

TEACHING-LEARNING STYLE PREFERENCES OF  
SPECIAL EDUCATION TEACHER CANDIDATES  
AT NORTHEASTERN STATE  
UNIVERSITY IN  
OKLAHOMA

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## CHAPTER 1

### INTRODUCTION

#### Special Education

Special Education is defined as a "customized instructional program designed to meet the unique needs of an individual learner" (Gargiulo, 2003, p. 9).

Instructionally focused intervention is the fundamental purpose of Special Education. Teaching Special Education may necessitate the use of specialized materials, equipment, services, and teaching strategies (Heward, 2003, p. 34).

The United States Department of Education reports just under six and one-half million students (6,375,400) between the ages of 3 and 21 were receiving special education services during the 2000-01 school year (<http://www.ed.gov/about/reports/annual/osep/2002/appendix-a-pt1.pdf>, retrieved 5-21-05). The growth in the number of students ages 3-21 receiving Special Education since the inception of Public Law 94-142 in 1975 has been phenomenal. Each year the states report a continuously increasing number of individuals enrolled in Special Education programs (Gargiulo, 2003, p. 14).

Students receive Special Education services based primarily on two broad categories. These categories are mild-moderate and severe-profound curriculum based areas. Oklahoma Teacher Certification areas correspond with these areas of disability. The Special Education standard teaching certification areas are Special Education, Mild-Moderate and Special Education, Severe-Profound subject areas.

The determination of which service delivery model a student requires is determined based on a comprehensive evaluation. This evaluation includes areas such as cognitive, academic, social, motor, communication, achievement, adaptive behavior, social, and medical information, as well as other areas as necessary (Gargiulo, 2003, p. 57).

Students with severe disabilities refers to children with disabilities who because of the intensity of their physical, mental, or emotional problems need highly specialized education, social, psychological, and medical services in order to benefit from their educational program. The term includes children with severe emotional disturbance, autism, and severe and profound mental retardation and those who have two or more serious disabilities such as deaf-blindness, mental retardation, and

cerebral palsy (Heward, 2003, p. 493).

Children with severe-profound disabilities traditionally require a functional curriculum. This is a curriculum that teaches the student to function in the environment and acquire skills that are immediately useful to the student and that are frequently required in school and non-school environments. Skills such as learning to dress oneself, making a snack, making choices, and purchasing items at a store are examples of functional skills. These skills result in less dependence on others and allow the student to participate in less restrictive environments (Heward, 2003, p. 500). The curriculum for students with severe disabilities should include immediate feedback and reinforcement from the teacher. Skills to be taught are clearly defined with clear prompts or cues to the student. The student's performance is carefully measured and evaluated (p. 525).

Students with autism, which is a rare disorder estimated to occur in as many as 1 in 500 people, are typically considered to have severe disabilities. Although the prognosis for children with autism has traditionally been poor, some children have achieved normal functioning by the primary grades as a result of an intensive, behaviorally-oriented program of early intervention. "From

the perspective of applied behavior analysis, autism is a syndrome of behavioral deficits and excesses that have a biological basis but are nonetheless amenable to change through carefully orchestrated, constructive interactions with the physical and social environment" (Heward, 2003, p. 523).

Students with mild-moderate disabilities are generally instructed using typical academic areas such as reading, writing, math, and other academic subjects taught to students without disabilities. "Learning disabilities is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities" (p. 243). Learning disabilities is the largest category of students receiving Special Education services, which often requires modifications and accommodations to the general curriculum.

Research has also shown that students with learning disabilities have difficulty organizing information and often do not approach learning tasks in effective and efficient ways. Thus, best practice in their education is characterized by explicit instruction, content enhancements, and learning strategies (p. 262).

Students with mental retardation and other categories

of disability may experience mild-moderate disabilities. These students are often taught using explicit systematic instruction. Components of this type of instruction are task analysis, direct and frequent measurement, repeated opportunities to respond, systematic feedback, transfer of stimulus control from the teacher who provides cues and prompts to natural stimuli, and programming that meets the individual learning style and level of the student (Heward, 2003, p. 237).

Oklahoma schools have been serving students who have disabilities in Special Education programs since before Public Law 94-142, which mandates a free and appropriate education for all students regardless of disability, was passed in 1975. According to the Oklahoma State Department of Education records for the 2003-2004 school year, 83,812 students between the ages 3 and 21 with disabilities were served in Oklahoma public schools. Oklahoma public schools currently employ 4,266 certified Special Education teachers (P. Kimery, Oklahoma State Department of Education, personal communication, 6-18-04).

The programs, resources, and practices that affect citizens with disabilities are a reflection of the current social climate. As people's ideas and beliefs about exceptionality change, so do services and opportunities

(Gargiulo, 2003, p. 12). A transformation in attitude is frequently a prerequisite to a change in the delivery of services. Special Education is an evolving profession with a long and rich heritage. The history of Special Education can perhaps best be characterized as one of evolving or changing perceptions and attitudes about individuals with disabilities (p. 16).

### History of Special Education

The foundation of Special Education can be traced to the efforts of various European philosophers, advocates, and humanitarians. These dedicated reformers and pioneering thinkers were catalysts for change. Educational historians typically trace the beginnings of Special Education to the late eighteenth and early nineteenth centuries. The concept of Special Education was originated as a result of the belief that all people can learn, which facilitated the establishing of institutions and segregated schools for people with disabilities (Heward, 2003, p. 20).

Special Education in America has been through a transformational phenomena during the last 100 years and has experienced changes since early stages of the legislation that established it. Over the last century, the Special Education profession has experienced a gradual movement from isolation with a negative connotation to a progressive

profession based on providing remediation and developmental teaching to meet individual needs of the student (Gargiulo, 2003, p. 17).

By the middle of the nineteenth century, several institutions, commonly referred to as asylums or sometimes as "schools," were established to benefit citizens with disabilities. These facilities provided primarily protective care and management rather than treatment and education (Gargiulo & Kilgo, 2000; Turnbull, 1999).

By the end of the nineteenth century, residential institutions for persons with disabilities were a well established part of the American social fabric (Shonkoff & Meisels, 1990, p. 8). Initially established to provide training and some form of education in a protective and lifelong environment, they gradually deteriorated in the early decades of the twentieth century for a variety of reasons. These reasons include overcrowding and a lack of fiscal resources. In addition, the mission of institutions also changed from training to custodial care and isolation (p. 9). The early optimism that had initially characterized the emerging field of Special Education was replaced by prejudice, unwarranted scientific views, and fears which slowly eroded these institutions into gloomy warehouses for the forgotten and neglected (Gargiulo, 2003, p. 18).

During the second half of the nineteenth century and the early years of the twentieth century, Special Education classes began to appear in public schools. Education for children with disabilities began sporadically and slowly, serving only a very small number of individuals with the most significant disabilities (Gargiulo, 2003, p. 16).

The very first Special Education classrooms were self-contained. Students were typically grouped together and segregated from other pupils. The majority of the student's school day was spent with one teacher in a classroom isolated from the daily activities of the school (Gargiulo, 2003, p. 19). This type of arrangement characterized many Special Education classrooms for the next 50 years or so. At this time, education was considered a privilege not a right (p. 20).

After World War II, the stage was set for the rapid expansion of Special Education. Litigation, legislation, and leadership at the federal level, coupled with political activism and parental advocacy, helped fuel the movement of services to children with disabilities (Ballard, Ramirez, & Weintraub, 1982; Gargiulo, 2003). Significant benefits for children with exceptionalities resulted from these efforts. In 1948, only about 12% of children with disabilities were receiving an education appropriate to their needs (Gargiulo,



2003, p. 22).

Beginning in the mid-1970s and continuing to the present time, children and youth with disabilities have secured the right to receive a free and appropriate public education provided in the most normalized setting. An education for these students is no longer a privilege; rather, it is a right guaranteed by both federal and state laws and reinforced by judicial interpretation (Gargiulo, 2003, p. 20).

#### Special Education Legislation

The most important legislation supporting Special Education was Public Law 94-142, Education For All Handicapped Children Act (EAHCA), which was signed by President Gerald Ford in 1975. This act mandated a free and appropriate education for all children regardless of level of disability. In 1990, EAHCA was reauthorized as Public Law 101-476, Individuals with Disabilities Education Act (IDEA), which expanded services for children and youth with disabilities.

The Individuals with Disabilities Education Act also paved the way for "people first language" in the law and in society. People first language is a concept which focuses on people rather than their limitations. Emphasis is placed on individuals with disabilities rather than disabled

individuals (Gargiulo, 2003, p. 8). IDEA was again reauthorized in 1997 to provide a major retooling and expansion of services for students with disabilities and their families (p. 21). The most recent reauthorization of IDEA is P.L. 108-446 the Individuals with Disabilities Education Improvement Act, which was signed into law on December 3, 2004 (<http://www.ed.gov/osep>. retrieved, January 26, 2005).

The effort to continually reform education through legislation suggests a dissatisfaction with the status of public education. The most recent mandate to reform education is an addendum to the 1965 Elementary and Secondary Education Act (ESEA), reauthorized as the No Child Left Behind Act of 2001 (NCLB). The NCLB states that there is nothing more important to a child's success in school than access to well-prepared teachers (<http://www.ed.gov/nclb>, retrieved November, 8, 2004).

A well-prepared teacher, according to NCLB, knows what to teach and how to teach and has command of the subject matter being taught (U.S. Department of Education, 2002). The United States Congress thought well-prepared teachers were so important to educational success that they mandated every state have a well-prepared teacher in every classroom by 2005. Having well-prepared teachers means giving them

the very best tools, the best research-based lessons and materials, and the best training to ensure that “no child is left behind” (NCLB, 2001).

More effective teacher preparation models are needed to meet current legislative mandates such as No Child Left Behind. Special Education teachers are prepared to adjust the curriculum to meet the needs of students with disabilities. However, these teachers have little or no knowledge of general curriculum content or experience working with general educators. However, secondary Special Education teachers must teach core curricula areas such as math, English, science, and social studies currently mandated by the NCLB Act.

Teaching has traditionally been an isolated profession where the model is one teacher per classroom. However, as a result of educational reform, Special Education is experiencing increased pressure to change and embrace a collaborative model of teaching. The face of Special Education and the relationships among professionals are evolving as school systems move toward an inclusive system of service delivery (Goodlad, 1990; Reddy, 1999; Turnbull, 1999).

#### Inclusion and Collaboration

During the late 1980s, debates escalated on the process

of successfully integrating students with disabilities into general education classrooms. As a result of these debates, a new ideology of educating students with disabilities emerged. This new initiative became known as the inclusion movement (Reddy, 1999, p. 10). Stainback and Stainback (1990) have defined inclusion schooling as "the inclusion of all students in the mainstream of regular education classes and school activities with their age peers from the same community" (p. 225).

Legislation such as the Individuals with Disabilities Education Act (IDEA) has been instrumental in providing students with access to general education classrooms. Students with disabilities are entitled not only to have specially prepared teachers but also to be educated in the least restrictive environment. This least restrictive environment usually means the regular classroom. To successfully accomplish this mission, regular education and Special Education teachers are required to work together to serve students. The proliferation of inclusion, also known as mainstreaming, of students with disabilities in the regular public school classroom has prompted the development of, and focus on, collaborative instruction (Austin, 2001, p 245). Inclusion and collaborative instruction are educational terms that are born out of recent reform

movements. Legislation such as the IDEA has been interpreted to imply that students with disabilities should be included in the regular classroom as much as possible with support.

Collaboration has become a common and necessary practice in Special Education. Teachers who work with students with disabilities and other students who are difficult to teach have discovered they are better able to diagnose and solve learning problems in the classroom when they work together (Austin, 2001; Heward, 2003; Reddy, 1999).

Although collaborative efforts are required, Special Education and general education teachers are traditionally not instructed how to work together effectively nor are they often trained together or exposed to common teaching experiences in teacher preparation curricula. To improve education for students and by extension performance on standardized achievement tests, which is the goal of the NCLB, a strong focus on teacher preparation programs is imperative. Special Education teachers and general education teachers are not prepared to teach in the same ways. Additionally, they may not be prepared in ways that will facilitate collaboration. Areas of differences between general educators and Special Education teachers may be

their educational philosophies, teaching styles, and learning strategies.

Special Education is an emerging dynamic field that must work in conjunction with all disciplines of general education to teach all students most effectively. Special Education teacher preparation programs involve adult learners. Therefore, the field of Adult Education has implications for how this content is presented to those in the field. Research indicates educational philosophy, teaching strategies, and individual learning styles are vital components in effective teaching. (Conti, 2004; Elias & Merriam, 1995; Heimlich & Norland, 1994).

#### Educational Philosophy

A key element related to training Special Education teachers is knowing what they believe about the education process and how they go about learning. What teachers believe and practice in the classroom is related to educational philosophy and teaching style.

"For the educator, philosophy is not simply a professional tool but a way of improving the quality of life because it helps us gain a wider and deeper perspective" (Ozmon & Craver, 1986, p. x). Education explores both the world of ideas and the world of practical activity. Good ideas can lead to good practices, and good practices can

lead to good ideas. In order to understand the educational processes, the educator needs the things philosophy can provide such as an understanding of the thinking processes and the nature of ideas. Educational philosophy provides the language used to describe education and insights into how these may interact with practical affairs (Ozmon & Craver, 1986, p. x).

Educators are influenced by philosophy in the decisions they make about their practice. Five particular philosophical schools have served in the central development of educational thought: Idealism, Realism, Pragmatism, Existentialism, and Reconstructionism (Crotty, 1998; Ozmon & Craver, 1986). These philosophical schools have contributed to the development of adult education philosophies and are rooted in Western thought. These philosophies serve as justification for practice or analysis of practice (Lawson, 1991; Ozmon & Craver, 1986)).

Idealism is considered one of the oldest philosophies in Western culture, claiming Plato as the most notable figure in this school. Generally, Idealists believe that ideas are the only true reality. Ideas are enduring and the search for truth is a major goal of the educational process. The teacher's role is to guide immature learners, judge what material is important, and serve as a model to their

students. The goal is to teach students to be critical thinkers (Ozmon & Craver, 1986, p. 2).

Realism teaches that reality exists independent of the human mind. The universe is real and not a conception of the mind. The Realist contends, as fact, that the actual elements of the universe such as trees, water, and rocks exist whether or not there is a human mind to perceive them (Crotty, 1998, p. 63). This model is noted for the scientific method as part of instruction. Teachers focus on fundamentals and encourage students to specialize in various areas. Order is stressed, and lecture is the primary mode of instruction stressing fundamentals and scientific method (Ozmon & Craver, 1986, p. 50).

Pragmatism is a philosophy that challenges one to seek out the processes and do the things that work best to achieve desirable results (Ozmon & Craver, 1986, p. 98). John Dewey, founder of this school of thought, pointed to the importance of the mind as an active agent in the formulation of ideas as well as an instrument to effect change in the environment that also affect the person (p. 101). Experience is a central point contributing to the human experience. Instructional strategies in this philosophy should be flexible, seeking to understand individual differences, and focus on studying themes.



Problem solving and discovery are essential components as is a concern for social impact. In this approach, the teacher helps to identify the student's needs and serves as a resource person (Ozmon & Craver, 1986, p. 116).

Existentialism contends that individuals are always in transition. This school of thought is focused on the individual and concerned with the concrete rather than the abstract. Each person is special and unique, always seeking to achieve self-understanding. True freedom exists when the individual makes spontaneous ethical decisions (Ozmon & Craver, 1986, p. 210). Instructional strategies eliminate traditional theories of education where the teacher is the sole source of knowledge and the learner is a repository for the information (Elias & Merriam, 1995; Ozmon & Craver, 1986). This teaching method allows the student many options and provides a view of humankind in its totality. The teacher should be a learner and a facilitator who explores possibilities (Ozmon & Craver, 1986, pp. 212-214).

Reconstructionism affirms that education can be used to reconstruct society (Ozman & Craver, 1986). This futuristic and holistic approach holds that it is necessary to change rather than to adjust. Reconstructionism is concerned with the broad social and cultural environment in which society exists (p. 138). In this approach, teachers are social

activists and change agents, causing the role of teachers to be questioned. Learners are engaged in action projects. Teachers attempt to help students develop decision-making abilities and encourage involvement in social issues (p. 146).

These general schools of philosophical thought have been applied to the field of adult education. For example, Noddings (1995) discussed the early Greek philosophers, Socrates, Plato, and Aristotle, as part of the movement in liberal education. Dewey is described as the primary moving force behind "pragmatic naturalism". However, Noddings also described several other theories as dominating the current scene in educational philosophy. These included Analytic Philosophy, Existentialism, Phenomenology, Radical Theory, Hermeneutics, Postmodernism, and Feminism (p. 3).

Elias and Merriam (1995) argued "adult education has advanced to a point where a more systematic investigation of philosophies of adult education is both possible and necessary" (pp. 11-12). Moreover, "all philosophies of adult education grapple with the important problems of the relationship between theory and practice" (p. 12). In order to explore this relationship, Elias and Merriam have reduced the list of possible philosophies of adult education to Liberal Adult Education, Progressive Adult Education,

Behaviorist Adult Education, Humanist Adult Education, Radical Adult Education, and Analytic Philosophy of Adult Education.

Lorraine Zinn, (2004) developed the Philosophy of Adult Education Inventory (PAEI) which "is an assessment tool developed to assist the adult educator to identify his/her personal philosophy of education and to compare it with prevailing philosophies in the field of adult education" (p. 59). This instrument has been beneficial in enabling educators to be aware of their educational philosophy. However, educators also need to be aware of their unique teaching style.

### Teaching Style

Teaching style refers to "the distinct qualities displayed by a teacher that are persistent from situation to situation regardless of the content" (Conti, 2004, pp. 76-77). Teaching style includes five important knowledge areas; knowledge about principles and practices, knowledge of self, knowledge of learners, content knowledge, and knowledge of methods all contribute to teaching style (Galbraith, 2004, p. 4). Teachers must know the impact of their beliefs, values, and attitudes on the learning environment as well as understand about themselves and the learner (Heimlich & Norland, 1994 p. 87).

It is essential to professional growth for teachers "to examine their beliefs, values, attitudes and total philosophy about teaching" (Heimlich & Norland, 1994, p. xi) and all components of the teaching-learning exchange. "Teaching style is illustrated in all aspects of teaching: in thought, feeling, approach, and action" (p. xii). Consistency in these patterns is important for improvement as a teacher (Conti, 1984, 1998, 2004).

The purpose of teaching is to promote the personal growth and development of the learner. This can be accomplished in a variety of settings. Teaching effectively requires balancing philosophical beliefs with a practical method of instruction (Galbraith, 2004, p. 4). Teaching style is how teachers "philosophically approach and then conduct moments of instruction" (Heimlich & Norland, 1994, p. 43).

If educators want to be successful, it is important for them to understand what their current teaching style is and how it can be improved or strengthened (Heimlich & Norland, 1994, pp. 7-8). In teaching Special Education, the goal of the teacher is to deliver effective instruction based on the unique needs of the learner. Alignment in beliefs, attitudes, and actions can enhance performance as a teacher. It is a process of exploration, reflection, and action (p.

21). If teachers can match their beliefs and personal philosophies with their action, they are likely to improve their success in the classroom (p. 48).

Conti (2004) developed the Principles of Adult Learning Scale (PALS) which is an instrument designed to assist individuals in identifying their teaching style. This instrument can assist educators to "pinpoint their specific classroom practices and relate them to what is known about teaching and learning" (p. 75)

### Learning Strategies

Carl Rogers, esteemed educator of the 20<sup>th</sup> Century, stated in his book, Freedom to Learn, (1994), that "the only man who is educated is the man who has learned how to learn; the person who has learned how to adapt and change" (p. 152). The concept of individual differences, which can be referred to as learning style, is one of the three components of the learning how to learn process (Smith, 1982, p. 23). Within this area, learning strategies are the ways in which learners and their resources may be arranged during learning situations (p. 113).

Learning strategies are "the techniques or skills that an individual elects to use in order to accomplish a learning task" (Fellenz & Conti, 1989, p. 7). That is, learning strategies deal with the methods learners use to

gain information in different learning situations (Conti & Kolody, 1999, 2004). Learning strategies allow for the learner to make choices. Learning strategies are behaviors that the learner may choose to use when attempting a learning task (Fellenz & Conti, 1993, p. 7).

While people approach learning differently, learning strategies in the field of Adult Education have been conceptualized in the five areas of Metacognition, Metamotivation, Memory, Critical Thinking, and Resource Management (Fellenz & Conti, 1993). Research using these five domains has led to the recognition of three distinct groups of learners. The groups are referred to as Navigators, Problem Solvers, and Engagers (Conti & Kolody, 1999, 2004).

Navigators are often considered to be high achievers who seek organization and deadlines. Navigators "are focused learners who chart a course for learning and follow it" (Conti & Kolody, 2004, p. 185). This group of learners utilizes such strategies as planning, attention, identification, and the use of resources. Navigators prefer organized tasks, outlined goals, and definite clearly-communicated expectations (p. 185).

Problem Solvers are often seen as critical thinkers. Problem Solvers "rely on a reflective thinking process which

utilize higher order thinking skills" (Conti & Kolody, 2004, p. 186). When initiating a learning task, Problem Solvers look externally to the resource around them which will best help them in their learning. In addition, they test assumptions and bring forth alternatives to the problem at hand. Problem Solvers are "handy at adjusting their learning process and resources to fit their learning needs" (Conti & Kolody, 2004, p. 186).

An important aspect of learning for the Engager is the relationship building involved in the learning process. Before a learning project can take place, Engagers must be certain that this learning activity will be meaningful to them (p. 186). As internally motivated learners, Engagers are "passionate learners who love to learn, learn with feeling, and learn best when they are actively engaged in a meaningful manner" (p. 186). These learners prefer to focus more on their involvement in the learning process than on the material itself.

#### Problem Statement

The American people want a school system that will deliver a world-class education for every child. Consequently, Special Education teachers must be prepared for a profession with the special mission of teaching individuals with disabilities. In order to be fully

prepared, teachers need to be clear on their beliefs about education and their most effective delivery methods. In order to train well-prepared teachers, they need to know their beliefs about the instructional process.

Special Education is an important area of education based on specific assumptions and calls for highly qualified individuals with knowledge about how to deal with children and youth in special situations. Highly trained competent teachers are needed. University teacher training programs are challenged to provide the most effective training programs possible to promote well-prepared teachers in the schools.

Exploring Special Education teacher candidates' education philosophies, teaching styles, and learning strategies can provide information to promote more effective and appropriate teacher preparation programs. Current mandates such as the No Child Left Behind Act and Individuals With Disabilities Act require the education field to address the gap between Special Education and general education disciplines interfacing at the training and implementation levels. Identifying and addressing existing needs can have a positive influence on school cultures as well as the learning and social experiences of all the members of the school community. To produce well-



prepared teachers, efforts must be made at pre-service levels to revise curriculum based on information about the teacher's educational philosophy, teaching style, and learning strategies. This information can indirectly have a positive influence on public education as well as to impact policymaking. To develop successful teacher preparation programs, the learner must first be studied.

At the university level, teacher preparation program candidates learn about teaching methods, techniques, and ideas to teach students. The way they implement these in the classrooms depends on what they believe about the nature of learning, the curriculum, and the overall learning process.

One university that offers a Special Education teacher training program is Northeastern State University (NSU) based in Tahlequah, Oklahoma. In order for Northeastern State University to begin to incorporate this knowledge in its teacher training program, research must be conducted to ascertain knowledge about the beliefs and behaviors related to teaching and learning of teacher candidates. In order to have high quality teachers as a result of university training programs, research must be conducted to focus on the teacher and to incorporate this knowledge into the training programs. It is currently impossible to

incorporate that knowledge because the information about the Special Education teacher candidate at Northeastern State University does not exist. There is no information on the beliefs about the teaching-learning transaction of the Special Education teacher candidate at Northeastern State University. Specifically, there is no knowledge available about the educational philosophy, teaching style, and learning strategy of the Special Education teacher candidate. Higher education faculty need to know this information about the teacher candidates to develop appropriate curriculum and deliver the most effective teacher preparation program to prepare highly trained professionals.

#### Purpose

The purpose of this study was to describe the educational philosophies, teaching styles, and learning strategies preferences of Special Education teacher candidates at Northeastern State University. This study explored variables related to the teaching-learning transaction for students at Northeastern State University in Oklahoma who are preparing to be Special Education teachers. The study examined the relationship between educational philosophy, teaching style, and learning strategies for

these future teachers. Instruments have been developed in the adult education field to measure each of these concepts.

A major weakness of much of the research in the field of Adult Education has been that "few lines of inquiry have been pursued in a systematic and cumulative fashion"

(Darkenwald & Merriam, 1982, p. 27), and for many areas there has not been "systematic lines of inquiry with one study building on another" (Merriam, 1987, p. 188).

However, one line of inquiry that is emerging relates to teaching style and educational philosophy. Although these concepts have been linked by practitioners (Heimlich & Norland, 1994) and researchers (Conti, 2004) and although instruments existed for measuring each concept, no studies were conducted for many years to measure this relationship because of the difficulty of using the results of the Philosophy of Adult Education Inventory in statistical analysis. However, this problem was overcome in the study by Hughes (1997), and the format used by Hughes was extended to other populations by Martin (1999) and O'Brien (2001). This study continues this line of inquiry already begun and builds on previous research. In order to be a part of this line of inquiry, the design for this study was patterned after that of O'Brien (2001). However, just as O'Brien contributed to the line of inquiry by providing additional

statistical analysis, this study added the concept of learning strategies to the design.

