsequent career development is said to be related to the complex interactions between an individual's genetic makeup, learning and attachment history, idiosyncratic interests and abilities, race, gender, geography and chance (Super, 1990). Obviously, this conception presents a formidable, if not incomprehensible, list of theoretically relevant directions to explore. Returning to the teacher education literature, three directions are suggested: personality (e.g., Gudemi et al., 1987; Harvey, Hunt, & Schroeder, 1963; Thelen, 1973), cognitive development (e.g., McEwen, Higgins & Pipes, 1982; Mumby, 1982; Veenman, 1984), and identity develop-ment (Featherstone, 1992; Kagan, 1992; Manning & Payne, 1987).

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Personality Theory

Personality is seen as "the unique pattern of traits which characterizes the individual" (Carson, Butcher, & Coleman, 1988, p. G-12). The word "traits" connotes a static view of personhood; a view rejected by most constructivists. However, all but the most adamant constructivist theories use some version of the personality construct be it "idiosyncratic differences," "unique interests," or simply "personality" without definition. Dweck and Legget (1988) offer a more balanced and useful view when they point out that "in the context of the entity versus the incremental self-systems, it is interesting to consider that different personality theories have focused primarily on one or the other. . . . Clearly, a comprehensive theory of personality must take account of both [entity and incremental] systems" (p. 266). For the purpose of this study, "personality" shall refer to the unique set of features, entity and incremental, that character-ize the internal psychological functioning of an individual.

Many studies have explored the personality characteristics of preservice and practicing teachers (e.g., Guddemi, et al, 1987; Hamachek, 1968). For the most part these studies have concerned themselves with such things as identifying the personality characteristics of successful verses unsuccessful teachers. I did not locate any study that linked elementary education students' personalities with their decisions to enter teaching. Within counseling psychol-ogy, John Holland (1973, 1985) has developed a theory geared towards doing just that.

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"Holland's theory of careers (1973, 1985) is based on the assumption that, since vocational interests are one aspect of what is commonly called personality, the description of an individual's vocational interests is also a description of the individual's personality" (Weinrach & Srebalus, 1990, p. 39). Holland believes that one's vocational interests are expressions of his or her personality and that, subsequently, individuals within the same occupation share a set of common personality characteristics (Holland, 1985). Holland believes that, when extrapolated, these shared personality characteristics differentiate individuals in one type of occupation from those in another (1985). Furthermore, Holland "contends that each individual, to some extent, resembles one of six basic personality types (Weinrach & Srebalus, p. 40). These types include the realistic, investigative, artistic, social, enterprising, and conventional personalities.

However, Holland did acknowledge that individuals do not fall neatly into one or the other category, and suggested that one's personality type is a matter of "degree and patterning" (Weinrach & Srebalus, 1990, pp. 47-48). In an effort to avoid "some of the problems inherent in categorizing a person as a single type" (Holland, 1985, p. 3), practitioners list, in descending order, the three types that the individual most resembles. This is referred to as a person's three-point code.

Within this personality system, elementary education teachers, because of their interest in working with and helping others, are expected to be classified as "social types" (Weinrach & Srebalus, 1990, p. 42). In line with this

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expectation, drawing from career development/personality theory from the discipline of counseling psychology, I propose that the majority of elementary education majors will be classified as social types by Holland's typology. Furthermore, because the literature suggests that students entering elementary education are not particularly interested in exploring ideas and theories, I propose that the majority of elementary education majors will not be classified as investigative types, nor will the investigative type be in their three-point code personality pattern. Together, these two propositions serve as the foundation of my proposed model.

In Chapter Two I will more thoroughly present Holland's model and support my contentions with more information from the counseling psychology and teacher education literatures. I will also explore the implications of these hypotheses for those attempting to help elementary education students move towards more constructivst beliefs.

## Cognitive Development Theory

The second step of my formulation will address the cognitive development of elementary education students. Perry's (1970, 1981) scheme of intellectual and ethical development is often used to conceptualize the cognitive development of college students (McEwen et al., 1982). He suggested that college students move through three basic stages: dualism, relativism, and commitment in relativism. To the dualist "truth is assumed to be known, and information is processed to fall neatly into one of the two categories: right or wrong, good or bad" (Baxter-Magolda & Porterfield, 1988, p. 6). Dualists "view

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authority figures as the holders of truth from whom they must learn" (Baxter-Magolda & Porterfield, 1988, pp. 6-7). Relativists recognize several possibili-ties, "uncertainty replaces absolutism. This change releases authority from its previous all-knowing position and elevates the student's ideas to an equal status" (Baxter-Magolda & Porterfield, 1988, p. 7). Those committed in relativism "are characterized by the development of commitment. The individual takes responsibility for making choices and affirming his or her identity" (Baxter-Magolda, 1988. p. 7).

Like most college-age individuals, elementary education students are assumed to enter the university at a dualistic stage of cognitive development (McEwen et al., 1982). In fact, students' dualism has been identified as one of the obstacles blocking teacher educators' efforts to facilitate change in their students (Bennet, Niggle, & Stage, 1990). Though Perry's cognitive develop-ment scheme, in part, explains why elementary education students tend to enter the university with dualistic beliefs about teaching and learning, it does not explain why these beliefs do not change through their university experi-ence. In fact, the robust nature of education students' preconceptions runs contrary to Perry's (1970, 1981) model.

Though previous writers would predict that elementary education students enter the university at the dualistic stage of cognitive development, I do not believe this statement makes use of all available information. I believe that elementary education students' maintenance of dualistic "webs of belief", suggests that, contrary to theory based expectations, they are not moving out

of dualism. I propose that, throughout their university experience, elementary education students remain dualists. Furthermore, I will contend that the students' decision to teach is, in part, related to their dualistic repertoire of meaning-making skills. This is the second component of my model and will be further elaborated and supported in the literature review that follows.

## Identity Development Theory

The final component of my model deals with the identity development of elementary education students. Though several writers have acknowledged the important role students' concepts of themselves as teachers play in their development (e.g., Feiman-Nemser & Melnick, 1992; Kagan, 1992), none seem to link this occupational-role-conception to broader identity development issues.

Erikson (1950) believed "that the developmental issue most central to college students is identity resolution. . . . Identity, according to Erikson, involves coming to terms with 'who am I' and often includes vocational, value, and life-style commitments" (McEwen et al., 1982, p. 164). There is "a strong instrumental flavor to [Erikson's] conception of how the individual forms an identity - one works at it; one constructs an identity" (Logan, 1983, p. 944). Marcia (1966, 1976) has elaborated Erikson's (1950, 1968) theory by identifying four "styles or processes by which individuals pursue the tasks of establishing and revising their sense of personal identity" (Vondracek, 1991, p. 134). "It is important to note that Marcia's identity statuses should not be viewed as

signifying the final outcome of identity exploration and crisis, but rather as an ongoing process" (Vondracek, 1991, p. 135).

Specifically, Marcia (1966) contends that, when confronted with the adolescent identity crisis, individuals either enter into a period of "diffusion" characterized by a lack of commitment in which the individual has "neither decided upon an occupation nor is much concerned about it;" a period of "moratorium" characterized by "an active struggle to make commitments;" a period of "foreclosure" "distinguished by not having experienced a crisis, yet expressing commitment;" or a period of "identity-achievement" in which the individual "has seriously considered several occupational choices and has made a decision on his own terms" (Marcia, 1966, pp. 551-552).

The literature suggests that elementary education students decide relatively early in their lives that they will pursue a career in teaching and hold rather rigidly and blindly to their established beliefs about teaching and knowledge (Kennedy, 1991). Marcia (1976) contends that foreclosed individuals preempt the identity crisis by making early decisions and tend to maintain rather rigid, closed approaches to life. When overlapped, these findings suggest that the typical elementary education student may have foreclosed her/his identity. In the literature review I will elaborate Marcia's model and support my contention with further evidence from the teacher education literature.

Implications

<u>For Teacher Education</u>

This study is important because it proposes to offer new, theoretically-based, insights into the possible relationship between the personal characteristics of individuals who choose to enter elementary education, the beliefs they hold about teaching and learning, and the impact of their initial professional training. It is believed that such insights would suggest to teacher educators a variety of alternative, psychology-based, interventions.

The need for this study is indicated by the fact that though "research on the process of conceptual change suggests some of the conditions that must exist if people are to change their minds" (Feiman-Nemser & Melnick, 1992, p. 5), interventions based on conceptual change models have not yet proven consistently successful (Feiman-Nemser & Melnick, 1992). Specifically, interventions geared towards creating in students a dissatisfaction with their existing beliefs, the ability to visualize and value alternatives, and the ability to integrate the new with the old, are not, in and of themselves, producing satisfactory results (Feiman-Nemser & Melnick, 1992).

This is not to say that the conceptual change model should be discarded for inevitably, in teaching as well as in other disciplines, entering students will always possess a group of false or unhelpful beliefs about their discipline that will need to change if full professional development is to occur. Conceptual change models have much to offer those involved in the changing of these beliefs.

Instead, as I have discussed, it may be that, among elementary education majors, the low impact of conceptual change interventions is directly linked to the interaction of the particular personality type, stage of cognitive development, and identity status of those who select to enter elementary teaching. It is by exploring these constructs, and the possible interrelations among them, that this study seeks to expand the range of theory-driven interventions available to teacher educators.

If it is found that the majority of elementary educators are social types and not investigative types, theory would suggest that these individuals would not likely be drawn into epistemological debates; and so, would not be susceptible to interventions geared at challenging their preconceptions. Therefore it is not likely that they would adopt the views of teaching and learning that are favored by constructivist teacher educators. To address this problem teacher education programs would have to do at least three things: First they would have to actively recruit individuals with more investigative interests; second they would have to attempt to reinforce whatever investigative characteristics the students do possess; and thirdly, they would have to be willing to advise those who do not posses an adequate amount of investigative interest and/or ability that they may not be suited to the demands of contemporary elementary education.

If it is found that the majority of elementary students enter as, and remain dualists, special efforts should be directed at helping them expand not their beliefs, but their construal systems. According to Perry this is best done

through successive interactions with diversity. Complicating this process is the possibility that, in some ways, by entering a particular program together, white females from small homogeneous communities actually enter worlds that are more homogeneous than the ones they grew up in. Carefully designed, subtle introductions to diversity are necessary if these students are to move to multiplicity. Interventions that are too disconcerting will only lead to the maintenance of dualistic thinking via temporization (Perry's term for individuals who seem to be "stuck" in one position). If students do not move from dualism, they will not be able to "see" or comprehend the more complex and relativistic constructivist beliefs favored by teacher educators. Theoretically, the cognitive development component of this model should be the most susceptible to intervention.

If the majority of elementary education students are foreclosed, by definition it is not likely that they will seriously explore their beliefs about teaching and learning. In this event, educators would have to direct their efforts towards moving the students into moratorium (the stage at which exploration takes place). Theory suggests that individuals foreclose in an effort to avoid the anxiety which comes from exploring and making commitments concerning one's beliefs, lifestyle, and career possibilities. In light of this, it would be necessary for teacher educators to develop psycho-educational interventions geared towards helping students identify, explore, and manage their anxiety. Only after the students feel capable will they open themselves up to the anxiety of exploration. At this point educators may lead their students

through an exploration of their decisions to teach, as well as their beliefs about teaching and learning. Interventions such as the one developed by McWhirter, Banks, and Nichols (1984) offer educators some guidance in this area. Though in theory identity status is never fixed, Marcia (1976) found that foreclosed individuals were the most constant.

When the quartet of social type, not investigative type, dualist, and foreclosure exist within the same person, the likelihood of that individual being excited by constructivist thought drops sharply. Note that I am not suggesting that this individual is statically incapable of grasping constructivist concepts. Instead I am only suggesting that it is unlikely such a person would want to. Holland (1986) beautifully illustrated this point when he suggested that the resistance of social types to doing research is no stronger than the resistance he would raise if, as an investigative type, he was told that he had to conduct more therapy sessions.

## For Counseling Psychology

Regardless of the outcome, this discussion should spawn more thought about the ways in which counseling psychology can benefit the ongoing dialogue concerning school improvement.

This study should offer some interesting implications for those involved in career development research. Besides supporting or not supporting particular concepts and theories, it may spawn further thought about the blending of theories into larger wholes.

Summary

To summarize, elementary education majors enter the university with an established set of traditional beliefs about teaching, learning, and knowledge; which, by and large, do not change via their university experience. I reviewed the teacher educators' construction of this problem. Next I proposed a counseling psychology perspective, couched in the language of career development theory, that offers new insights into the problem and implies alternate interventions to address the situation. Using three psychological theories I developed a model to explain why the typical elementary education major is not receptive to the challenges presented during their professional training. Specifically, the combined model predicts that the typical elementary education major will be a social type and not an investigative type based on Holland's typology, a dualist based on Perry's scheme of cognitive development, and a foreclosure based on Marcia's theory of identity development. Relatedly, I predict that the combination of these four variables within the same individual will predict enrollment in an elementary education program.

In the next chapter I will review the literature that explains and supports each theory. Because most elementary education students are female, special care will be taken to explore the applicability of the theory to women. Furthermore, I will discuss how the interaction of these four components within the same person could produce the cognitive, affective, and behavioral characteristics noted in elementary education students. That is, I will discuss why a foreclosed, dualistic, social-type and non-investigative-type, would be expected

to "look" like the picture the literature paints of the "typical" elementary educa-

tion student.

# CHAPTER TWO

## LITERATURE REVIEW

In this chapter I will review the literatures from the disciplines of counseling psychology and teacher education that expand and support my proposed model. I will close by presenting the formal hypotheses this study proposes to test.

### Holland's Theory

"The intellectual roots of [Holland's (1973, 1985)] theory lie mainly in the traditions of differential psychology--especially the interest measurement literature--and of typologies of personality. The interest literature provided the stimulus for assuming that people with different interests and in different jobs were in fact different people with different life histories" (Holland, 1985, p. x). Overall, "few theoretical approaches come from such a broad foundation, and few have influenced so many, nor are used today as much as Holland's is" (Weinrach & Srebalus, 1990, p. 47).

Holland (1985) called his theory "an elaborate engineering" of the foundational belief that "we can . . . reinterpret [one's] vocational interests as an expression of personality" (p. 8). From this premise, Holland reasoned that those who share vocational interests must also share some important

personality features. To test this hypothesis Holland performed elaborate studies using large samples from a variety of occupations. This work allowed him to conclude that, "in our culture, most persons can be categorized as one of six [personality] types: realistic, investigative, artistic, social, enterprising, or conventional" (Holland, 1985, p. 2).

However, Holland also acknowledged that individuals do not fall neatly into one or the other category, and instead suggests that one's personality type is a matter of "degree and patterning" (Weinrach & Srebalus, 1990, pp. 47-48). In an effort to avoid "some of the problems inherent in categorizing a person as a single type" (Holland, 1985, p. 3), practitioners list, in descending order, the three types that the individual most resembles. This practice is based on the belief that "the types that the person resembles secondarily and thirdly determine the secondary and tertiary directions of vocational choice" (Holland, 1985, p. 30).

Holland believes that each personality type "is the product of a characteristic interaction among a variety of cultural and personal forces including peers, biological heredity, parents, social class, culture, and the physical environment" (1985, p. 2). From these variables and experiences, "a person learns first to prefer some activities as opposed to others. Later, these activities become strong interests; such interests lead to a special group of competencies. Finally, a person's interests and competencies create a peculiar disposition that leads him or her to think, perceive, and act in special ways"

(Holland, 1985, p. 2). Each personality type is defined by the dispositional characteristics common to its members:

**Realistic** types prefer "activities that entail the explicit, ordered, or systematic manipulation of objects, tools, machines,and animals". These preferences "lead in turn to the acquisition of manual, mechanical, agricultural, electrical, and technical competencies and to a deficiency in social and educational competencies". A Realistic person "perceives self as having mechanical and athletic ability and lacking ability in human relations". The Realistic individual is "apt to be: asocial, materialistic, self-effacing, conforming, natural, inflexible, frank, normal, thrifty, genuine, persistent, uninsightful, hard-headed, practical, [and] uninvolved".

**Investigative** types prefer "activities that entail the observational, symbolic, systematic, and creative investigation of physical, biological, and cultural phenomena in order to understand and control such phenomena". These preferences "lead in turn to an acquisition of scientific and mathematical competencies and to a deficit in persuasive competencies." An Investigative person "perceives self as scholarly, intellectual, having mathematical and scientific ability, and lacking in leadership ability." The Investigative individual is "apt to be: analytical, independent, rational, cautious, intellectual, reserved, critical, introspective, retiring, complex, pessimistic, unassuming, curious, precise, [and] unpopular."

**Artistic** types prefer "ambiguous, free, unsystematized activities that entail the manipulation of physical, verbal, or human materials to create art

forms or products." These preferences "lead, in turn, to an acquisition of artistic competencies - language, art, music, drama, writing - and to a deficit in clerical or business system competencies." An Artistic person "perceives self as expressive, original, intuitive, nonconforming, introspective, independent, disorderly, having artistic and musical ability, and ability in acting, writing, and speaking." The Artistic individual "is apt to be: complicated, imaginative, intuitive, disorderly, impractical, nonconforming, emotional, impulsive, original, expressive, independent, sensitive, idealistic, introspective, [and] open."

**Social** types prefer "activities that entail the manipulation of others to inform, train, develop, cure, or enlighten." These preferences "lead in turn to an acquisition of human relations competencies such as interpersonal and educational competencies and to a deficit in manual and technical competencies." A Social person "perceives self as liking to help others, understanding others, having teaching ability, and lacking mechanical and scientific ability." The Social individual "is apt to be: ascendant, helpful, responsible, cooperative, idealistic, sociable, patient, empathic, tactful, friendly, kind, understanding, generous, persuasive, [and] warm."

**Enterprising** types prefer "activities that entail the manipulation of others to attain organizational goals or economic gain." These preferences "lead in turn to an acquisition of leadership, interpersonal, and persuasive competencies, and to a deficit in scientific competencies." An Enterprising person "perceives self as aggressive, popular, self-confident, sociable, possessing leadership and speaking abilities, and lacking scientific ability." The

Enterprising individual "is apt to be" acquisitive, energetic, flirtatious, adventur-ous, exhibitionistic, optimistic, agreeable, excitement-seeking, self-confident, ambitious, sociable, domineering, extroverted, [and] talkative."