### Research Questions

In order for the results of this study to be easily compared to those in the existing line of inquiry related to educational philosophy and teaching style, the research questions for this study are similar to those of O'Brien (2001).

1. Using the Philosophies of Adult Education Inventory (PAEI), what are the adult education philosophies of Special Education majors at Northeastern State University (NSU)?
2. Using the Principles of Adult Learning Scale (PALS), what are the teaching styles of Special Education majors at NSU?
3. Using the Assessing The Learning Strategies of Adults (ATLAS), what are the learning strategy profiles of Special Education majors at NSU?
4. What is the relationship of adult education philosophy as measured by PAEI, teaching style as measured by the PALS, and learning strategies as measured by the ATLAS and the demographic variables of education majors at NSU?
5. What is the interaction between philosophical beliefs and teaching styles of Special Education majors at NSU?
6. Do distinct groups exist among Special Education majors based on educational philosophies, teaching styles, and learning strategies?

The participants were given PAEI, PALS, ATLAS, and a demographic questionnaire. Descriptive statistical methods were utilized to establish the profiles for each instrument,

and univariate and multivariate procedures were used to examine the relationships between the various demographic variables and (a) educational philosophies, (b) teaching styles, and (c) learning strategies. Frequency distributions were used to construct the educational philosophy, teaching style, and learning strategy profiles for the participants. Discriminant analysis and regression was used to examine the interaction between teaching styles, learning strategies, and educational philosophies. All students majoring in Special Education at Northeastern State University were asked to participate in the study. However, all may not have participated, wherein analysis of variance was used to examine the relationships between the measured variables and the demographic variables. Additionally, cluster analysis was used to uncover groups that may have existed within the education majors that made up the participants of the study field, and discriminant analysis was then used to identify the process that separated the groups. The following chart lists the data analysis techniques relating to the research question of the study.

Research Question	Data Analysis
1)Using the Philosophies of Adult Education Inventory (PAEI), what are the adult education philosophies of Special Education majors at NSU?	Frequency distribution

<p>2)Using the Principles of Adult Learning Scale (PALS), what are the teaching styles of Special Education majors at NSU?</p>	<p>Frequency distribution</p>
<p>3)Using the Assessing The Learning Strategies of Adults (ATLAS), what are the learning strategy profiles of Special Education majors at NSU?</p>	<p>Frequency distribution Chi-square</p>
<p>4)What is the relationship of adult education philosophies as measured by PAEI, teaching style as measured by PALS, and learning strategies as measured by the ATLAS.</p>	<p>Analysis of variance</p>
<p>5)What is the interaction between philosophical beliefs, teaching styles, and learning strategies of Special Education majors at NSU?</p>	<p>Discriminate analysis Regression</p>
<p>6)Do distinct groups exist among Special Education majors based on educational philosophies, teaching styles, and learning strategies?</p>	<p>Cluster analysis Discriminate analysis</p>

## CHAPTER 2

### REVIEW OF LITERATURE

#### History of U.S. Special Education

The twentieth century brought drastic changes to vastly improve the Special Education system to ensure that all students, regardless of their ability, were given equal rights according to the Constitution of the United States. Through most of the history of public schools in America, services to children with disabilities were minimal and were provided at the discretion of local school districts (Gargiulo, 2003; Heward, 2003; Turnbull, 1999).

During early colonial America, schooling was not mandatory, and it was primarily given to the wealthy Anglo-Saxon children. Children were mainly taught in the home or in a single room schoolhouse. Children with disabilities were not likely to be schooled. Also, in a non-graded schoolhouse, children of differing abilities did not pose problems. With the beginning of mandatory education in 1852 and with the influx of large numbers of immigrants with their children (Reddy, 1999, p. 5). America faced for the first time educating a heterogeneous group of students.

These children had diverse social and cultural backgrounds. Many of these children showed signs of various learning, developmental, physical, and emotional/behavioral problems.

During the 1920's, separate schools were established for children who were blind, were deaf, or had more severe disabilities. However, students who were considered mildly disabled were educated in regular schools and just thought to be "slow learners" (Reddy, 1999, p. 5). Soon, educators started to develop separate classes for students with disabilities and excluded them from the regular classroom environment. The reasoning for excluding students with disabilities from the normal classroom has not changed in the last 80 years. Today, people who are still in favor of exclusion have the same justification for their belief. It was thought that students with special needs required separate classrooms where they would receive individualized attention and instruction. In these special classrooms, a specially trained teacher would provide the instruction. As ideal as this might sound, it was not an effective teaching method. The optimism of educators to successfully teach students with disabilities faded during the 1930's and 1940's (Reddy, 1999).

In the years following the 1940's, Special Education classes experienced horrible conditions, such as



insufficient classrooms, limited resources, poorly trained teachers, and inadequate curriculum (Turnbull, et al., 1999). Moreover, school officials often diagnosed students as having disabilities when they did not. Students were often labeled with one type of disability when they had another. Mis-classification and mis-diagnosing of disabilities was a common discriminatory practice in American schools (p. 16).

One might wonder why the conditions were so deplorable. Why were the teachers so terribly unqualified? The public's attitude about children with disabilities was one of fear, as if the disability was somehow contagious. This general outlook set the standard for educating students with special needs. These students were classified as inferior and were considered "untrainable"; thus, children with disabilities were not worthy of satisfactory conditions and competent teachers (Gargiulo, 2003; Heward, 2003; Koch, 2000; Turnbull, 1999).

In the 1950's, parents started to become vocal about the outrageous conditions of Special Education classes. Then greatly encouraged by the Civil Rights Movement, advocates for students with disabilities began to take legal action against state and local officials. Their main argument was that exclusion and misclassification violated

the students' rights to an equal educational opportunity under the United States Constitution (Heward, 2003; Koch, 2000).

#### Legal Decisions Influence Special Education

In *Brown v. Board of Education* (1954), the Supreme Court decided that schools are not allowed to segregate their students by race. This landmark court decision provided the basis which advocates utilized to argue that schools may also not segregate students by their ability. The advocates for equal rights in education proved to be successful in pleading their case (Gargiulo, 2003; Heward, 2003).

On October 7, 1972, a federal court ordered the state of Pennsylvania to provide a free public education to all children with mental retardation (*Pennsylvania Association for Retarded Children v. Commonwealth of Pennsylvania*). Before the court decision, students with mental retardation were educated in special private schools or institutions or received no educational services (Heward, 2003, p. 28).

In August, 1972, a federal judge ordered Washington, D.C. to offer educational facilities to all children with disabilities (*Mills v. Washington, D.C.*). This decision extended the Pennsylvania decision to include all children with disabilities and specifically established the

constitutional right of children with exceptionalities to a public education regardless of their functional level (Heward, 2003, p. 28 ).

These litigations served three main purposes:

(1) to provide a free and appropriate education to all students with disabilities, a right that was long overdue

(2) to educate students with special needs in the same school; and, to the maximum extent, the same programs as their non-disabled peers

(3) to put into effect a checks and balances system so that students with disabilities have legal recourse in the case of a school not in compliance with the requirement made by the law. (Gargiulo, 2003; Heward, 2003; Turnbull et al., 1999)

#### Early Leaders in Special Education

Three pioneers of Special Education were Lloyd Dunn, Evelyn Deno, and James Gallager. They envisioned a different profession and had new ideas on how to serve children with disabilities. In the late 1960's and early 1970's, they voiced their criticism of the old system and expressed ideas to rectify the problems. By expressing these new ideas, they paved the way for modern Special Education (Reddy, 1999, p. 8).

As early as 1968, Lloyd Dunn began to question the efficiency of placing students with mild disabilities into special classes. It was his belief that children must stop being labeled as mentally retarded. "Furthermore we must

stop segregating them by placing them into our allegedly special programs" (Dunn, 1968, p. 299). Dunn argued that special educators should assume fundamentally new roles. They should work with general education teachers, providing them with resources and consultation. In doing so, many students could remain in general education and avoid separate placement all together. Dunn emphasized the importance of Special Education placement rather than exclusion for those students with severe disabilities. Children with more pronounced or severe disabilities were considered outcasts and excluded from school altogether. Dunn also questioned the need for disability labeling. Instead, he suggested using labels that describe the nature of the education that the student was going to receive, such as language or cognitive development. Dunn's ideas caused educators to become more aware of the needs for nondiscriminatory assessments and placement in general education settings (Reddy, 1999, p. 9).

Evelyn Deno (1970) addressed her desire to make schools more responsive to diversity among children. Deno challenged the Special Education system to improve the effectiveness of public school education for all students. Moreover, Deno offered the concept of a cascade of services to reshape the school system. "The cascade system is

designed to make available whatever different-from-the-mainstream kind of setting is required to control the warning variables deemed critical for the individual case" (p. 15). Deno's major argument was in favor of individualized, student-centered education and against system-centered sorting. Her article was the blueprint for the placement options that are major parts of federal and state Special Education laws and practices (Reddy, 1999, p. 8).

In 1972, James Gallagher voiced his concern that students with mild disabilities were being retained in classes that were not assisting them. He advocated for students with disabilities to receive a specially designed educational plan that would safeguard against incorrect and permanent placements, as well as help educators emphasize students' strengths and positive contributions (pp. 527-537). Gallagher stated that "placement of primary school age, or mildly retarded, or disturbed, or learning disabled children in a Special Education unit would require a contract signed between parents and educators, with specific goals and a clear time limit" (p. 533). Gallagher's ideas, modified to some extent, resurfaced just 3 years later. The modified version found its way into a federal law in the form of an individualized education program (IEP) as well as

a due process of hearing mandate (Gallagher, 1972; Reddy, 1999).

### Special Education Legislation

The earliest federal legislation toward funding educational services for people with disabilities was in 1958. The National Defense Education Act (P.L. 85-926) provided funds for training higher education level professionals to train teachers of children with mental retardation. In 1961, the Special Education Act (P.L. 87-276) provided funds for training professionals working with children who were deaf. This law was extended (P.L. 88-164) to fund training for teachers of children with other disabilities. In 1963, states received federal funds to start university programs to train Special Education teachers. These early efforts to develop programs for students with disabilities focused on teacher preparation programs at the higher education level (Heward, 2003, p. 32).

In the 1960's, advocates for children with disabilities sought a federal role in providing leadership and funding for efforts to provide a free, appropriate public education to children with disabilities. Congress took a step toward this role in 1965 by passing the Elementary and Secondary Education Act (ESA) (P.L. 89-10) which provided the first

funds from the federal level to states and local districts for developing programs for economically disadvantaged and disabled children. Federal legislation was passed in 1966 that amended the Elementary and Secondary Education Act (P.L. 89-313) which provided funding for state-supported programs in institutions and other settings for children with disabilities. In addition, Public Law 89-750 was passed which created the federal Bureau of Education for the Handicapped. Today, this is the Office of Special Education. The Handicapped Children's Early Assistance Act (P.L. 90-538) was passed in 1968, which attempted to establish the "first chance network" of experimental programs for preschool children with disabilities (Heward, 2003, p. 32).

On November 29, 1975, President Gerald Ford signed a piece of landmark legislation called Education for All Handicapped Children Act (EAHCA) (P.L. 94-142), which changed the face of education. This act authorized state grants to provide all children with disabilities a free and appropriate education. Since it became law in 1975, Congress has reauthorized and amended P.L. 94-142 five times, most recently in 2004. The 1990 amendments renamed the law as the Individuals with Disabilities Education Act (IDEA) (Heward, 2003; Gargiulo, 2003).

The EAHCA mandated requirements to help combat the misclassification and exclusion of school age children between the ages of 6 and 18 (Turnbull et al., 1999). As EAHCA was being executed and as schools became more accessible and appropriate for those students with disabilities, Congress included more children under EAHCA's protection. In 1983 and 1986, Congress amended the law to provide early childhood Special Education for children ages 3 to 5. It was also believed that children with disabilities could use assistance in the transition from childhood to adult. Congress amended the law again to ensure that students age 16 and older would receive appropriate transition services and be included in the mainstream of American life (Turnbull et al., 1999, p. 20).

When the EAHCA was first implemented in the 1977-78 school year and until the mid-1980's, the term that describes the education of students with disabilities alongside those who did not have disabilities was "mainstreaming". Mainstreaming was defined as "the educational arrangement of placing handicapped students in regular classes with their non-handicapped peers to the maximum extent appropriate" (Turnbull et al., 1999, p. 52). Mainstreaming was generally applied within the non-academic areas of curriculum, such as art, music, and physical



education. However, most of these students were still enrolled in self-contained Special Education classes and only "visited" general education classes for a small part of the day. For many educators and parents, the concept of mainstreaming provided too little and came much too late to help the students; this led to another movement: the Regular Education Initiative (Reddy, 1999; Turnbull et al., 1999).

In 1986, the Regular Education Initiative (REI) debate began. The REI gave more responsibility to general education teachers in the education of students with disabilities. The expectation was that the student would receive Special Education services but would still participate in the general education classroom with the general education teacher assuming responsibility for at least part of the student's education. The Assistant Secretary of the Office of Special Education and Rehabilitation Services for the United States Department of Education at that time was Madeleine Will who spoke out against the program delivery methods of Special Education services. She stated that the services excluded many students who needed Special Education services or that the service withheld special programs until the student failed rather than supplying the Special Education prior to failure (Will, 1986, pp. 411-415).

Will strongly supported inclusive education for students with disabilities and reported that schools were isolating students placed in Special Education from their peers and general school activities. Will approached the REI with her mentally disabled son, Jon, in mind. She had a vision that adult independence and a network of friends could, and in fact, should be the outcome of Special Education. Her efforts caused many significant changes in the entire approach to Special Education. New concepts of inclusion and collaboration evolved from the Regular Education Initiative (Turnbull et. al, 1999, p. 85).

In 1990, the Americans with Disabilities Act (P.L. 101-336) was passed. This major legislation provided civil rights protection against discrimination to citizens with disabilities in private sector employment. This act provided access to all public services, public accommodations, transportation, and telecommunications. Also, in the same legislative session, the Individuals with Disabilities Education Act Amendments (IDEA) of 1990 (P.L. 101-476) renamed EAHCA and further defined Special Education issues. The law reflects society's concern to treat people with disabilities as full citizens with the same rights and privileges that all other citizens enjoy (Gargiulo, 2003; Heward, 2003).

The Individuals With Disabilities Education Act (IDEA) is directed primarily at the states, which are responsible for providing education to their citizens. The majority of the many rules and regulations defining how IDEA operates are related to six major principles that have remained unchanged since 1975. The six major principles of IDEA are:

1. Zero reject. Schools must educate all children with disabilities.
2. Nondiscriminatory identification and evaluation.
3. Free, appropriate public education (FAPE). All children with disabilities, regardless of the type or severity of their disability, shall receive a free, appropriate public education.
4. Least restrictive environment (LRE). IDEA mandates that students with disabilities be educated with children without disabilities to the maximum extent appropriate.
5. Due process safeguards. Schools must provide due process safeguards to protect the rights of children with disabilities and their parents
6. Parent and student participation and shared decision making (Gargiulo, 2003; Heward, 2003; Turnbull et al., 1999).

Between the mid 1960's and 1975, state legislatures, the federal courts, and the United States Congress spelled out strong educational rights for children with disabilities. Forty-Five state legislatures passed laws mandating, encouraging, and/or funding Special Education programs (Martin et al., 1996, p. 25). Oklahoma was one of those states on the front line of providing services to children and youth with disabilities.

## History of Special Education in Oklahoma

Oklahoma has a rich history in providing education for children with disabilities. Oklahoma schools have served students with disabilities long before the federal mandates in 1975. In 1897, Laura Rowland of Ft. Gibson, Oklahoma, took in Native American children who were deaf and blind and provided an education for them. This is recognized as the earliest attempt at Special Education in Oklahoma (Trice, 1998). Out of this effort came the Oklahoma School for the Blind in Muskogee, which was started in 1913, and the Oklahoma School for the Deaf in Sulphur, which was started in 1908. These public schools still exist today to provide an alternative to local public schools for children who are blind or deaf (L. Hawkins, Superintendent, Oklahoma School for the Deaf, personal communication, August 18, 2004).

In the early 1950's, Oklahoma experienced a larger than normal outbreak of Polio among children. This crisis led to the state legislature asking the Oklahoma State Department of Education to provide, oversee, and accommodate educational services for children who were in Oklahoma City hospitals stricken with Polio (Oklahoman, June 27, 2004).

LeRoy Taylor, former superintendent of Bethany Public Schools, became the first state director of Special Education for the Oklahoma State Department of Education in 1948.

Before 1945, the larger school districts in Oklahoma provided classes for students with disabilities at their own expense. In 1945, Governor Robert S. Kerr signed House Bill 151 which authorized allocation of \$20,000 to be divided between the four larger districts providing Special Education for the 1945-46 school year and again for the 1946-47 school year. By the next school year, more schools began serving students with disabilities, and \$65,000 was allocated (Oklahoma State Department of Education, 2004).

Oklahoma educational records indicate in the 1948-49 school year there were 1,913 students with disabilities in 22 school districts. In 1949, the State Department of Education added Dr. Leonard W. Cox as assistant director of Special Education overseeing the 2,793 Special Education students in 42 districts. In 1952, only 5% of the estimated 51,000 students in Oklahoma schools were benefitting from Special Education. State Department of Education records indicate that in 1950, 1,575 students in Oklahoma received speech correction, which would be served in the speech and language impairment category today. The slow learners category served 953 students, 223 students were labeled physically handicapped, and 42 received homebound services (Oklahoma State Department of Education Records, Personal Records, per interview Dr. Jimmy Prickett, June 13, 2004).

Oklahoma State Department of Education experienced major litigation in the 1990's involving The Hissom Memorial Center School, an institution for people with mental and physical disabilities. The litigation mandated integration of the Hissom Memorial Center students into public schools. The Kellee Jo Beard v. The Hissom Memorial Center case entered into a settlement agreement in a class action law suit, August 24, 1987. The plaintiffs filed an action seeking the closure of the Hissom Memorial Center School and the placement of the students into appropriate integrated educational programs. It was the plaintiffs contention that the education provided at Hissom was inappropriate. Furthermore, the plaintiffs claimed school-age clients residing at the institution should receive an appropriate education in the community, and the continued operation of the school was a violation of various federal laws. The defendants denied these allegations. The parties entered into a settlement agreement which mandated training for teachers and integrated students into public schools settings. This lawsuit resulted in various efforts to impact Special Education programs for students with severe disabilities statewide (Kellee Jo Beard v. The Hissom Memorial Center, Settlement Agreement, 1990).

This settlement agreement ended in 1997 when the last

classmember under the settlement agreement graduated from public schools. This legal action brought about training for teachers regarding appropriate educational services and court oversight of educational programs of students with severe disabilities. During the time of the litigation, Oklahoma State Department of Education closed the schools in three public institutions and integrated the students into public schools (Oklahoma State Department of Libraries, 1998).

#### Special Education Legislation in Oklahoma

The first Special Education teacher training programs in Oklahoma at the university level were funded in 1958 by P.L. 85-926. Universities were offered training grants as incentives for developing programs for training Special Education teachers. In 1963, P.L. 88-164 expanded P.L. 85-926 from mental retardation training grants to include grants for all students with disabilities.

In 1966, P.L. 89-313 amended the Elementary and Secondary Education Act (ESEA) to include federal funds to educate children with disabilities in state supported schools. The Vocational Rehabilitation Act (P.L. 93-112) was enacted in 1973 to assure access to all public schools for all handicapped individuals (Martin et al., 1996; Turnbull, et al., 1999).

In 1951, Special Education in Oklahoma suffered a severe

setback. The legislature sent a \$200,000 funding bill to the Governor for Special Education services, and Governor Murray vetoed it due to budget restraints. No state money was given to schools that year for Special Education services, making it necessary for schools to discontinue educational services for students with disabilities or pay for the total cost. That year the Oklahoma Society for Crippled Children, which was later called the Easter Seals Society, intervened in the funding crisis and paid the needed money to the State Department of Education to administer to the serving school districts. Twenty-five hundred students received aid during the 1951-52 school year at the expense of the districts. In the 1953-54 school year, the legislature allocated \$200,000 to serve 3,598 students with disabilities in 99 classes (J. V. Prickett, personal communication, June 13, 2004).

The first federal Special Education funds were sent to Oklahoma in 1965 in accordance with P.L. 85-926 as amended which provided \$80,000 for scholarships for teachers. Teachers or interested adults could receive scholarships to take Special Education courses at the higher education level. Federally funded fellowships were offered to pursue a doctorate degree in Special Education and train university students to become Special Education teachers (J. V. Prickett, retired Assistant State Superintendent, personal



communication, June 13, 2004).

The Oklahoma Legislature made Special Education services mandatory on September 1, 1970. However, there were few identification guidelines and schools were not required to carry out child find efforts to serve students with disabilities in their districts. Parents of students with disabilities advocated for services and brought about the change in the system of services. Oklahoma was 4 years ahead of the federal government legislation mandating educational services for students with disabilities (J.V. Prickett, retired Assistant State Superintendent, personal communication, June 13, 2004).

#### Impact on Teacher Preparation

Former United States Secretary of Education, Rod Paige, released the annual report on teacher quality titled, "Meeting the Highly Qualified Teachers Challenge" (U.S. Department of Education, 2002), stating:

As a part of the No Child Left Behind Act, Congress issued another challenge to ensure that, by the end of the 2005-2006 school year, every classroom in America has a teacher who is "highly qualified." After all, only with a talented teacher in every classroom will our students have the opportunity to excel. Will our nation meet the "highly qualified teachers" challenge? As this report explains, this challenge will be met only if our state policies on teacher preparation and certification change dramatically. (p. iii)

This comprehensive report explores the quest for highly

qualified teachers and gives evidence of the current status of preparing and certifying teachers nationwide. It maps a new model for teacher preparation and certification programs and reports a need to raise the bar on what matters most and the need to radically streamline the system of teacher preparation.

Special Education became a presence in American education with the passage of the groundbreaking statute P.L. 94-142 in 1975. This law provided unprecedented status for students with disabilities and individuality in schools through such mechanisms as Individual Education Plans (IEPs), and handicap categories such as learning disability, mental retardation, and behavior disorder (Pugach & Warger, 1996, Reddy, 1999).

Over the years, this legislation, which has become known as the Individuals with Disabilities Education Act (IDEA) has moved children with disabilities from institutions and segregated classrooms to the center of regular classroom instruction (Commission on Excellence in Special Education, 2002). Even though Special Education legislation has created this base of civil rights and legal protections, children with disabilities remain those most at risk of being left behind. In fact, young people with disabilities drop out of high school at twice the rate of their peers (<http://www.ed>.

gov/inits/commissionsboards/whspecialeducation/reports/five.html retrieved 2-17-06). Enrollment rates of students with disabilities in higher education are still 50% lower than enrollment among the general population (Commission, 2002). According to an educational expert, Chester Finn,

Special Education suffers from what the Pentagon calls "mission creep." That phrase describes a carefully targeted undertaking that keeps on expanding until its goals become unattainable, its operation impossible complex and costly, and its purpose clouded. Special Education began as a program for children with clearly identified physical and mental handicaps. Today, however, it attempts to serve an ever-growing population of youngsters with an ever-lengthening list of problems and difficulties, some of them ambiguous in origin, subjective in identification, and uncertain as to solution. Special Education now has far too many categories--particularly in the "LD" area and is too vague about which children need this assistance. (Finn, Rotherham, & Hokanson, 2001, p. 339)

In light of these kinds of concerns, on October 2, 2001, President Bush ordered the creation of the Presidents's Commission on Excellence in Special Education. He stated, "It is imperative that Special Education operate as an integral part of a system that expects high achievement of all children rather than as a means of avoiding accountability for children who are more challenging to educate or who have fallen behind" (p. 2).

The Commission's final report reflected the thoughts of more than 100 recognized experts which included special

educators, general educators, finance experts, education and medical researchers, parents of children with disabilities, persons with disabilities, teachers and administrators, and others possessing Special Education expertise and direct experience with the status quo. The Commission's final report indicated that most public school educators do not feel well prepared to work with children with disabilities. In fact, only 21% of public school teachers said they felt very well prepared to address the needs of students with disabilities, while 41 % said they felt moderately well prepared. In addition, not only do many general education teachers lack the skills to teach children with disabilities effectively, but also many view serving those children as a responsibility of Special Education teachers (Commission 2002; Finn, et al 2001).

The Commission concluded that many teachers lack those skills, in part, because teacher colleges and other professional development programs have failed to provide them that knowledge. "General education teachers do not feel well equipped to deal with Special Education issues, in part, because they learned little about these matters during their training" (Finn et al, 2001 p. 345).

#### Teacher Education and Reform

Unfortunately, Special Education practices of curriculum

development were not consistent with reform philosophies espoused by the general education reform movement. In fact, Special Education has had few, if any, historical ties to other instruction approaches other than behavioral traditions (Pugach & Warger, 1996, pp. 234-235).

One of the barriers to Special Education reform is the entrenchment in the advocacy-based role. Special Education practices, which has its roots in the medical model of disability, relies on the individualization of curriculum suited to the needs of students with disabilities. This idea differs from the group orientation in general education, which holds that there is a set of knowledge and skills that should be held in common by all children (Pugach & Warger, 1996, pp. 236-239). Over the years, Special Educators have approached this general education curriculum dilemma from the child deficit perspective: "fix the child, fix the instruction--but never fix the curriculum" (p. 10). As long as the teacher views learning problems as being within the individual student, efforts to overcome the difficulties students experience will likely be adapted to the individual and not to the curriculum itself (Case, 1992, pp. 32-34). This individualized, deficit approach to the identification and remediation of all disabilities still dominates Special Education and drives nearly all of its programs and practices

(Pugach & Warger, 1996, pp. 241-242).

In most states during the early 1990's, standards-based systemic reform efforts began steadily aligning state K-12 curriculum and assessment policies (SRI International, 2000, pp. 8-12). Teacher education colleges and universities largely ignored this national movement. Instead, teacher education has largely been trying to reform itself with very little input or pressure from external sources (p. 17).

A large scale evaluation conducted by the National Science Foundation (1998) found that although some of the 25 participating states attempted to engage higher education in their systemic reform activities, they were largely unsuccessful in creating lasting relationships or in influencing the way in which teachers are prepared (Zucker, Shields, Adelman, Corcoran, & Goetz, 1998, pp. 1-99). Another study reviewed teacher education programs at 29 institutions and concluded that the poor status of schools, colleges, and departments of education as compared to academic departments and other professional schools contributed to a lack of quality. Also criticized was that in many universities, many teacher preparation courses were taught by adjunct, part-time faculty rather than by tenured professors (Goodlad, 1990, pp. 227-269).

National attention finally began to turn to the

alignment of teacher licensure and certification and to teacher preparation in the mid-1990s when a National Commission on Teaching and America's Future (NCTAF) report put teacher quality issues front and center on the education reform stage. The NCTAF reported that the system for preparing teachers was broken and in need of a serious overhaul if colleges and universities were to have the high-quality teachers that our children deserve (NCTAF, 1996, p. 3).

#### Exemplary Teacher Education

Darling-Hammond studied seven teacher preparation programs that researchers deemed exemplary. Bank Street College of Education was one of the exemplary teacher preparation programs cited in the Darling-Hammond study of teacher preparation programs (Darling-Hammond, 2000b). Faculty researchers from Bank Street reported that they perceived intricate connections between teaching and learning. Therefore, they conceptualized teaching as a complex profession that requires careful preparation and considerable practice. In addition, technological advances, higher expectations, and the increasing diversity of students demanded careful attention to the education of the teacher (Nager & Shapiro, 2003, p. 2). They describe features of Bank Street's teacher preparation as "generally identified as

developmental-interaction" (p. 12). Five fundamental principles provide a framework for conceptualizing and implementing teacher education:

1. Education is a vehicle for creating and promoting social justice and encouraging participation in democratic processes. The concept of social justice is embedded in necessary understandings of cultural difference as well as in the structure and content of everyday school life. Helping teachers understand the social context of children's lives helps them construct curricula that can provide meaningful opportunities for children to make sense of their experience as well as imagining a transformed society.
2. The teacher is actively engaged in learning about the world through direct observation and participation, as well as formal study. The principle of active in the teacher education program underlies opportunities to act, explore, discover, reflect, invent, and to become engaged with the world. The teacher learns in, and becomes comfortable with a range of modalities. She is expected to master subject matter content and techniques relevant to her work with children and their families and to expand her conception of learning and teaching.
3. A deep understanding of the development of children and youth in the context of family, community and culture is necessary for teaching. Teachers must have a thorough understanding of the ways in which the outside world influences students' lives. Teachers need to understand the realities of children's lives outside of school in tandem with a working knowledge of developmental milestones, cognitive stages and individual variation in approaches to learning. Such understanding makes it possible to accommodate the needs of children and youth, relate to families from familiar and unfamiliar backgrounds, and provide teaching and learning opportunities that connect children's lives in meaningful ways.
4. The teacher is a whole person who integrates



personal and professional identity. Teachers must achieve a sophisticated integration of personal and professional identity. Individual development requires not only coming to understand one's self but also coming to understand one's role as a professional in the wider community. Teacher educators must provide a supportive environment to facilitate these understandings.

5. A philosophy of education provides an essential framework for teaching. A philosophy of education provides a synthesizing vehicle for teaching. Underlying decisions about all aspects of curriculum is a point of view about the nature of knowledge and knowing, teaching and learning, and a vision of what kinds of people teachers and students can become and what kind of society is possible. (Nager & Shapiro, 2003, pp. 12-13)

These principles are interrelated, overlapping, and equal in importance and power. Therefore, a curriculum designed to further social justice must be based on principles of active learning and a sound knowledge of children, their families, and the sociocultural context of school. "Each principle is enriched by its necessary connection with the others. In this sense, the program as a whole is greater than the sum of its parts" (Nager & Shapiro, 2003, p. 13). The authors believe that education is a moral and ethical endeavor and that the desired aim of educating teachers is that they, too, construct a point of view that integrates these fundamental principles.

The five previously identified principles relate to the three constructs in this study. Philosophy of education, teaching style, and learning strategies are important

components in teaching and teacher preparation programs. "For the educator, philosophy is not simply a professional tool but a way of improving the quality of life because it helps us gain a wider and deeper perspective" (Ozmon & Craver, 1986, p. x).

Zinn (1998) explains philosophy as "individual beliefs that generally fit into groups or categories with other similar beliefs, forming belief systems which, as a whole, comprise a life philosophy" (p. 38). A pitfall for many educators is to examine their beliefs around teaching and learning without placing those beliefs in the context of the larger belief systems--their lives. The philosophy of an educator can be observed in the style of teaching that is implemented in the classroom setting.

Teaching style refers to "the overall characteristics, attitudes, traits, and qualities that a teacher displays in the teaching and learning encounter" (Galbraith, 1998, pp. 5-6). Knowledge about principles and practices, knowledge of self, knowledge of learners, knowledge of the content, and knowledge of methods all contribute to teaching style. Teachers must know the impact of their beliefs, values, and attitudes on the learning environment as well as understand about themselves and the learner (p. 6).

Identifying the learning strategies of the teacher is a

first step in selecting the most effective teaching methods and techniques to help the learner (Conti & Kolody, 2004, p. 183). Most educators want to grow professionally and improve their teaching skills. They can do so by understanding how their beliefs and behaviors relate to teaching and learning. If educators want to be successful, it is important for them to understand what their current style is and how it can be improved or strengthened (Heimlich & Norland, 1994, pp. 7-8).

#### Accrediting Agencies

The National Council for the Accreditation of Teacher Education (NCATE) is the teaching profession's mechanism to help establish high quality teacher preparation. Through the process of professional accreditation of schools, colleges and departments of education, NCATE works to make a difference in the quality of teaching and teacher preparation (U.S. Department of Education, 2002). The NCATE is a performance-based system of accreditation that fosters competent classroom teachers. Within the national teacher education community, NCATE accreditation confers status on a program and is a powerful player in national efforts to reform teacher education. Oklahoma, for example, requires all public teacher education programs to become NCATE accredited (SRI International, 2000).

The Council for Exceptional Children (CEC) performance-

based standards for beginning Special Education teachers is a comprehensive set of knowledge and skill statements organized within 10 domain areas. The common core is a set of competencies that all beginning Special Education teachers are expected to demonstrate (Council for Exceptional Children, 2002b).

The National Council for the Accreditation of Teacher Education (NCATE) recently approved the Council for Exceptional Children (CEC) performance-based standards for the preparation and licensure of both undergraduate and graduate level special educators (Council for Exceptional Children, 2002a). This collaboration between NCATE and CEC show efforts to interface teacher preparation programs regarding general education and Special Education. Both groups have combined their efforts to improve programs for preparing teachers most effectively. The variables of this study are addressed in the CEC common core standards and content standards as follows (Council for Exceptional Children, 2002b):

Educational Philosophy	Teaching Style	Learning Strategies
Content Standard #1: Foundations, CCISI- Articulate personal philosophy of spec. ed.	Content Standard #5: Learning Environments and Social Interactions	Content Standard #4: Instructional Strategies

Content Standard #9: Professional and Ethical Practice	Content Standard #7: Instructional Planning	Content Standard #3: Individual Learning Differences
	Content Standard #10: Collaboration	Content Standard #2: Development and Characteristics of Learners
	Content Standard #8: Assessment	Content Standard #6: Communication

Recommendations for Teacher Education Reform

The 1997 Amendments to the Individuals with Disabilities Act (IDEA) presented colleges and universities that prepare teachers a two-part challenge. First, the statute's mandate that children with disabilities meet the same content standards as other students requires Special Education teachers to know more about the curriculum, instruction, and assessment of general education. Second, the expectation that children with disabilities will be served in regular classrooms requires general education teachers to have command of much of the Special Education curriculum (American Association of Colleges for Teacher Education [AACTE], 2002). According to the AACTE, the challenge of melding these IDEA requirements with current, general education reforms requires Special Education teacher education to embrace four broad expectations:

1. All teachers education will be standards based.

2. New teachers will be judged on the performance.
3. Teachers will be asked to place an increased emphasis on academic performance.
4. Learning to teach will occur over the life span of a career, beginning with entry into pre-service preparation and continuing throughout the years of professional practice (p. 4).

Hirsh and Sparks (1997), who are experts in professional development, state that teacher education is at the center of all education reform strategies. Without education reform strategies, instructional strategies are merely good ideas that may not be replicated. "If all students are to learn and perform at high levels, teachers must be at the core of the leadership communities" (p. 3). Sparks and Hirsch identified three central ideas for real reform. First, all students can learn given time and quality instruction. They term this belief "results-driven education," which is a concept directly linked to student achievement (p. 4). Next, "systems thinking," which does not view change as consisting of isolated parts but rather as interactive pieces within a larger context (p. 5). Lastly, they embrace Constructivism in which learners engage in creating knowledge as a central and critical learning theory for the achievement of all students. The emphasis in Constructivism shifts from the traditional form of revelation or teacher-centered strategies to student-centered learning (p. 9).

The American Association of Colleges for Teacher

Education (2002) supports student-centered learning and recommends that teacher education faculty reconcile teacher-directed forms of instruction with more Constructivist approaches. The organization states in its position paper, "It is not uncommon to hear the relationship between special and general education in education schools characterized as a stereotypical fight between behaviorists and constructionists" (p. 7). The AACTE posits that teacher education faculty will have to adopt a methodology "that is focused on the needs of the students, that is anchored in best practice and research, and that raises the level of expectation of students with disabilities" (p. 7).

In addition, the AACTE recommends that schools of teacher education establish a process for shared governance within its departments that reflects the collective responsibilities of teacher educators, content specialists, and practicing teachers. They believe many Special Education programs share attributes of effective general teacher preparation programs and suggest that unified teacher education programs (i.e., integrated special/general education programs) more closely resemble all the attributes of effective teacher education programs. The AACTE further states that these integrated programs will be positioned to better help student teachers in general and Special Education

develop the skills required to affect student learning (AACTE, 2002, pp. 1-16).

In order for general and special educators to truly share responsibility for student learning, the AACTE (2002) believes teacher candidates must conceptualize their practice and develop their pedagogy with a vision that all students, including those with disabilities, will achieve high standards in their classrooms. To succeed with all children requires teachers to have the specialized knowledge and skills to serve an increasingly diverse population. The AACTE suggests that rather than focusing on ethnic, linguistic, and socioeconomic differences as teacher education programs did in the past, teacher education programs must reflect the fact that students with disabilities are present in the same classrooms where other forms of diversity predominate and that many students with disabilities may also be diverse in other ways. Furthermore, just as students vary, so too do the strategies and supports teachers must possess to meet the multifaceted needs of their students. The AACTE believes that most general education teachers need support and assistance from teacher specialists who are skilled in supporting the learning of students with varying abilities (pp. 1-16).

Finn (2001) also supports the need for Special Education



and general education interaction. He believes this interaction is necessary for students with disabilities to receive effective Special Educational services. In fact, he states that there are not enough interactions between Special Education teachers and their colleagues in general education and that this lack of interaction creates what he terms a "silo" effect that institutionalizes the chasm between groups of teachers. Finn believes this issue must become a priority in schools of education if improved learning is to occur for students with disabilities. The AACTE (2002) report adds that for such changes to occur and persist, they must be accomplished in the context of broader teacher education reform; this notion is supported by systems thinking (Finn et al., 2001; Fullan et al., 1998; Hirsh, 1997).

Research driven practices are an overriding theme in recommendation from a number of authorities (i.e., National Research Council, 1998, the Commission, 2002, AACTE, 2002). The President's Commission (2002) articulates the position in the following statement:

Teacher preparation institutions move from folk wisdom, weak research and opinion on what are important characteristics of effective teachers and begin to focus on helping to strengthen the teacher competencies that have clear data as producing student gains. All too often curricula and methodologies utilized in colleges of education are not empirically connected to improved student achievement. Pre-service training must ensure that instruction (p. 58).

The President's Commission (2002) recommends that schools of teacher education implement data-driven feedback systems for accountability and to improve how well student teachers educate children with disabilities. The committee states that formal teacher training should be based upon solid research about how students learn and what teacher characteristics are most likely to produce student achievement. In addition, the Commissions's report states that teacher education should require more rigorous training for educators in scientifically based assessment and intervention in reading since the ability to read is the most critical academic skill a student can learn (p. 61).

This notion is supported by the National Research Council which reveals that in the typical pre-service course of study, very little time is allocated to preparing teachers to teach reading. The report continues that teachers must have a deep understanding of the what, the how and the why of language and literacy (National Research Council, 1998). The President's Commission (2002) report states that both general and Special Education teachers must implement research-based practices that include explicit and systematic instruction in phonemic awareness, decoding, fluency, vocabulary, and comprehension. Also key to successful preparation of teachers in reading is aligning the content of course work

with current research on reading. As such, the concern is not only about the quantity of pre-service course work in reading but is also about the quality as well.

Since the mid-1980's state policies increased both the academic and professional course requirements for teacher candidates. It is nearly impossible for undergraduate students who wish to obtain a state teaching license to complete their bachelor's degree in 4 years. As undergraduate education extends to a fifth year, schools, colleges, departments of education, as well as policy-making bodies are likely to be revisiting the possibility of 5 or 6 year combined bachelor's and master's programs (SRI International, 2000, pp. 37-40).

Recognizing the link between staff development and successful educational change, Ann Lieberman (1995) calls for a "radical rethinking" of professional development and points out some shortcomings of the traditional approach:

What everyone appears to want for students--wide array of learning opportunities that engage students in experiencing, creating, and solving real problems, using their own experiences, and working with others--is for some reason denied to teachers when they are learners. (p. 591)

She notes the similarities between the ways students learn and the ways teachers learn:

People learn best through active involvement and through thinking about becoming articulate about what they have learned. Processes, practices, and

policies built on this view of learning are at the heart of a more expanded view of teacher development that encourages teachers to involve themselves as learners-in much the same way as they wish their students would. (p. 592)

### Adult Learning

"When adults teach and learn in one another's company, they find themselves engaging in a challenging, passionate and creative activity" (Brookfield, 1986, p. 1). The teaching-learning transaction utilized by adults is complex and multifaceted and impossible to place into simple categories. The teaching-learning transactions for adults occurs in every setting imaginable and are conducted at different levels of importance to the learner (p. 2).

Brookfield (1986) contends that instances of the adult teaching-learning transaction share five commonalities.

The participants involved are adults... Second, they are engaged in a purposeful exploration of a field of knowledge or set of skills or in a collective reflection upon common experiences. Third, these explorations of knowledge, skills and experiences take place in a group setting. Fourth, the participants in these explorations bring to the encounter a collection of experiences, skills and knowledge that are going to influence how new ideas are received, how new skills are acquired, and how the experiences of others are interpreted....Fifth, such prior learning and experience also comprise valuable curricular resources (p. 2).

Merriam (2001) explored adult learning and identified the "Pillars of Adult Learning Theory" (p. 11) as andragogy and self-directed learning. The field of adult education is

a collection of theories, models, sets of principles, and explanations that compose the knowledge base of adult learning. The concepts of andragogy and self-directed learning are essential to the understanding of adult learning (p. 3).

Malcom Knowles (1968) proposed a "new label and a new technology" of adult learning to distinguish it from pre-adult schooling (p. 351). Andragogy is defined as "the art and science of helping adults learn" (Knowles, 1980, p. 43). Andragogy became paramount for those trying to define the field of adult education as separate from other areas of education.

Knowles (1975) contributed to the self-directed learning literature by defining the concept and outlining how to implement it through learning contracts. The first assumption underlying Knowles's view of andragogy is that learners become increasingly self-directed as they mature. It was Tough (1967, 1971), building on the work of Houle (1961), who provided the first comprehensive description of self-directed learning as a form of study. Based on the pioneering work of Houle, Tough, and Knowles, early research in self-directed learning was descriptive. It verified the widespread presence of self-directed learning among adults and documented the process by which it occurred.

Adult education is concerned not with preparing people for life but rather with helping people to live more successfully. Darkenwald and Merriam (1982) define adult education as:

Adult education is a process whereby persons whose major social roles are characteristic of adult status undertake systematic and sustained learning activities for the purpose of bring about changes in knowledge, attitudes, values, or skills. (p. 9)

Teacher education courses have focused more on learners than on teachers. It is crucial to professional growth for teachers to examine their beliefs, values, attitudes, and total philosophy about teaching, learning, content, environment, the teacher, the student, and the many other components of the teaching-learning exchange (Heimlich & Norland, 1994, p. xi).

As individuals mature and develop in their professional setting, many changes may occur not only in title and stature but also in their acquisition of knowledge. In the ever increasing need for mature and reflective professionals, there is a tremendous demand for adult learners who have the ability to apply their experiential knowledge. Along with personal experiential knowledge, the adult learner within the profession today can greatly benefit from learning methods grounded in the learning concept of andragogy. This learning model for adult learners is instrumental in understanding

just how important it is to be a reflective practitioner and development as a professional.

### Andragogy

When analyzing adult education, it is crucial to be well versed with the learning model known as andragogy. Made famous by the educational researcher Malcolm Knowles (1980), the concept of andragogy helps to show distinctions between learning patterns of the adult and the child learner. Focusing on the adult learner's experiences and self-directedness, Knowles made several distinctions on what exactly andragogy is. The basic assumptions indicate that as people mature:

1. Their self-concept moves from one of being a dependent personality toward one of being a self-directed being.
2. They accumulate a growing reservoir of experience that becomes an increasing resource for learning.
3. Their readiness to learn becomes oriented increasingly to the developmental tasks of social roles.
4. Their time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly, orientation toward learning shifts from one of subject-centeredness to one of performance-centeredness. (p. 39)

When conducting any study involving adult learning processes, it is imperative to be familiar with the learning model known as andragogy. Before the andragogical model was developed by Malcolm Knowles (1980), instructors traditionally

used teacher-directed instruction, or pedagogy, with both child and adult learner. Using the pedagogical model, the adult learner would receive knowledge from the instructor and regurgitate it back in an approved format. With the pedagogical model, the control of learning rests with instructors who direct the process from their perception. This form of instruction is being replaced with andragogy which is a model more appropriate and respectful of adult learners and their experiences.

In 1984, Knowles (1998) added a fifth assumption stating as one matures, the motivation to learn becomes internal (p. 68). Later a sixth assumption was made that "adults need to know why they need to learn something before undertaking to learn it" (p. 64). Knowles' work has proven to be instrumental in understanding the principles of adult learning especially in the concept of self-directed learning.

#### Self-Directed Learning

Self-directed learning is another model of adult learning that helps define adult learners as different from children. Self-directed learning is a process often linked with the discipline of Adult Education. The process occurs when "individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material



resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes" (Knowles, 1975, p. 18). Self-directed learning is an essential construct of andragogy and, as such, it is significant to both the learner and the teacher (p. 7). Knowles (1998) identified two components of self-directed learning regarding how adults learn. The first component is observed when participants assume hegemony over the tools and techniques required to teach themselves. Thus, self-directed learning is self-teaching (p. 135). The second component of self-directed learning is personal autonomy and occurs when participants start "taking control of the goals and purposes of learning" (p. 135). Personal autonomy is the most significant of the two components for learning professionals (p. 136).

The idea that adults take control of their learning became a focal topic of adult education in the 1970's and 1980's. The emphasis on self-directed learning can be traced largely to Tough's work with the adult learning projects (Merriam & Brockett, 1996, p. 138). Tough (1971) found that nearly all adults engage in major learning endeavors each year. It is not unusual for adults to spend 700 hours each year involved in learning projects. These projects may be inspired due to practical reasons,

curiosity, interest or pleasure. About 70% of all learning projects are planned by the learners themselves, who seek help and subject matter from a variety of acquaintances, experts, and printed resources. Other learning projects rely on a group or instructor, on private lessons or on some nonhuman resource (p. 1).

### Real-Life Learning

Learning from daily life situations, prospects, predicaments, and experiences is a process that adult learners confront throughout their lives. As a field of study, Adult Education explores the benefits of learning that are readily applicable to adult learners' lives as opposed to learning that is from a teacher-centered curricula in formal education. Real-life learning is learning that is "relevant to the living tasks of the individual in contrast to those tasks considered more appropriate to formal education" (Fellenz & Conti, 1989, p. 3).

Learning processes historically used in formal educational venues differ significantly from the processes of real-life learning. During real-life learning, more attention is afforded the living tasks of individual participants rather than tasks recommended by formal education (Fellenz & Conti, 1989). "Most people are ill

prepared through formal education to learn from everyday life experience" (Sternberg, 1990, p. 35).

"Experience is the learner's living textbook" (Lindeman, 1961, p. 32). Crucial to education is helping learners interpret experience in a way that assists them in more clearly understanding their problems and options "so that they may assume responsibility for decision making" (Mezirow, 1995, p. 32). To accomplish this, teachers should develop an awareness regarding their meaning schemes.

When teachers become aware of the meaning schemes that control how they teach students, they can be empowered to critically analyze the meanings and expectations they have attached to their classrooms and their level of effective teaching skills. When teachers in a public school environment realize the relationship between their experience, the meaning they attach to them, and the resulting behaviors or actions that follow, they are ready to re-evaluate their experiences and make the indicated changes in the meanings attached to them.

### Teaching Adults

#### Adult Education Philosophy

"Philosophy of Education is the philosophical study of education and its problems. Unlike other branches of philosophy, it is rarely taught in the philosophy

department" (Noddings, 1995, p. 1). "In one basic sense, we can say that philosophy of education is the application of philosophical ideas to educational problems. We can also say with equal force that the practice of education leads to a refinement of philosophy" (Ozman & Carver, 1986, p. x). "While the roots of philosophical inquiry can be traced back to ancient Greek philosophy, it has only been in the past two centuries that education has received rigorous treatment by philosophers" (Elias & Merriam, 1995, p. 1).

The study of educational philosophy has traditionally been in terms of the various schools, such as Realism, Idealism, and Pragmatism. More recent approaches to educational philosophy include Reconstructionism, Existentialism, Behaviorism and Analytic philosophy. The problems of classifying different philosophers into the schools of thought are clearly recognized. However the classification of the discipline continues and the schools of thought develop because similarities do exist among theorist (Elias & Merriam, 1995, p. 1).

Elias and Merriam (1995) added clarity to the field of adult education by identifying philosophical schools of thought which are more in tune with the concepts and principals of adult education than traditional philosophies. These schools of thought are, "liberal adult education,

progressive adult education, behaviorist adult education, humanistic adult education, radical adult education and analytic philosophy of adult education" (p. 12).

Liberal Adult Education is credited to the early Greek philosophers and supported by contemporary educators such as Adler, Hutchins, and Van Doren. The emphasis is on liberal learning, organized knowledge and developing the "intellectual powers of the mind" (Elias & Merriam, 1995, p. 9). Liberal educators focus on content mastery, and the educator is the expert.

The Progressive philosophical school "may have had a greater impact on the adult education movement than any other single school of thought" (Elias & Merriam, 1995, p. 45). Progressive adult educators include Lindeman, Dewey, and Bergevin (p. 10). Its focus is experience-centered education (p. 52). Progressive educators stress experiential learning and emphasize the experience of the learner.

Behaviorist adult education is attributed to Thorndike, Watson, and Skinner. In this approach, the emphasis is on learning through behavioral techniques such as behavior modification, control, outcomes-based education, and management by objectives (Elias & Merriam, 1995, p. 10). Behaviorist educators believe that the environment shapes

the learner, and they have systematic approaches to instruction. The teacher is a "contingency manager, an environmental controller or behavioral engineer" (p. 51), while the learner is an active participant whose behavior "is emitted" (p. 51). Accountability of the learner is fundamentally important.

Humanistic adult education comes from psychological and educational roots (Elias & Merriam, 1995, p. 10). Maslow, Rogers, and Alport contributed from the psychological side, and Rousseau, Knowles, and Tough are examples of those contributing from the educational side. Humanism emphasizes freedom, autonomy, and self-directed learning. The Humanist educator believes that human nature is inherently positive. In this approach, the learner is central, and "the act of learning is a highly personal endeavor" (p. 126). The student "learns what he or she perceives to be necessary, important, or meaningful" (p. 126). Humanistic adult educators stress personal growth and self-direction.

"Radical adult educators view education as a tool for radical social change" (Elias & Merriam, 1995, pp. 10-11). It requires political, social, and economic understanding of the students served. Radical educators emphasize social change and the removal of oppression through education. "Radical thought is a good antidote to complacency and helps

to present alternative futures" (p. 171). Its main contributors include Kozol, Holt, and Freire. Although Elias and Merriam use the term "radical" to describe this school of thought, it is equivalent to "reconstructionism" contains two major premises: (1) society is in need of constant reconstruction or change, and (2) such social change involves both a reconstruction of education and the use of education in reconstructing society" (Ozmon & Craver, 1981, p. 120).

Finally, Analytic adult education seeks to clarify concepts, arguments, and policy statement in education (Elias & Merriam, 1995, p. 11). Analytic philosophers have attempted to build a "solid philosophical foundation through careful analysis and argumentation" (p. 175). This philosophy is critical of some of the careless language used in the writings of adult educators (p. 199). This school argues that a neutral approach to social issues should be taken, but it does not offer a clear methodology for the educator. Primary contributors include Scheffler, Peters, and Green.