**Conventional** types prefer "activities that entail the explicit, ordering, systematic manipulation of data, such as keeping records, filing materials, reproducing materials, organizing written and numerical data according to a prescribed plan, operating business machines and data processing machines to attain organizational or economic goals." These preferences "lead in turn to an acquisition of clerical, computational, and business system competencies and to a deficit in artistic competencies. A Conventional person "perceives self as conforming, orderly,and as having clerical and numerical ability." The Conventional individual "is apt to be: careful, inflexible, persistent, conforming, inhibited, practical, conscientious, methodical, prudish, defensive, obedient, thrifty, efficient, orderly, [and] unimaginative." (Holland, 1985, pp. 19-23)

As mentioned above, no one individual belongs solely to a single category. Instead the types, as defined above, represent abstracted pure "models against which we can measure the real person" (Holland, 1985, p. 2). "By comparing a person's attitudes with those of each model type, we can determine which type he or she most resembles" (Holland, 1985, p. 3). Because individuals "search for environments that will let them exercise their skills and abilities, express their attitudes and values, and take on agreeable problems and roles" (Holland 1985, p. 4), Holland believes that particular occupations may be described by the predominant personality type that it

draws. In this way, any particular occupation may be described as realistic, investigative, artistic, social, enterprising, or conventional (p. 3). For example, the realistic environment consists of all the occupations that attract predominantly realistic types, and realistic occupations such as carpentry attract realistic individuals.

Because Holland's theory suggests that personality types seek congruent environments, one of the simplest assessment mechanisms is to determine in what environmental type a particular individual's primary vocational interests lie (Holland, 1985). Because Holland classifies elementary teaching as a social occupation, his theory would predict that elementary education majors are social types. In the following paragraphs I will describe the literature that further supports this prediction.

Belenky, Clinchy, Goldberger, and Tarule (1986) reported that women tend to "define themselves in terms of their relationships and connections with others" (p. 8). Such a focus on others is consistent with Holland's (1985) description of social types. Research has also shown that women are characterized as social types more often than they are any other type (Prediger & Hanson, 1976). Together this information suggests that, because the majority of elementary education majors are women, and because women are likely to be social-types, the majority of elementary education majors are also likely to be social-types.

The teacher education literature reports that, during their high school years, elementary education majors are more likely to have involved

themselves in child-care and tutoring activities than are non-education majors. The fact that elementary education majors may be distinguished from non-education majors based on the extent of their past child service activities also supports the prediction that elementary education students are predominately social types (Brookhart & Freeman, 1992).

More directly, the literature suggesting that elementary education students elected to enter teaching for primarily service related reasons (e.g., Brookhart & Freeman, 1992; Feiman-Nemser & Melnick, 1992; Lortie, 1975) supports my prediction. The finding that "when asked to evaluate teaching situations involving student diversity, [elementary education students] attended only to social and personal issues " (Kennedy, 1991, p. 8), also supports my prediction that elementary education majors will score as social types.

When asked to describe the personal characteristics that will make them good teachers; "typically students cite warmth, patience, and empathy . . . rarely do they mention intellectual strengths or subject matter knowledge" (Nemser, 1983, p. 154). Similarly, "entering teacher candidates view the nurturing and interpersonal aspects of a teacher's role as more important than the academic aspects" (Brookhart & Freeman, 1992, p. 50). Interestingly, in a longitudinal study, Horton Jr. and Summers (1985) found that the number of students adhering to these sorts of beliefs has increased over the past 20 years.

If indeed it is found that the typical elementary education student is a social type, several important assumptions could be made. First, a student's

decision to enter teaching may be thought of as a direct attempt to find an environment in which the expression of her personality will lead to the particular set of reinforcers, and therefore fulfillment, consistent with her personality type (Holland, 1985). Therefore efforts to change students' conceptions about teaching and learning would be equivalent to telling them that elementary education is not an environment in which they may comfortably and confidently express their personality.

Finally, Holland's (1985) description of social types does not suggest an individual who is particularly interested in epistemological questions. To influence one's epistemological beliefs, that person must possess the curiosity to be drawn into an epistemological debate. A social type, wanting primarily to help people, may find such discussion irrelevant. Similarly, and unfortunately, it seems unlikely that a social type would be drawn to the sort of activities Prawat (1992) recommends when he suggests that teachers "play the role of disciplinary practitioner[s] - modeling the process a mathematician might go through in solving a problem, for example, or that of a historian in accounting for why a particular event occurred" (p. 378). Elementary education majors entered teaching because they saw teaching as an opportunity to "render important service" (Lortie, 1975), not to do math, or history, or literature.

The above paragraph leads to the second Holland-based hypothesis of my model. From all descriptions (e.g. Lortie, 1975; Feiman-Nemser & Melnick, 1992) elementary education students, as a group, do not seem to posses the characteristics of investigative types. They do not do well in math and science,

are not often referred to as intellectual, and tend to enjoy the personal over the intellectual components of teaching and learning. On the other hand, investigative types are expected to prefer intellectual, systematic explorations of problems, theories, and ideas. In short, investigative types are the sort of individuals who would be expected to be attracted to the sort of epistemological discussions teacher educators utilize in their efforts to modify students' preconceptions. Because students are, apparently, not being drawn into these discussions, I predict that they will not be classified as investigative-types.

If, in fact, the typical elementary education student is not an investigative type, another important issue arises. Though teacher educators have suggested that they ought to have much in common with classroom teachers (Featherstone & Feiman-Nemser, 1992), the literature suggests that teacher educators are likely to rank relatively high on the investigative domain. If teacher educators are investigative types and elementary education students are not, it is expected that the two groups would view the same event in different ways, leading them to make different sense from the same event, thus confounding educators' efforts to affect change in the students' belief systems (Holland, 1985).

The above discussion suggests that the students' beliefs about teaching and learning may not be separated from their personalities which have a direct impact on the specific meaning-making systems they employ. From Holland's perspective, the beliefs are the student and the meaning-maker is the meaning made. In this light, efforts to alter students' beliefs are efforts to change not

only the meaning made, but the nature and personality of the meaning-maker.

Research suggests that, though such change is theoretically possible, it does

not come easily or often (Holland, 1985; Campbell, 1971; Osipow, 1969).

## Perry's Scheme

The impact of constructivism on academic thought has brought "a

revolution in the very definition of knowledge confronted by freshmen in a

college of liberal arts in this century" (Perry, 1970, p. 5). The nature of this

revolution is most clearly seen in science, which, "is moving away from a

stable, mechanical view of the world toward one based on notions of complexi-

ty and change" (Prawat, p. 382). In science then, as in teacher education,

college students are being asked to construe disciplines as sets of ever

changing beliefs which are neither inarguable or finally provable (Rosenau,

1992). Perry (1970) recognized that this move required more than a simple

shift in beliefs. Instead the move involved not so much a change in belief-

content as it did a change in belief-form and structure (Perry, 1970). Perry's

scheme (1968, 1970) describes the normal course of this cognitive change

process. To explore the nature of this change, Perry (1968, 1970) initiated a

four-year study in which he interviewed students at each year of their collegiate

career. He looked beneath the content of these interviews in an effort to

determine if indeed the nature of the students' thinking changed, and if so,

whether or not there seemed to be any implicit pattern to this change. The

result is a nine-point scheme of cognitive and ethical development (Perry,

1968, 1970). "The developments traced in the scheme are of construal rather

than of content, of contextual configuration rather than of linear increment, and involve what might be called the growth of conceptual hierarchies" (Perry, 1970, p. 14). The scheme's "main line of development" is as follows:

**Position 1**: The student sees the world in polar terms of we-right-good vs. other-wrong-bad. Right Answers for everything exist in the Absolute, known to Authority whose role is to mediate (teach) them. Knowledge and goodness are perceived as quantitative accretions of discrete rightness to be collected by hard work and obedience (paradigm: a spelling test).

**Position 2**: The student perceives diversity of opinion, and uncertainty, and accounts for them as unwarranted confusion in poorly qualified Authorities or as mere exercises set by Authority "so we can learn to find The Answer for ourselves."

**Position 3**: The student accepts diversity and uncertainty as legitimate but still temporary in areas where Authority "hasn't found The Answer yet." He supposes Authority grades him in these areas on "good expression" but remains puzzled as to standards.

**Position 4**: (a) The student perceives legitimate uncertainty (and therefore diversity of opinion) to be extensive and raises it to the status of an unstructured epistemological realm of its own in which "anyone has a right to his own opinion: a realm which he sets over against "Authority's realm where right-wrong still prevails, or (b) the student discovers

qualitative contextual relativistic reasoning as a special case of "what They want" within Authority's realm.

**Position 5**: The student perceives all knowledge and values (including authority's) as contextual and relativistic and subordinates dualistic right-wrong functions to the status of a special case, in context.

**Position 6**: The student apprehends the necessity of orienting himself in a relativistic world through some form of personal Commitment (as distinct from unquestioned or unconsidered commitment to simple belief in certainty).

**Position 7**: The student makes an initial Commitment in some area.

**Position 8**: The student experiences the implications of Commitment, and explores the subjective and stylistic issues of responsibility.

**Position 9**: The student experiences the affirmation of identity among multiple responsibilities and realizes Commitment as an ongoing, unfolding activity through which he expresses his life style. (Perry, 1970, pp. 9-10)

These nine positions are often collapsed into three categories: Dualism, "characterized by a dichotomous structure from which the world is viewed in absolute either-or-terms;" Relativism, in which "the search for absolute right answers is abandoned as the structure calls for a variety of answers dependent on the context;" and Commitment in Relativism in which "the individual takes responsibility for making choices and affirming his or her identity in numerous contexts or areas of life" (Baxter-Magolda & Porterfield, 1988,

pp. 6-7). This is a practice born out of practicality allowing for a simpler more discrete placement of an individual's "dominant form" of thought.

In general, entering college students are expected to exhibit dualistic thinking. That is, they are expected to believe in a knowable world consisting of discrete "truths" which are understood and passed down by "authority" (Perry, 1970). Via interactions with authorities and peers, college students extend their meaning- making power through successive confrontations with diversity (Perry, 1970). This "construal" change, however, does not come easily. On the contrary Perry found that "the first half of the entire development . . . consists of the progressive modification of a dualistic Authority-oriented structure" (Perry, 1970, p. 6).

Though Perry believed that the environment played a role in stimulating this change, he believed that the primary impetus for change came from within the individual. "The impetus seemed compounded by many 'motives': sheer curiosity; a striving for the competence that can emerge only from an under-standing of one's relation to the environment; an urge to make order out of incongruities, dissonances, and anomalies of experience; a wish for a community with men looked upon as mature; a wish for authenticity in personal relationships; a wish to develop and affirm an identity, and so on" (Perry, 1970, p. 51).

While Perry (1970) found that the pattern of change was the same for all his subjects, he did not observe that they changed at the same rate. Besides predictable differences due to the idiosyncratic personality and developmental

differences among subjects, Perry (1970) found there to be three other distinct

mutative change paths which, if chosen, could hinder an individual's growth

process:

**Temporizing**: [In which] the student delays in some Position for a year,

exploring the implications or explicitly hesitating to take the next step.

**Escape**: [In which] the student exploits the opportunity for detachment

. offered by the structures of Positions 4 and 5 to deny responsibility through

passive or opportunistic alienation.

**Retreat**: [In which] the student entrenches in the dualistic, absolutistic

structures of Positions 2 or 3. (Perry, 1970, p. 10)

To explain why some individuals enter one of the "conditions of delay,

deflection or regression" Perry (1970) drew upon a "metaphor of opposing

forces" (pp. 11 & 52) and suggested that, in opposition to the motivating

forces, each individual had within themselves an opposing set of "conservative"

forces (1970, p. 53). These "countervailing forces appeared to consist of such

tendencies as the wish to retain earlier satisfactions or securities, the wish to

maintain community in family or hometown values and ways of thinking, the

reluctance to admit one has been in error, the doubt of one's competence to

take on new uncertainties and responsibilities, and most importantly, the wish

to maintain a self one has felt oneself to be (Angyal, 1965)" (Perry, 1970, p.

52).

Though, in theory, a delayed, escaped, or retreated individual is always

free to resume growth (Perry, 1970, p. 198), Perry himself hypothesized that

"such matters as the 'urge to progress'. . . or the 'urge to conserve' might be, like many human traits, 'normally distributed' in the population, therefore implying that there may be some "natural" cases in which individuals would remain dualists (1970, p. 53). Clinical findings have also suggested that some individuals remain in dualism through much, if not all of their lives (Belenky et al., 1986; Ryan, 1984).

Relatedly, the existence, and indeed proliferation, in this culture of racist organizations, fundamentalist religious groups, and one issue political groups signifies a rather strong degree of dualistic thought among our citizenry. Likewise, traditional Western thought could be viewed as drawing on dualistic distinctions between people and events (Belenky et al., 1986). In this way it appears that hierarchical cognitive change may come with more difficultly, and more incompletely than Perry's (1970) theory would suggest. An explanation of this contradictory observation might come through an examination of Perry's (1968, 1970) methodology.

Perry (1970) built his theory upon information obtained through inter-views with males at Harvard. In an academic zeitgeist that favors constructivist thought, a selective institution such as Harvard would have likely sought applicants who were already beyond Perry's first position of 'Basic dualism'. (In fact, Perry found that only four students entered Harvard in Position 1.)

In summary, Perry (1968, 1970) suggested that college students enter the university with a dualistic understanding of knowledge and authority. Then, motivated primarily by internal forces, the students, through their interactions

with peers and authority, extend their means of interacting with and creating meaning out of diverse and contrary opinion. There are at least three ways individuals can avoid further growth: delay, escape, and regression. Evidence suggests that, despite Perry's claim that growth is never permanently stumped, there may be a number of individuals who do not progress beyond dualism (Belenky et al, 1986; Perry, 1970).

As mentioned above, Perry's scheme implies that all students enter college with a dualistic orientation toward authority and knowledge. As part of this larger whole, entering elementary education majors would also be expected to be dualists. This prediction has been directly suggested by several writers (e.g. Bennet et al., 1992; McEwen et al., 1982) and is consistent with the general authoritarian, dualistic nature of elementary education students' beliefs about teaching and learning (Kennedy, 1991; Wilson, 1992).

However, though the assumption that elementary education students enter the university with a dualistic orientation to knowledge and learning offers an understanding of the structure of elementary education students' entering beliefs, it offers little to the understanding of why these beliefs remain intact when faced with powerful arguments for change. In fact, an adherence to Perry's model would lead one to predict that the students' beliefs would become more constructivistic as their "construal" systems developed from dualism to relativism (Perry, 1970). Instead, elementary students are leaving the university with many of their traditional beliefs still intact (McDiarmid, 1992).

Teacher educators, interpreting this observation from a conceptual

change model, believe that they have yet to develop interventions that signifi-
cantly challenge the strongly entrenched beliefs of their students (Feiman-
Nemser & Melnick, 1992). Treating the students' beliefs as entities to be
changed suggests that the conceptual change models are more consistent
with Piagetian theory than with Perry's "construal change" scheme.

Whereas "Piagetian development is fostered by the individuals' interac-
tions with physical objects, Perry . . . describes development as the result of
interactions with authority figures and peers" (Perry, Donovan, Kelsey, Patter-
son, Statkeiwicz, & Allen, 1986, p. 81). Research has shown that Piaget's and
Perry's constructs are independent of each other and that neither is built upon
the other (Perry et al., 1986). Furthermore, Kitchner and Kitchner (1981) argue
that Perry's "reasoning is far more complex than that employed by Piaget's
analysis" because "Piagetian based instruction alone, does not address the
whole individual" (Perry et al., 1986, p.82).

In an effort to address the whole individual I propose that the reason
elementary education students do not change their beliefs is because their
construal systems do not change. Through delay, escape, or regression these
students do not choose to progress. I use the word "choose" here because
Perry reported that, at some level, each student revealed that they had known
what the next level of cognitive development would hold, even before they
actually moved into the next position (1970, pp. 51-53).

If it is true that the majority of elementary education students do not move out of dualism how could this be explained? I believe that the teacher education literature holds some clues.

First, Perry (1970) contended that movement within his scheme is the direct result of experiences with diversity. Because, before entering the university, most elementary education majors have had little experience with diversity (Kennedy, 1991) Perry's theory would suggest that they have not yet moved out of basic dualism. Because the change process is not easy, it might be that the student could make much progress, yet still not move beyond dualism by the time he or she graduates.

It might also be assumed that, coming from a small homogeneous community, the typical elementary education student might have more power-ful "constellations of countervailing forces" than non-education majors. For instance it might be that an individual coming from a small homogeneous community would feel more pressure to "maintain community in family or hometown values and ways of thinking" (Perry, 1970, p. 52).

Furthermore, the physical move from a homogeneous community to a heterogeneous campus might increase "the apprehension that one change might lead to another in a rapidity which might result in catastrophic disorgani-zation" (Perry, 1970, p. 52). Such apprehensions Perry believes are the basis for all conservation motives (1970, p. 52).

As a young female, particularly as a young female from a small tradition-al community, the typical elementary education student was likely rewarded

more for her compliance to established norms than for her extension of, or rebellion to, communal or familiar expectations (Belenky et al., 1986). Elementary teaching is the quintessential female occupation (Belenky et al., 1986). If society directs females into any particular occupation, it is that of teaching. In this way, the decision to teach at the elementary level may be seen, to some extent, as the result of pressures to conform to particular conceptions of womanhood.

Further evidence that elementary education majors may remain at a dualistic stage of cognitive development comes from the work of Belenky et al (1986). Though Belenky and her colleagues acknowledge that Perry's (1968, 1970) scheme has been validated for use with women, they suggest that it only shows how female development is like male development. Contending that there are also important differences, Belenky and her colleagues embarked on an interview-based study similar to Perry's. They argued that their theory is more complex and complete because they interviewed woman from diverse settings rather than just college students.

From their interviews, Belenky et al. (1986) "grouped women's perspectives on knowing into five major epistemological categories: Silence; Received Knowledge; Subjective Knowledge; Procedural Knowledge; and Constructed Knowledge. Belenky et al. suggested that their construct "subjectivism" is similar to Perry's notion of "multiplicity" and that, "in most cases, the terms are interchangeable" (p. 62). Likewise, their "Silence" and "Received Knowledge"

stages share some important features with Perry's "Dualism" (e.g. a belief in Authority and final truth).

Belenky et al. (1986) found that Received Knowers believed that "they should devote themselves to the care and empowerment of others" and "channeled their increasing sense of self into their growing capacity to care for others" (p. 47). This finding would certainly lead one to predict that females at the Received Knowledge stage would be likely to seek out a service-related profession. And, as mentioned earlier, elementary education majors cited service related reasons for entering teaching more than they cited any other (Lortie, 1975).