### Teaching Style

Heimlich & Norland (1994) believe that teaching style is illustrated in all aspects of teaching. The teacher's thought, feeling, approach, and style impact teaching style.

Consistency in these attributes is the key to growing and improving as a teacher (p. xii).

Most importantly, teaching style impacts student achievement. This position has been supported by studies using the Principles of Adult Learning Scale in an adult basic education program in South Texas (Conti, 1984), with allied health professionals (Conti & Welborn, 1986), and with tribal college students (Conti, 1989).

PALS has been used in numerous studies, and four studies have directly linked teaching style to student performance (Conti, 1984). In the first study, the relationship of teaching styles to student achievement was explored in an adult basic education program in South Texas. The program had basic level literacy classes, high school equivalency classes, and English-as-a-second-language classes. The teaching style of 29 part-time teachers in the program was measured and compared to the achievement levels of their 837 students. Results indicated that the teacher's teaching style had a significant influence on the student's academic gain (Conti, 2004, pp. 82-83).

The second study involved allied health professionals returning to college credit classes for continuing education to attain continuing education requirements (Conti & Welborn, 1986). The 256 health professionals who



participated in the study were nontraditional students whose academic success was related to the teaching styles of the 18 instructors in the program. Statistical evidence indicated that teaching style can affect student achievement. The students made more gains when their teacher had a learner-centered approach to teaching (Conti, 2004, p. 83).

A third study involved 27 inmates and 10 selected teachers. Results indicated that teaching style did influence a student's level of moral development (Wiley, 1986). It was found that inmates who studied with a learner-centered instructor progressed to higher levels of Kohlberg's states of moral development than those who were with teacher-centered instructors (Conti, 2004, p. 84).

A fourth study was designed to address the limitation of the small sample size of teachers of the three previous studies (Conti & Fellenz, 1988). This study involved 80 teachers from the tribal controlled community colleges of the Indian reservation in Montana. The group contained a wide range of teaching styles. The overall teaching style score was not significant. However, the scores for six of the seven factors were significant. While the learner-center work was effective, above average grades were obtained by students with teachers who were strongly

committed to a definitive teaching style regardless of whether it was a teacher-centered or learner-center style (Conti, 2004, pp. 84-85).

Teaching style is different from teaching method. It may be best described as "the range of behaviors in which a teacher can operate comfortably according to a certain value system" (Conti, 1989, p. 4). Ultimately, "the things that a teacher does in the classroom make a difference in how their students learn" (p. 15).

It is important to understanding the unique abilities required of Special Education teachers. This information, combined with having knowledge about how teachers teach, what their style is, and what their individual learning strategy is can have a positive impact in the manner in which teachers are prepared to teach students with disabilities.

#### Learning Strategies

Learning strategy research is providing an important avenue of exploration related to individual differences in learning (Conti & Kolody, 1999a, p. 2). "Learning strategies are the techniques or skills that an individual elects to use in order to accomplish a learning task" (Fellenz & Conti, 1993, p. 3). Learning strategy usage is so commonplace that:

Little thought is given to the selection of strategies; habit, prior training, or convenience determine the strategy to be used. Yet the skills or techniques selected to accomplish the task often

have a great influence on the success of that learning activity. (p. 3)

Learning strategies and learning styles are dissimilar in several ways. Unlike learning styles, learning strategies are not fixed traits that remain the same across learning tasks. Learning strategies are more contextual and "are more a matter of preference; they are developed throughout life and vary by task" (Fellenz & Conti, 1993, p. 4).

Awareness of one's learning strategies can foster the ability to survey the learning environment and allow one to make appropriate adjustments if necessary. "Self-understanding links directly to learning how to learn when learners become sensitive to, and in control of, the learning processes, in other words, more aware of themselves as learners" (Smith, 1982, p. 57). Becoming aware of this information related to learning strategies could be particularly important in the effective training of teachers.

Much of the research on learning strategies in the field of Adult Education has evolved around the use of the Self-Knowledge Inventory of Lifelong Learning (SKILLS) (Conti & Kolody, 1999b, p. 86). SKILLS was developed to address and quantify individual learning strategies of adults involved in "real-life learning." "Real-life learning" incorporates problem-solving, reflection on experience, or planning in response to situations that occur outside of academia.

“‘Real-life learning’ has been used to distinguish typical adult learning from the academic learning of formal situations that is usually spoken of as studying or educating” (Fellenz & Conti, 1993, p. 4).

The SKILLS instrument “consists of a series of six scenarios depicting real-life learning situations which necessitate various levels and types of learning” (Fellenz & Conti, 1993, p. 1). There are two equivalent versions of SKILLS. The first has scenarios that involve learning in the areas of auto insurance, burial customs, local history, pet care, job regulations, and cholesterol level. The scenarios of the second set deal with assembling a bike, obtaining dental care, recruiting leaders, writing a letter to the editor, visiting a national park, and caring for a relative (Fellenz & Conti, 1993, p. 1).

Initially, the learner is directed to select four out of six possible scenarios to utilize. After reading each vignette, the learner answers 15 questions that ascertain the likelihood that the learner will utilize specific learning strategies in the resolution of the learning situation. Learners are asked to determine which strategies they would “definitely use,” “probably use,” and those they would “not likely use” to complete the task they selected. Once these selections are made, the choices learners indicated fall into

five areas conceptualized as learning strategies: critical thinking, memory, metacognition, metamotivation, and resource management. (Conti & Fellenz, 1991a).

### Critical Thinking

Critical thinking is defined as "a reflective thinking process utilizing higher order thinking skills in order to improve learning" (Conti & Kolody, 1999a, p. 7). Critical thinking is the essence of much of adult learning.

"The development of critical thinking within a wide range of activities is seen as a means of bringing about change" (Merriam & Carrarella, 1991, p. 281). Critical thinking is aimed at enhancing both individual and societal learning (Fellenz & Conti, 1993, p. 30). Brookfield's (1987) conceptualization of critical thinking is closely associated with the critical thinking component measured in SKILLS. His approach described how adults become critical thinkers. The steps include (a) identifying and challenging assumptions, (b) questioning the importance of context, (c) envisioning and exploring alternatives, and (d) maintaining a healthy skepticism concerning conclusions.

In the area of critical thinking, SKILLS targets three specific strategies for evaluation including testing assumptions, generating alternatives, and conditional acceptance. Testing assumptions entails the identification,

examination, and challenge of presuppositions related to learning in real-life situations. Generating alternatives entails "exploring alternatives when engaged in critical thinking or problem solving" (p. 8). Conditional acceptance entails "advocating reflective skepticism to avoid absolutes or over simplifications" (p. 8). Conditional acceptance is measured by evaluating whether or not learners are "monitoring results and evaluating consequences" in the SKILLS instrument (Conti & Kolody, 1999a, p. 8).

### Memory

"Memory is the ability to remember past events, images, ideas or previously learned information or skills; memory is also the storage system that allows us to retain and retrieve previously learned information" (Lefton, 1994, p. 204).

Memory functions as an essential component of the learning process. Memory is constituted of:

All of the things that define us as individuals-- our feelings, beliefs, experiences, behaviors, moods, and attitudes are stored away somehow in our memories. There are few psychological processes that are as central to our sense of self and to our perception of the world as memory. (Gerow, 1992, p. 245)

Memory and learning are closely associated concepts that are not easily separated. Therefore "one who does not learn has nothing to remember and without memory there is no evidence of learning" (Long, 1983, p. 58).

The SKILLS instrument memory strategies include use of external aids, organization, and memory application. The incorporation of external aids in the memory strategy process allows the learner to utilize the environment to aid one's ability to recall information. External aids consist of items "such as appointment books, making lists of things to do, and asking someone to remind one of something" (Fellenz & Conti, 1993, p. 26). Organization strategies relate to the way processing of information occurs "so that material will be better stored, retained, and retrieved" (Conti & Kolody, 1999a, p. 7). Techniques that are utilized to enhance organization of material include chunking of material into sets, mnemonic devices, and visualization (p. 7).

### Metacognition

Metacognition involves thinking about thinking or learning and is continuing to expand as an area of study in adult learning (Fellenz & Conti, 1989, p. 9). Metacognition has also been described as "an awareness by learners of the learning process" (Wangerin, 1988, p. 475). Learning is enhanced when learners are "taught to develop understanding of their own learning processes" (p. 479). Metacognition is vital to adult learning because it provides the learner with awareness of one's own strategies as well as their relative

effectiveness.

Metacognition strategies measured in SKILLS include planning, monitoring, and adjusting. Planning places the responsibility and control of learning activities into the hands of the learner (Conti & Kolody, 1999a, p. 4). Metacognitive planning involves determining the most effective and efficient manner of carrying out a learning task. "The basis for such planning is an awareness of one's most effective learning characteristics, insight into the learning task, and an understanding of the planning process" (Fellenz & Conti, 1993, p. 9). Metacognitive monitoring entails learners evaluating their efforts in learning activities (Conti & Kolody, 1999a, p. 4). This assessment is critical to the learning process, yet it is lacking in many learning endeavors. "I am absolutely convinced that there is, overall, far too little rather than enough or too much cognitive monitoring in this world" (Flavell, 1979, p. 910). Metacognitive adjusting requires that learners "be taught to monitor their learning and change their learning strategies when necessary" (Wangerin, 1988, p. 479).

#### Metamotivation

Metamotivation is defined as "the awareness of and influence over factors that energize and direct one's learning" (Fellenz & Conti, 1993, p. 12). It also "deals



with one's knowing and understanding how or why one is motivated to participate or remain in a learning activity" (Conti & Kolody, 1999a, p. 4). Motivation is an extremely potent influence in adult learning regardless of how individual learners vary in their motivation to learn. Previous research in adult education emphasized motivation related to participation in educational activities rather than motivation related to learning. SKILLS evaluates one's internal motivation related to real-life learning and excludes assessment of external motivation in the analysis.

Metamotivation strategies that the SKILLS instrument focuses upon include the areas of attention, confidence, and reward/enjoyment. Attention is primary to the learning process. Attention is "focusing on the material to be learned" (Conti & Kolody, 1999a, p. 5). Student interest must be established in order for learners to properly absorb information. Confidence that one has the ability to learn is particularly salient with adult learners and is a prerequisite to one's motivation to learn. Reward and enjoyment strategies involve the affective domain of learning. Learners assess whether or not learning will be fun, fulfilling, or promote one's self-esteem. If the learner believes that these results will occur as a result of the learning task, then they will be motivated to initiate

the activity.

### Resource Management

Adult learners are faced with a multitude of sources and resources from which to analyze and collect data. Individual preferences relating to the identification, selection, and utilization of resources vary according to "the individual's learning style and the particular learning task" (Fellenz & Conti, 1993, p. 35). Learning resources encompass "books, magazines, newspapers, tapes, TV, computers, or of people considered as information sources" (p. 35).

Resource management comprises identification of resources, critical use of resources, and the use of human resources (Conti & Kolody, 1999a, pp. 8-9). Resource identification involves "the identification and location of the best possible source of information which may include modern information sources, print sources, people, models, professionals, or agencies" (pp. 8-9). Critical use of resources entails "critical reflection about the material and selection of the most appropriate resource rather than simply those that are readily available" (p. 9). Use of human resources involves utilizing people as resources in the learning process. "Suggested strategies go beyond simple awareness and use of others in learning situations" (Fellenz & Conti, 1993, p. 37). People can be valuable resources in

the learning process. However, the learner must remain open to both dialogue and the opinions of others in this strategy for gathering resources.

SKILLS has proven to be a valid and reliable instrument for measuring learning strategies of adults. SKILLS has been utilized in over 20 studies involving diverse population and settings. Most of these studies utilized similar research designs. Two major findings have surfaced as a results of this exploration of the learning strategies of adults. First, one of the major findings of these investigations was "that selected demographic variables are not useful in discriminating among different groups in their learning strategy usage" (Conti & Kolody, 1998a, p. 109).

Second, distinct groups of learners can be identified based on their learning strategy preferences. Because groups that had somewhat similar characteristics were uncovered in the various studies, data from several of the studies were combined and analyzed using cluster analysis. This process uncovered that three categories of "distinct groups of learners exist when they are identified by the pattern of the learning strategies which they use" (Conti & Kolody, 1998a p. 109). These groups have been named Engagers, Navigator, and Problem Solvers (p. 111). The Assessing and Learning Strategies of AdultsS (ATLAS) instrument has been developed as

a direct result of the SKILLS research. ATLAS was designed to "produce an instrument which was easy to administer, which could be completed rapidly, and which could be used immediately by both facilitators and learners" (p. 109). Each learning strategy group has a distinctive profile.

### Navigators

"Navigators are focused learners who chart a course for learning and follow it" (Conti, & Kolody, 1999a, p. 9). Planning and a strong sense of purpose personify both these learners and their utilization of learning strategies. "Navigators like to be presented the 'big picture' first, so they know what is expected. Then they plan their learning schedule according to deadlines and the final expected result" (p. 9). Navigators depend on the learning strategies which involve the use of planning, attention, identification, critical use of resources, and testing assumptions (p. 9).

Analysis of qualitative data revealed that Navigators desire deadlines, distinct expectations, prompt feedback, structure, and schedules in order to learn best (Conti & Kolody, 1999a, p. 11). "Navigators become easily frustrated and impatient with a casual approach to teaching and can perceive a relaxed atmosphere as an ill-designed timewaster which is lacking in purpose" (p. 11). Once the course is charted, Navigators want to continue on this path with

minimal distractions and maximum feedback.

### Problem Solvers

Problem Solvers utilize critical thinking skills, particularly in the areas of testing assumptions, generating alternatives, and conditional acceptance.

Problem Solvers test assumptions to evaluate the specifics and generalizability within a learning situation; they generate alternatives to create additional learning options; and they are open to conditional acceptance of learning outcomes while keeping an open mind to other learning possibilities. (Conti & Kolody, 1999a, p. 12)

Problem Solvers are open to alterations and changes in their learning plans and are continually assessing their own learning process as a result (p. 12).

Problem Solvers are best served educationally in an environment that "promotes experimentation through practical experience and hands-on activities" (Conti & Kolody, 1999a, p. 13). Problem Solvers think in a divergent and innovative manner and do not respond well to rigidity or conformity in the classroom (p. 13).

### Engagers

"Engagers are passionate learners who love to learn, learn with feeling, and learn best when they are actively engaged in a meaningful manner with the learning task" (Conti & Kolody, 1999a, p. 13). Engagers enjoy the learning process and derive personal satisfaction from interaction with

others. The ability to collaborate with others in learning tasks is seen as affective domain when learning. They evaluate learning activities based on possible enjoyment and reward. "If Engagers have begun a learning activity they find rewarding or enjoyable, they will completely immerse themselves in the activity to be able to fully experience the joy of satisfaction of a job well done" (p. 14)

Engagers desire instructors "who focus on learning rather than on formal evaluation and who encourage involvement in projects based on individual interests" (Conti & Kolody, 1999a, p. 15). Engagers also desire the development of a personal relationship with their instructor. The initiation of group work is particularly effective in involving Engagers in class work because it allows for greater interaction with other students (p. 15).

#### Learning Preference Research

ATLAS has been utilized in over 35 studies which has added valuable new knowledge to the field of Adult Education relating to learning strategies and individual differences. Several other studies are currently in progress involving adult learners in many diverse settings. The number of studies and subjects provides depth and insights not previously available involving the learning strategies of adults.

The original learning strategy research in the field of Adult Education was done with the Self-Knowledge Inventory of Lifelong Learning Strategies (SKILLS). Various adult education settings were used in these studies. "These studies included college students (Bighorn, 1997; Conti & Kolody, 1995; Gallagher, 1998; Hill, 1992; Kolody, 1997; Strakal, 1995; Ungricht, 1997), nursing students (Lockwook, 1997), business and non-profit leaders (Conti, Kolody, & Schneider, 1997; Courtnage, 1998; Gehring, 1997; Moretti, 1994), military personnel (Korinek, 1997; Yabui, 1992), public school administrators (McKenna, 1991), senior citizens (Quarles, 1998), and learning disabled students (Hays, 1995)" (James, 2000, pp. 66-67). These studies utilized a combination of cluster analysis, discriminate analysis, and analysis of variance to determine groups of learners based on the 15 learning strategies identified in the SKILLS instrument. SKILLS provided the data set that was used to develop ATLAS for identifying groups of learners based on learning strategy preferences (Conti & Kolody, 1999).

Merriam (1987) focused on the need for the field of adult education to establish "systematic lines of inquiry with one study building on another" (p. 188). Learning strategy research "is one line of adult learning inquiry in which one study has continued to lead to other studies"

(James, 2000, p. 55). Various types of research have utilized the ATLAS instrument. James (2000) used ATLAS to describe the learning strategies of students participating in Adult Basic Education (ABE) programs and added further detail to the descriptions of the ATLAS categories. This study revealed a disproportionately large number of Engagers in the ABE programs.

Ghost Bear (2001) explored the learning strategies of users of the eBay auction process on the Internet. Results of the study found that there are a disproportionately large number of Problem Solvers on the Internet. This study also provided additional descriptors for the ATLAS categories as well as established strong criterion-related validity support for ATLAS by confirming that 90% of the respondents agree that their ATLAS category correctly identifies them.

Girdner (2003) investigated the learning strategies of seniors on the internet. Her findings revealed a disproportionately large number of Problem Solvers and destroyed myths about learning for seniors related to computers. The sample of 348 seniors who used SeniorNet were used to describe the learning patterns and strategies while learning computer skills.

Utilizing ATLAS with adults who are deaf, Massey (2003) conducted a purposive sample of 20 deaf adults divided



between those employed and not employed. This study attempted to listen to and give voice to deaf adults as they described their perceptions of their learning patterns. Findings of this study revealed that adults who are deaf apply the same learning strategies as the hearing population.

A knowledge of one's learning strategy preference by the learner and the teacher can lead to improved academic gain in the classroom was established in the studies of Donald Munday (2002) and Wendy Munday (2002). Both studies found that student learning significantly improved for those having knowledge and advising related to learning strategies.

Hagans (2004) explored the learning strategy preferences of musicians in formal educational programs and naturally trained musicians. This study found that formal music schools attract a disproportionately large number of Engagers even though the learning strategy preferences are evenly distributed among the older, naturally trained musicians.

Learning strategy preference research has been conducted using ATLAS in various ways. Studies using ATLAS that focused on the instrument to better describe the groups of Navigator, Engager, and Problem Solver include; James (2000), Willyard (2000), and Ghost Bear (2001). ATLAS has been used as an auxiliary tool in the research studies of Lively

(2001), McIntosh (2005), Varmecky (2004).

These studies demonstrate that ATLAS has been used in various way in research. Overall, they show that ATLAS is a useful instrument for identifying individual differences related to learning strategies. It is useful for the researcher as well as respondents which can readily identify with it and use the terminology associated with each learning strategy group. Various studies utilizing ATLAS continues the line of inquiry and expands the knowledge in the field of Adult Education concerning learning strategy preferences.

## CHAPTER 3

### METHODOLOGY

#### Design

This study utilized a descriptive research design.

“Descriptive research involves collecting data in order to test hypotheses or to answer questions concerning the current status of the subject of the study” (Gay, 1992, p. 217). This research method involves a process to determine and report things the way they are (p. 13). “The descriptive researcher has no control over what is and can only measure what already exists” (p. 218). The research design allowed for the gathering of data about the teaching- learning transaction of a defined group of people.

This study described what Special Education majors at Northeastern State University believe about the nature of learning and teaching and identified individual learning strategies. This study utilized the Philosophy of Adult Education Inventory (PAEI), Principles of Adult Learning Scale (PALS), and Assessing The Learning Strategies of Adults (ATLAS). These three instruments were used to examine the educational philosophies, teaching styles, and learning

strategy preferences of the participants in the study.

### Population

A population is a group that has similar set of characteristics, and it is the group to which the researcher would like the results of the study to be generalized (Gay, 1987, p. 102-103). The target population for this study was students majoring in Special Education enrolled at Northeastern State University (NSU) in Oklahoma. There are 107 undergraduate students currently majoring in Special Education at NSU, and there are 27 students enrolled in the graduate program for Special Education at NSU. Of these, 78 undergraduates and 17 graduates participated in the study; one participant did not indicate class standing. These 96 students represent 71.6% of the total population.

A sample is a subset of the population. With a sample, the researcher collects information about a population based on the responses of a sample drawn from the population (Gay, 1992, p. 220). A good sample "is one that is representative of the population from which it is selected" (Gay, 1987, p. 103). The population for this study was the students majoring in Special Education at Northeastern State University who were ask to voluntarily participate in the study. However, every person in the population did not participate in the study. Thus, the sample consisted of 96

students. Those in the sample completed three instruments: Philosophy of Adult Education Inventory, Principles of Adult Learning Scale, and Assessing the Learning Strategies of Adults.

#### Philosophy of Adult Education Inventory

Lorraine Zinn (1998) developed an instrument to measure adult educational philosophical schools as described by Elias and Merriam (1980). This instrument, the Philosophy of Adult Education Inventory (PAEI), includes five of the primary adult educational philosophies: Liberal, Progressive, Behaviorist, Humanist, and Radical. PAEI helps educators to understand their particular philosophy in relationship to these schools. The PAEI provides information to help practitioners in the field identify their philosophical belief.

Regardless of the particular school of thought that one supports, philosophy has a close relationship to education. It can provide a rationale for current practice, reflect earlier philosophical traditions, or stimulate new thought. "True professionals know not only what they are to do, but are also aware of the principles and the reasons for so acting" (Elias & Merriam, 1995, p. 9).

The educational philosophies of Northeastern State University Special Education majors were measured by the

Philosophy of Adult Education Inventory (PAEI) which was designed to assist adult educators in the identification of their personal philosophies of education and compared them with prevailing philosophies in the field of Adult Education (Zinn, 2004, p. 59). The instrument is designed to be self-administered, self-scored, and self-interpreted. The inventory includes 15 items that begin with incomplete sentences. These are followed by five possible options that could complete the sentence. Respondents rate each of the five different options that could complete the sentence (p. 60).

For this study, the PAEI was included in an online questionnaire in which the respondents selected the response option to complete the statement. Each of the options represent the Liberal Adult Education, Behaviorist Adult Education, Progressive Adult Education, Humanistic Adult Education, or Radical Adult Education philosophy as described by Elias and Merriam (1995). Respondents rated each of the five options on a seven-point Likert scale ranging from, 1 (Strongly Disagree) to 7 (Strongly Agree) with a neutral point of 4 (Zinn, 2004, p. 58). Scores are determined by summing the values of the 15 responses for each of the 5 philosophical schools. The highest score reflects the philosophy that is closest to the respondent's own beliefs

while the lowest score reflects a philosophy that is least like the person's philosophy. There are no right or wrong answers (p. 74). The PAEI provides information to help practitioners in the field "begin a process of philosophical inquiry and reflection on...[their] beliefs and actions" (Zinn, 1998, p. 50).

### Validity

Validity is the "degree to which a test measures what it is intended to measure" (Gay, 1987, p. 553). Tests can be designed for a variety of purposes, and validity can only be evaluated in terms of that purpose. There are three important types of validity for instruments used in education; these are construct, content, and criterion-related validity (pp. 129-135).

Construct validity is the degree to which a test measures an intended hypothetical construct. A construct is a non-observable trait such as intelligence which explains behavior. A construct cannot be seen. One can only observe the effect. Constructs are used to explain behavior (Gay, 1996, p. 140).

The construct validity of the PAEI was statistically tested by applying the factor analysis procedure (Zinn, 1983, p. 148). Individual response items revealed that a majority "had a moderate to high common factor variance (>.50),

indicating that they were both valid and reliable measures for the inventory" (p. 150). These data confirmed the finding of a select jury that the PAEI is a valid way to identify a person's adult education philosophy (p. 150).

Content validity is the degree to which a test measures an intended content area. Item validity and sampling validity are both requirements for content validity (Gay, 1996). Item validity is concerned with whether the test items represent measurement in the intended content area. Sampling validity is concerned with how well the test samples the total content validity (Gay, 1996, p. 139). Usually experts in the area covered by the test are asked to assess its content validity. Content validity is often determined by expert judgement (p. 140).

Content validity of the PAEI was established by the jury of experts who were considered knowledgeable in adult education philosophy (Zinn, 1983, pp. 145-146). An analysis of their responses was completed, which statistically reflected high content validity for the PAEI through separate item analysis (p. 146).

Criterion-related validity is the degree the scores on a test are related to an outside criterion either now or in the future (Gay, 1987, p. 132). Criterion-related validity is associated with practical problems and outcomes. It is



studied by comparing test or scaled scores with one or more external variables or criteria known or believed to measure the attribute being studied. Criterion-related validity was not addressed in developing the PAEI.

### Reliability

Reliability is "the degree to which a test consistently measures whatever it measures" (Gay, 1987, p. 135). As the degree of reliability increases, confidence also increases that the scores obtained from the administration of the test are essentially the same scores that would be obtained if the test were re-administered. Reliability is particularly important to educational research (Gay, 1996, p. 145).

The PAEI is a reliable instrument (Zinn, 1983, p. 151). Reliability was determined by measures of internal consistency and test-retest stability with data from 86 participants in 6 states and the District of Columbia (Zinn, 1983, abstract).

Reliability coefficients of  $>.40$  on 87% of the response options and alpha coefficients ranging from  $.75$  to  $.86$  on the five scales were considered measures of moderate to high reliability. Test-retest data were judged unreliable due to the small size of the sample ( $n=8$ ); however, retest data did show a tendency toward moderate to high reliability ( $r$  of  $.48$  to  $.83$ ) for the five scales. (Zinn, 1983, abstract)

### Principles of Adult Learning Scale

An instrument has been developed that measures teaching

style in adult education. The Principles of Adult Learning Scale (PALS) was developed in 1978 (Brookfield, 1986; Conti, 1982). It is used to measure how practitioners relate to the adult education theory base. Theorists in adult education have identified key factors to successful facilitation such as a curriculum that is learner centered, learning experiences that are based on the learner's experiences, and understanding the need for the learner.

PALS has been successful in measuring facilitation and collaboration (Brookfield, 1986, Conti, 2004).

The teaching styles of Northeastern State University Special Education majors were measured with the Principles of Adult Learning Scale (PALS), which was developed by Conti (1982, 1983, 1985) to measure the extent to which practitioners support the collaborative mode of teaching-learning. The frequency with which one practices teaching-learning principles described in adult education literature is measured by this 44-item instrument. The overall PALS score is divided into seven factors. High scores in each factor represent support of the learner-centered concept that represents the factor name. Low factor scores indicate support of the opposite concept. Factor scores are calculated by adding up the points for each item in the factor. The Factors identified in PALS are (a) Learner-

Centered Activities, (b) Personalizing Instruction, (c) Relating to Experience, (d) Assessing Student Needs, (e) Climate Building, (f) Participation in the Learning Process, and (g) Flexibility for Personal Development (Conti, 2004, pp. 79-82).

Teaching style can be quickly assessed using PALS. It is self-administered and can be completed in about 10-15 minutes. The survey questions contain things that a teacher of adults might do in a classroom, and respondents indicate how frequently they practice the action described in each item (Conti, 2004, p. 79). Each of the 44 statements is answered by selecting a number on a 6-point Likert scale. For this study, PALS was included in the online questionnaire. The respondents selected numbers to indicate their answer choice. These numbers correspond as follows: 0-Always, 1-Almost Always, 2-Often, 3-Seldom, 4-Almost Never, and 5-Never. An individual's total score on the instrument is calculated by summing the value of the responses to all items and can be interpreted by relating the score to the average score for the instrument. High scores on the PALS indicate support for a learner-centered approach to teaching while low scores suggest support for a more teacher-centered approach, and middle range scores indicate an eclectic approach. Scores may range from 0 to 220. The average score

for PALS is 146 with a standard deviation of 20. Scores for PALS can be interpreted by relating it to the average score for the instrument. The overall teaching style and the strength of commitment to that style can be judged by comparing the score to the mean score of 146. Scores above 146 indicate a tendency toward the learner-centered mode while lower scores imply support of the teacher-centered approach (Conti, 2004 p. 79).

### Validity

PALS is a valid and reliable instrument (Conti, 1982, p. 145). The construct validity of the items was established by the testimony of two juries of adult educators. A local jury consisted of three adult education professors from Northern Illinois University who analyzed the items, provided comment on the constructs in the items, and suggested improvement for various items (Conti, 1992, p. 139). A national jury was also used, consisting of 10 adult education professors who analyzed the instrument. Of this group, 78% found the concepts of each of the 44 items to be congruent with adult education learning principles supportive of the collaborative mode (p. 141).

The content validity of PALS was established by field-tests with adult basic education practitioners. For PALS, "content validity was determined by Pearson correlations

which measured the relationship between each individual item and the total score from each participant" (Conti, 1982, p. 140).

Criterion-related validity was established by comparing the scores on PALS to scores on the Flanders Interaction Categories. "Both instruments measure initiating and responsive actions" (Conti, 1982, p. 142) in the classroom. Scores were analyzed for those who scored two standard deviations either above or below the mean on PALS. The results revealed that PALS consistently measures initiating and responsive constructs and that PALS is capable of consistently differentiating among those who have divergent reviews concerning these constructs (p. 142).

#### Reliability

The reliability of PALS as a stable standard for measuring the degree of an adult education practitioner's approval for the collaborative mode was established by the test-retest method. This measure of stability of an examinee's performance on the instrument was conducted with a group of 23 adult basic education practitioners. The Pearson correlation for the 23 practitioners in the sample group yielded a reliability coefficient of .92 (Conti, 1982, p. 142).

#### Assessing The Learning Strategies of Adults

Assessing the Learning Strategies of Adults (ATLAS) was developed in order to provide a quick and effective means of identifying learning strategy preferences of adult learners. It is easily administered and utilized by learners in a variety of settings.

The learning strategy preferences of Northeastern State University Special Education majors were measured by the Assessing The Learning Strategies of Adults (ATLAS) instrument, which was designed to quickly identify learning strategy profiles of adults (Conti & Kolody, 1998, p. 109). It "arose out of a need for a tool that was easy to administer, that could be completed rapidly, and that could be used immediately by both facilitators and learners" (Conti & Kolody, 1999, p. 16). The standard form of ATLAS is printed on colored-coded paper and bound in a pamphlet format. For this study, ATLAS was included in an online questionnaire. Participants followed descriptive phrases by clicking their mouse indicators on selected responses. Each response lead participants to eventually discover their learning strategy group of Navigator, Problem Solver, or Engager. "ATLAS utilizes a flow-chart design...Sentence stems, which are in the top box on the page, lead to options in other boxes which complete the stem. Connecting arrows direct the respondent to the options" (Conti & Kolody, 1999,

p. 16). The instrument may be completed in 2 minutes or less depending on the reading level of the respondent (p. 16).

### Validity

ATLAS is a valid instrument for measuring the learning strategies of adults in real-life learning situations (Conti & Kolody, 1998). Construct validity for ATLAS was established by using the items and database from an existing valid and reliable instrument, the Self-Knowledge Inventory of Lifelong Learning Strategies (SKILLS) (Conti & Kolody, 1999, pp. 16-18; Conti & Kolody, 1998, pp. 110-111). The valid items from SKILLS were used in a cluster analysis to identify groups that existed in the database, thus, the construct validity.

The content validity for ATLAS dealt with constructing accurate items to differentiate the three groups identified in the cluster analysis (Conti & Kolody, 1999, pp. 16-18; Conti & Kolody, 1998, pp. 110-111). This was accomplished by conducting a series of discriminate analyses with groups from the cluster analysis and with the items from SKILLS as the discriminating variables. The structure matrix from each of these analyses was used to construct each of the items in the instrument.

ATLAS was based on the items from SKILLS. Therefore, criterion-related validity was established by comparing

responses on ATLAS to items from SKILLS (Conti & Kolody, 1999, pp. 19-20; Conti & Kolody, 1998, pp. 112-113).

### Reliability

Reliability for ATLAS was established by the test-retest method. Although the reliability of the ATLAS instrument is ongoing, "test-retest measures results are approximately 90% accurate for placing people in the same learning strategy preference category" (Willyard, 2000, pp. 88-89). ATLAS test-retest data confirms that ATLAS has a reliability of 0.87 (Ghost Bear, 2001, pp. 84-85).

### Procedures

The Special Education teacher candidates at Northeastern State University were asked to participate in the study by taking the instruments (PAEI, PALS, and ATLAS) and by answering a demographic survey imbedded in an online questionnaire. An flyer explaining the study was distributed to all potential participants on the NSU Tahlequah and Broken Arrow campuses.

Data were gathered electronically for this study. The instruments were located at a web-site accessed by the participants on their home computers or at the computer lab at Tahlequah NSU or Broken Arrow NSU campus. After the participants completed the surveys and demographic questionnaire, the information was sent electronically by e-



mail to the researcher's advisor. The data were downloaded into an Excel form for analysis in SPSS

The participants were given instruments to measure educational philosophy, teaching style and learning strategies, and information was gathered on demographic variables of gender, age, race, and class standing<sup>2</sup>. Frequency distributions were used to construct profiles for the participants for educational philosophy, teaching style, and learning strategy preferences. Analysis of variance was used to examine the relationships between the various demographic variables and teaching style. Chi square was used to investigate the relationships between the demographic variables and (a) educational philosophy and (b) learning strategy preferences. Discriminant analysis and regression were used to examine the interaction between the three measured constructs of educational philosophies, teaching styles, and learning strategies. Finally, cluster analysis was used to determine if naturally occurring groups existed among the participants.

## CHAPTER 4

### FINDINGS

#### Introduction

The philosophy of education, teaching style, and learning strategy preferences of Special Education majors at Northeastern State University in Oklahoma were examined in this descriptive study. Information collected from the 96 Special Education majors at Northeastern State University provided the data for this study. Specifically, quantifiable data provided by the demographic questionnaire and results of the online surveys were investigated. The Philosophy of Adult Education Inventory (PAEI) measured education philosophy, the Principles of Adult Learning Scale (PALS) measured teaching style, and Assessing the Learning Strategies of Adults (ATLAS) measured the learning strategy preferences of the participants. These instruments provided a profile of the Special Education major students and facilitated a statistical analyses using chi square analysis, analysis of variance, cluster analysis, and discriminant analysis. The teaching-learning transaction of the Special Education major was explored.

### Profile of Special Education Majors

According to the Director of Student Records and Admissions at Northeastern State University, there were 9,562 students enrolled in the Fall of 2004. The College of Education recorded 2,230 students enrolled in the Education degree program. The Special Education degree program had 107 students enrolled. The gender distribution in the Special Education Degree Program is 11 males and 96 females. The distribution of ethnic diversity of the Special Education majors at Northeastern State University are as follows: white--80, Native American--20, African American--5, Hispanic--1, and Asian--1 (Director of Admissions and Records, personal communication, March 15, 2005).

Several pieces of demographic data were obtained from the survey that helped to describe the Special Education teacher candidate at Northeastern State University. The 96 participants were predominantly female (83.3%), white (72.63%), in their twenties (59.09%), and in the last two years of a baccalaureate program (76.85%) (see Table 1). The distribution of demographic variables in the study were compared with the demographic variables of the university, county, and state.

The ethnic distribution of the participants in this study was nearly three-fourths white (72.6%) and nearly one-

fifth Native American (17.9%), and other minority groups made up a very small portion: African American-2.1%, Hispanic-4.2%, Asian-2.1%, and Other-1%. Ethnicity was undeclared by one (1%) participant in this study.

While the sample was predominately white, the 72.9% white in this study is under the national average (75.1%) and 3.6% under the state average (76.2%) for whites in Oklahoma. The 17.9% Native American in this study is 17% above the national average (0.9%) and 10% above the state average (7.9%) for Native Americans in Oklahoma. However, it is 14.5% below the average for Cherokee County (32.4%) where NSU is located. Northeastern State University had the largest number of American Indian baccalaureate degrees than any other university in the United States in 2004 (Black Issues in Higher Education, 2005). Tahlequah has been named the Cherokee Capitol of the United States, thus having a large number of Native American residents. However, it has few other minority groups. The 2.1% of African Americans in this study is 10.2% below the national average (12.3%) and 5.5% below the state average (7.6%) (U.S. Census Bureau, [www.http://quickfacts.census.gov](http://quickfacts.census.gov), retrieved April 2, 2005).

Table 1: Distribution of Demographic Variables for Special Education Majors

Variable	Frequency	Percent
Gender		
Male	16	16.67
Female	80	83.33
Age		
20-22	23	26.14
23-29	29	32.95
30-36	17	19.32
37-59	19	21.59
Race		
African American	2	2.11
Asian	2	2.11
Hispanic	4	4.21
Native American	17	17.89
White	69	72.63
Other	1	1.05
Class		
Sophomore	1	1.05
Junior	33	34.74
Senior	40	42.11
Grad	17	17.89
Other	4	4.21

Ages of participants in this study ranged from 20 to 59 (see Table 1). When the ages are broken down into quartiles, approximately one-fourth of the group are 20-22, which is indicative of traditional college students. The median age of participants in this study was 29; the average age was 30.08 with a standard deviation of 9.28. Approximately 40% of the group is 30-59. Age distribution of the groups shows a mixture of age groups in the study with a large traditional age group and also a large non-

traditional age group. Eight of the participants did not indicate their age.

The university classification of the participants in the study ranged from sophomore to graduate student. Ninety-five students indicated their classification. One participant did not respond to this item. Four indicated their classification as other; these students may have been enrolled at NSU to gain Special Education certification.

#### Philosophy Profile

A profile of the educational philosophies of Special Education majors was constructed to answer the first research question for this study. Data from the Philosophy of Adult Education Inventory (PAEI) were used for this profile. This instrument classifies participants into five philosophical schools of thought. Those five philosophical orientations are Liberal, Progressive, Behaviorist, Humanist, and Radical. The PAEI was used to examine the educational philosophies of Special Education majors at Northeastern State University.

A score is calculated on the PAEI for each of the five philosophical classifications (Zinn, 2004, pp. 71-74). The participant's highest score of the five indicates the philosophy closest to the participant's beliefs, and their lowest score indicates which philosophical orientation is

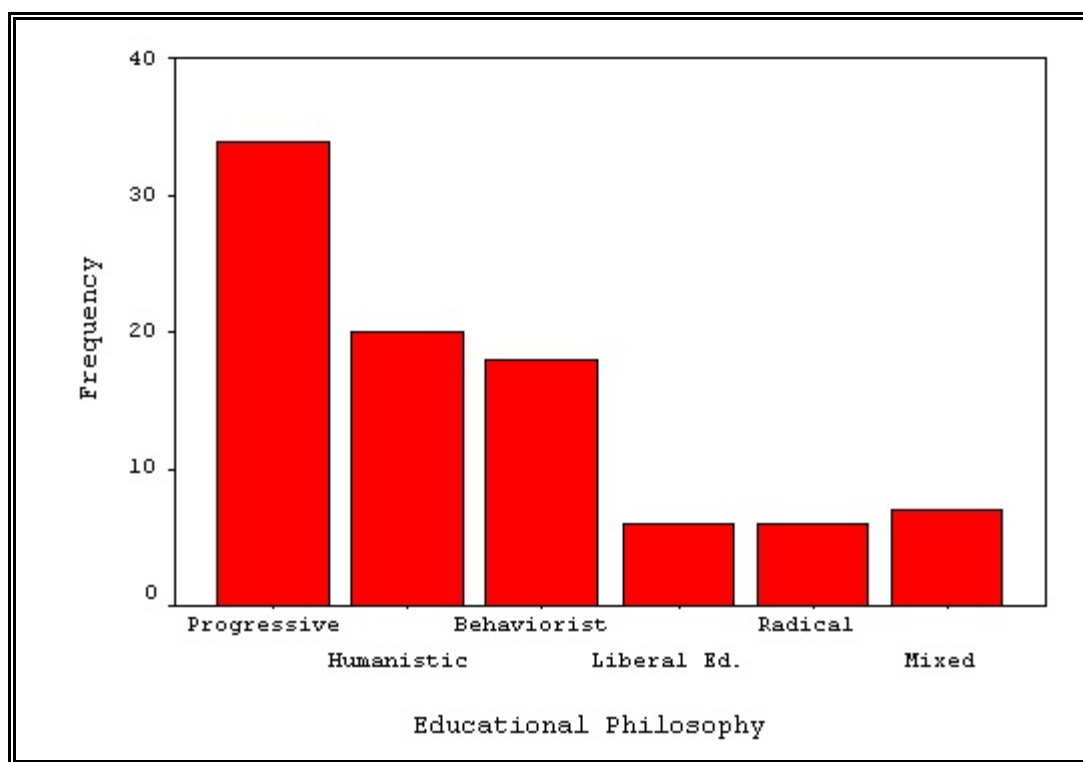
the least preferred by the participants. A score of 95-105 is suggestive of a strong preference for a philosophy, and a score of 15-25 indicates a strong disagreement with a particular philosophy. Scores of 55-65, indicate neither strong agreement nor disagreement with a specific philosophy.

It is difficult to compare raw scores on the PAEI because they are not standardized, and this makes it difficult to use the instrument in research. Although two respondents may have similar beliefs, their raw scores may vary greatly depending upon how extreme their choices are for each item. In order to compare scores for participants in research, the scores can be converted to percentages. To compute this percentage, a total score was created for each individual derived by adding individual scores for each of the philosophical areas. Each philosophical school score was then divided into a total score to produce a new score that is a percentage of the total score. These scores could range from 0 to 100, and they allowed for the equitable comparison between the participants in the study (Hughes, 1997; Martin, 1999; O'Brien, 2001).

For their predominant philosophy, the 91 Special Education majors, who completed the PAEI, were distributed among all five educational philosophies (see Figure 1). Over

one-third (37.4%) were in the Progressive school. The Humanistic (22.0%) and the Behavioristic (19.8%) schools were approximately the same size with about one-fifth of the group. Only a small number of the group were in the Liberal Education (6.6%) and the Radicals (6.6%) schools.

Figure 1: Distribution of Educational Philosophy Groupings for Special Education Majors



Seven of the participants were not placed in any educational philosophy school because their highest scores were equal for two philosophical schools. These participants were placed in the Mixed category. "The mixed group represents those participants who had equal scores for two or more philosophical schools" (O'Brien, 2001, p. 147).



Three had equal scores for the Progressive and Humanistic schools. The other four had the following combination of schools: Behaviorist-Humanistic, Liberal Education-Progressive, Behaviorist-Progressive, and Liberal Education-Behaviorist.

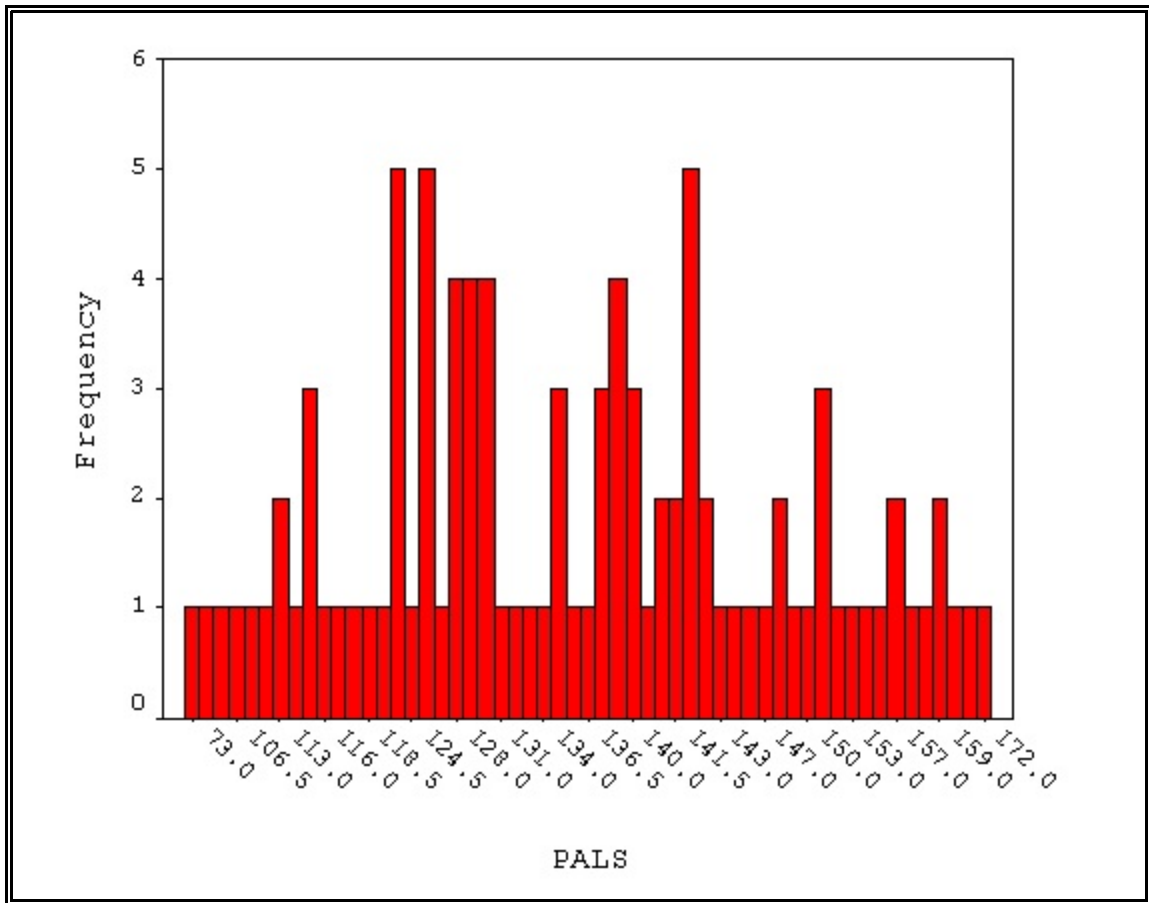
### Teaching Style Profile

A profile of the teaching style of Special Education majors was constructed to answer the second research question of this study. Data from the Principles of Adult Learning Scale (PALS) were used for this profile. The teaching style of Special Education majors at Northeastern State University was measured with the Principles of Adult Learning Scale (PALS). The total score on PALS measures "the frequency with which one practices teaching-learning principles that are described in the adult education literature" (Conti, 2004, p. 79). The total score is the sum of the 44 items in the instrument. "Omitted items are assigned a neutral value of 2.5" (p. 90). Scores may range from 0 to 220, and PALS has a mean of 146 with a standard deviation of 20. Scores above 146 indicate a tendency toward the learner-centered approach while scores below 146 indicate support of the teacher-centered approach (Conti, 2004, p. 79).

Scores for the Special Education majors ranged from 73

to 172 with a median of 135. The mean for the group was 134.3 with a standard deviation of 16.12; this mean is .59 ( $146-134.3=11.7$ ;  $11.7/20=.59$ ) standard deviations below the mean for PALS. Thus, the scores were widely distributed with no pattern and with most scores having only one occurrence; no score had more than five occurrences (see Figure 2).

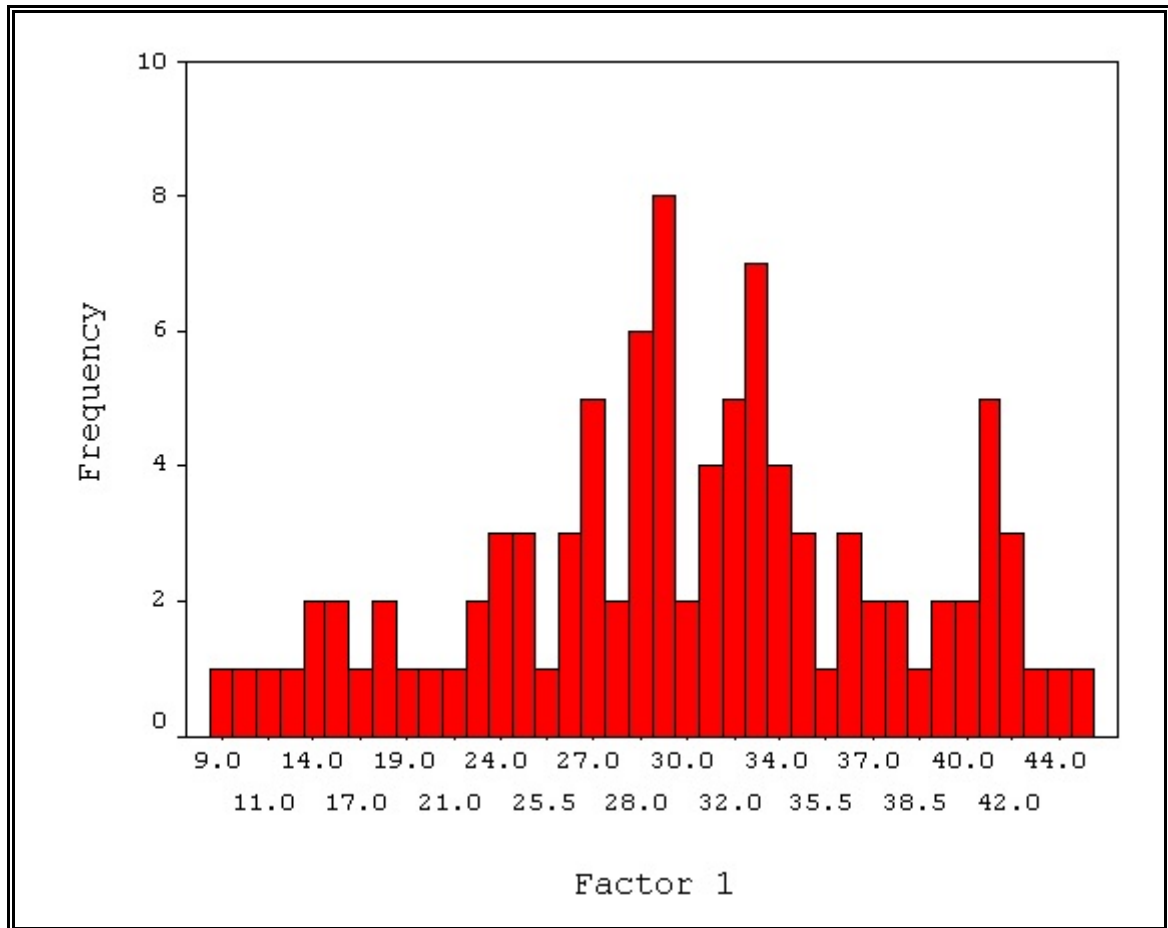
Figure 2: Distribution of PALS Scores for Special Education Majors



The total score for PALS can be subdivided into seven factor scores. The score for Factor 1, Learner-Centered Activities, relates "to evaluation by formal tests and to a comparison of students to outside standards" (Conti, 2004, p. 80). Low scores on this factor indicate a support for the teacher-centered mode while high scores indicate support for the collaborative mode and a rejection of the teacher-centered approach (p. 80). The factor contains 12 items.