Received knowers also believed "that the world is and should be hierarchically arranged and dualistic" (Belenky et al., 1986, p. 47). Furthermore, the authors found that Received Knowers "assume that the authorities can dispense only one right answer for each problem" (p. 41). These beliefs are very similar to the beliefs expressed by elementary education majors suggesting that elementary education students might be Received Knowers and likely therefore also dualists.

Supporting the possibility that the typical elementary education major does not move out of dualism, Belenky et al. (1986) reported that they "encountered women from sixteen to sixty for whom the discovery of subjective truth was the most recent and personally liberating event of their lives" (p. 54). Relatedly, the authors found that "women often feel alienated in academic settings and experience 'formal' education as either peripheral or irrelevant to

their central interests and development" ( p. 4). This finding offers some perspective on why the construal system of the typical elementary student, a female, is not changed by her university experience.

Finally, in light of the above discussion, it is reasoned that the females who select to enter elementary teaching may possess more, or more powerful conservation forces than do their non-education counterparts. Because the common stereotype of teaching follows the traditional transference model of teaching and learning it might be reasoned that those who elect to enter elementary teaching do so precisely because they believe it is field which will allow them to maintain, (if not reward them for maintaining), their dualistic epistemological system.

## Marcia's Identity Development Model

"Miller-Tiedman viewed occupational decision making as an opportunity to examine, redefine, and direct one's life. The occasion for decision making is typically a life discontinuity or transition that disturbs the stability of one's self pattern" (Savickas, 1987, p. 61). When adolescents are faced with this "opportunity" they are said to be experiencing an Identity Crisis (Erikson, 1950, 1968).

Erikson (1950, 1968) believed that adolescence was "a time during which individuals can playfully explore a variety of occupational and ideological alternatives before arriving at a set of firm commitments" (Raphael, Feinberg, & Bachor, 1987, p. 332). Through this exploration an individual's task is to come to--

"a sense of inner identity: The young person, to experience wholeness,

must feel a progressive continuity between that which he has come to

be during the long years of childhood and that which he promises to

become in the anticipated future; between that which he conceives

himself to be and that which he perceives others to see in him and to

expect of him. Individually speaking, identity includes, but is more than,

the sum of all the successive identifications of those earlier years when

the child wanted to be, and often was forced to become, like the people

he depended on. Identity is a unique product, which now meets a crisis

to be solved only in new identifications with age mates and with leader

figures outside of the family" (Erikson, 1968, p. 87).

The adolescent identity crisis occurs in Erikson's (1968) identity verses

identity diffusion stage of psychosocial development. This stage "has been

operationalized and elaborated by Marcia (1966) in his identity status para-

digm. . . . Using commitment to psychosocial roles and ideological values as a

gauge of identity structure, Marcia expanded Erikson's bipolar notion of

identity verses role confusion to delineate four different means by which

adolescents approach identity-defining issues" (Kroger & Haslett, 1991, p. 304).

These four means are referred to as "identity statuses" and are defined as

"modes of resolutions of the identity crisis occurring in late adolescence"

(Marcia, 1976, p. 145). They are as follows:

Identity-Diffusion: [This individual] "may or may not have experienced a

crisis period, his hallmark is a lack of commitment. He has neither

decided upon an occupation nor is much concerned about it. Although

he may mention a preferred occupation, he seems to have little concep-

tion of its daily routine and gives the impressions that the choice could

be easily abandoned should opportunities arise elsewhere. He is either

uninterested in ideological matters or takes a smorgasbord approach in

which one outlook seems as good to him as another and he is not

averse to sampling from all."

**Moratorium**: [This individual] "is in the crisis period with commitments

rather vague; he is distinguished from the identity-diffusion subject by;

the appearance of an active struggle to make commitments. Issues

often described as adolescent preoccupy him. Although his parents'

wishes are still important to him, he is attempting a compromise among

them, society's demands, and his own capabilities. His sometimes

bewildered appearance stems from his vital concern and internal preoc-

cupation with what occasionally appear to him to be unresolvable

questions."

**Foreclosure**: [This individual] "is distinguished by not having experi-

enced a crisis, yet expressing commitment. It is difficult to tell where his

parents' goals for him leave off and where his begin. He is becoming

what others have prepared or intended him to become as a child. His

beliefs (or lack of them) are virtually 'the faith of his fathers living still.'

College experiences serve only as a confirmation of childhood beliefs.

A certain rigidity characterizes his personality; one feels that if he were

faced with a situation in which parental values were nonfunctional, he would feel extremely threatened."

**Identity-Achieved**: [This individual] "has experienced a crisis period and is committed to an occupation and ideology. He has seriously considered several occupational choices and has made a decision on his own terms, even though his ultimate choice may be a variation of parental wishes. With respect to ideology, he seems to have reevaluated past beliefs and achieved a resolution that leaves him free to act". (Marcia, 1966, pp. 551-552)

"These four identity statuses have continued to be reliably rated and validated through a large body of research over the past twenty-five years" (Kroger & Haslett, 1991, p. 304). Concerning their use, Marcia (1976) cautioned that these statuses should not be construed as final outcomes, but rather as ongoing processes (p. 154).

There is much in the teacher education literature that suggests that the typical elementary education student has foreclosed. Perhaps the rigid nature of the students' traditional beliefs, and their ability to find reinforcement for those beliefs within their collegiate experience (Zeichner & Tabachnick, 1981). most directly support this contention. However, there is much more evidence

Between 40 and 70% of teacher education students decided to enter teaching before they graduated from high school (Brookhart & Freeman, 1992). This is a particularly relevant finding given that women decide earlier than men (Brookhart & Freeman, 1992). The making of such an early

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decision, particularly within the context of a small, homogeneous community, likely precluded the opportunity for much exploration and therefore suggests commitment without exploration: The operational definition of foreclosure.

Streitmatter (1989), found that foreclosed individuals "scored lower on [math and language] achievement measures" than did non-foreclosured individuals. When linked with Freeman and Brookhart's (1992) report that those who entered teaching from other majors (late-deciders) received higher scores on academic achievement measures than did those who had not transferred, Streitmatter's finding adds credence to the contention that the typical elementary education major is foreclosed.

Marcia (1966) found that "foreclosure subjects tend to maintain high goals in spite of failure" (p. 556). This finding seems to coincide with Weinstein's (1989) characterization of education majors as having "unrealistically high" levels of self confidence.

Marcia (1966) also found that foreclosed individuals received significantly higher scores on measures of "authoritarianism" and "submissive conventionality" than did the other statuses (p. 556). Birdwell, Ayers, and Sibert (1989) concluded that "a trend may be developing. Either individuals who are more authoritarian in their beliefs are entering the teaching profession or college students as a whole are becoming more authoritarian due to the changes in society" (p. 261). The conventionality of elementary education students is well documented (e.g. Kennedy, 1991; Prawat, 1992).

Fannin (1979) found that foreclosed individuals "were in more typical majors, were less work-role salient, and were more traditional in sex-role attitude than those in other statuses" (p. 12). Because elementary education is one of the most traditional female occupational choices (Belenky et al., 1986), it would likely attract a substantial percentage of the foreclosed female population.

Streitmatter (1989) suggested that foreclosed individuals might have "perceived their options as being limited" and because they "felt they knew' what life should be like (as prescribed by others and accepted by them), they may have sensed that traditional schooling and education held no relevance for them" (p. 109). The literature detailing elementary education majors' beliefs that their university coursework would not be of much use to them (Wilson, 1992) coincides with Streitmatter's suggestion. Relatedly, Marcia (1976) recalled that one foreclosed student "questioned the value of his college education; he would rather have been in a work-study program ' (p. 156). If generalizable to all foreclosed individuals, this sentiment suggests that the student-teaching components of elementary education programs may be particularly attractive to foreclosed individuals.

Though Streitmatter's (1989) statements may offer some insight into why foreclosed individuals might choose elementary teaching there are other, more direct reasons. Individuals for whom ambiguity holds particular discomfort are likely to be especially unsettled by the identity crisis. Because many adolescents assume that settling on a job will give their lives shape (Perry, 1970),

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these individuals would be likely to select an occupation or a college major as soon possible. Adolescents on the whole, and particularly those from small, homogeneous communities, know about a relatively limited range of occupations. Because teaching is one of the jobs adolescents "know" the most about, and because it relatively accessible (Gottfredson, 1981), teaching is a reasonable choice for those who want to quickly side-step their impending identity crisis.

There is further reason to believe that elementary education might be particularly attractive to foreclosed females. Adolescent women are often rewarded for role compliancy rather than role-innovation (Belenky et al., 1986). Relatedly, "women who undergo an identity crisis and consider nontraditional alternatives for themselves . . . may experience a lack of social support and considerable conflict while attempting to make decisions. In contrast, the foreclosure woman avoids such conflict and often continues to derive considerable dependency gratification and emotional support from her unquestioning conformity" (Ginsburg & Orlofsky, 1981, pp. 298-299). Quite the opposite is true of men. Men are socialized into moratorium. This is evidenced by findings that suggest the moratorium male is viewed as healthier than the foreclosed male whereas precisely the opposite is true for females (Ginsburg & Orlofsky, 1981). When gender-role-compliance is seen as the only means of maintaining social and emotional support, an individual might become hyper-compliant, and as has been mentioned earlier, elementary teaching is one of the quintessential female-typed occupations.

In a discussion concerning a novice teacher's learning, Featherstone (1992) stated that "the learning that seems especially powerful connects intimately with the conscious crafting of an identity, with the discovery and reshaping of the self" (p. 18). Likewise Kagan (1992) called attention to "the important role played by a novice's image of self as teacher" (p. 140). Though I believe that these authors are pursuing important trails, I think that a broader view of identity will offer new understandings.

By focusing primarily on students' beliefs about their roles as teachers, teacher educators may not recognize the function these beliefs play within the students' broader life-space concerns. Teacher educators discuss their attempts to help students challenge and enlarge their professional identities as if these professional identities could be altered without considerable disruption to students' larger identities. This contrasts with the views of, Erikson (1950, 1968) and Marcia (1966, 1976) who contend that occupational decisions are intricately bound up in, and indeed grow out of, the identity construction process. From this perspective, one's image of him or herself as an elementary teacher represents, in part, the way he or she wants to interact with the world. For instance, the individual who chooses teaching, while believing that teaching involves dispensing discrete information, may actually want to "live" in a concrete, positivist world. He or she may have chosen to enter teaching precisely because it seemed to offer this opportunity. In this light, efforts to encourage students to change their beliefs about teaching frustrate their efforts to construct particular meanings and act out particular identities. In effect,

such challenges take away the medium through which these individuals

planned to enact their identities. If the individual is foreclosed, the challenge to

re-examine his or her beliefs represents a challenge to move into the anxiety of

moratorium, the very thing that their career decision was designed to avoid.

In summary, Marcia (1966, 1976) has described four ways individuals

approach the adolescent crisis: identity-diffusion, moratorium, foreclosure, and

identity-achievement. Of these types the teacher education literature provides

information that leads me to suspect that the typical elementary education

student has foreclosed. If so, this would offer an explanation as to why their

beliefs do not change as, by definition, foreclosed individuals are characterized

by rigidly held beliefs, authoritarianism, and conventionality.


Conclusion

Teacher educators have observed that elementary education majors

enter the university with a set of beliefs about teaching and learning that, for

the most part, do not change. In an effort to understand these observations,

teacher educators have developed a vast literature detailing the characteristics

of the "typical" elementary education student and the nature of their beliefs.

An examination of this literature from the perspective of counseling

psychology provides new theories to explain these observations. These

theories suggest testable hypotheses about the personality-type, stage of

cognitive development, and identity status of the "typical" elementary education

student. The teacher education literature may be interpreted in such a way as

to suggest that the "typical" elementary education student is a social type

based on Holland's typology, is not an investigative type on Holland's typology, a dualist based on Perry's scheme, and a foreclosure based on Marcia's identity status model.

In this study I propose to test if each of these four variables explain some of the variance between those who decide to enter elementary education programs and those who do not. I also propose to test the prediction that, among an undergraduate female population, the quartet of social type, non-investigative-type, dualism, and foreclosure will predict enrollment in an elementary education program.

## Hypotheses

The specific hypotheses of this study are as follows:

1.     A greater proportion of female elementary education students will be classified as social types than would be expected by chance alone.

2.     A smaller proportion of female elementary education students will be classified as investigative types than would be expected by chance alone.

3.     A greater proportion of female elementary education students will be classified as dualists than would be expected by chance alone.

4.     A greater proportion of female elementary education students will be classified as foreclosures than would be expected by chance alone.

These four hypotheses will independently test the four foundational contentions of my model:  That the "typical" elementary education student is likely to be a social type, and/or not an investigative type, and/or a dualist, and/or a foreclosure.  I expect to obtain significant results in each.

It is also hypothesized that:

5.    A greater proportion of female elementary education students than female non-education students will be social-types.

6.    A lesser proportion of female elementary education students than female non-education students will be investigative-types.

7.    A greater proportion of female elementary education students than female non-education students will be dualists.

8.    A greater proportion of female elementary education students than female non-education students will be foreclosures.

This group of hypotheses begins to test the second contention of my model which contends that these four variable distinguish elementary education majors from other majors.

The eight hypotheses above utilize the categorizing capacity of the described theories. A separate group of hypotheses will utilize the more encompassing aspects of the theories which suggest that, to some extent, every individual possesses qualities of each type. Rather than making use of the categorical mechanisms of the theories, these hypotheses will utilize the continuously measured subscale scores for each variable. These scores represent the degree to which a particular individual matches the pure, abstracted construction of each variable prototype.

9.    Female elementary education majors will be significantly more social than female non-education majors.

10.    Female elementary education majors will be significantly less investigative than female non-education majors.

11.    Female elementary education majors will be significantly more dualistic than female non-education majors.

12.    Female elementary education majors will be significantly more foreclosed than female non-education majors.

A final hypothesis will test the third contention of my model which predicts that the co-existence of the four variables, social type, non-investigative type, dualist, and foreclosure, within the same individual, will predict enrollment in the elementary education program.

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# CHAPTER THREE

# METHODOLOGY

## Design

This study is thought of as the first in a series of related studies geared towards identifying the psychological variables that may lead an individual to elect to enter an elementary education program. As a first step, the relationships between initial variables, (i.e. elementary education major and Holland-type, elementary major and Perry-stage, and elementary major and Marcia-status), will be explored utilizing a correlational field design.

According to Gelso (1980), "correlational research . . . may be useful in the pilot stages of ongoing research, or during a research program at a point where overall inspection of inter-correlations is called for" (p. 17). Furthermore, because this study will draw from a natural setting, it will offer a high degree of generalizability. This is particularly important to this study as population, rather than individual or specific sub-group, characteristics are the focus.

## Subjects

The development of a subject pool began with the registrar's office developing two random samples, one of female, junior level elementary education majors, and one of female, junior level non-teacher certification

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students. These samples were not of equal size. Because the registrar's office regards sex as "classified information", the samples could not be limited to females. Instead, I requested initial samples that were large enough to ensure that, after deleting the males, sufficiently large numbers of females would remain. Because it is known that the elementary education population is predominately female, fewer members of that population were needed. The initial sample of junior level elementary education majors included 200 students. The initial sample of junior level non-teacher certification students included 400 students.

For both samples, students were listed in random, rather than alphabetical order. This enabled me to simply go down the list and delete any male names without seriously impacting the random nature of the sample. All names, such as Tony, that could be male or female were included, as were all foreign or ethnic names which I could not easily distinguish. This process dropped the samples to 170 junior level, female, elementary education majors and 202 junior level, female, non-teacher certification students.

Unfortunately pragmatic concerns did not allow me to include each of these 372 students in my research. Fortunately there existed theoretical issues and statistical needs to guide my decisions to limit the samples a bit further. Because research suggests that elementary education students are relatively compliant students it was hypothesized that they would participate in the study at a higher rate than would the non-education group. This enabled me to assume I would obtain trustworthy results from a smaller elementary education

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sample. Furthermore, because a larger proportion of the total elementary education population than total non-education population would be sampled, I decided it was appropriate to utilize my resources in a way that increased the proportion of non-education students sampled. Ultimately the research sample was set at 150 junior level, female elementary education students and 200 junior level, female, non-teacher certification students.

As will be described in the following section, research packets were mailed to each of these 350 students. Forty-eitht elementary education students (32% of those sampled) and 76 non-education students (38% of those sampled) returned usable materials. Initial analyses revealed that five of these were not juniors. The remaining 119 students comprised the final subject pool.

## Data Collection

Introductory letters were mailed to the 350 potential subjects on February 8, 1995 (Appendix A). These letters introduced myself, explained how I had come to contact them, told a bit about the study, and asked that they consider taking part. A week later, on February 15, the research packets were sent.

These packets contained a cover letter which re-introduced myself, described the monetary awards participants would be eligible to win, specified measures that would be taken to ensure confidentiality, and asked for their participation (Appendix B). The packets also included a demographic information form, the Vocational Preference Inventory (VPI) (Holland, 1973, 1985)

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(Appendix C), the Measure of Epistemological Reflection (MER) (Taylor, 1983) (Appendix D), the Extended Measure of Ego-Identity Status (EOM-EIS-2) (Bennion & Adams, 1986) (Appendix E), and a self-addressed and stamped return envelop. The VPI, EOM-EIS, and MER were given in rotating order to minimize any possible affect of taking one before the other. However, as each subject completed the inventories in the comfort of their own homes I cannot be certain that the forms were completed in random order.

By February 21, 1995, 44 completed packets had been returned. By March 1, 1995, 100 had been returned. Two follow-up letters, spaced approximately a week apart, requesting that those who had not yet returned their packets do so, resulted in only 24 more completed packets being returned. On March 14, 1995 the four $50.00 cash awards were mailed to the four randomly selected winners.

To maintain confidentiality, numerical codes were used in place of student names and returned materials were never matched with student names. After the original pool of potential subjects was narrowed to 350, specific names were matched with codes on only three occasions: (a) when follow-up letters were sent, (b) when monetary awards were given, and (c) when summary results [are] sent.

### Instruments

#### Demographic Information Form

To make sure that any unplanned group differences were accounted for, pertinent demographic information was attained through a self-created

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information form. Subjects were asked to offer information regarding their sex, university classification, major, hours of coursework taken in major, family's education history, hometown, and racial background. Another item asked subjects if they had entered they entered the university with the intention of pursuing their current major. All demographic forms were hand-scored. Specific findings will be explored in the following chapter.

The Vocational Preference Inventory

(VPI) (Holland, 1953, 1977, 1985) was used to access Holland type. "The realistic, intellectual [investigative], social, conventional, enterprising, and artistic scales of the VPI provide a simple procedure for typing a person" Holland, 1985). "The VPI consists of 160 occupational titles to which the examinee indicates 'like' or 'dislike.' The inventory yields 11 scores, 6 of which are the Holland types and can be used as vocational interest scales" (Thorndike, Cunningham, Thorndike, & Hagen, 1991, p. 519). "The higher a person's score on a scale, the greater the resemblance to the type that scale represents. The highest score represents a person's personality type." (Holland, 1985). "The three highest scales describe a person's 'personality pattern' which is usually represented by a three-letter code (e.g., IRE)" (Prediger & Hanson, 1976, p. 168).

The VPI has gone through eight revisions intended to ensure its reliability and gender fairness" (Weinrach & Srebalus, p. 53). Holland (1985) briefly cited several studies that support the construct and predictive validity of the VPI.

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The VPI is reported to have moderate to high test-retest reliability (range .54-.80, median .71) (Holland, p. 3, 1985). Predictive validity, the ability of the instrument to predict vocational aspirations, ranges from 35-60% with Gottfredson and Holland (1975) finding a 51.6% "hit rate" for first year female college students and Wiggins and Weslander (1977), in a 4 year longitudinal study of students from high school through college, finding a hit rate of 64.5% for males and 56.5% for females.

The self-scoring version of the VPI was used in this study This form consists of three sections, a face sheet which details the directions, a list of 160 occupational titles, and a self-duplicating answer sheet. Subjects were asked to read each occupational title and specify, by blackening the appropriate space, whether or not that specific occupation appealed to them. Scoring the inventories was a simple process of peeling back the response sheet from the scoring sheet and counting the number of "yes" responses in each category. Only the six Holland scale scores were utilized as the other five scales are more experimental and not of use to this study.

Ten pieces of data were entered for each subject. Total "yes" responses in each of the six categories (realistic, investigative, artistic, social, entrepreneurial, and conventional) serve as continuous measures of the degree to which a given subject encompasses the characteristics of any given type. In this way, each subject received a continuously measured score in each of the six categories.

Because this study was particularly interested in those individuals who are, or are not, classified as social types and who are, or are not, classified as investigative types, four more pieces of data were collected for each subject. In its most concrete use, the VPI classifies individuals based on their highest scale score, however, as noted above, it is thought that the individual's top three scales represent his or her personality pattern. To make use of this information, it was noted whether or not social type was a subject's highest scale, whether or not social type was one of their top three scales, whether or not investigative type was their highest scale, and whether or not investigative type was in their top three. In each case subjects received a 1/0 yes/no code for each.

## The Measure of Epistemological Reflection

(MER) (Taylor, 1983) was used to determine each subject's level of cognitive development on Perry's scheme. Perry's first three positions comprise the "dualism" category, positions 5-6 comprise "relativism", and positions 7-9 compromise "commitment in relativism" (Baxter-Magolda & Porterfield, 1988). The MER allows individuals to be placed within Perry's first five positions. The MER does not attempt to place subjects in Perry's positions 6-9 "because of the lack of clarity of the cognitive-structural aspects of the latter positions" (Baxter-Magolda & Porterfield, 1985, p. 346). This limitation did not confound this study because this study was concerned only with differentiating between dualistic and non-dualistic individuals. How far beyond dualism one had moved was not of particular import to the hypotheses being tested.

The MER asks subjects to respond to a series of questions in each of six domains. These six domains include: (a) decision-making in an education-al context, (b) role of the learner in the learning process, (c) role of the instruc-tor in the learning process, (d) role of peers in the learning process, (e) role of evaluation in the learning process, and (f) view of knowledge, truth, or reality. Each question is followed by a set of probes that attempt to illuminate sub-jects' reasoning structure (operationalized as the basic justification for the respondent's thinking). (Baxter-Magolda and Porterfield, 1985).

For each question, subjects receive a score of 1-5. These scores represent the Perry position most consistent with the subject's response. In this way, each subject receives several scores for each domain. Total protocol ratings (TPR) represent an individual's predominate stage of cognitive develop-ment and are determined in one of two ways; either the modal domain position may be determined, or the arithmetic average of those domain positions may be figured. Baxter-Magolda and Porterfield (1988) suggest that "for a compre-hensive picture of respondents' reasoning a continuous TPR is preferable (p. 91).

A consideration in this more subjective measure is inter-rater reliability. A directive manual provides adequate information so that scoring can be self-taught, however, to receive permission to use the MER investigators must agree to use two certified scorers when evaluating each inventory. The authors believe that interrater reliability is the MER's "most stringent test of reliability because it represents the degree to which two raters assign the same

ratings for a particular respondent" (Baxter-Magolda & Porterfield, 1988, p. 25). "Interrater reliability for the MER was .80 on a sample of 752" (Baxter Magolda, 1988, p. 531).

Baxter-Magolda and Porterfield (1988) suggested that construct validity is best measured by the MER's ability to differentiate between individuals of different age or grade levels. No investigations were reported that explored differences based on age alone. An investigation that utilized social work students found significant differences between doctoral candidates and second year masters students on one hand, and juniors, seniors, and first year masters students on the other. Similarly, an investigation that utilized teacher education students found significant differences between doctoral candidates and first year masters students on one hand, and undergraduates on the other. "Validation with interviews resulted in a .93 correlation and significant differences (p<.0001) across levels of educations consistently emerged" (Baxter Magolda, 1988, p. 532).

In summary, Baxter-Magolda and Porterfield (1985) believe the ". . . the MER is an accurate measure of intellectual development on the Perry scheme" and suggest that its "increased accuracy in measuring intellectual development [will] enhance the use of the Perry scheme in practice" (pp. 341-342).

Copies of the subjects' completed MER forms were mailed to the two certified scorers who were hired to complete the scoring process. 23 pieces of MER related data were entered for each subject. These included six domain scores and one TPR score from each rater as well as a Final TPR score which

was developed by averaging the scores from the two raters. Each subject was also coded on a dichotomous 0/1 not dualist/dualist scale and on a nominal-level 1-5 scale which corresponded with their specific position score.

The Revised Version of the Extended Objective Measure of Ego Identity Status

(EOM-EIS-2) (Bennion & Adams, 1986) was used to determine subjects' identity status. "The EOM-EIS-2 is a 64-item measure using a 6-point Likert response format that yields scores for each of the four ego identity status-es. . . . The EOM-EIS-2 includes 16 items for each of the four identity statuses, with half of the items within each scale devoted to the ideological and interper-sonal domains, respectively" (Blustein, Devenis, & Kidney, 1989, p. 168). "The ideological test contains items regarding occupation, religion, and political and philosophical lifestyle. The interpersonal domain assesses personal concerns such as friendship and sex-role beliefs" (Streitmatter, 1989, p. 103). "Scores on each of the scales provide a continuously measured index that represents the relative degree of prevalence of a given ego identity status" (Blustein et al., p. 198). Because the EOM-EIS-2 is frequently used to categorize individuals into one of the four stages, the manual provides instructions for this process.

Past research involving the link between identity development and career commitment has tended to use only measures from the ideological domain (Blustein et al.), however, because I am contending that the career decisions of elementary education majors are intricately bound to their over-all identity development, I will follow Blustein et al.'s practice and combine the ideological and interpersonal subscales for each of the four identity statuses.

The internal consistency coefficients for this combination are: Diffusion, .68; Foreclosure, .90; Moratorium, .73; and Identity Achievement, .66. These have been deemed "acceptable" by earlier researchers (e.g., Jones & Streitmatter, 1987).

A factor analysis using varimax rotation provided evidence for three basic factors with an eigenvalue greater than 1. Pure factor structures were observed for the identity achievement and the foreclosure subscales. However, diffusion and moratorium were found to load on a common factor. This finding suggests that diffusion and moratorium are interrelated" (Bennion & Adams, 1986, p. 191). This will not confound this study because the hypotheses of this study focus on foreclosure verses non-foreclosure distinctions.

Grotevant and Adams (1983) found "acceptable levels of internal consistency, test-retest stability, and content, construct, discriminant, and concurrent validity" (Jones and Streitmatter, 1987,p. 649). Bennion and Adams (1986) and Blustein et al. (1989) have suggested that adequate construct validity may be inferred from past studies.

Thirteen pieces of data were coded for each subject. These included continuously measured ideological, interpersonal, and total scores for each domain. Also included was a 0/1, not foreclosed/foreclosed, dichotomous score.

## Data Analysis

Chi-square goodness of fit analyses were used to test the following hypotheses:

1.    A greater proportion of female elementary education students will be classified as social types than would be expected by chance alone.

2.    A smaller proportion of female elementary education students will be classified as investigative types than would be expected by chance alone.

3.    A greater proportion of female elementary education students will be classified as dualists than would be expected by chance alone.

4.    A greater proportion of female elementary education students will be classified as foreclosures than would be expected by chance alone.

Chi-square tests of independence/homogeneity were used to test the following hypotheses:

5.    A greater proportion of female elementary education students than female non-teacher certification students will be social types.

6.    A lesser proportion of female elementary education students than female non-teacher certification students will be investigative types.

7.    A greater proportion of female elementary education students than female non-teacher certification students will be dualists.

8.    A greater proportion of female elementary education students than female non-teacher certification students will be foreclosures.

T-tests of mean differences were used to test the following hypotheses:

9.    Female elementary education majors will be significantly more social than female non-teacher certification students.

10.    Female elementary education majors will be significantly less investigative than female non-teacher certification students.

11.    Female elementary education majors will score significantly lower than female non-teacher certification students on the MER. (The TPR is the only continuous measure offered by the MER.)

12.    Female elementary education majors will be significantly more foreclosed than female non-teacher certification students.

A logit analysis was used to test the final hypothesis that:

13.    The co-existence of social type, non-investigative type, dualist, and foreclosure within the same individual will predict enrollment in the elementary education program.

## Summary

This chapter detailed the methods by which data were collected and analyzed for this study. One hundred and fifty female, junior level, elementary education majors and 200 female, junior level, non-teacher certification students were asked to complete a demographic information sheet, the VPI, the MER, and the EOM-EIS-2. One hundred and nineteen usable packets were returned. Chapter Four will detail the results of the statistical analyses conducted on the obtained data.

CHAPTER FOUR

RESULTS

This chapter will describe the results of the statistical analyses utilized to test each of the aforementioned hypotheses. Several post hoc analyses will also be reported.

Analysis of Demographic Variables

Seven chi-square tests of independence were used to test the assumption that the variables of age, race, mother's education, father's education, population of hometown, type of hometown, and whether or not the student would be the first in their family to graduate from college were not related to group (Elementary Education majors [Elem. Ed.] or Non-teacher certification students [NTC]). Because none of the observed significance levels reached the .05 level it is safe to assume that these variables are equally distributed across the two experimental groups. Tables 1-7 detail the group and population percentages for each demographic variable.

Because the analyses indicated that the groups did not differ on the measured demographic variables, it is assumed that all subsequent results are indeed related to true group differences, unidentified confounding variables, measurement error, or chance alone. To control for scoring error each VPI

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was scored twice, each MER was scored by two certified raters, and each

EOM-EIS-2 scale score was recalculated.

Table 1.  Age.

| Major | Age of Participants | | | | | | |
|---|---|---|---|---|---|---|---|
| | 18-20 | 21-22 | 23-24 | 25-30 | 31-35 | 36-40 | 40+ |
| Elem. Ed | 55.3% | 40.4% | 0.0% | 0.0% | 2.1% | 0.0% | 2.1% |
| NTC | 50.0% | 40.3% | 1.4% | 2.8% | 2.8% | 1.4% | 1.4% |
| Total | 52.1% | 40.3% | 0.8% | 1.7% | 2.5% | 0.8% | 1.7% |

Table 2.  Race.

| Major | Race of Participants | | | | | |
|---|---|---|---|---|---|---|
| | Euro-Am. | Hisp-Am. | Nat-Am. | Afr-Am. | Asian-Am. | Other |
| Elem. Ed. | 3.3% | 0.0% | 0.0% | 6.7% | 0.0% | 0.0% |
| NTC | 5.8% | 1.4% | 1.4% | 0.0% | 1.4% | 0.0% |
| Total | 4.8% | 0.9% | 0.9% | 2.6% | 0.9% | 0.0% |

Table 3. Mother's education.

| Student's Major | Mother's Level of Education | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Elem. Ed. | 0.0% | 17.0% | 27.7% | 19.1% | 27.7% | 8.5% |
| NTC | 1.4% | 33.3% | 11.1% | 15.3% | 25.0% | 13.9% |
| Total | 0.8% | 26.9% | 17.6% | 16.8% | 26.1% | 11.8% |

Note. 1 = Did not graduate from high school; 2 = Graduated from high school; 3 = Completed a vocational training program at a community college or specialized training institution; 4 = attended college but did not earn a degree; 5 = Graduated from a four-year college or university; 6 = Attended graduate school.


Table 4. Father's education.

| Student's Major | Father's Level of Education | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Elem. Ed. | 2.1% | 19.1% | 14.9% | 24.4% | 21.3% | 19.1% |
| NTC | 0.0% | 16.7% | 6.9% | 15.3% | 34.7% | 26.4% |
| Total | 0.8% | 17.6% | 10.1% | 18.5% | 29.4% | 23.5% |

Note. 1 = Did not graduate from high school; 2 = Graduated from high school; 3 = Completed a vocational training program at a community college or specialized training institution; 4 = Attended college but did not earn a degree; 5 = Graduated from a four-year college or university; 6 = Attended graduate school.

Table 5.  Type of hometown.

| Major | Type of Hometown | | |
|---|---|---|---|
| | Rural | Suburban | Urban |
| Elem. Ed. | 27.7% | 61.7% | 10.6% |
| NTC | 18.1% | 69.45 | 12.5% |
| Total | 21.85 | 66.45 | 11.8% |

Table 6.  Population of hometown.

| Major | Population of Hometown | | | |
|---|---|---|---|---|
| | < 7,000 | 7,000-50,000 | 51,000-100,000 | > 100,000 |
| Elem. Ed. | 21.3% | 34.0% | 23.4% | 21.3% |
| NTC | 12.5% | 33.3% | 27.8% | 26.4% |
| Total | 165.0% | 33.6% | 26.1% | 24.4% |

Table 7.  First to graduate from college?

| Major | Will Be First | Will Not Be First |
|---|---|---|
| Elem. Ed. | 23.4% | 76.6% |
| NTC | 23.6% | 76.4% |
| Total | 23.5% | 76.5% |

Other Preliminary Analyses

Related to the MER

The MER TPR scores used in this study were obtained by averaging the TPR scores developed by each rater.  To measure inter-rater reliability the

correlation between the two raters' TPR values was calculated. This analysis yielded a Pearson Correlation coefficient of .71 with a two-tailed significance of .00 at the .05 level. A correlation of this magnitude, from this large a sample, is generally considered very strong. This strength of the linear relationship between the two raters' scores suggested that it was reasonable to use the average of the two TPR scores as the final value in this study.

## Related to the EOM-EIS-2

This study utilized the combined EOM-EIS-2 scores as suggested by Bluestein et al (1989). Pearson correlation coefficients for the relationship between the ideological and interpersonal domains were calculated and all were significant at the .05 level. The specific correlation coefficients and observed significance levels are provided in Table 8. A two-tailed Manova analysis was also conducted to determine if the obtained differences between the ideological and interpersonal domains could reasonably be attributed to chance alone. This analysis did not produce a significant omnibus F-test and the null-hypothesis of no difference between the two domains was supported. In combination these two analyses support the use of the combined EOM-EIS scores.

## Hypotheses 1-4

It was hypothesized that:

1.     A greater proportion of female elementary education students would be classified as social types than would be expected by chance alone.

Table 8.  Percentages of each group categorized as:

|  | Elementary Ed. | Non-Teacher Cert. |
|---|---|---|
| Social type | 79.4% | 42.3% |
| Social type in 3pt. code | 100.0% | 84.3% |
| Investigative type | 0.0% | 11.5% |
| Investigative type in 3pt. code | 52.9% | 53.8% |
| Dualistic | 100.0% | 100.0% |
| Foreclosed | 2.1% | 2.8% |

A non-parametric chi-square goodness of fit analysis was used to test this hypothesis.  The obtained chi-quare value of 96.30 was well above the 3.84 level needed for significance at the .05 level.  This indicates that it is not reasonable to conclude that the proportion of Elem. Ed. students classified as social types may be attributed to chance.  Hypothesis 1 was retained.

It was hypothesized that:

2.      A smaller proportion of female elementary education students would be classified as investigative types than would be expected by chance alone.

No Elem. Ed. students were classified as investigative types.  This fact negated the need for further analysis.  Hypothesis 2 was retained.

It was hypothesized that:

3.      A greater proportion of female elementary education students would be classified as dualists than would be expected by chance alone.

All Elem. Ed. students were classified as dualists. This fact negated the need for further analysis. Hypothesis 3 was retained.

It was hypothesized that:

4. A greater proportion of female elementary education students would be classified as foreclosures than would be expected by chance alone.

A non-parametric chi-square goodness of fit analysis was used to test this hypothesis. The obtained chi-square value of 8.19 was above the 7.82 needed for significance at the .05 level, however, fewer, rather than more, Elem. Ed. students than would be expected by chance were classified as foreclosures. Hypothesis 4 was rejected.

## Hypotheses 5-8

It was hypothesized that:

5. A greater proportion of female elementary education students than female non-teacher certification students would be social types.

Two chi-square tests of independence were used in this analysis. The first tested the proportion of Elem. Ed. students whose social scale was their highest (27/34) against the proportion of NTC students whose social scale was their highest (22/52). The second tested the proportion of Elem. Ed. students whose social scale was one of their three highest (34/34) against the propor- tion of NTC students whose social scale was one of their three highest (43/51). Both analyses were significant at the .05 level. The observed significance level for the first analysis was $p = .00$. The observed significance level for the second was $p = .01$. Thus, this hypothesis was supported.

It was hypothesized that:

6. A lesser proportion of female elementary education students than female non-teacher certification students would be investigative-types.