Scores may range from 0 to 60, and the factor has a mean of 38 with a standard deviation of 8.3 (p. 91). Scores for the Special Education majors ranged from 9 to 45.5 with a median of 30. The mean was 29.9 with a standard deviation of 8.15, and it was .98 standard deviations below the mean for the factor ( $38 - 29.9 = 8.1$ ;  $8.1 / 8.3 = .98$ ). The distribution was generally bell-shaped with a midpoint of near 30 (see Figure 3).

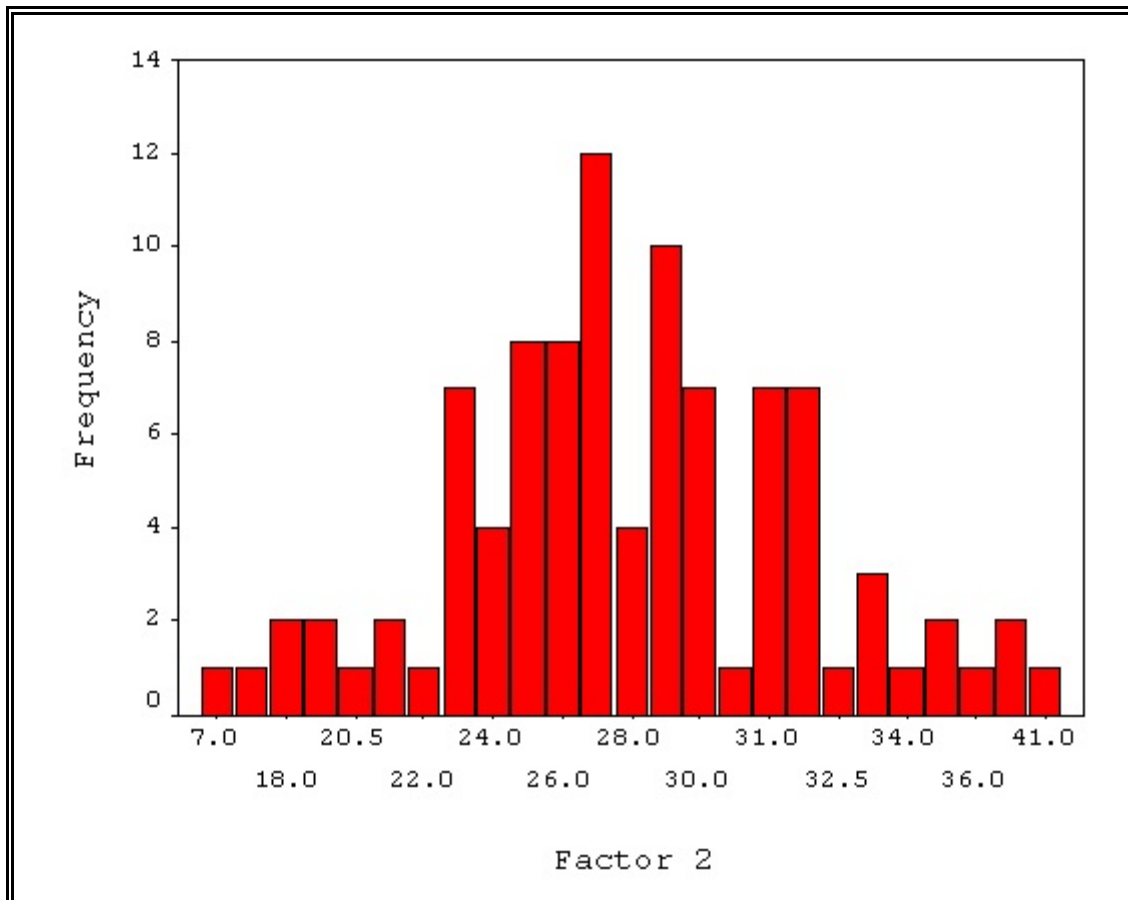
Figure 3: Distribution of Factor 1, Learner-Centered Activities, of PALS for Special Education Majors



The score for Factor 2, Personalizing Instruction, relates to doing "a variety of things that personalize learning to meet the unique needs of each student" (Conti, 2004, p. 80). Factor 2 contains six items. Scores may range from 0 to 30, and the factor has a mean of 31 with a standard deviation of 6.8 (p. 91). Scores for the Special Education majors ranged from 7 to 41 with a median of 27. The mean was 27.53 with a standard deviation of 4.89, and it

was .51 standard deviations below the mean for the factor( $31-27.53=3.47$ ;  $3.47/6.8=.51$ ). The distribution was generally bell-shaped with a midpoint of near 28 (see Figure 4).

Figure 4: Distribution of Factor 2, Personalizing Instruction, of PALS for Special Education Majors

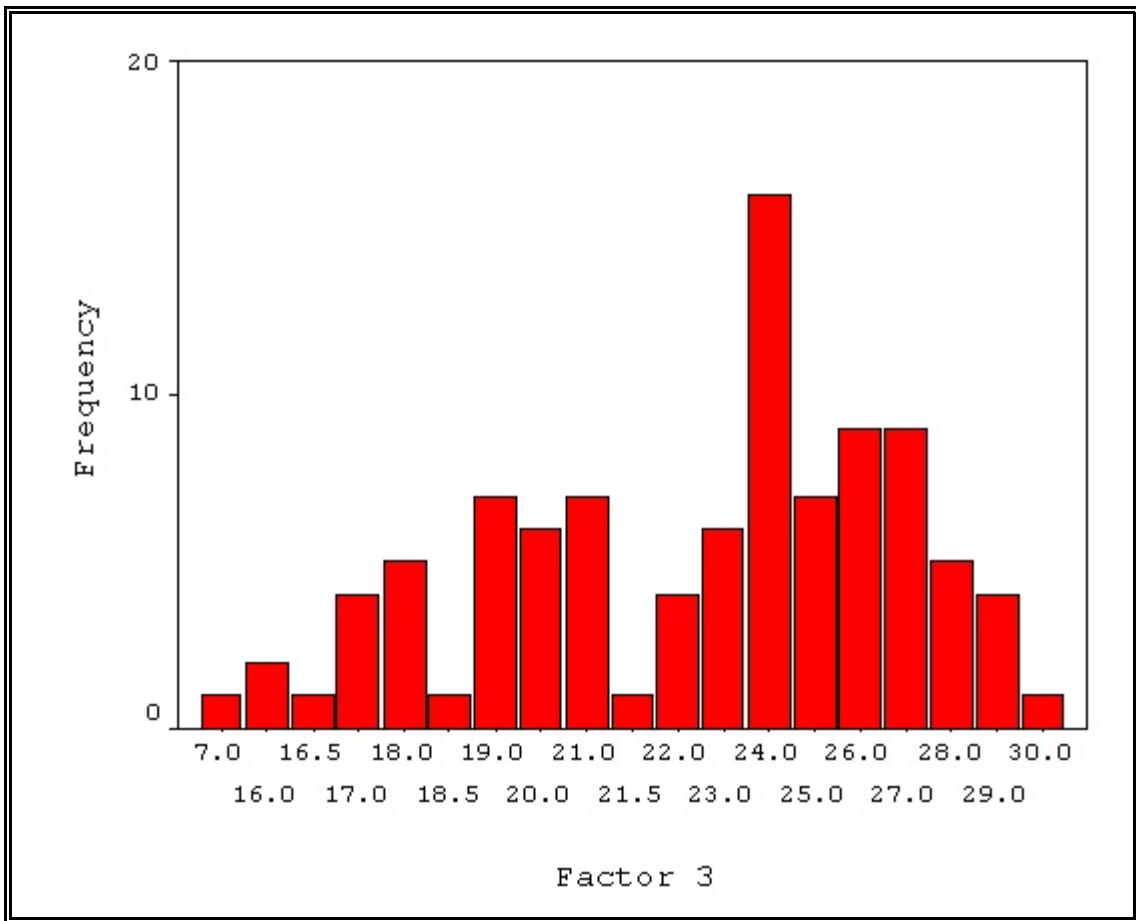


The score for Factor 3, Relating to Experience, relates to planning "learning activities that take into account your students' prior experiences and encourage students to relate their new learning to experiences" (Conti, 2004, pp. 80-81). Factor 3 contains six items. Scores may range from 0 to 30, and the factor has a mean of 21 with a standard deviation of 4.9 (p. 91). Scores for the Special Education majors ranged

from 7 to 30 with a median of 24. The mean was 22.93 with a standard deviation of 3.94, and it was .39 standard deviations above the mean for the factor ( $22.93 - 21 = 1.93$ ;  $1.93 / 4.9 = .39$ ). The scores were distributed over a wide range with slightly more scores on the high end of the range (see Figure 5).



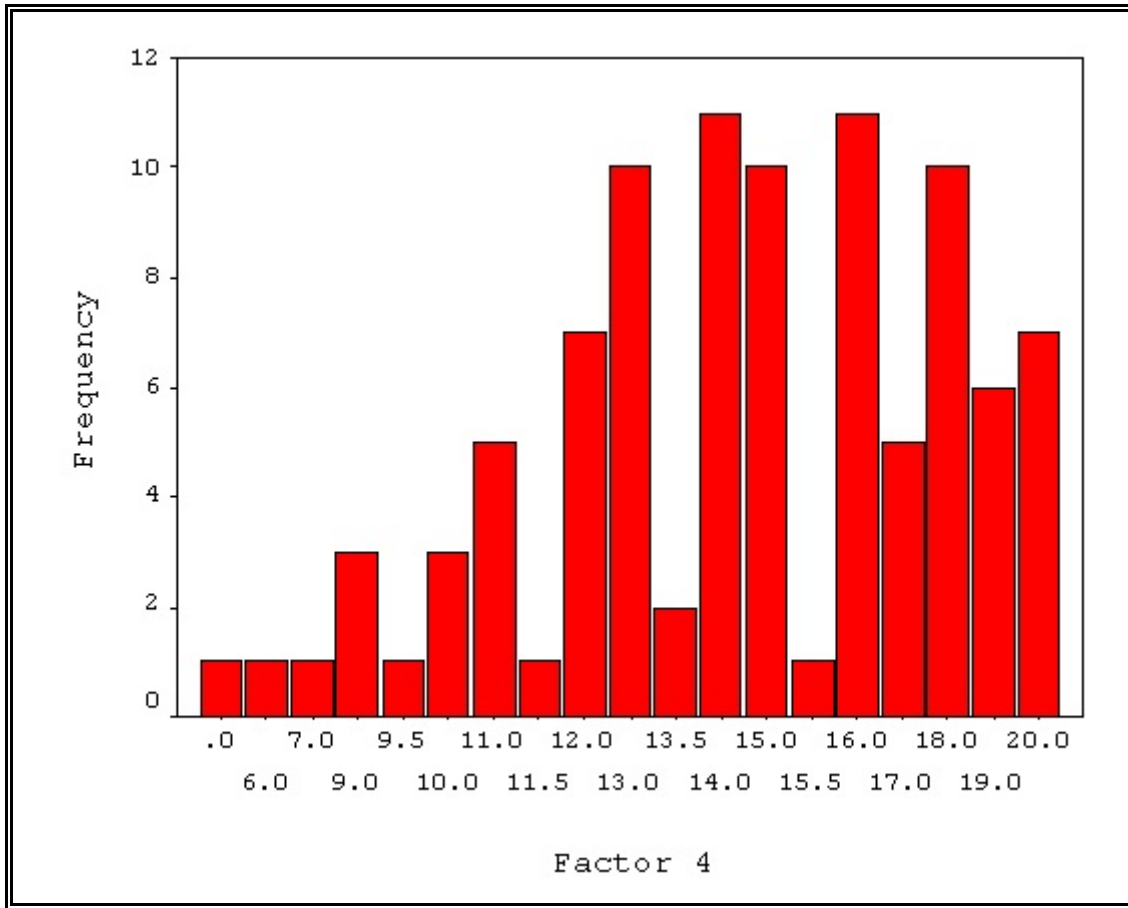
Figure 5: Distribution of Factor 3, Relating to Experience, of PALS for Special Education Majors



The score for Factor 4, Assessing Student Needs, relates to "treating a student as an adult by finding out what each student wants and needs to know" (Conti, 2004, p. 81). The factor contains four items. Scores may range from 0 to 20, and the factor has a mean of 14 with a standard deviation of 3.6 (p. 91). Scores for the Special Education majors ranged from 0 to 20 with a median of 15. The mean was 14.6 with a standard deviation of 3.51, and it was .17

standard deviations above the mean for the factor ( $14.6 - 14 = .6$ ;  $.6/3.6 = .17$ ). The scores were distributed over a wide range with more scores on the high end of the range (see Figure 6).

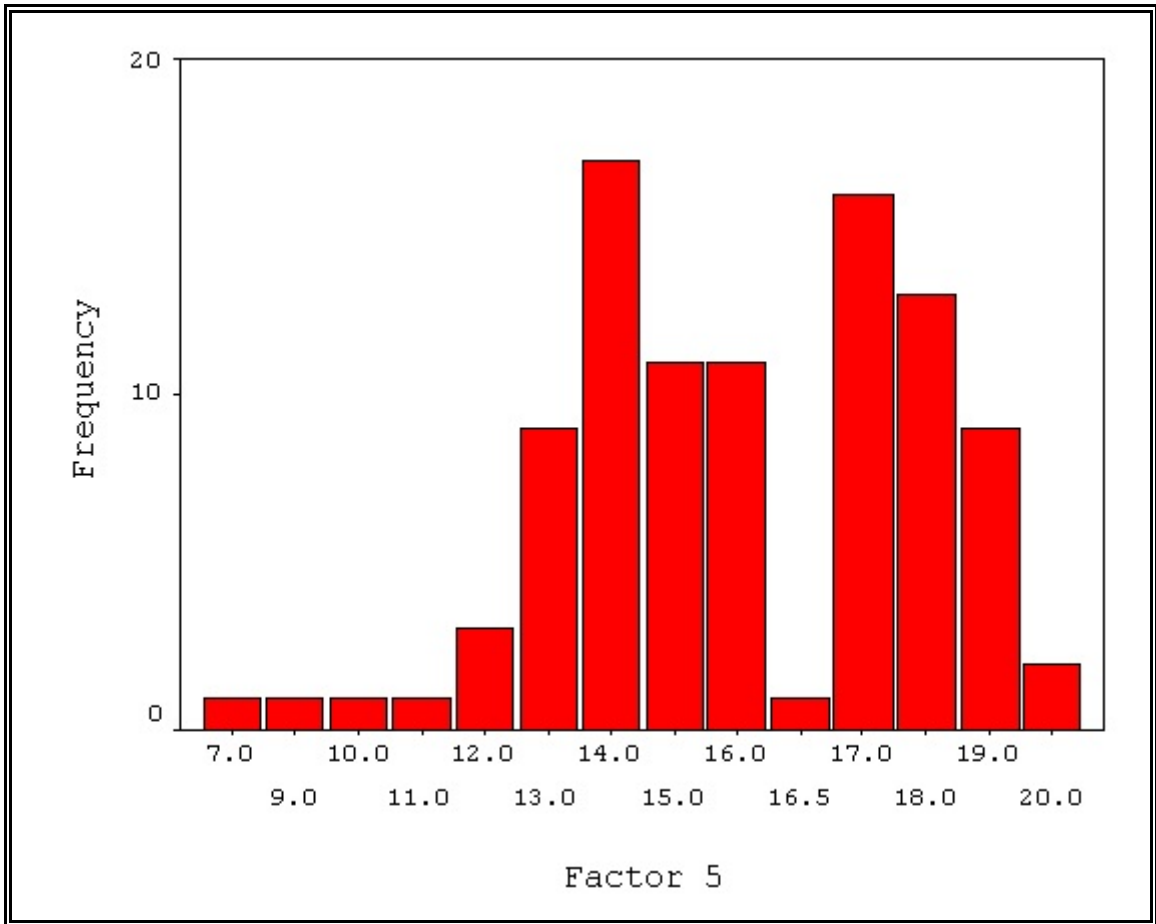
Figure 6: Distribution of Factor 4, Assessing Student Needs, of PALS for Special Education Majors



The score for Factor 5, Climate Building, relates to "setting a friendly and informal climate as an initial step in the learning process. Dialogue and interaction with other students are encouraged" (Conti, 2004, p. 81). The factor contains four items. Scores may range from 0 to 20, and the factor has a mean of 16 with a standard deviation of 3.0 (p.91). Scores for the Special Education majors ranged

from 0 to 20 with a median of 16. The mean was 15.65 with a standard deviation of 2.45, and it was .12 standard deviations below the mean for the factor ( $16 - 15.65 = .35$ ;  $.35 / 3.0 = .12$ ). The scores were distributed in a sporadic fashion from low scores to high scores throughout the range (see Figure 7).

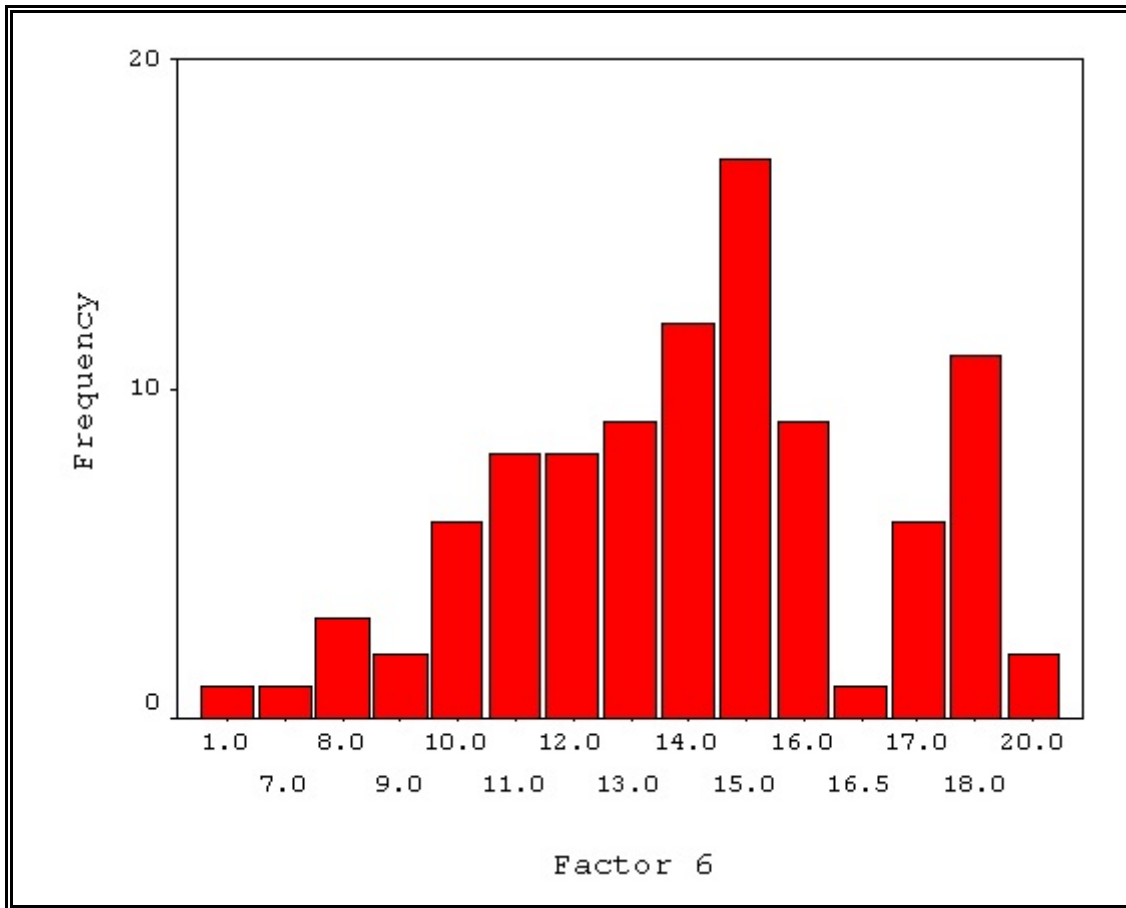
Figure 7: Distribution of Factor 5, Climate Building, of PALS for Special Education Majors



The score for Factor 6, Participation in the Learning Process, relates to "the amount of involvement of the student in determining the nature and evaluation of the content material" (Conti, 2004, p. 81). Factor 6 contains four items. Scores may range from 0 to 20, and the factor has a mean of 13 with a standard deviation of 3.5 (p.91). Scores for the Special Education majors ranged from 1 to 20 with a median of 14. The mean was 13.9 with a standard

deviation of 3.15, and it was .26 standard deviations above the mean for the factor ( $13.9 - 13 = .9$ ;  $.9 / 3.5 = .26$ ). The scores were distributed over a wide range with slightly more scores on the high end of the range (see Figure 8).

Figure 8: Distribution of Factor 6, Participation in the Learning Process, of PALS for Special Education Majors

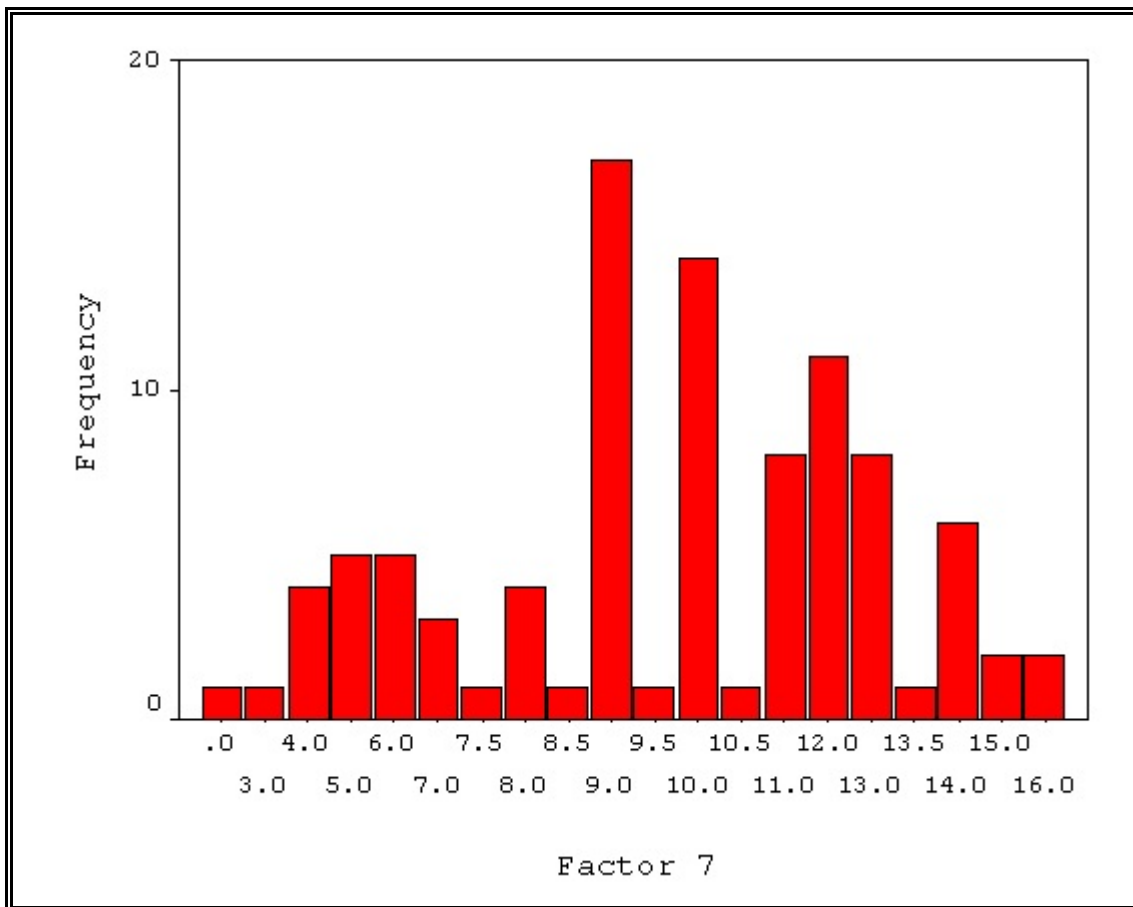


The score for Factor 7, Flexibility for Personal Development, relates to whether teachers see themselves as a provider of knowledge or as a facilitator (Conti, 2004, p. 82). The factor contains seven items. Scores may range from 0 to 35, and the factor has a mean of 13 with a standard deviation of 3.9 (p. 91). Scores for the Special Education majors ranged from 0 to 16 with a median of 14. The mean was 9.79 with a standard deviation of 3.11, and it was .82

standard deviations below the mean for the factor ( $13-9.79=3.21$ ;  $3.21/3.9=.82$ ). The scores were distributed over a wide range with slightly more scores on the high end of the range (see Figure 9).