Two chi-square tests of independence were used to analyze this hypothesis. The first tested the proportion of Elem. Ed. students whose investigative scale was their highest (0/34) against the proportion of NTC students whose investigative scale was their highest (6/52). The second tested the proportion of Elem. Ed. students whose investigative scale was one of their three highest (18/34) against the proportion of NTC students whose investigative score was one of their three highest (28/52). The observed significance level for the first analysis was significant, $p = .04$, at the .05 level. The observed significance for the second analysis was not significant, $p = .93$, at the .05 level. These analyses partially support the hypothesis. Whereas a significantly lesser proportion of Elem. Ed. students than NTC students are categorized as investigative types, there is no difference between the proportion of Elem. Ed. and NTC students who have the investigative type in their three point code.

It was hypothesized that:

7. A greater proportion of female elementary education students than non-teacher certification students would be dualists.

Every subject in the sample was classified as a dualist. This fact negated the need for more sophisticated analysis and supported the null-hypothesis of no difference between the groups.

It was hypothesized that:

8.    A greater proportion of female elementary education students
than female non-teacher certification students would be foreclosures.

A chi-square test of independence was used to test whether the ob-
served difference between the proportion of Elem. Ed. and NTC students
classified as Foreclosures (1/72) and 2/72 respectively) could reasonably be
attributed to chance alone.  The observed significance level of $p = .98$ at the
.05 level suggested that it could.  Therefore the null-hypothesis of no difference
between the groups was retained.

Hypotheses 9-12

It was hypothesized that:

9.    Female elementary education majors would be significantly more
social than female non-teacher certification students.

A one-tailed independent T-test was used to determine whether or not
the difference between Elem. Ed. and NTC students on the continuously
measured social scale of the VPI could reasonably be attributed to chance
alone.  The Elem. Ed. group had a mean of 8.06 and the NTC group had a
mean of 5.36.  (Means and related descriptive statistics are provided in Table
9).  The observed significance value of .00 ($T = 3.70$, 116 df) at the .05 level
suggested that the obtained difference cannot be reasonably attributed to
chance and the null-hypothesis of no group difference is rejected.  Because
the observed difference was in the hypothesized direction, Hypothesis 9 is
retained.

Table 9.  Continuous data for variable: Social.

|  | Number of cases | Mean | Standard Deviation |
|---|---|---|---|
| Elem. Ed. | 47 | 8.06 | 3.72 |
| NTC | 71 | 5.36 | 3.97 |

Note.  Mean difference = 2.70.  P = .00.

It was hypothesized that:

10.     Female elementary education majors would be significantly less investigative than female non-teacher certification students.

A one-tailed independent T-test was used to determine whether the obtained differences between Elem. Ed. students and NTC students on the continuously measured investigative scale of the VPI could reasonably be attributed to chance alone.  The Elem. Ed. group had a mean of 2.19 and the NTC group had a mean of 3.14 (Means and related descriptive statistics are provided in Table 10).  Levene's test for equality of variances, $p = .01$, suggested that the T-value for unequal variances should be used.  The observed significance level for this value ($T = -1.66$, 115.56 df) at the .05 level was .05.  Though barely, this result was significant and  suggested that the obtained difference could not be reasonably attributed to chance alone and the null-hypothesis of no group difference was rejected.  Because the obtained difference between the means was in the hypothesized direction, hypothesis #10 is supported.

Table 10.  Continuous data for variable: Investigative.

|  | Number of cases | Mean | Standard Deviation |
|---|---|---|---|
| Elem. Ed. | 47 | 2.19 | 2.57 |
| NTC | 71 | 3.14 | 3.65 |

Mean difference = -.9494.   P = .05.

It was hypothesized that:

11.    Female elementary education majors would score significantly lower than female non-teacher certification students on the MER.

A one-tailed independent T-test was used to determine whether or not the obtained difference between Elem. Ed. and NTC students on the continuously measured Total Protocol Rating score of the MER could reasonably be attributed to chance alone.  The Elem. Ed. group had a mean of 2.92 and the NTC group had a mean of 2.75 (Means and related descriptive statistics are provided in Table 11).  The observed significance value of .02 (T = 2.14, 113 df) suggested that the obtained difference cannot be reasonably attributed to chance and the null-hypothesis of no group difference is rejected.  However, because the obtained difference is in the opposite direction of that which was hypothesized, hypothesis #11 is also rejected.

It was hypothesized that:

12.    Female elementary education majors would be significantly more foreclosed than female non-teacher certification students.

A one-tailed independent T-test was used to determine whether or not the obtained difference between Elem. Ed. and NTC students on the

Table 11.  Continuous data for variable: MER TPR.

|            | Number of Cases | Mean | Standard Deviation |
|------------|-----------------|------|--------------------|
| Elem. Ed.  | 46              | 2.92 | .42                |
| NTC        | 69              | 2.75 | .40                |

Mean difference = .1658.  P = .02.

continously measured foreclosure scale of the revised version of the EOM-EIS-s could reasonably be attributed to chance alone.  The Elem. Ed. group had a mean of 32.8 and the NTC group had a mean of 31.8  (Means and related descriptive statistics are provided in Table 12).  The observed significance level of .30 (T = .50, 117 df) suggested that the obtained difference was could reasonably be attributed to chance and the null-hypothesis of no group difference was retained.  Hypothesis #12 was not supported.

Table 12.  Continuous data for variable: Foreclosure.

|            | Number of Cases | Mean  | Standard Deviation |
|------------|-----------------|-------|--------------------|
| Elem. Ed.  | 47              | 32.85 | 8.83               |
| NTC        | 72              | 31.89 | 11.07              |

Mean difference = .9622.  P = .31.

## Hypothesis 13

It was hypothesized that:

13.    The co-existence of a high social score, a low investigative score, a low MER TPR score, and a high foreclosure score within the same individual would predict membership in the Elem. Ed. group.

A series of logit regressions were used to test, and expand, this hypothesis. First, the continuous measures for social, investigative, dualism, and foreclosure were entered. This model was significant, though the foreclosure variable itself was not, and registered a 67.54 percent hit-rate. This means that it accurately placed 67.54 percent of the subjects into their appropriate group.

The next analysis dropped foreclosure from the regression. This model was also significant, as was each variable, and registered a 68.42 percent hit-rate.

The next analysis replicated the first, but substituted the Adjusted TPR for the original MER TPR. This, because [as is described later in this chapter] I believe that the Adjusted TPR is a more accurate measure of the true group differences. This model was also significant, but neither the foreclosure nor the adjusted TPR variables were significant. This model registered a 66.7 percent hit-rate.

The next analysis used the social, investigative, and adjusted TPR variables. This model was also significant, though the adjusted TPR variable was not. Interestingly, despite that fact that this model dropped a variable that was insignificant in the analyses above (foreclosure), the hit-rate decreased from 66.7% to 63.33%.

The final analysis utilized the only two variables that were significant in each previous regression, social and investigative. This model was also significant, as was each variable, but the hit-rate was only 63.56%.

The model that had the highest hit-rate (68.42%) utilized the social, investigative, and MER TPR scores. The model that, I believe, best tests my original hypothesis utilized the social, investigative, adjusted TPR, and foreclosure scores and registered a hit-rate of 66.67%. The safest model (i.e. the one where each variable is statistically and theoretically significant) utilized only the social and investigative variables. However, this model had a hit-rate of only 63.56%. The results of these analyses are presented in Table 13.

Table 13. Variables and hit-rates of logit regressions.

| Variables | Hit-Rate |
|---|---|
| Social* <br> Investigative* <br> MER TPR* <br> Foreclosure | 67.54% <br> ! |
| Social* <br> Investigative* <br> MER TPR* | 68.42% <br> ! |
| Social* <br> Investigative* <br> Adjusted TPR <br> Foreclosure | 66.67% <br> ! |
| Social* <br> Investigative* <br> Adjusted TPR | 63.3% <br> ! |
| Social* <br> Investigative* | 63.56% <br> ! |

Note. * = significant variable. ! = significant model.

## Supplemental Analyses

### Related to the Demographic Information Sheet

A chi-square test of independence was used to test whether the observed difference between the proportion of Elem. Ed. and NTC students who entered college knowing which major they would pursue (32/47 and 30/72 respectively) could reasonably be attributed to chance alone. The observed significance level of $p = .00$ at the .05 level suggested that it could not. Therefore the null-hypothesis of no difference between the groups was rejected.

### Related to the VPI

A MANOVA was conducted to determine if the two groups differed on the realistic, artistic, entrepreneurial, or conventional scales. The two-tailed omnibus F-statistic was not significant at the .05 level and the null-hypothesis of no group differences was retained.

### Related to the MER

The fact that the Elem. Ed. group scored significantly higher, rather than significantly lower as hypothesized, on the MER TPR score demanded inquiry. As described in chapter three, the TPR score is the arithmatic average of the six domain scores. Four of those domains are specifically related to teaching and learning (Domain Two: Role of the Learner in the Learning Process, Domain Three: Role of the Instructor in the Learning Process, Domain Four: Role of Peers in the Learning Process, and Domain Five: Role of Evaluation in

the Learning Process). Because the third is actually titled "Role of instructor", and because is may be safely assumed that the Elem. Ed. students have taken at least one Teacher Education course by the time they have reached the second semester of their junior year (the semester data were collected), I hypothesized that Elem. Ed. students would score higher on this domain. A one-tailed independent T-Test was conducted to determine if the obtained between group difference on domain three (.32) could reasonably be attributed to chance alone. The results of this analysis (T = -2.45, p = .02, 112 df) suggested that the difference could not reasonably be attributed to chance alone and the null-hypothesis of no group difference was rejected. This supported the hypothesis that Elem. Ed. and NTC differed on Domain Three with Elem. Ed. scoring significantly higher.

With the above finding in mind, a new variable was created by averaging, across scorers, domains one, two, four, five, and six. This new variable will be referred to as the "adjusted TPR". To increase the likelihood of obtaining the same finding as was obtained in the initial TPR analysis, a one-tailed independent T-test was used to determine if the established group TPR difference was also present on the Adjusted TPR. The mean Adjusted TPR for the Elem. Ed. students was 2.88 and 2.84 for the NTC students. The observed significance level for this analysis was .35 (T = .24, 104 df). This suggested that the obtained difference may reasonably be attributed to chance and the null-hypothesis of no group difference was retained. Information related to the development of the Adjusted TPR score is presented in table 14.

Table 14.  Data related to the variable: Adjusted TPR.

| Domain | Elem. Ed. | NTC | Mean Difference | P-value |
|--------|-----------|-----|-----------------|---------|
| 1 | 2.89 | 2.79 | .10 | .29 |
| 2 | 2.80 | 2.72 | .08 | .27 |
| 3 | 3.02 | 2.71 | .31 | .00 * |
| 4 | 2.88 | 2.67 | .21 | .09 |
| 5 | 2.75 | 2.58 | .17 | .11 |
| 6 | 3.09 | 3.04 | .05 | .37 |
| TPR | 2.92 | 2.75 | .17 | .02 * |
| Adj-TPR | 2.84 | 2.87 | .03 | .34 |

Note.  * = significant at .05 level.

Because the MER measures cognitive development, it was hypothesized that older students would score higher on the TPR.  To test this hypothesis, the sample was broken into two groups.  Those under the age of 23 comprised the first group, and those 23 and older comprised the second.  A one-tailed independent T-test was conducted to determine if the obtained difference in group means across the age groups could reasonably be attributed to chance alone.  The resulting T-value was insignificant (T=1.32, p.= .09, 113df).  This suggested that the observed difference could reasonably be attributed to chance and so the null-hypothesis of no group difference was retained.  However, when a similar analysis, utilizing the Adjusted TPR, the resulting T-value was significant (T= 1.81 was conducted. p = .03, 89 df).

## Related to the EOM-EIS

A MANOVA was conducted to determine if the obtained group differences on the achievement, moratorium, and diffusion scales of the EOM-EIS could reasonably be attributed to chance alone. The omnibus F-statistic was not significant at the .05 level and null-hypothesis of no group difference was retained.

## Related to Possible Interactions Between Variables

One-tailed independent T-tests were used to determine if those categorized as investigative types scored significantly higher on the MER. If so, this would support the contention that investigative types are more likely to move towards constructivist belief systems. The five investigative types did not score higher on the TPR or the Adjusted TPR. However, those with the investigative type in their three-point code did score significantly higher on both the TPR and the Adjusted TPR.

CHAPTER FIVE

DISCUSSION

This study was conceived at three levels. First, from my review of the relevant literature I made some predictions about the way female elementary education majors would be categorized by the VPI, MER, and EOM-EIS-2. Specifically I hypothesized that these students would be social, non-investigative, dualistic, and foreclosed. I suggested that, if supported, these hypotheses would offer psychological insights into the difficulty teacher educators encounter in their efforts to move elementary education students from traditional to contructivist belief systems.

The second level of this study was designed to test a model I developed which suggested that female college students who were social, non-investigative, dualistic, and foreclosed would be particularly drawn to elementary education. I hypothesized that the career needs of such an individual would be met by the traditional, authoritative, "banking model" of teaching commonly held in this culture (Lortie, 1975). I suggested that, if supported, this model would offer some psychological insights into Horton Jr. and Summer's (1985) contention that there might be ". . . an intangible factor . . . which helps to attract a certain quality of individual into the profession" (p. 24). A factor that impedes educators' efforts to alter students' traditional belief systems.

The third level of this research agenda will address the research questions raised by the findings of this study.

In this chapter, the research findings, as they relate to each level of this study, will be discussed. Implications for practice and future research will be offered, and the limitations of the study will be explored.

## Pertaining Only to Elem. Ed. Students

### Related to the VPI Analyses

Seventy-nine percent of the Elem. Ed. students were classified as social types, and all had the social type in their three-point codes. This is much greater than would be expected by chance alone. No Elem. Ed. students were classified as investigative types, and only fifty-three percent had the investigative type in their three-point code. These findings are consistent with my hypotheses and offer a theoretical link between published reports of Elem. Ed. students' interest in the social rather than intellectual aspects of teaching and the difficulty teacher educators have in trying to engage their students in constructionist dialogues around teaching and learning. Holland's theory predicts that these students would prefer activities in which they "inform, train, develop, serve, or enlighten" others. Furthermore, the theory contends that such individuals believe they lack scientific ability and are not attracted to "activities that entail the observational, symbolic, systematic, and creative investigation of physical, biological, and cultural phenomena. . . ." (Holland. 1985, p .19-23). If Holland's typology is valid, the results of this study suggest that the typical female elementary education student is not likely to be

interested in becoming a scientist or discipline practitioner as constructivists desire. This is not a statement of intellectual capacity, but rather one of probable interest.

## Related to the MER Analyses

Every Elem. Ed. student was categorized as a dualist. This is far greater than would be expected by chance. This finding supports my hypothesis and suggests that the TE students have not developed the cognitive approaches necessary to fully comprehend and utilize the more abstract, less authoritarian, constructionist beliefs espoused by teacher educators. By definition this finding suggests that the Elem. Ed. students acknowledge ". . . diversity of opinion, and uncertainty [but] account for them as unwarranted confusion in poorly qualified Authorities . . . [or as] . . . legitimate but still temporary in areas where Authority hasn't found The Answer yet" (Perry, p.1970). These beliefs are directly opposed to constuctivist visions of truth and knowledge. Theory predicts that the students will move beyond dualism, however, until they do, they will probably experience difficulty exploring constuctionist beliefs.

## Related to the EOM-EIS-2 Analyses

Despite the qualitative evidence reviewed in the body of this paper, only two percent of the TE students were classified as foreclosures. Though not predicted, the number of TE students categorized as being in moratorium exceeded that expected by chance. These findings do not support the model. Instead they suggest that the students have not prematurely closed off their

exploratory behaviors and, in fact, imply an openness to further identity development rather than the authoritarianism and rigidness often said to characterize elementary education students. If valid, these findings suggest that elementary education students are involved in the sort of personal explorations that could lead them to at least consider the constructionist beliefs presented in teacher education courses.

Interestingly, unlike those of the VPI and MER, the EOM-EIS-2 results obtained in this study are not congruent with those obtained in the norming groups. Whereas the identity achieved sub-scale mean obtained for the complete population in this study (65.4) was almost identical to that obtained by the norming group (64.7), the other obtained sub-scale means are distinctly different (This group/Norming group: Moratorium = 46.5/53.25, Diffusion = 38.5/43.8, Foreclosure = 32.0/41.7) (Adams, Bennion, & Huh, 1989). This pattern of scoring resulted in 26.1% of the subjects being classified as identity achieved, 67.2% as moratoriums, 4.2% as diffusions, and 2.5% as foreclosures. These categorizations suggest that the obtained sample was psychologically more mature than the norming data and teacher education literature lead me to suspect. There are at least three ways to explain why this pattern of scores emerged.

First, the norming data was drawn from a wider age-range of subjects than were tested in this study. Most of the norming studies incorporated a wider (younger) age-range and the manual does not offer data specific to

junior-level students. Because this study utilized juniors, the obtained pattern of scores may simply be the result of a more mature research population.

Similar to the issue of age is the issue of sex. Except for junior and senior high school-aged students, normative data is not given for subjects by gender. Several authors have speculated that female and male identity development differs in important ways (e.g. Marcia & Friedman, 1970; Fannin, 1979; Ginsburg & Orlofsky, 1981). Though no strong evidence has supported these hypothesized differences, and no studies have suggested that the EOM-EIS-2 is inadequate for studies utilizing female populations, Fannin (1979) has developed the Identity Status Incomplete Sentences Blank for Women (IS-ISBW). I did not choose to use this instrument in this study because it does not have the validation history of the EOM-EIS-2, and because it, like the EOM-EIS-2, is also a pencil and paper derivative of Marcia's original assessment interview procedures.

Finally, I believe the obtained pattern of scores may be related to the construct of social desirability. The pattern suggests that, though the students did not rate the identity achieved items higher than would be expected, they did rate all other items lower than would be expected. In order to receive a high score on the identity achievement scale, subjects would have had to "strongly agree" with phrases such as "After a lot of self-examination I have established a very definite view on what my own life style will be." To score highly on the moratorium scale one would have had to "strongly agree" with phrases such as "Religion is confusing to me right now. I keep changing my

views on what is right and wrong for me." To score highly on the diffusion scale one would have had to "strongly agree" with phrases such as "I don't have any real close friends, and I don't think I'm looking right now." Finally, to score highly on the foreclosure scale, one would have had to "strongly agree" with phrases such as "My own views on a desirable life style were taught to me by my parents and I don't see any need to question what they taught me." It seems clear that the sort of items which load on the foreclosure and diffusion scales are less likely to be endorsed than the sort of items loading on the identity achieved scale.

In short, while it is possible that the EOM-EIS-2 results obtained in this study are accurate, I believe that there is reason to question their validity.

## Comparing Elem. Ed. and NTC Students

### Related to the VPI Analyses

The model predicted that Elem. Ed. students would be more like the pure social type than NTC students. The VPI allowed this to be tested in two ways. First the percentage of Elem. Ed. students categorized as social types was compared to the percentage of NTC students similarly categorized. Then an analysis of group means was conducted to determine if the Elem. Ed. group scored significantly higher on the social scale than did the NTC group. Both analyses were significant and supported the model. A greater proportion of Elem. Ed. than NTC students were social types, and the Elem. Ed. students scored significantly higher on the social scale than did the NTC students.

A subsequent analysis determined that a significantly greater proportion of Elem. Ed. than NTC students had the social type in their three-point code. This speaks to the strength of the group difference as women are expected to score relatively higher on the social scale than they do on other scales. This finding means that, as a group, Elem. Ed. students were not only more social than the general population, but were also more social than a group of other students whom are themselves likely to be more social than the general population.

The model also suggested that Elem. Ed. students would be less like the pure investigative type than NTC students. Again the model was supported. Elem. Ed. students were categorized as investigative types significantly less often than were NTC students, and they scored significantly lower on the investigative scale than did the NTC students. However, as evidenced by the fact that no group differences existed between the proportions of each group having the investigative type in their three-point code, group differences for investigative type are not as great as are those for social type.

Additional analyses found no group differences on the four other major types measured by the VPI. This adds credence to the belief that the differences are clinically meaningful, rather than merely statically significant.

Though I believe these findings reflect true group differences, and are in accord with information presented in chapters one through three, it is important to note one alternate explanation. Elsewhere in this paper I contend that, despite the empirical findings of this study, Elem. Ed. students are foreclosed.

If so, theory would predict that they would respond to an interest inventory such as the VPI in ways they believed successful members of their selected profession would. Specifically Elem. Ed. students would try to look like teachers. As the general contentious is that teaching is a social occupation (Lortie, 1975; Holland, 1985), if foreclosed, it may be that Elem. Ed. students would rate as more social than they may really be. However, on the other hand, foreclosed females would be expected to score higher on the social scale than would other women (Fannin, 1979). Ultimately, I have no reason to believe that the VPI results are contaminated in any way.

## Related to the MER Analyses

The model predicted that Elem. Ed. students would be more dualistic than NTC students. Preliminary analyses determined that, as categorized by the MER, every subject in the sample was a dualist. This finding did not support the differential model. Instead, the lack of variability raised questions about the validity of the findings and/or the MER. Because every student was categorized as a dualist I wondered if the obtained results could be considered valid. However, a further analysis of the normative data revealed that the population TPR mean of 2.83 is similar to the average TPR mean obtained by juniors in previous studies (2.75) (Baxter Magolda & Porterfield) Therefore it is reasonable to conclude that the MER results obtained in this study are valid. The fact that two certified raters scored each inventory adds to this trust.

The TPR is a continuous measure of cognitive development as operationalized by the MER. In accordance with the model, I hypothesized that

Elem. Ed. students would score significantly lower on the TPR than would the NTC students. The first analysis did not only refute this prediction, but actually suggested the opposite. Rather than no difference, Elem. Ed. students scored higher on the TPR. However, as described in chapter four, the mean group difference can be attributed to the fact that the Elem. Ed. group scored significantly higher than the NTC group on domain three of the MER which is specifically related to teaching and learning. When this was controlled for by creating the "Adjusted TPR" score, the group difference was no longer present. How should this be interpreted?

The fact that the Elem. Ed. students scored significantly higher on domain three of the MER might mean that teacher educators' efforts are not unsuccessful, but rather that their goals of more completely changed thought patterns are too stringent. In other words, movement may be occurring, just not as quickly or completely as educators would like. On the other hand, the occurrence may indicate that the students have simply learned the construc-tionist language, allowing them to score higher on that particular domain, without truly comprehending or internalizing the philosophic beliefs behind the language. The facts that education students have been reported to endorse constructivist beliefs on tests, but not utilize them in practice (Zeichner & Tabachnick, 1981) and that the Elem. Ed. students were not significantly higher on any other MER domain indicates that this may have occurred. However, the creators of the MER believe that the MER is not easily fooled because the nature of the support given, rather than the actual content of the

stated belief, is analyzed. In effort to minimize controversy, I again point out that, even on domain three alone, no group scored beyond the dualist category. Therefore, I do not believe that any meaningful group differences were found to exist in regards to those constructs measured by the MER.

Upon reflection this finding makes sense as, though there was ample evidence to suggest that Elem. Ed. students were dualistic, there was no reason to believe that they were any more dualistic than their NTC counterparts. As will be described later, there is reason to predict that, as the two groups progress out of the university and into their professions, Elem. Ed. students do not move out of dualism at the same rate, or to the same degree, as do NTC students (Baxter Magolda & Porterfield, 1988).

## Related to the EOM-EIS-2 Analyses

The model predicted that Elem. Ed. students would be more foreclosed than NTC students. The EOM-EIS-2 allowed this to be tested in two ways. First, the percentage of Elem. Ed. students categorized as foreclosures was compared to the percentage of NTC students similarly categorized. Then an analysis of group means was conducted to determine if the Elem. Ed. group scored significantly higher on the foreclosure scale than did the NTC group. Neither analysis suggested a significant difference. In fact, only two percent of the total sample were categorized as foreclosures. Subsequent analyses suggested that there were no group differences on any of the EOM-EIS-2 scales. These findings do not support the model.

The most obvious, and parsimonious explanation for this finding is that, related to identity development, the groups simply do not differ. Such an explanation assumes that the samples are representative (which was support- ed) and that the EOM-EIS-2 is a valid instrument (which has also been demon- strated).

Other explanations challenge the EOM-EIS-2. The first questions the scoring and norming processes of the instrument, but not necessarily its construct validity. Specifically, it may be that true group differences are lost in the scoring process which utilizes means and standard deviations from a norming sample which included subjects different in age and sex from the students in this sample. For instance, to be categorized as a foreclosure, a subject must score one standard deviation above the norm group's mean foreclosure score. It is likely that this deviation score is greater for the norming group than it is for juniors alone, and possibly than it would be for females alone. However, only the categorical scoring of the EOM-EIS-2 is related to norm group scores. Therefore the fact that there was not a significant group difference on the foreclosure, or any other subscale of the EOM-EIS-2, sup- ports the null hypothesis of no group difference.

The second explanation questions the construct validity of the instru- ment. As I described above, I believe there is reason to believe that few junior- aged college students would endorse the sort of items necessary to be categorized as foreclosures or diffusions. I believe the face-validity is such that students would be able to appear as they desired, and research supports my

contention that students, particularly foreclosed students, prefer to appear identity achieved (Marcia, 1976). I believe this challenge deserves further attention as it would offer a way to explain the existence of the qualitative information presented in chapter three (e.g. TE students are rigid and authoritarian), and the empirical information obtained in this study (a significantly greater proportion of TE students than NTE students selected their major before entering college) that, together, suggest TE students are foreclosed.

<center>Implications</center>

<u>Resulting From the VPI Analyses</u>

Elem. Ed. students were categorized as social types and as non-investigative types at a significantly higher rate than would be expected by chance. Furthermore, Elem. Ed. students were significantly more social and less investigative than their NTC counterparts.

These findings support the predictive validity of Holland's typology and the construct validity of the VPI. They also support the general belief of counseling psychology that individuals within an occupation share a set of common characteristics which distinguish them from those in other occupations (Zytowski & Hay, 1985). Finally, the VPI results begin to answer Horton Jr. and Summer's (1985) speculation by suggesting that Elem. Ed. students differ from other college students along Holland's personality types.

The fact that the elementary education students were significantly more social and less investigative than those in the general population implies that elementary education students are not simply a random sample of the larger

university population. This suggests that other sorts of individuals do exist, specifically those who are less social and more investigative. Theoretically, as suggested in the body of this paper, it appears that teacher educators are trying to force the proverbial square peg into a round hole.

What the results cannot specify is the practical meaning of this finding. Though the VPI results theoretically explain some of the difficulty they encounter, it has not been demonstrated that students who are less social and\or more investigative are more easily engaged in epistemological discussions, more accepting of constructivist ideas, or any more able to transfer constructivist beliefs into classroom practice than are the current students. Further research by teacher educators and counseling psychologists, hopefully in collaboration, could easily address this next knowledge gap. For instance, the VPI could be administered to students entering or completing elementary education programs. Researchers could determine if those lower on the social scale and higher on the investigative scale were rated as more effective or constructivist. If it was found that a particular VPI-profiled student was more amenable to change, and more able to transform constructivist beliefs into classroom practice, that sort of individual could be specifically recruited. One way this could be done would be to utilize the VPI when making decisions about what students should be accepted into elementary education programs.

Another important form this recruitment could take would be to work collaboratively to change the prevailing views about the occupation of teaching. If it is true that most individuals hold a traditional, transfer model of

teaching, it is no wonder that students with more investigative interests pursue other careers. If teaching was described in high school career development activities, and positioned in college orientation sessions, as an investigative "practitioner" occupation it is theoretically appropriate to assume that students who more closely match Holland's investigative prototype would be attracted to the field, and that once in, would be readily drawn into the constructionist dialogue.

Furthermore, though teaching has historically been identified as a social occupation because those in the profession have tended to be social types, the occupation, as teacher educators currently define it, is an investigative one. Academic and career counselors need to be made aware of the fact that the field is in a transition state and may no longer be considered a good match for students categorized as social types. Instead of continuing to encourage undecided social types to consider teaching, counselors could instead lead undecided investigative types to the profession.

Ultimately, the culturally-bound conception of teaching must be changed so that those individuals who "are good with kids" are not the only ones encouraged to explore teaching.

## Resulting From the MER Analyses

Because all students were categorized as dualists, simply recruiting investigative typed students into elementary education programs may not significantly increase the likelihood that elementary education students would adopt constructivist beliefs about teaching and learning. If dualistic,

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investigative types would still expect their instructors to "teach" concrete "Truths". Unfortunately previous research comparing undergraduate and graduate students has shown that most students do not move out of dualism until they are well into advanced degree programs (Baxter Magolda & Porter-field, 1988). On a positive note, those with the investigative type in their three-point code did score higher on the MER.

Regardless of the capacity in which one works with female college students, the knowledge that the students are likely at the dualistic stage of cognitive development carries important implications. The results highlight the need for those working with students to think not only about what information they want to share, but more importantly, about how they may facilitate a change in the way the students think. As Perry's scheme suggests, cognitive development implies a construal change, not the acquisition of new informa-tion. Unless this development occurs it is not likely that students will be able to fully interact with the more sophisticated discipline-based ideas and theories they will encounter in their coursework.

Teacher educators may have to re-explore the expectations they have of their students. Students would have to progress beyond dualism before they could adequately comprehend and utilize constructionist thoughts about teaching and learning. Research indicates that many, if not most, undergradu-ate students, elementary education majors or not, do not move beyond dualism before receiving their baccalaureate degrees (Baxter Magolda & Porterfield, 1988). The same research indicates that undergraduate and

graduate students, particularly graduate students, in Education, do not score as highly as students from other majors. Therefore, the question of, "How much change is really possible?" comes to the fore.

Second, because theory suggests that cognitive development is facilitated by successive interactions with diversity (Perry, 1970), it is suggested that teacher educators may need to re-evaluate their conceptual change approach. When teacher educators suggest that they have not yet created "powerful enough interventions" (Feiman-Nemser & Melnick, 1992; Kagan, 1992), they may be heading in the wrong direction. Rather than facilitating change, experiences which are too far outside the range of a given individual's experience may serve to inhibit change by encouraging a defensive posture.

An example of this may be seen in a current practice in elementary education programs in which students, who likely attended homogenous, traditional, mainly white schools, are placed in ethnically and economically diverse urban schools. The presumed idea behind this practice is to expose the students to a world they have not seen. The hope is that they will emerge from the experience with a greater recognition of, and appreciation for, diversity. However, it is my experience that this practice often has the undesirable affect of reinforcing racist, and other equally destructive, often dualistic, ways of thinking. I believe this is because students enter teacher education programs with false expectations about what the job of teaching will entail. They expect all students to act as they believe they did, or often as they believe all their schoolmates did. When the field-work experience does not meet the

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students' expectations, rather than challenging their own beliefs, they tend to believe the difference lies solely in the sort of students who attend the urban school. I believe this is an example of an experience that is too diverse. Ideally it might be better to have students complete their initial field-work in a school they attended. If their preconceptions are indeed false, they would still be challenged. However, with fewer ways to explain the variance the students would be more likely to examine their own beliefs.

## Resulting From the EOM-EIS-2 Analyses

The model predicted that the Elem. Ed. students would be more foreclosed than the NTC students. The EOM-EIS-2 enabled this to be tested categorically and continuously, Neither analysis suggested the existence of significant group differences on the foreclosure subscale. Furthermore, no group differences were found to exist on the identity achievement, moratorium, or diffusion subscales.

The most parsimonious explanation of this finding is that the groups do not differ on foreclosure, or in their larger identity development status. However, as I have indicated, I do not believe this administration of the EOM-EIS-2 completely rules out the possibility that Elem. Ed. students are foreclosed, and are more foreclosed than NTC students. I believe further research, utilizing Marcia's interview process and Fannin's Identity Status Incomplete Sentences Blank for Women (1979), should be conducted. I contend that a great deal of qualitative and empirical evidence remains to suggest that the construct of

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foreclosure will be helpful to those seeking to understand the career development of elementary education majors.

## Limitations and Critiques of the Study

The study described in this document is empirical. By definition it is rooted in logical positivism and the modernist, rational, scientific method. However, the majority of the intended audience (teacher educators), adheres to a post-modern, social constructivist epistemology. These individuals are critical of empiricism, and espouse an "anti-foundationalism" which contends that "questions of fact, truth, correctness, validity, and clarity can neither be posed nor answered" (Fish, 1989, p. 344).

In light of the above situation, I will address the limitations and critiques of the study in two sections. In the first I will address the study's weaknesses from the perspective of the rational-empirical tradition. That is, I will delineate the features of this study which, from modernist, rational epistemology, may be said to limit and/or threaten the legitimacy of the findings and interpretations offered above. In the second section I will attempt to delineate and respond to the critiques post-modern social constructivists will likely levy against, not only this study, but any study similarly rooted in rational empiricism. Another way of framing this is to say that in the first section I will evaluate the study using the "rules" of its own model, while in the second I will critique the study from a completely different paradigm.

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## A Modern, Rational-Empiricist Critique

When studies use samples to generalize to larger populations, the possibility always exists that a statistically unique sample was obtained. However, because the samples in this study were randomly selected, and because demographic analyses demonstrated no unforseen group differences, I believe the samples are representative.

Because many Michigan State University Teacher Education faculty are prominent in the fields of teacher preparation and education reform, the elementary education students at this institution may be a unique group. They have likely been in the classrooms of many of the primary writers on the topic of student belief systems. They have certainly been exposed to many "cutting edge" interventions, and have been the subjects in a variety of research projects. Also, because the elementary education program at Michigan State is competitive, faculty members have the ability to deny some students access to the program. Together these factors suggest that the Elem. Ed. sample utilized in this study may be somewhat unique and raises the need to be cautious when generalizing to Elem. Ed. students at other institutions. However, if the differences are in the expected directions, the effect, related to this study, would be to reduce rather than increase differences between elementary education and other, non-teacher certification students.

Because this sample included only female subjects, generalizations to males should be made only with the intent of conducting further research. As the great majority of elementary education majors are female, it is not incorrect

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to generalize the results of this study to "the typical elementary education student." However, because potential difference between male and female elementary education students have not been explored, it is more appropriate to generalize only to other females in the field. It is not appropriate to generalize to male non-teacher certification students.

Because this study examined one group of students at one point in their professional development, efforts to generalize beyond the junior year of college increase the likelihood of error. Longitudinal research programs are needed in order to make more comprehensive statements regarding developmental paths and group differences.

The fact that the subjects in this study were recruited through the mail raises some concerns about the generalizability of the results. The statistical procedures employed in this study assume that the data were collected from representative samples of the larger populations, and that the instruments themselves were completed in the appropriate manner, without external interference. Though there is no reason to suspect otherwise, because the subjects completed the instruments in their own homes, the possibility of data contamination cannot be completely ruled out. The greatest threat to the integrity of the study would center around the question of what sort of individual is likely to participate in such a study: How might that person differ from their larger experimental group, and how might those individuals be similar across experimental groups.

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Another limitation of the study is that information regarding the number of courses each subject had taken in their major, and about whether or not students had transferred into their current major after initiating another course of study (late-deciders) was not gathered in interpretable ways. Future research should develop more accurate ways of measuring these variables.

In summation, all the limitations standard to research utilizing samples of larger populations are present. However, because subjects were randomly selected, these limitations are expected to impact each group at the same, relatively minimal level. No strong threats to the validity or generalizability of this study are noted.

## A Post-Modern, Social Constructivist Critique

Staunch or, as Rosenau (1992) prefers, "skeptical" post-modernists will, before reading it, wholly dismiss this, and any such study which attempts to evaluate a model or measure a psychological construct. Strict social constructivists "never test because testing requires 'evidence,' a meaningless concept within a post-modern frame of reference" (Rosenau, p.8). Staunch post-modernists believe such studies are merely "projects" (politically motivated activities) designed to elevate one's "reading" of (view of, or interpretation of) the "text" (all phenomenon and all events are texts) to a place of "privilege" (a place of special attention or priority). Skeptical social constructivists do not believe that one "reading" of any "text" is, or may be shown to be, more valid or truthful than another (Rosenau, pp. xi-xiv).

Furthermore, strict social constructivists believe it is impossible to study any particular "subject," that there is no purpose in theory (let alone in efforts to test or validate such arbitrary constructions), and that there are no unifying "truths" to be discovered (Bauman 1987, pp.3-4). Whereas "those of a modern conviction seek to isolate elements, specify relationships, and formulate a synthesis; post-modernists do the opposite. They offer indeterminacy rather than determinism, diversity rather than unity, difference rather than synthesis, complexity rather than simplification. They look to the unique rather than to the general, to intertextual relations rather than causality, and to the unrepeat-able rather than the re-occurring, the habitual, or the routine" (Rosenau 1992, p. 8). "Post-modern social science focuses on alternative discourses and meaning rather than on goals, choices, behavior, attitudes (Potter & Wetherell, 1987), and personality" (Rosenau, p. 8).