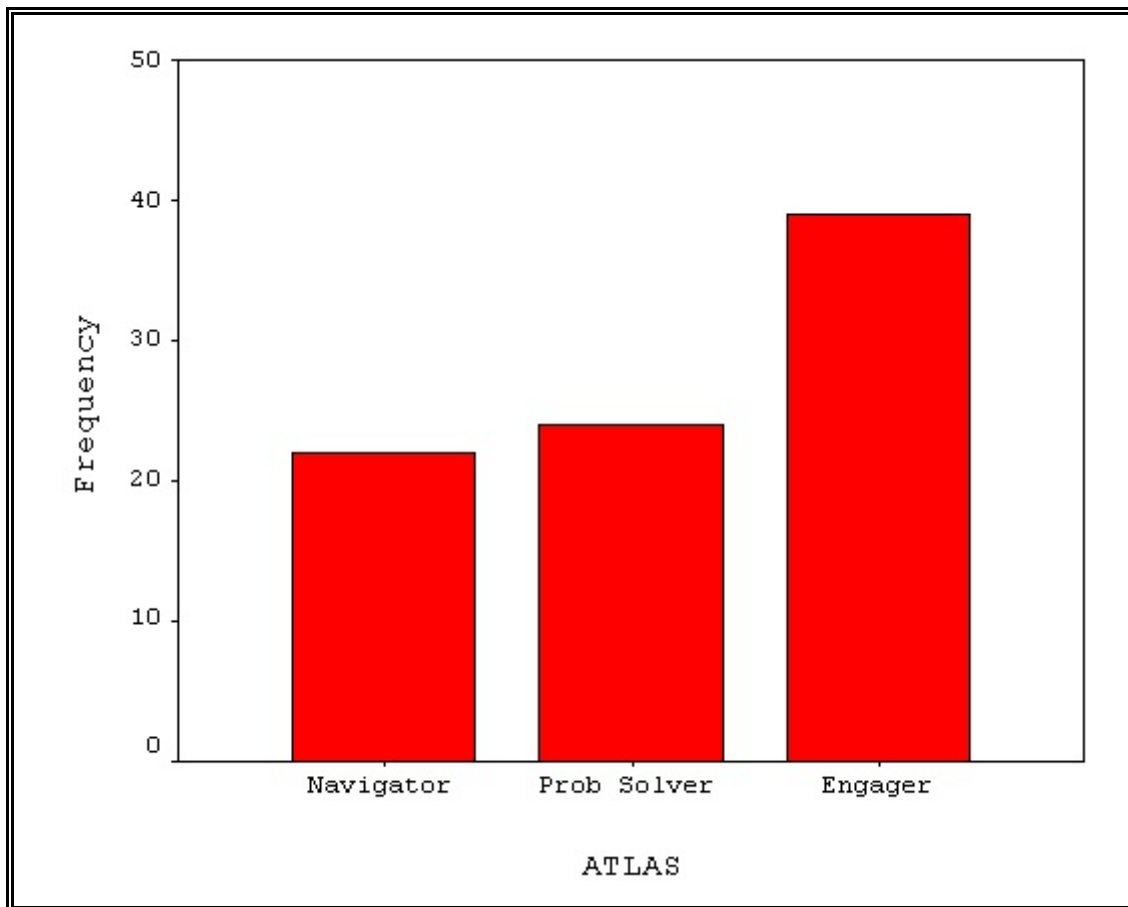
Figure 9: Distribution of Factor 7, Flexibility for Personal Development, of PALS for Special Education Majors



### Learning Strategy Preference Profile

A profile of the learning preferences of Special Education majors was constructed to answer the third research question for this study. Data from the Assessing the Learning Strategies of Adults (ATLAS) were used for this profile. The learning strategies of the Special Education majors at Northeastern State University were measured using Assessing the Learning Strategies of Adults (ATLAS). This instrument places people in the three categories of Navigator, Problem Solver, and Engager, and "the distribution among the three groups is relatively equal" (Conti & Kolody, 2004, p. 185). However, among the Special Education majors, the Engager group was larger than the Navigator and Problem Solver groups, which were almost equal in size (see Figure 10).

Figure 10: Distribution of ATLAS for Special Education Majors



In order to ascertain if meaningful differences existed in the categorical placement of ATLAS, the participants' responses were analyzed using chi-square. "A chi-square test compares proportions actually observed in a study with proportions expected, to see if they are significantly different" (Gay, 1992, p. 443). The expected norms for the general population for ATLAS are Navigators--36.50%, Problem Solvers--31.7% and Engagers--31.80 (Conti & Kolody, 1999, p.

18). The 85 Special Education majors were actually distributed as follows: Navigators--25.88%, Problems Solvers--28.24%, and Engagers--45.88%. Using chi-square, these results revealed that there was a significant difference between the frequency expected on the norms for ATLAS and the distribution for learning strategies of the Special Education majors at Northeastern State University ( $\chi^2 = 8.25$ ,  $df = 2$ ,  $p = .016$ ) (see Table 2). The results observed in this study indicate that (a) Navigators were under-represented by 29.08% ( $9.02/31.02=29.08$ ), (b) Problem Solvers were under-represented by 10.91% ( $2.94/26.9=10.91$ ), and (c) Engagers were over-represented by 44.28% ( $11.97/27.03=44.28$ ). The significant difference is due to a larger number than expected of Engagers at the expense of the Navigators. The Problem Solvers were not a factor.

Table 2: Frequency Distribution of ATLAS Groupings for Special Education Majors

Learning Strategy	Observed		Expected		Diff.
	Number	Percent	Number	Percent	
Navigator	22	25.88	31.02	36.50	-9.02
Problem Solver	24	28.24	26.94	31.70	-2.94
Engager	39	45.88	27.03	31.80	11.97
Total	85	100.00	85.00	100.00	

#### Relationships with Demographic Variables

The fourth research question for this study asked about the relationship between the demographic variables about which data were collected in the study and the instruments

used in the study. Since PALS yields a total score and factor scores that are continuous variables, analysis of variance was used to investigate the relationship between teaching style and the demographic variables. These instruments were the PAEI, PALS, and ATLAS. Since the PAEI and ATLAS yield categorical data, chi square was used to explore the relationships between educational philosophy and learning strategy preferences and the demographic variables.

#### Analysis of Variance

Analysis of variance was used to compare PALS to various demographic variables. "Analysis of variance is used to determine whether there is a significant difference between two or more means at a selected probability level" (Gay, 1992, p. 438). The concept underlying ANOVA is that the variance or variation scores can be attributed to two sources--variance between the groups and variance within the groups (Gay, 1992). Separate analysis of variance were run for each of the following demographic variables using a criterion value of .05: gender, age, race, and class.

The participants were grouped by gender. Separate one-way ANOVAs were calculated for the total score on PALS and the scores for each of the seven factors. Out of these analyses, there were significant difference on two of the scores and almost a difference on Climate Building and

Assessing Student Needs (see Table 3). Significant differences were found on the overall score of PALS and on Factor 2--Personalized Instruction. For the total score, the females (136.52) scored higher than the males (123.16). Both of the scores were on the teacher-centered side below the mean on PALS of 146. While the females were approximately one-half ( $146-136.52=9.48$ ;  $9.48/20=.47$ ) of a standard deviation below the mean, the males were over one ( $146-123.16=22.84$ ;  $22.84/20=1.14$ ) full deviation below the mean.

The pattern was the same for Factor 2--Personalized Instruction. The females scored higher (28.13) than the males (24.53). The mean score for Factor--2, Personalized Instruction, is 31 with a standard deviation of 6.8. Both of the scores were on the teacher-centered side below the mean with the females approximately one-half standard deviation below the mean ( $31-28.13=2.87$ ;  $2.87/6.8=.42$ ). The males were nearly one-full deviation below the mean ( $31-24.53=6.47$ ;  $6.47/6.8=.95$ ).

Table 3: ANOVA of PALS and Gender Groupings for Special Education Majors

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
PALS					
Between	2382.98	1	2382.98	10.05	0.002
Within	22295.31	94	237.18		
Learner-Centered Activities					
Between	93.63	1	93.63	1.41	0.237
Within	6222.83	94	66.2		
Personalizing Instruction					
Between	172.8	1	172.8	7.75	0.006
Within	2096.11	94	22.3		
Relating to Experience					
Between	46.56	1	46.56	3.07	0.083
Within	1425.75	94	15.17		
Assessing Student Needs					
Between	43.5	1	43.5	3.63	0.060
Within	1127.31	94	11.99		
Climate Building					
Between	22.75	1	22.75	3.92	0.051
Within	545.81	94	5.81		
Participate in Learning Process					
Between	25.44	1	25.44	2.6	0.110
Within	919.87	94	9.79		
Flexibility for Personal Development					
Between	7.63	1	7.63	0.79	0.377
Within	909.25	94	9.67		

For age, the participants were grouped by quartiles; the quartiles were the same as used in analyzing the general demographic data: 20-22, 23-29, 30-36, 37-59. Separate one-way ANOVAs were calculated for the total score on PALS and the scores for each of the seven factors.

There was a significant difference on Factor 4--Assessing Student Needs (see Table 4). The Scheffe post hoc test was

used to find the difference. The Scheffe post hoc test is a multiple comparison technique that can be used to compare combinations of means (Gay, 1992, p. 457). The Scheffe test involves calculation of an  $F$  ratio for each mean comparison of interest (p. 456). The mean for Factor 4 is 14 with a standard deviation of 3.6 (Conti, 2004, p. 91). There was a significant difference between the groups. The post hoc analysis indicated that the four age groups formed two subsets. One group was made up of ages 23-29 ( $m=16.35$ ). The other group was made up of ages 30-36 ( $m=13.12$ ) and ages 37-59 ( $m=13.08$ ). The age group of 20-23 ( $m=14.96$ ) was not different from either of these subsets. The score for the subgroup with ages 37-59 tended to be about one-fourth of a standard deviation below the mean, which implied that they favored the teacher-centered approach. However, the mean for the subset with the age groups of those 23-29 tended to be nearly two-thirds of a standard deviation above the mean on the learner-centered side. When it comes to assessing the needs of the student, the younger group 23-29 indicated a desire for student involvement in the learning and to acknowledge the students individual learning needs. The group ages 30-36 and ages 37-59 did not indicate strong support of assessing the students needs.



Table 4: ANOVA of PALS and Age Grouped by Quartiles for Special Education Majors

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
PALS					
Between	878.96	3	292.99	1.09	0.358
Within	22583.64	84	268.85		
Learner-Centered Activities					
Between	262.21	3	87.4	1.33	0.270
Within	5513.28	84	65.63		
Personalizing Instruction					
Between	45.11	3	15.04	0.62	0.605
Within	2043.84	84	24.33		
Relating to Experience					
Between	115.43	3	38.48	2.56	0.060
Within	1260.32	84	15		
Assessing Student Needs					
Between	172.27	3	57.42	5.07	0.003
Within	951.9	84	11.33		
Climate Building					
Between	14.87	3	4.96	0.84	0.477
Within	496.4	84	5.91		
Participate in Learning Process					
Between	75.19	3	25.06	2.48	0.066
Within	847.83	84	10.09		
Flexibility for Personal Development					
Between	37.81	3	12.6	1.29	0.284
Within	821.69	84	9.78		

The participants were grouped by race into white and non-white groupings. All of the non-whites were combined into one group because of the small number of participants in the groups: African American--2, Asian--2, Hispanic--2, and Native American--17. There were no significant difference when comparing race to PALS (see Table 5). Because of the important role of the Native American

population to Northeastern State University, a separate ANOVA was calculated using the groupings of whites and Native Americans. However, these results were similar to those using the total non-white group, and there were no significant differences for PALS when compared with the Native American group (see Table 5).

Table 5: ANOVA of PALS and Race Grouped by White and Non-White and by White and Native American for Special Education Majors

Source	SS	df	MS	F	p
White and Non-White					
PALS					
Between	510.92	1	510.92	1.99	0.161
Within	23829.06	93	256.23		
Learner-Centered Activities					
Between	11.97	1	11.97	0.18	0.675
Within	6303.67	93	67.78		
Personalizing Instruction					
Between	35.06	1	35.06	1.46	0.230
Within	2231.48	93	23.99		
Relating to Experience					
Between	7.33	1	7.33	0.47	0.496
Within	1461.2	93	15.71		
Assessing Student Needs					
Between	1.77	1	1.77	0.14	0.707
Within	1162.21	93	12.5		
Climate Building					
Between	9.48	1	9.48	1.58	0.211
Within	556.33	93	5.98		
Participate in Learning Process					
Between	3.62	1	3.62	0.37	0.546
Within	917.42	93	9.86		
Flexibility for Personal Development					
Between	17.65	1	17.65	1.87	0.174

Within	876.07	93	9.42		
White vs Native American					
PALS					
Between	212	1	212	0.9	0.346
Within	19827.71	84	236.04		
Learner-Centered Activities					
Between	6.34	1	6.34	0.1	0.755
Within	5427.64	84	64.61		
Personalizing Instruction					
Between	14.69	1	14.69	0.73	0.395
Within	1691.08	84	20.13		
Relating to Experience					
Between	10.75	1	10.75	0.87	0.355
Within	1043.76	84	12.43		
Assessing Student Needs					
Between	0.78	1	0.78	0.08	0.781
Within	845.44	84	10.06		
Climate Building					
Between	8.81	1	8.81	1.66	0.201
Within	445.88	84	5.31		
Participate in Learning Process					
Between	2.82	1	2.82	0.36	0.550
Within	657.4	84	7.83		
Flexibility for Personal Development					
Between	0.36	1	0.36	0.04	0.835
Within	701.35	84	8.35		

The participants were divided into three groups based on class standing. One group was the juniors, another group was made up of the seniors, and the third group was the graduate students. One participant indicating sophomore status was eliminated from this analysis. There was a significant difference among the class standing groups on Factor 3-Relating To Experience, Factor 5--Climate Building, and Factor 6, Participate In The Learning Process (see Table

6). The post hoc analysis indicated that the pattern for all three factors was the same; the participants divided into two groups with the undergraduates scoring higher than the graduate students.

The mean for Factor 3--Relating to Experience on PALS is 21 with a standard deviation of 4.9 (Conti, 2004, p. 91). The Scheffe post hoc indicated that the three groups divided into two subset. The juniors (m=23.92) and senior (m=23.36) groups made up one subset, and the graduates composed the other. The juniors and seniors scored above the mean for Factor 3. These two groups scored approximately one-half standard deviation above the mean indicating that they support the idea that learning should be related to experience. However, the graduate students (m=20.44) group scored slightly below the mean for the factor indicating that they tend not to favor the idea that learning relates to experience.

The mean score for Factor 5--Climate Building on PALS is 16 with a standard deviation of 3 (Conti, 2004, p. 91). The graduate student (m=14.17) group scored over one-third of a standard deviation below the mean, and the group of juniors (m=15.87) and seniors (m=15.91) scored close to the mean. Thus, the graduate students showed less support for climate building than did the undergraduate students.

The mean score for Factor 6--Participation in The Learning Process on PALS is 13 with a standard deviation 3.5 (Conti, 2004, p. 91). The juniors (m=14.36) and seniors (m=14.74) scored over one-third of a standard deviation above the mean while the graduate students (m=11.53) scored over one-third of a standard deviation below the mean for participation in the learning process on the PALS. Thus, the undergraduate students indicated they would advocate for participation in the learning process more than the graduate students.

In summary, there was a difference for class standing for three of the factors. All of these showed the same pattern. The pattern was for the graduates to form one group and the undergraduates to form another group. The undergraduates consistently scored higher than the graduates on these factors.

Table 6: ANOVA of PALS and Class Grouped by Juniors, Seniors, and Graduate Students for Special Education Majors

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
PALS					
Between	830.96	2	415.48	1.58	0.212
Within	22863.28	87	262.8		
Learner-Centered Activities					
Between	18.79	2	9.39	0.14	0.873
Within	6007.6	87	69.05		
Personalizing Instruction					
Between	5.05	2	2.53	0.1	0.903
Within	2154.57	87	24.77		
Relating to Experience					
Between	144.73	2	72.36	4.98	0.009
Within	1264	87	14.53		
Assessing Student Needs					
Between	54.21	2	27.11	2.17	0.120
Within	1087.31	87	12.5		
Climate Building					
Between	40.85	2	20.43	3.51	0.034
Within	505.93	87	5.82		
Participate in Learning Process					
Between	129.88	2	64.94	7.54	0.001
Within	749.37	87	8.61		
Flexibility for Personal Development					
Between	51.82	2	25.91	2.69	0.074
Within	839.29	87	9.65		

### Chi-Square

Chi square was performed to determine if there was a significant difference in the distribution of the expected norms and the observed frequencies of the participants for the PAEI and ATLAS and the demographic variables. A chi-square test compares proportions actually observed in a study with proportions expected to see if they are

significantly different (Gay, 1992, p. 443). There are two types of chi-square test (Huck et al., 1974, pp. 214-216). One type may be used with a single sample such as was used in comparing the ATLAS distribution for this study to the norms for ATLAS. The other is used to compare more than one sample and is called independent samples. Here, the analysis is used to determine "whether or not the observations are significantly different from what might be expected by chance" (p. 218). For this analysis, the data are arranged in a contingency table (p. 219), and the chi-square test is used to determine if the measures are related (Roscoe, 1975, p. 254).

Independent samples chi-square tests using contingency tables were used to examine the relationships between educational philosophies and the demographic variables of gender, age, race, and class standing. The groups for the demographic variables were the same as those used in the analysis of the demographic variables. For educational philosophy, the Special Education majors were grouped according to the area of their highest percentage score on the PAEI. Using a criterion value of .05, there were no significant differences on PAEI for gender ( $\chi^2 = 7.68$ , df = 5, p = .175), age ( $\chi^2 = 23.54$ , df = 15, p = .073), race ( $\chi^2 = 3.95$ , df = 5, p = .557), and class ( $\chi^2 = 17.1$ , df = 10, p =

.072) (see Table 7).

Table 7: Distribution of Educational Philosophies on PAEI by Demographic Variables

Variable	Lib.	Beh.	Prog.	Hum.	Rad.	Mixed	Total
Gender							
Male	3	2	7	2	1	0	15
Female	3	16	27	18	5	7	76
Age							
20-22	3	4	4	8	1	1	21
23-29	1	7	8	7	1	3	27
30-36	1	1	12	3	0	0	17
37-59	1	6	6	1	2	3	19
Race							
Non-White	2	4	3	3	1	2	15
White	4	11	27	16	4	4	66
Class							
Junior	3	8	13	5	0	2	31
Senior	3	6	9	12	2	5	37
Graduate	0	2	11	2	2	0	17

For learning strategy preferences, the Special Education majors were grouped by their preferences on ATLAS, and the demographic groupings were the same as used for analyzing the demographic data. Using chi square and a criterion value of .05, a significant difference was found for gender ( $\chi^2 = 6.24$ , df = 2, p = .044), and no significant differences were found for age ( $\chi^2 = 9.47$ , df = 6, p = .149), race ( $\chi^2 = .37$ , df = 2, p = .832) and class ( $\chi^2 = 2.71$ , df = 4, p = .608) (see Table 8). Although there are approximately five times more females than males in the sample, the number of male Problem Solvers is lower than



expected by chance. Also, the distribution difference between the genders for Engagers is only about half of what is expected by chance for females, thus having more males than expected.

Table 8: Distribution of Learning Strategies on ATLAS by Demographic Variables

Variable	Navigator	Pro. Sol.	Engager	Total
Gender				
Male	3	1	11	15
Female	19	23	28	70
Age				
20-22	7	5	8	20
23-29	7	4	13	24
30-36	1	5	9	15
37-59	6	8	4	18
Race				
Non-White	6	7	9	22
White	15	17	30	62
Class				
Junior	8	6	16	30
Senior	10	11	12	33
Graduate	3	5	8	16

### Interaction in the Classroom

The fifth research question explores the interaction between philosophical beliefs and teaching styles for Special Education majors. Two different statistical procedures were used to explore this research question. First, a discriminant analysis was run with the philosophy scores used as the grouping variables. Second, a regression analysis was run with teaching style as the criterion

variable. These two procedures allowed the interaction to be viewed from different perspectives. The findings from these two analyses were then combined to make a judgement concerning the nature of the interaction between educational philosophy and teaching style.

#### Discriminant Analysis

Discriminant analysis is "a powerful technique for examining differences between two or more groups of objectives with respect to several variables simultaneously" (Klecka, 1980, p. 5). It "focuses upon the groups that exist and the set of discriminating variables that may explain the differences between the groups" (Conti, 1993, p. 91). Discriminant analysis can be used to determine which variables contribute the most to the formation of the designated groups.

The two components of discriminant analysis are the criterion variables and the predictor variables (Kachigan, 1991). The criterion variable is a qualitative label given to a group (p. 216). The predictor variable is a quantitative variable that discriminates or distinguishes criterion groups (p. 216). Thus, discriminate analysis assigns given objects to criterion groups according to information on various predictor or classification variables (p. 218).

The discriminant function is employed in the discriminant analysis to classify objects into the criterion variable groups (Kachigan, 1991, 219). Two criteria of the discriminant function can be examined to determine the usefulness of the discriminant analysis. First, the coefficients in the structure matrix should be helpful in naming the discriminate function (Conti, 1993, p. 93). The structure matrix indicates "how closely a variable and the discriminant function are related" (pp. 93-94). It can be used to name the process that separates the groups (Conti, 1996, p. 71). Second, a high percentage of the objects should be correctly classified into the proper group (p. 93).

In order to investigate the interaction between educational philosophy and teaching style, discriminant analysis was used with educational philosophy as the criterion or grouping variable and with the 44 items of PALS as the discriminating variables. Complete data for philosophy and teaching style were available for 82 of the Special Education majors. Participants were grouped by their percentage score for various philosophical schools of thought on the PAEI. They were placed in one of the following groups based on their highest score: Liberal Education, Behaviorist, Progressive, Humanistic, or Radical.

Those who had equal high scores in more than one philosophical school were placed in the Mixed group.

The discriminant function produced by this analysis was 86.6% accurate in placing the Special Education majors in their correct philosophical group; 71 of the 82 participants were placed in the correct philosophical school by the discriminant function (see Table 9). This is nearly a 70% improvement over chance since the placement by chance when there are six groups is 16.7%. Thus, this analysis meets the criterion for being useful of being able to place a high number of cases in the correct group.

Table 9: Classification of Special Education Majors by Philosophy Using Discriminant Function

Philosophy	Lib.	Beh.	Prog.	Hum.	Rad.	Mixed	Total
Liberal Ed.	4	1	0	0	0	0	5
Behaviorist	0	15	3	0	0	0	18
Progressive	0	1	27	3	1	0	32
Humanistic	0	0	1	16	1	0	18
Radical	0	0	0	0	6	0	6
Mixed	0	0	0	0	0	3	3

Since the discriminant function was useful in classifying a large number of the participants, the structure matrix was examined. The structure matrix tells how closely the individual variables and the overall discriminant function are related, and it can be used for naming the function (Klecka, 1980, p. 31). The variables with the highest correlations from the matrix are used to

name the function. As with factor analysis, a cutoff level is often set, and variables above that level are used. However, in this analysis, the variance in the top items was very small. Therefore, the five highest ranking variables were used for the naming process (see Table 10).

Table 10: Structure Matrix for Discriminant Analysis

Corr.	Item
0.249	34. I encourage my students to ask questions about the nature of their society.
0.243	30. I use tests as my chief method of evaluating students.
0.206	37. I give all students in my class the same assignment on a given topic.
0.192	17. I use different techniques depending on the students being taught.
0.187	7. I stick to the instructional objectives that I write at the beginning of a program.

Collectively, these items form the concept of Focus on the Individual. Items 30, 37, and 7 are negative items in PALS. Since the data were recoded for analysis, the wording of these items must be converted to a positive concept for proper interpretation. The actions of encouraging students to ask question about their world, of not evaluating learners by formal standards such as tests, of individualizing assignments, of using different teaching techniques for different students and situations, and of being flexible with instructional objectives puts the focus on the individual learner. Thus, focusing on the individual

learner is the process that names the interaction between a teacher's beliefs as indicated by education philosophy and the teacher's actions as demonstrated by teaching style.

### Regression

While the discriminant analysis used philosophy as the criterion variable, a second analysis was run with multiple regression using teaching style as the criterion variable. While many variables may be of interest in an analysis, usually "we are primarily concerned with one key variable, one that has a special degree of importance to us. We refer to such a variable as a criterion variable" (Kachigan, 1991, p. 143). In multiple regression analysis, "we are interested in predicting an object's value on a criterion variable when given its value on each of several predictor variables" (p. 161).

The overall objectives of regression analysis can be summarized as follows: (1) to determine whether or not a relationship exists between two variables, (2) to describe the nature of the relationship, should one exist, in the form of a mathematical equation, (3) to assess the degree of accuracy of description or prediction achieved by the regression equation, and (4) in the case of multiple regression, to assess the relative importance of the various predictor variables in their contribution to variation in the criterion variable. (p. 161)

In order to explore the interaction between teaching style and educational philosophy, a multiple regression analysis was conducted with the PALS score as the criterion

variable and with the PAEI scores as the predictor variables. These predictor scores were the percentage scores for the five philosophical schools in the PAEI. A stepwise procedure was used for identifying the variables that contributed to explaining the variance in the analysis. With this process,

We can continue this stepwise procedure, each time adding that variable that accounts for the most variance in the criterion variable not already explained by the earlier variables, continuing until the inclusion of another variable would account for only an insignificant amount of variance in the criterion variable. ((Kachigan, 1991, p. 153)

In the regression analysis, the stepwise procedure stopped after extracting only one variable from the set of predictor variables. This variable was Liberal Education. This single variable accounted for approximately one-fourth of the variance in the analysis ( $R^2 = .253$ ). The regression equation for predicting the PALS score is:  $Y' = 201.11 - 3.53(\text{Liberal Education})$ .

The findings of this regression analysis are similar to those of other studies in this line of inquiry related to educational philosophy and teaching style. In a regression analysis with Title 1 teachers, Watkins (2006) also found Liberal Education as the prime predictor variable. It predicted 18.7% of the variance. However, she also found that Humanistic Education contributed a small amount (3%) to

the analysis. Using a discriminant analysis, O'Brien (2001) found that "the Liberal Philosophy had a correlation of 1.0. Since this perfectly represents the discriminant function, it was the only one considered in the naming of the function" (p. 172). This function was named Role of the Teacher because Liberal Education "suggest that the teacher is the expert, the vessel of knowledge, and as such has the role of dispensing knowledge to the learner" (p. 172). Since the regression analysis in this study and by Watkins also found Liberal Education as the primary predictor variable, these support interpreting the process of the interaction between teaching style and educational philosophy as the instructor's view of the Role of the Teacher in the classroom.