Rather than examine the design, findings, and implications of this study, skeptical post-modernists would instead "de-construct" it. De-construction "tears [the] text apart [and] reveals its contradictions and assumptions; [the] intent, however, is not to improve, revise, or offer a better version of the text" (Rosenau, 1992, p. xi; Ashley & Walker, 1990). Instead, the de-construction is a strategic "move" designed to demonstrate that I have approached this study from a specific socio-political perspective with related motives, and that the study is merely an attempt to "privilege" that perspective. Ultimately they would contend that there is no such construct as a typical elementary

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education student and that there is certainly no way to make one, let alone a group, of them the subject of a study (Henriques et al, 1994).

It is impossible to involve strict social constructivists in the critique of this position because they do not accept the concept of evaluation. Likewise, because constructs such as "evidence," "proof," and "truth," are meaningless to social constructivists, they easily and flatly dismiss critiques brought forth from alternative paradigms.

The one critique some social constructivists will recognize is that, by dismissing empirical and other modernist studies, constructivists ironically violate the tenets of their own system which rejects the notion that it is possible to prove, and therefor foolish to value, one perspective or "reading" over another. My response to those post-modernists who would dismiss this study immediately is to remind them of this tenet, and to suggest that according to their own theory, my "text" should be given equal weight in the larger discourse.

From the above discussion it may appear that rational empiricism and post-modern social constructivism exist on parallel planes which share no points of intersection. Fortunately moderates of both camps are beginning to forge some shared understandings. Moderate social constructivists are beginning to suggest that it is possible to study the human subject, and that the construct of evidence is not completely meaningless. Those I will refer to as post-modern empiricists recognize, among other things, that truth is ultimately unknowable, that all evidence is tentative, and that research is never

purely objective. It is the critiques of these two groups which I am most able to respond to.

Constructivists, even moderate ones, will challenge the purpose of this study which they would argue is merely an effort to "privilege" my "reading" over others. To this challenge I contend that I have not presented my model as the only, or even as the best, model. I am very aware that there is an infinite array of theories and concepts, from psychology and other disciplines, which may afford alternative explanations for the problem facing teacher educators. I chose to utilize Holland's theory, Perry's scheme, and Marcia's model for three reasons. First and foremost, of the theories I am aware of, they were most directly implicated by the descriptive studies published in the teacher education literature. I believed it was important to connect with the prevailing "readings" of the "text" in a way that expanded the emerging "story" rather than in a way that offered a completely different one. Secondly, I believed the utilized theories were among the most parsimonious, easily understood, and "user-friendly" of the psychological theories. I believed this was very important as I was not writing for a psychologically literate audience. Finally, each of the theories I utilized was supported by a substantial body of research, and was associated with generally easy to use assessment instruments. Though post-modernists working only to delineate their perspective are philosophically opposed to the importance of "performativity" (pragmatic concerns) (Rosenau, 1992), those attempting to practice within the paradigm do struggle with practical concerns. This study was an attempt to offer one

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social constructivist-informed, empirical model which practitioners might use to plan future interventions.

Next, moderates will likely challenge the specific theories I elected to use. Each theory promotes its own underlying universal assumption about people, each theory is organized around some sort of typology, and each theory supports itself with empirical evidence. Even moderate social constructivists challenge these factors. However, "to consider everything a unique occurrence leaves one unable to go beyond description" (Rosenau, 1992, p. 19), and the teacher education literature was already saturated with descriptions. Pragmatically those striving to prepare future educators were asking for some direction, they wanted to know what might help them better achieve their goal of preparing social constructivist-informed teachers. While staunch constructivist devalue the importance of "performativity" and "pragmatics," in place of appearance and image (Hutcheon, 1986), it is hoped that moderates have not completely abandoned the belief that the social sciences may help individuals solve interpersonal and other problems of living. More concretely, though few would ever label either theory as post-modern, Holland, Perry, and Marcia each note that their theory oversimplifies the human being, and each caution against over interpretation of results. Each believes the risk is neces-sary in order to allow for practical activities such as the planning and design of strategic educational and therapeutic interventions. Strict social constructivists avoid this dilemma by denying the importance of pragmatic concerns. A "move" that practitioners do not have the luxury to make.

Moderate social-constructivists will certainly challenge the process of using statistical analyses to test the hypotheses of this study. Even moderate social constructivists are leery of "truth claims" and believe that statistical analyses are remnants of a logical positivist tradition that sought to "privilege" one viewpoint above other equally valid perspectives (Rosenau, 1992). Moreover, even moderates will argue that the concept of a "typical elementary education student" is a fictitious construct which serves the sole purpose of allowing empiricists to proport to know something about a subject that is ultimately unknowable (Shweder, 1986). I acknowledge that statistics are not infallible, nor completely objective. However, as social constructivists have not offered other rules of inquiry (in fact, as noted above, staunch post-modernists do not believe inquiry or validation is possible), the best that can be done is to adopt a post-modern empirical position which acknowledges aspects of the study which may limit the purity of the statistical results, and which treats the obtained results as tentative and open to interpretation, rather than as infallible facts.

Moderate constructivists will also challenge the construct validity of the instruments used in this study. Holland's constructs, as measured by the VPI, are supported by previously noted research, and also, though circularly, by the fact that they allowed for accurate predections in this study. As discussed above, Perry's constructs, as measured by the MER, are supported by previously discussed research and, to some degree, by the results of this study. However, this study suggests that they may be too broad, or in some other

way lack sufficient power, to differentiate between subjects. Finally, as discussed above, the EOM-EIS-2 seems to lack, at least, the power to differentiate, if not the ability to operationalize Marcia's constructs.

Finally, moderate post-modernists will challenge many of the implications I suggest. They will most strongly challenge my interpretations which suggest that any part of the problem resides in the type of student who chooses to enroll in elementary education programs. As mentioned above, a basic tenet of constructivist thought is that personality types do not exist. Here I believe there is an inconsistency between post-modernist theory and practice. When teacher education programs receive more applicants than they have positions, it is standard practice to develop a formal selection process. This commonly requires applicants to report their grade point averages, submit some sort of written essay, and/or submit to a personal interview. I know of no programs which utilize completely randomized lottery systems to admit students. This suggests that, regardless of their philosophical rhetoric, social constructivists who are directly involved in the practical workings of teacher education programs recognize that some types of students are preferable to others, that some types are expected to do better than others, and that these types can, in some, perhaps in-exact way, be identified and selected from a group of others. The implications of this study simply suggest variables those gatekeepers may want to consider when determining who is allowed to enter elementary education programs. I took care to note that all implications are

tentative and that future research will determine the practical import of the various findings.

In summation I would argue that anyone who dismisses this, or any other empirical study, on purely social constructivist grounds breaks the rules of their own paradigm. From the tenets of their own system, no perspective is less valid than another. I believe those who refuse to see this are as afflicted with "theory-blindness" as are those who fail to recognize the many weaknesses of the modernist, rational perspective.

Post-modern social constructivism has, and continues to, shed important light on the weaknesses of the empirical method, on the importance of exploring alternative explanations, and on the ultimate unknowable nature of truth. However, contrary to skeptics' claims, the modernist paradigm is in need of revision, not replacement. Individuals still live, work, and play in a world which does exhibit some predictable patterns, if not knowable truths. Patterns which practitioners, whether steeped in empiricism or post-modern thought, continue to utilize in their daily work. To elevate theory above the events and practicalities of day to day living, particularly in the social sciences, is a "move" which ultimately places paradigm above humanity. Scarr (1985) noted that the usefulness of any particular interpretation "depends . . . on whether they work for various purposes, some practical and some theoretical" (p. 499). I believe it is important to note that a criticism of one purpose does not necessarily dismiss the other. I believe that this, and any other pragmatically oriented study, should be judged on the usefulness of its practical

implications, not only on the theory upon which it was built. As moderate post-modernists point out, theories are constructed stories which seek to organize ultimately unorganizable events in ways that allow us to interact in and among them. As a post-modern empericist, I do not offer the results or implications of this study as truth, but rather as one possible "reading" which entails some intervention strategies which may prove helpful.

## Summary

This study was viewed as the first and second levels of a tri-level research project. The first level attempted to gain a deeper understanding of who, psychologically, female elementary students are. The second level presented a model that attempted to identify the characteristics of female elementary education students that distinguish them from female students not pursuing teacher certification. The third level will lead from, and build upon, the findings of this study.

The first level found that female elementary education students were social, non-investigative, and dualistic. I suggested that this sort of individual would not be expected to engage in, nor fully comprehend, epistemological discussions designed to move them from a positivist to a constructivist belief system. I also suggested that the interaction of the social and non-investigative characteristics may serve to hinder further cognitive development more than the interaction of other Holland types.

The second level of the study found that female elementary education students differed from their non-teacher certification counterparts only in
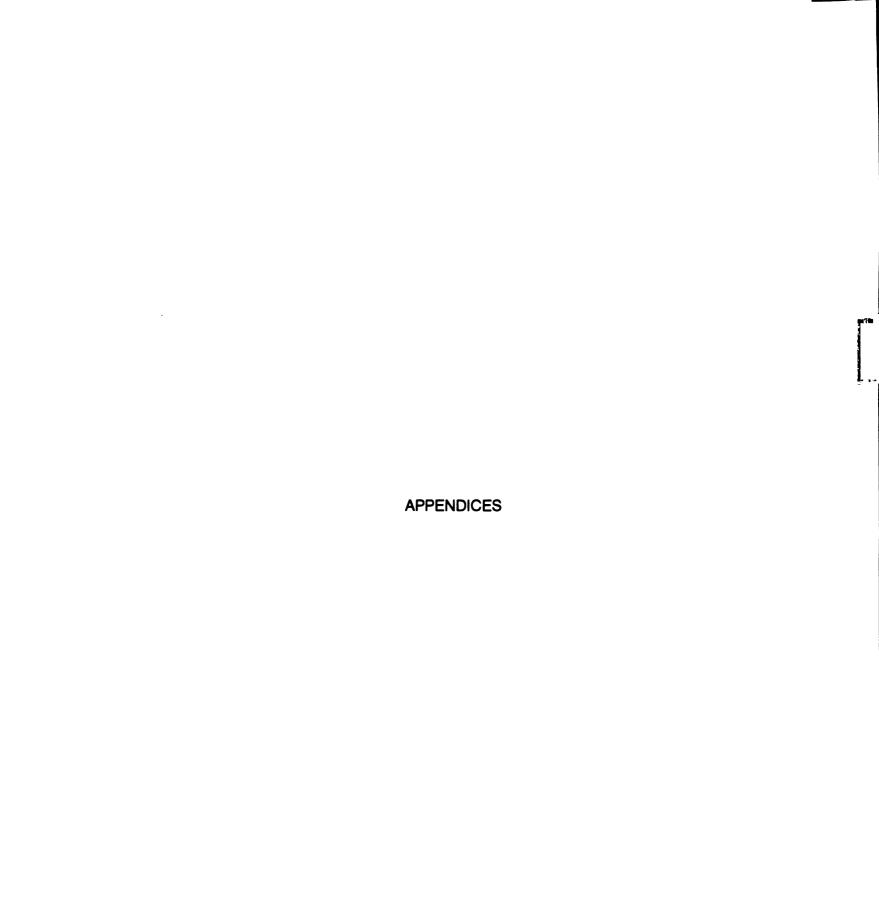
relation to the social and investigative types. All students were dualists. I suggested that this finding indicates that the elementary education major may be attracting a particular sort of student (social and non-investigative) that is particularly unlikely to engage in constructivist dialogue. I also suggested that movement into constructivist thought would parallel movement out of dualism, but noted that the personality characteristics which differentiate female elementary education students from those not pursuing teacher certification may inhibit the likelihood that the elementary education students will engage in the sort of activities that would propel them out of dualism. This is consistent with the presented model which suggested that individuals choose to enter elementary education because they believe it will allow them to interact with the world in a way that is psychologically comfortable to them.

Finally, in the implications section, I laid the groundwork for the third level of this project. I suggested that further research is necessary to determine if, in fact, individuals who score lower on the VPI social scale, higher on the VPI investigative scale, and higher on the MER TPR are rated as more constructivist, and more effective, in their academic and classroom endeavors. I also called for further research utilizing the construct of foreclosure as, despite the findings of this study which suggest otherwise, I believe there is ample evidence to suggest that the construct is an important one for teacher educators to consider.

I also called for research designed to determine if the personality types, as measured by the VPI, and stage of cognitive development, as measured by

the MER, of Elem. Ed. students changes during their academic and profes-sional life. Research suggests that they may not (Holland, 1985, Baxter Magolda & Porterfield, 1988).

The findings of this study also begin to illuminate a fourth level for further inquiry. Specifically raised is the question of how other disciplines experience, conceptualize, and intervene around their students' dualism. This study indicates that, at least those working with junior level females, are encountering dualistic thought processes. Is it only the females? Is this recognized? Is it a problem for those in other disciplines? What might counseling psychologists and teacher educators offer these professionals? What might we take from them? This future line of questioning will expand this research across disciplines.

APPENDICES

## APPENDIX A

Introductory Letter

### **WHAT SHOULD I MAJOR IN?**

Dear Junior,

As a junior you have already had to select a major. Whether or not that choice came easy for you, I bet you know many individuals who struggled, or continue to struggle, with their decision. These students, who are often pulled in many directions, feel pressured to make "the right choice". Under this pressure, students often experience a great deal of stress, confusion, and anxiety. Unfortunately these feelings make it even harder for individuals to make their decisions. In light of this, it is no surprise that difficulty deciding on a major is one of the most common and trouble-some problems faced by college students.

If you could help these students, I bet you would; and I'm going to offer you a chance. You are one of a small number of Michigan State juniors I am asking to take part in a research project. You knew I was going to ask for something didn't you?

This may be a good time to let you know that, of those who participate in the study, four will be randomly selected to win cash awards of $50.00. Now that I've regained your interest I'll tell you what you can expect!

My study is designed to help shed some light on the relationship between individuals' personality style and the career decisions they make. In one week I am going to mail you a packet that will include a brief demographic sheet, three question-naires, and a self-addressed stamped return envelope. In total it will take approxi-mately 60 minutes to complete all the forms. You will be able to complete these forms at your convenience, in the comfort and privacy of your own home. All those who return competed questionnaires will be eligible for the drawing in which four $50.00 cash awards will be given.

I can assure you that your responses to the questionnaires will be kept completely confidential. Your names and addresses are matched only for mailing purposes. The packets you receive will be numbered, and from that point on, your name or address will never be matched with your questionnaire. Likewise, neither the names or addresses of those participating in this study will ever be made public. As a final protection to you, only aggregate data will be utilized in any reports prepared from this study. No individual data will be shared.

Though I hope that you take part in this study, I want to clearly state that your involvement is indeed fully optional and that you are in no way obligated to partici-pate.

Sincerely,
Bryan Bolea
Doctoral Candidate
Counseling Psychology Program
Michigan State University

APPENDIX B

Cover Letter

<u>WHAT SHOULD I MAJOR IN?</u>

Dear Junior,

Hello again! I hope that you have had time to read over the introductory letter I mailed to you approximately two weeks ago and have decided to participate in my study.

Enclosed in this packet you will find a brief demographic information sheet and three questionnaires. You indicate your voluntary agreement to participate in this study by completing and returning the enclosed materials.

Each questionnaire includes its own instructions, so please carefully read those before progressing. In general, your participation will be most helpful if you complete each item. However, if one or more items feel too personal or intrusive to answer, please skip that one and progress to the next.

As soon as you have completed the forms, use the enclosed envelop to mail them back to me. All those who return completed forms will be included in the drawing for the $50.00 cash awards. This drawing will take place in approximately 6 weeks.

If you decide not to participate, I would appreciate it if you would return the uncompleted materials to me.

If you have any questions about the purpose of this study, your participation in it, or any of the specific items, please feel free to contact me at 394-3467.

Thank you very much for your thoughtful consideration of whether or not you will participate in this study. I look forward to learning from your responses ways we might help those facing difficult career decisions.

Sincerely,

Bryan Bolea
Doctoral Candidate
Counseling Psychology
Michigan State University

## APPENDIX C

Demographic Information Form

### __DEMOGRAPHIC INFORMATION__

1. **Circle one:**   Female   or   Male

2. **What is your university classification?**

   Circle one:   Freshman   Sophomore   Junior   Senior

3. Are you:
   - \_\_\_ 18 - 20
   - \_\_\_ 21 - 22
   - \_\_\_ 23 - 24
   - \_\_\_ 25 - 30
   - \_\_\_ 31 - 35
   - \_\_\_ 36 - 40
   - \_\_\_ 40 or above?

4. **What is your major?** _____

5. **Did you enter the university with the intention of pursuing this major?**   Yes   or   No

6. **How many semester hours of coursework have you taken in your major?** _____

7. **What is the highest level of education attained by your mother?**

   \_\_\_\_ Did not graduate from high school.

   \_\_\_\_ Graduated from high school.

   \_\_\_\_ Completed a vocational training program at a community college or specialized training institution.

   \_\_\_\_ Attended college but did not earn a bachelors degree.

   \_\_\_\_ Graduated from a four-year college or university.

   \_\_\_\_ Has attended graduate school.

8.  **What is the highest level of education attained by your father?**

    ____ Did not graduate from high school.

    ____ Graduated from high school.

    ____ Completed a vocational training program at a community college or specialized training institution.

    ____ Attended college but did not earn a bachelors degree.

    ____ Graduated from a four-year college or university.

    ____ Has attended graduate school.

9.  **Will you be the first member of your immediate family to graduate from college?  Yes  or  No**

10. **Is the population of your hometown:**

    ____ Less than 7,000?

    ____ Between 7,000 and 50,000?

    ____ Between 51,000 and 100,000

    ____ Over 100,000?

    **and would you describe it as:**

    ____ Rural?

    ____ Suburban?

    ____ Urban?

11. **(Optional)  Do you describe yourself as:**

    ____ Euro-American          ____ African-American
    ____ Hispanic-American      ____ Asian-American
    ____ Native-American
    ____ Other (Please specify) _____

12. **Would you like to receive a written summary describing the findings of this study?  Yes  or  No**

# APPENDIX D

## Vocational Preference Inventory

**Vocational Preference Inventory (VPI")–1985 Revision**   by John L. Holland, Ph.D.   **Test Booklet**

Name _____

Occupation _____

Sex _____   Age _____   Date _____

Education _____

This is an inventory of your feelings and attitudes about many kinds of work. Fill out your answer sheet by following the directions given below:

- Show on your answer sheet the occupations which *interest* or *appeal* to you by blackening Ⓨ for "Yes."

- Show the occupations which you *dislike* or find *uninteresting* by blackening Ⓝ for "No."

- Make *no marks* when you are undecided about an occupation.

1. Criminologist
2. Private Investigator
3. Restaurant Worker
4. Detective
5. Photoengraver
6. Truck Gardener
7. Physical Education Teacher
8. Humorist
9. Photographer
10. Diplomat

11. Airplane Mechanic
12. Meteorologist
13. Poet
14. Sociologist
15. Speculator
16. Bookkeeper
17. Deep Sea Diver
18. Stock Clerk
19. Dramatic Coach
20 Lawyer

21. Fish and Wildlife Specialist
22. Biologist
23. Symphony Conductor
24. High School Teacher
25. Buyer
26. Business Teacher
27. Wrecker (Building)
28. Veterinarian
29. Elementary School Teacher
30. Physician

31. Auto Mechanic
32. Astronomer
33. Musician
34. Juvenile Delinquency Expert
35. Advertising Executive
36. Budget Reviewer
37. Prizefighter
38. Post Office Clerk
39. Experimental Laboratory Engineer
40. Bartender

41. Carpenter
42. Medical Laboratory Technician
43. Author
44. Speech Therapist
45. Manufacturer's Representative
46. Certified Public Accountant
47. Firefighter
48. Airline Ticket Agent
49. Entertainer
50. Novelist

51. Hunting or Fishing Guide
52. Anthropologist
53. Commercial Artist
54. Marriage Counselor
55. Television Producer
56. Credit Investigator
57. Wild Animal Trainer
58. Administrative Assistant
59. Physical Therapist
60. Cashier

61. Surveyor
62. Zoologist
63. Free-Lance Writer
64. School Principal
65. Hotel Manager
66. Court Stenographer
67. Stunt Man/Stunt Woman (Movies)
68. Route Salesperson
69. Professional Athlete
70. Flight Attendant

71. Construction Inspector
72. Chemist
73. Musical Arranger
74. Playground Director
75. Business Executive
76. Bank Teller
77. Jockey
78. Interior Decorator
79. Airplane Pilot
80. Banker

81. Radio Operator
82. Independent Research Scientist
83. Journalist
84. Clinical Psychologist
85. Restaurant Manager
86. Tax Expert
87. Motorcycle Driver
88. Sports Promoter
89. Referee (Sporting Events)
90. Mail Carrier
91. Electronic Technician
92. Writer of Scientific Articles
93. Portrait Artist
94. Social Science Teacher
95. Master of Ceremonies
96. Inventory Controller
97. Blaster (Dynamiter)
98. Police Officer
99. English Teacher
100. U.N. Official

101. Tree Surgeon
102. Editor of a Scientific Journal
103. Concert Singer
104. Director of Welfare Agency
105. Salesperson
106. IBM Equipment Operator
107. F.B.I. Agent
108. Probation Agent
109. Astronaut
110. College Professor
111. Bus Driver
112. Geologist
113. Composer
114. Youth Camp Director
115. Real Estate Salesperson
116. Financial Analyst
117. Mountain Climber
118. Cook/Chef
119. Stage Director
120. Ticket Agent

121. Locomotive Engineer
122. Botanist
123. Sculptor/Sculptress
124. Personal Counselor
125. Publicity Director
126. Cost Estimator
127. Explorer
128. Nursery School Teacher
129. Quality Control Expert
130. Judge
131. Machinist
132. Scientific Research Worker
133. Playwright
134. Psychiatric Case Worker
135. Department Store Manager
136. Payroll Clerk
137. Test Pilot
138. Computer Programmer
139. Clothing Designer
140. Truck Driver

141. Electrician
142. Physicist
143. Cartoonist
144. Vocational Counselor
145. Sales Manager
146. Bank Examiner
147. Racing Car Driver
148. Forester
149. Social Worker
150. Sales Clerk
151. Funeral Director
152. Mind Reader
153. Architect
154. Shipping & Receiving Clerk
155. Criminal Psychologist
156. Insurance Clerk
157. Barber
158. Bill Collector
159. Ward Attendant
160. Masseur/Masseuse

# Vocational Preference Inventory (VPI™) – 1985 Revision   by John L. Holland, Ph.D.

## Form HS Answer Sheet

Name _____

Occupation _____

Sex _____   Age _____   Date _____

Education _____

Blacken Ⓨ for Yes, Ⓝ for No (For example ● Ⓝ)

| 1 Ⓨ Ⓝ | 11 Ⓨ Ⓝ | 21 Ⓨ Ⓝ | 31 Ⓨ Ⓝ | 41 Ⓨ Ⓝ | 51 Ⓨ Ⓝ | 61 Ⓨ Ⓝ | 71 Ⓨ Ⓝ | 81 Ⓨ Ⓝ | 91 Ⓨ Ⓝ | 101 Ⓨ Ⓝ | 111 Ⓨ Ⓝ | 121 Ⓨ Ⓝ | 131 Ⓨ Ⓝ | 141 Ⓨ Ⓝ | 151 Ⓨ Ⓝ |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 Ⓨ Ⓝ | 12 Ⓨ Ⓝ | 22 Ⓨ Ⓝ | 32 Ⓨ Ⓝ | 42 Ⓨ Ⓝ | 52 Ⓨ Ⓝ | 62 Ⓨ Ⓝ | 72 Ⓨ Ⓝ | 82 Ⓨ Ⓝ | 92 Ⓨ Ⓝ | 102 Ⓨ Ⓝ | 112 Ⓨ Ⓝ | 122 Ⓨ Ⓝ | 132 Ⓨ Ⓝ | 142 Ⓨ Ⓝ | 152 Ⓨ Ⓝ |
| 3 Ⓨ Ⓝ | 13 Ⓨ Ⓝ | 23 Ⓨ Ⓝ | 33 Ⓨ Ⓝ | 43 Ⓨ Ⓝ | 53 Ⓨ Ⓝ | 63 Ⓨ Ⓝ | 73 Ⓨ Ⓝ | 83 Ⓨ Ⓝ | 93 Ⓨ Ⓝ | 103 Ⓨ Ⓝ | 113 Ⓨ Ⓝ | 123 Ⓨ Ⓝ | 133 Ⓨ Ⓝ | 143 Ⓨ Ⓝ | 153 Ⓨ Ⓝ |
| 4 Ⓨ Ⓝ | 14 Ⓨ Ⓝ | 24 Ⓨ Ⓝ | 34 Ⓨ Ⓝ | 44 Ⓨ Ⓝ | 54 Ⓨ Ⓝ | 64 Ⓨ Ⓝ | 74 Ⓨ Ⓝ | 84 Ⓨ Ⓝ | 94 Ⓨ Ⓝ | 104 Ⓨ Ⓝ | 114 Ⓨ Ⓝ | 124 Ⓨ Ⓝ | 134 Ⓨ Ⓝ | 144 Ⓨ Ⓝ | 154 Ⓨ Ⓝ |
| 5 Ⓨ Ⓝ | 15 Ⓨ Ⓝ | 25 Ⓨ Ⓝ | 35 Ⓨ Ⓝ | 45 Ⓨ Ⓝ | 55 Ⓨ Ⓝ | 65 Ⓨ Ⓝ | 75 Ⓨ Ⓝ | 85 Ⓨ Ⓝ | 95 Ⓨ Ⓝ | 105 Ⓨ Ⓝ | 115 Ⓨ Ⓝ | 125 Ⓨ Ⓝ | 135 Ⓨ Ⓝ | 145 Ⓨ Ⓝ | 155 Ⓨ Ⓝ |
| 6 Ⓨ Ⓝ | 16 Ⓨ Ⓝ | 26 Ⓨ Ⓝ | 36 Ⓨ Ⓝ | 46 Ⓨ Ⓝ | 56 Ⓨ Ⓝ | 66 Ⓨ Ⓝ | 76 Ⓨ Ⓝ | 86 Ⓨ Ⓝ | 96 Ⓨ Ⓝ | 106 Ⓨ Ⓝ | 116 Ⓨ Ⓝ | 126 Ⓨ Ⓝ | 136 Ⓨ Ⓝ | 146 Ⓨ Ⓝ | 156 Ⓨ Ⓝ |
| 7 Ⓨ Ⓝ | 17 Ⓨ Ⓝ | 27 Ⓨ Ⓝ | 37 Ⓨ Ⓝ | 47 Ⓨ Ⓝ | 57 Ⓨ Ⓝ | 67 Ⓨ Ⓝ | 77 Ⓨ Ⓝ | 87 Ⓨ Ⓝ | 97 Ⓨ Ⓝ | 107 Ⓨ Ⓝ | 117 Ⓨ Ⓝ | 127 Ⓨ Ⓝ | 137 Ⓨ Ⓝ | 147 Ⓨ Ⓝ | 157 Ⓨ Ⓝ |
| 8 Ⓨ Ⓝ | 18 Ⓨ Ⓝ | 28 Ⓨ Ⓝ | 38 Ⓨ Ⓝ | 48 Ⓨ Ⓝ | 58 Ⓨ Ⓝ | 68 Ⓨ Ⓝ | 78 Ⓨ Ⓝ | 88 Ⓨ Ⓝ | 98 Ⓨ Ⓝ | 108 Ⓨ Ⓝ | 118 Ⓨ Ⓝ | 128 Ⓨ Ⓝ | 138 Ⓨ Ⓝ | 148 Ⓨ Ⓝ | 158 Ⓨ Ⓝ |
| 9 Ⓨ Ⓝ | 19 Ⓨ Ⓝ | 29 Ⓨ Ⓝ | 39 Ⓨ Ⓝ | 49 Ⓨ Ⓝ | 59 Ⓨ Ⓝ | 69 Ⓨ Ⓝ | 79 Ⓨ Ⓝ | 89 Ⓨ Ⓝ | 99 Ⓨ Ⓝ | 109 Ⓨ Ⓝ | 119 Ⓨ Ⓝ | 129 Ⓨ Ⓝ | 139 Ⓨ Ⓝ | 149 Ⓨ Ⓝ | 159 Ⓨ Ⓝ |
| 10 Ⓨ Ⓝ | 20 Ⓨ Ⓝ | 30 Ⓨ Ⓝ | 40 Ⓨ Ⓝ | 50 Ⓨ Ⓝ | 60 Ⓨ Ⓝ | 70 Ⓨ Ⓝ | 80 Ⓨ Ⓝ | 90 Ⓨ Ⓝ | 100 Ⓨ Ⓝ | 110 Ⓨ Ⓝ | 120 Ⓨ Ⓝ | 130 Ⓨ Ⓝ | 140 Ⓨ Ⓝ | 150 Ⓨ Ⓝ | 160 Ⓨ Ⓝ |

## APPENDIX E

## Measure of Epistemological Reflection

## MEASURE OF EPISTEMOLOGICAL REFLECTION

> INSTRUCTIONS: The questionnaire that follows has to do with your perspective on learning in college. 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!

## PLEASE WRITE YOUR RESPONSES IN INK

██████    _____ _____

AGE:      _____

SEX: (circle one)    MALE          FEMALE

COLLEGE  MAJOR:    _____

FATHER'S JOB:      _____

MOTHER'S JOB:      _____

TODAY'S  DATE:     _____

CLASS RANK: (circle one)      Freshman
                              Sophomore
                              Junior
                              Senior
                              First year masters
                              Second year masters
                              Doctoral Student
                              Ph.D.
                              Other·_____

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR DECISION ABOUT
YOUR EDUCATION 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 YOU.

_____

_____

_____

_____

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 AT 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?

_____

_____

_____

_____

WHO SHOULD BE INVOLVED IN THE EVALUATION YOU DESCRIBED ABOVE?

_____

_____

_____

_____

_____

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS
THE BEST WAY TO EVALUATE 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?

_____

_____

_____

_____

_____

_____

APPENDIX F

The Revised Version of the Extended Objective Measure of Ego Identity Status

**The Revised Version of the Extended Objective Measure
of Ego Identity Status**

Read each item and indicate to what degree it reflects your own thoughts and feelings. If a statement has more than one part, please indicate your reaction to the statement as a whole. Indicate your answer by circling the letter beneath each question which corresponds to the following responses:

A = Strongly Agree
B = Moderately Agree
C = Agree
D = Disagree
E = Moderately Disagree
F = Strongly Disagree

1.  I haven't chosen the occupation I really want to get into, and I'm just working at whatever is available until something better comes along.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

2.  When it comes to religion, I just haven't found anything that appeals and I don't really feel the need to look.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

3.  My ideas about men's and women's roles are identical to my parents'. What has worked for them will obviously work for me.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

4.  There's no single "life style" which appeals to me more than another.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

5.  There are a lot of different kinds of people. I'm still exploring the many possibilities to find the right kind of friends for me.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

6. I sometimes join in recreational activities when asked, but I rarely try anything on my own.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

7. I haven't really thought about a "dating style." I'm not too concerned whether I date or not.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

8. Politics is something that I can never be too sure about because things change so fast. But I do think it's important to know what I can politically stand for and believe in.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

9. I'm still trying to decide how capable I am as a person and what jobs will be right for me.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

10. I don't give religion much thought and it doesn't bother me one way or the other.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

11. There's so many ways to divide responsibilities in marriage, I'm trying to decide which will work for me.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

12. I'm looking for an acceptable perspective for my own "life style" view, but haven't really found it yet.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

13. There are many reasons for friendship, but I choose my close friends on the basis of certain values and similarities that I've personally decided on.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

14. While I don't have one recreational activity I'm really committed to, I'm experiencing numerous leisure outlets to identify one I can really get involved in.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

15. Based on past experiences, I've chosen the type of dating relationship I want now.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

16. I haven't really considered politics. It just doesn't excite me much.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

17. I might have thought about a lot of different jobs, but there's never really been any question since my parents said what they wanted.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

18. A person's faith is unique to each individual. I've considered and reconsidered it myself and know what I can believe.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

19. I've never really seriously considered men's and women's roles in marriage. It just doesn't seem to concern me.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

20. After considerable thought I've developed my own individual viewpoint of what is for me an ideal "life style" and don't believe anyone will be likely to change my perspective.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

21. My parents know what's best for me in terms of how to choose my friends.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

22. I've chosen one or more recreational activities to engage in regularly from lots of things and I'm satisfied with those choices.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

23. I don't think about dating much. I just kind of take it as it comes.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

24. I guess I'm pretty much like my folks when it comes to politics. I follow what they do in terms of voting and such.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

25. I'm really not interested in finding the right job, any job will do. I just seem to flow with what is available.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

26. I'm not sure what religion means to me. I'd like to make up my mind but I'm not done looking yet.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

27. My ideas about men's and women's roles come right from my parents and my family. I haven't seen any need to look further.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

28. My own views on a desirable life style were taught to me by my parents and I don't see any need to question what they taught me.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

29. I don't have any real close friends, and I don't think I'm looking for one right now.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

30. Sometimes I join in leisure activities, but I really don't see a need to look for a particular activity to do regularly.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

31. I'm trying out different types of dating relationships. I just haven't decided what is best for me.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

32. There are so many different political parties and ideals. I can't decide which to follow until I figure it all out.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

33. It took me a while to figure it out, but now I really know what I want for a career.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

34. Religion is confusing to me right now. I keep changing my views on what is right and wrong for me.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

35. I've spent some time thinking about men's and women's roles in marriage and I've decided what will work best for me.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

36. In finding an acceptable viewpoint in life itself, I find myself engaging in a lot of discussions with others and some self-exploration.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

37. I only pick friends my parents would approve of.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

38. I've always liked doing the same recreational activities my parents do and haven't ever seriously considered anything else.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

39. I only go out with the type of people my parents expect me to date.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

40. I've thought my political beliefs through and realize I can agree with some and not other aspects of what my parents believe.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

41. My parents decided a long time ago what I should go into for employment and I'm following through their plans.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

42. I've gone through a period of serious questions about faith and can now say I understand what I believe in as an individual.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

43. I've been thinking about roles that husbands and wives play a lot these days, and I'm trying to make a final decision.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

44. My parents' views on life are good enough for me, I don't need anything else.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

45. I've tried many different friendships and now I have a clear idea of what I look for in a friend.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

46. After trying a lot of different recreational activities I've found one or more I really enjoy doing by myself or with friends.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

47. My preferences about dating are still in the process of developing. I haven't fully decided yet.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

48. I'm not sure about my political beliefs, but I'm trying to figure out what I can truly believe in.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

49. It took me a long time to decide but now I know for sure what direction to move in for a career.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

50. I attend the same church my family has always attended. I've never really questioned why.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

51. There are many ways that married couples can divide up family responsibilities. I've thought about ways and now I know exactly how I want it to happen for me.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

52. I guess I just kind of enjoy life in general, and I don't see myself living by any particular viewpoint to life.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

53. I don't have any close friends. I just like to hang around with the crowd.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

54. I've been experiencing a variety of recreational activities in hopes of finding one or more I can enjoy for some time to come.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

55. I've dated different types of people and now know exactly what my own "unwritten rules" for dating are and who I will date.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

56. I really have never been involved in politics enough to have made a firm stand one way or the other.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

57. I just can't decide what to do for an occupation. There are so many that have possibilities.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

58. I've never really questioned my religion. If it's right for my parents it must be right for me.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

59. Opinions on men's and women's roles seem so varied that I don't think much about it.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

60. After a lot of self-examination I have established a very definite view on what my own lifestyle will be.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

61. I really don't know what kind of friend is best for me. I'm trying to figure out exactly what friendship means to me.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

62. All of my recreational preferences I got from my parents and I haven't really tried anything else.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

63. I date only people my parents would approve of.

| A | B | C | D | E | F |
|---|---|---|---|---|---|

64. My folks have always had their own political and moral beliefs about issues like abortion and mercy killing and I've always gone along accepting what they have.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|   |   |   |   |   |   |

APPENDIX G

Follow-up Letter

## **WHAT SHOULD I MAJOR IN?**

Dear Junior,

As one of a small group of juniors being asked to participate in my research project, you were sent a packet containing a demographic information sheet and three questionnaires. The small number of students being asked to participate means that each student's responses will directly influence the findings of this study. Because of this I hope that you are working on the questionnaires and will return them to me as soon as possible. When I receive your completed forms I will enter your name in the pool from which four individuals will be randomly selected to receive a cash award of $50.00.

If you choose to exercise your freedom to not participate, I would appreciate it if you would return the uncompleted questionnaires to me. All those who return uncompleted forms will be taken off the mailing list and will not receive any further information.

If you have any questions, or need additional copies of the questionnaires, please contact me at 394-3467. Thank you for your time and consideration.

Sincerely,


Bryan Bolea
Doctoral Candidate
Counseling Psychology
Michigan State University

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