### Summary

Two different statistical procedures were used to explore the interaction between educational philosophy and teaching style. Discriminant analysis found the interaction to be based on Focus on the Individual. Regression analysis attributed the interaction to the Role of the Teacher. Together these represent the two sides of the teacher-centered/learner-centered concept which differs in whether the teacher or the learner should be the focus of activities in the classroom.



### Groups of Special Education Majors

The sixth research question seeks to uncover distinct groups among the Special Education majors based on philosophical beliefs, teaching style, and learning strategy preferences. Two multivariate-analysis procedures were used to answer this question. First, cluster analysis was used to identify groups of special education majors with similar teaching styles, educational philosophies, and learning strategies. Then discriminant analysis was used to describe the differences between the identified groups. Both multivariate analysis procedures provided the researcher the ability to take an inductive and a deductive approach with the data. The inductive approach allowed the researcher to "tease sense out of the data" (Conti, 1996, p. 67). The deductive approach allowed the researcher to "impose sense upon the data" (p. 67) and thereby name these groups.

#### Cluster Analysis

Cluster analysis is a set of techniques for accomplishing the task of dividing a group of objects into relatively homogeneous subsets based on the inter-object similarities (Kachigan, 1991, p. 261). Cluster analysis examines the person as a whole; all variables are kept together for the individual and analyzed in relationship to each other (Conti, 1996, p. 71). Plainly stated, cluster

analysis is a powerful multivariate tool that allows researchers "to identify groups which inherently exist in the data" (p. 71).

Before computing a cluster analysis, decisions must be made by the researcher. An important step in forming the groups or clusters is to obtain a measure of similarity (proximity) or a measure of difference (distance) between objects (Kachigan, 1991, pp 262-264). Difference relates to how far apart objects are while similarity measures the closeness of the objects (Conti, 1996, p. 69). Four types of measures of similarity or difference are commonly used for clustering: correlation coefficients, Euclidean distances, matching-type measures of similarity, and direct scaling of similarities (Kachigan, 1991). Another essential step for researchers conducting cluster analysis is to decide on the appropriate criteria for combining objects into the clusters or groups. While there are numerous cluster formation techniques, the Ward's method is widely used in the social sciences (Aldenderfer & Blashfield, 1984, p. 43).

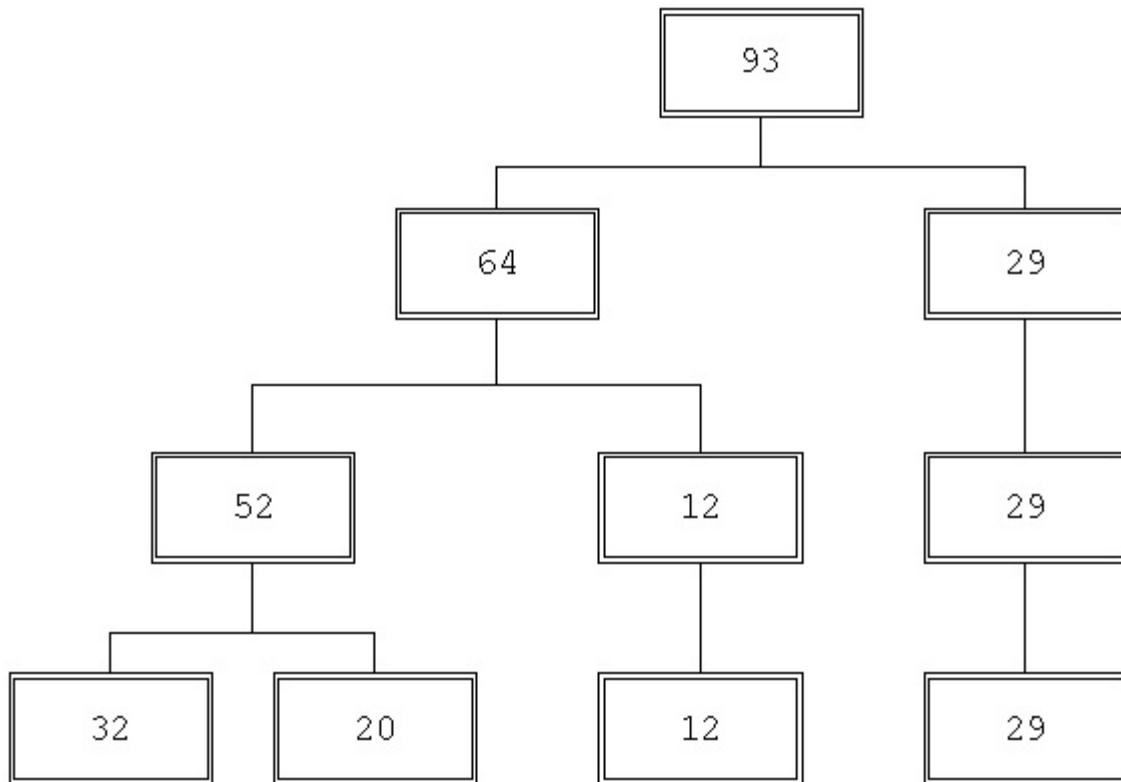
An agglomerative hierarchical cluster analysis was conducted to explore for groups among the Special Education majors. With this procedure, all of the participants start out as separate clusters; at each step of the analysis two

are combined into a single cluster, and this process is continued until all the participants are combined into one group (Norusis, 1988, p. B-73). "Once a cluster is formed, it cannot be split; it can only be combined with other clusters" (p. B-73). The squared Euclidean distance and Ward's method were used for forming the clusters.

For the cluster analysis, three participants from the study were eliminated from the data set because complete data were not available for them. The number in the cluster analysis data set was 93. Initially the categories from all of the items from the PAEI, PALS, and ATLAS were used. Since ATLAS yields categorical data, dummy variables for the three learning strategy preferences were created to represent ATLAS. Dummy variables were constructed by creating binary variables for Navigator and Problem Solver classifications and omitting one for Engager because when forming dummy variables "we will always want to use one less than the number we can create" (Kachigan, 1991, p. 190). The initial solutions were analyzed, and the findings revealed that the PAEI items were being used consistently to form the clusters. Therefore, PALS and ATLAS were eliminated because they were not contributing to the analysis. Thus, the final analysis was run using just the PAEI items.

The most appropriate solution for describing the Special Education majors was a 4-cluster solution. This solution grouped the Special Education majors by their educational philosophies into four groups: 32, 29, 20, and 12 (see Figure 11).

Figure 11: Distribution of Groups for 4-Cluster Solution



### Discriminant Analysis

Once groups are formed in cluster analysis, additional information is needed in order to adequately describe them. Therefore, discriminant analysis was used to help explain the cluster analysis because discriminant analysis is one

data analysis technique that can be used to assist with group interpretation (Conti, 1996, p. 71). This is because:

The derived clusters can also be subjected to a discriminant analysis, either to determine which variables contributed most to the formation of the clusters, or to obtain a discriminant function for predicting cluster membership of a future sample of objects. (Kachigan, 1991, p. 269).

For the discriminant analyses to describe the Special Education group, the groups from the 4-cluster solution were used. The discriminating variables were the 75 items from the PAEI instrument which measured the educational philosophies of the participants. Three separate discriminate analyses were computed in this study to see what separated the four identified clusters from each other. At the 2-cluster level, the 93 participants formed a group of 64 and a group of 29. At the 3-cluster level, a group of 52 combined with the group of 12 to form the group of 64. At the 4-cluster level, a group of 32 combined with the group of 20 to form the group of 52.

At the 2-cluster level, about one-third (29) of the participants were in one group and about two-thirds (64) were in the other. The element that separated the two was the belief about social action and the importance of using feelings and peoples background experiences towards social action in teaching. The group of 29 is very supportive of this concept, and the group of 64 is more neutral toward the

concept. An analysis was conducted on the item structure analysis which identified items 6d, 13d, 9b, and 4b as the ones that separated it (see Table 11). Collectively these items show a degree of social activism. The groups of 29 were strongly supportive of being active in social kinds of issues and the group of 64 tended to be slightly above neutral towards social actions types of teaching activities.

Table 11: Highest Items in Structure Matrix for Groups of 64 and 29

Corr.	No.	Item
.074	6D	Good educators start planning instruction by clarifying key social and political issues that affect the lives of the learners.
.070	13D	Evaluation of learning outcomes lets me know how much learners have increased their conceptual understanding of new material.
.066	9B	The learners' feelings during the learning process provide energy that can be focused on problems or questions.
.065	4B	Most of what people know they have learned through critical thinking focused on important social and political issues.

The 3-cluster solution level split the group of 64, more neutral social action group, into 2 groups of 52 people and 12 people. The group of 12 were supportive of personal coaching, and the 52 group was more neutral on personal coaching. An analysis was conducted on the item structure analysis which identified items 14a, 14e, 15b, 12d, 15c, 13e, 13c, and 15a as the ones that separated it (see Table

12). Collectively, these items show a degree of personal coaching.

Table 12: Highest Items in Structure Matrix for Groups of 52 and 12

Corr.	No.	Item
-.220	14A	My primary role as a teacher is to guide learners through learning activities with well-directed feedback.
-.211	14E	My primary role as a teacher is to facilitate, but not to direct, learning activities.
.187	15B	In the end, if learners have not learned what was taught they need to repeat the experience, or a portion of it.
-.165	12D	Differences among learners arise from their particular cultural and social situations and can be minimized as they recognize common needs and problems.
-.153	15C	In the end, if learners have not learned what was taught they may have learned something else which they consider just as interesting or useful.
-.141	13E	Evaluation of learning outcomes is best accomplished when the learner encounters a problem, either in the learning setting or the real world, and successfully resolves it.
-.139	13C	Evaluation of learning outcomes is best done by the learners themselves, for their own purposes.
0.107	15A	In the end, if learners have not learned what was taught, the teacher has not actually taught.

The group of 52 from the personal coaching group split. An analysis was conducted on the item structure analysis which identified items 12d, 15b, 15a, 11a, 11b, 10b, and 13c as the ones that separated it (see Table 13). The groups were made up of 32 people and 20 people. The group of 32

was more teacher centered, and the group of 20 showed support of external observable issues related to learning, such as external motivation, environment, benefits of daily life, and culture. These two groups differed in how much external forces affect learning with the group of 20 supporting external forces as more determinant in learning.

Table 13: Highest Items in Structure Matrix for Groups of 32 and 20

Corr.	No.	Item
0.188	12D	Differences among learners arise from their particular cultural and social situations and can be minimized as they recognize common needs and problems.
0.179	15B	In the end, if learners have not learned what was taught, they need to repeat the experience, or a portion of it.
.170	15A	In the end, if learners have not learned what was taught, the teacher has not actually taught.
-.166	11A	When learners are uninterested in a subject, it is because they do not realize how serious the consequences of not understanding or learning the subject may be.
.140	11B	When learners are uninterested in a subject, it is because they do not see any benefit for their daily lives.
.128	10B	The teaching methods I use emphasize practice and feedback to the learner.
-.126	13C	Evaluation of learning outcomes is best done by the learners themselves, for their own purposes.

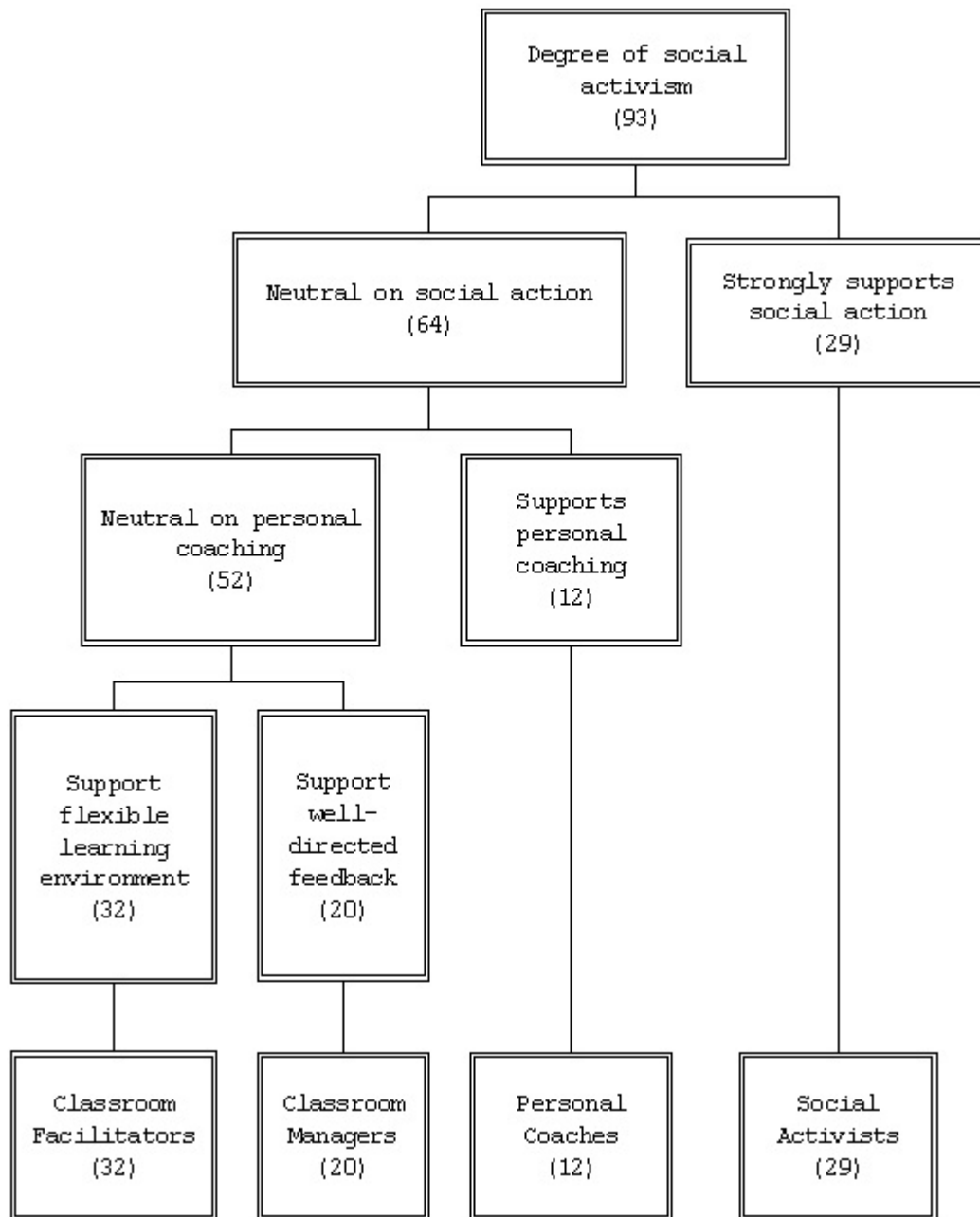
Although the discriminant analysis that identified the process that separated the group of 32 from the group of 20 was 100% accurate in classifying the groups, the structure



matrix did not have sufficiently strong correlations to help in naming this process. Therefore, the 12 items with the highest correlations were used to run a series of discriminant analyses to clarify the relationship among these variables. The discriminant analysis using only 10 of these items as the discriminating variables was 94.2% accurate in grouping the participants in the correct clusters. It was 100% accurate for the group of 32, and correctly classified 17 in the group of 20 for an accuracy of 85%. The group of 32 scored highest on items 6d, 7a, and 13c. These items deal with the teachers clarifying broad social issues that affect the lives of learners, preferring a flexible and unstructured learning environment in order to adjust to the interests of the learners, and supporting self-evaluation by the learners. The group of 32 scored highest on items 10b, 11a, 11b, 11d, 14a, 15a, and 15b. These items deal with the teachers using methods that provide well-directed feedback to the learners, focusing on practicing and repeating learning subject material that has consequences for the student's daily life, and feeling that they have not really taught if the learners have not learned what was intended. Because of these differences, the group of 32 was named Classroom Facilitators, and the group of 20 was named Classroom Managers.

Thus, various processes separated the four groups (see Figure 12). At the 2-cluster level, the process that discriminated the groups was the degree of social activism with one group of 29 strongly supporting social action and with the larger group of 64 being neutral in its support of social activism. The neutral group of 64 split into two groups that were discriminated by their degree of support of personal coaching with one group of 12 supporting personal coaching and the other group of 52 being neutral on personal coaching. The neutral group of 52 split into two groups that were discriminated by their views on the organization of the classroom. The group of 32 supported a flexible learning environment while the group of 20 supported a more structured classroom in which the teacher can provide well-directed feedback. The groups were named Social Activists (29), Personal Coaches (12), Classroom Facilitators (32), and Classroom Managers (20).

Figure 12: Process Separating Groups of 4-Cluster Solution



## CHAPTER 5

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Summary of the Study

The Special Education teacher preparation field is in the midst of an exciting but challenging period in its brief evolutionary history. Special Education can be seen as a gradual movement from isolation and custodial care to a progressive profession based on providing remediation and developmental teaching to meet individual needs of students with disabilities.

The last 30 years have brought about legislation, litigation, and special and regular education initiatives to improve the quality of services for children with disabilities. Much emphasis has been placed on teacher preparation programs and improving the system of training teachers in Special Education. These Special Education teacher preparation programs are critical to the success of programs for students with disabilities.

Mandates such as "The No Child Left Behind" legislation requires highly qualified teachers in America's classrooms. Research shows that if teachers can match their beliefs and

personal philosophies with their action, they are likely to improve their success in the classroom (Heimlich & Norland, 1994, p. 48).

Special Education teacher preparation programs can utilize the principles of adult education to train teachers for this field that requires highly qualified individuals. This population of individuals are adult learners at the university level.

To produce well-prepared teachers, efforts must be made at the pre-service level to revise curriculum, based on information about the teacher's educational philosophy, teaching style and learning strategies. This information can be beneficial in developing a more effective teacher training program if it is incorporated into the teacher preparation curriculum.

Northeastern State University (NSU) in Oklahoma has a Special Education teacher preparation program. However, there is currently no knowledge about the Special Education teacher candidate's educational philosophy, teaching style, and learning strategies at NSU. Thus, critical knowledge is not available to contribute to the development of the most effective Special Education teacher preparation programs. Higher education faculty need to know this information about the teacher candidates to develop appropriate curriculum and

deliver the most effective teacher preparation program to prepare highly trained professionals. Much has been written about strategies, curricula, and methods of teaching, but nothing has been written about the educational philosophy, teaching style, and learning strategies of the Special Education teacher candidate at Northeastern State University.

Therefore, the purpose of this study was to describe the educational philosophy, teaching style, and learning strategies of the Special Education teacher candidate at Northeastern State University. Participants in this study were undergraduate and graduate students at NSU majoring in Special Education. The study identified educational philosophies using the Philosophy of Adult Education Inventory (PAEI), teaching style using the Principles of Adult Learning Scale (PALS), and learning strategy preferences using the Assessing the Learning Strategies of Adults (ATLAS). The data were collected by administering these instruments to 96 individuals in the Special Education teacher program at Northeastern State University.

#### Summary of the Findings

The findings of this study described the following areas: demographic variables, educational philosophies, teaching styles, and learning strategy preferences. Also in

this study the relationship of demographic variables to philosophy, teaching style, and learning strategy preferences were explored. The interaction of philosophy, teaching style, and learning strategies of the participants were investigated using cluster analysis.

Demographic data revealed that participants were primarily female (83.33%) and white (72.63%) with an average age of 30.08. Most classified as Seniors. Participants were asked to complete an online demographic questionnaire and three surveys which measured educational philosophy, teaching style and learning strategies.

A philosophical profile was developed for the sample group based on the PAEI. About one-third of the participants (37.4%) supported the Progressive philosophical point of view. The Humanistic philosophical point of view was second with 22.0% and was slightly ahead of the Behavioristic point of view with 19.8%. The Radical and Liberal philosophical point of views had very few supporters and were at 6.6%. Approximately 8% of the participants scores indicated a mixed philosophical point of view by having equally high scores in two or more philosophical scores.

The Special Education majors who responded to this study had a mean score of 134.3 on the Principles of Adult

Learning Scale (PALS) with a standard deviation of 16.12. The norm for the PALS is a mean of 146 with a standard deviation of 20. The Special Education majors total PALS score indicated a commitment to the teacher-centered teaching style.

For learning strategy preferences of the Special Education majors, 25.88% were Navigators, 28.24% were Problem Solvers, and 45.88% were Engagers. The expected norms for the general population for ATLAS are Navigators--36.50%, Problem Solvers--31.7% and Engagers--31.80%. A chi-square analysis revealed that there was a significant difference between the frequency expected on the norms for ATLAS and the distribution for learning strategies of the participants. Navigators were under-represented by 29.08%, Problem Solvers were under-represented by 10.91%, and Engagers were over-represented by 44.28%. The significant difference was due to a large number of Engagers at the expense of the Navigators.

The relationship between educational philosophy, teaching style, and learning strategy preferences and the demographic variables of gender, age, race, and class were investigated. For gender, differences were found on the overall score of PALS and on Factor 2--Personalized Instruction. Females scored higher than the males on the



total PALS scores and on Factor 2-Personalized Instruction.

For age, a significant difference was found for Assessing Student Needs. Post hoc analysis indicated that the older groups are less likely to support assessing student needs. The older group (ages 37-59) favored the teacher centered approach. However, the group ages 23-29 supported the learner-centered approach.

There was a significant difference among class standing to PALS. The groups divided into two, with one being the undergraduate students and with one being the graduate students. There was a significant difference between class standing and Factor 3-Relating To Experience, Factor 5-Climate Building, and Factor 6-Participant In The Learning Process on PALS. The undergraduate students scored above the mean for Factor 3, indicating they support the idea that learning relates to experience. The graduate students scored below the mean indicating they did not tend to favor the ideas that learning relates to experience. The same pattern was followed on Factor 5-Climate Building and Factor 6-Participant in the Learning Process. Graduate students tended to be more teacher-centered and undergraduates were more learner centered.

The chi-square test revealed there were no differences in the demographic variables and the expected norms for the PAEI or the ATLAS instruments. The participants showed no

significant differences from the expected norms and the observed norms when compared for gender, age, race, and class standing.

A multiple regression analysis was conducted to explore the interaction between teaching style and educational philosophy using the PALS score as the criterion variable and the PAEI scores as the predictor variable. The stepwise procedure in the regression analysis stopped after extracting only one variable from the set of predictor variables. Liberal Education was this variable which accounted for approximately one-fourth of the variance in the analysis.

Cluster analysis was used to identify groups of Special Education majors with similar educational philosophies, teaching styles, and learning strategies. However, since the PAEI items were the only ones used to form the clusters, the analysis were rerun just using the PAEI variables. The 4-cluster solution best described the data. Discriminant analysis was used to investigate if educational philosophies could be used to identify differences in teaching style among the Special Education Majors at NSU. It was found through discriminant analysis that differences did occur in the sample. Discriminant analysis was used to describe the way the groups differ and to predict membership in a group. The groups that were formed were named the Social Activists,

the Personal Coaches, the Facilitators, and Classroom Managers.

### Conclusions

Educational philosophy and teaching style are yoked together based on the concept of who is the most important person in the teaching-learning transaction.

The investigation of the interaction between educational philosophy and teaching style uncovered the twin concepts of Role of the Teacher and Focus on the Individual. Although these two concepts appear on the surface to be contradictory, they are actually two sides of the same coin. The classic debates between Carl Rogers and B. F. Skinner stimulated the use of the terms "learner-centered" and "teacher-centered". These are the two sides of the coin revealed by the analyses related to the interaction of philosophy and style. The Role of the Teacher addresses the teacher-centered issue. Focus on the Individual is concerned with the learner-centered issue. When these are combined, they form the concept of "Who is the most important person in the learning situation?" Thus, the interaction between educational philosophy and teaching style is concerned with the educator's view of the relationship of the people involved in the teaching-learning transaction.

## Philosophy

The Special Education field at NSU heavily draws students with philosophies that support a learner-centered approach to instruction.

The Special Education majors at NSU have a disconnect between their educational philosophies and their teaching style.

Upon entering the actual classroom, Special Education teacher-training candidates may find disagreement between their current philosophical beliefs and the real-life environment in the Special Education setting.

Understanding one's educational philosophy of teaching and learning can serve to help organize beliefs, values, and attitudes related to the teaching-learning exchange (Heimlich & Norland, 1994, p. 38). Knowing and understanding beliefs about teaching and the learner can help the educator to be more effective. "Philosophy directs behavior either overtly or covertly, so teachers who identify, examine, alter, or adopt a philosophy assert control over their behavior" (p. 38).

Two philosophical schools of thought which subscribe to a learner-centered approach are the Progressive and the Humanistic philosophy. The Progressive philosophical perspective of adult education has had a greater impact upon the movement in the United States than any other school of thought (Elias & Merriam, 1995, p. 45). In an attempt to deal with a society that was quickly becoming urbanized and industrialized, early adult education looked to the dynamic

Progressive Movement as an inspiration in establishing theoretical positions and practical programs. The rapid growth of adult education occurred at a time when Progressive education was a predominant influence.

"Elements of Progressive thought are found in all the writings of many of the major theorist in the field of adult education including Knowles, Rogers, Houle, Lindeman, and Freire" (Elias & Merriam, 1995, p. 45). Many forms of adult education developed out of Progressive ideals such as adult vocational education and education for social action. The basic principles in adult education originated in Progressive thought, including, needs and interests, problem solving techniques, pragmatic goals, and the idea of social responsibility (p. 45).

John Dewey (1858-1952) was a pragmatic philosopher, psychologist, and educator commonly regarded as the founder of the Progressive education movement. He is the single most influential philosopher of education in America (Elias & Merriam, 1995, p. 48). He was involved in all aspects of the Progressive Movement such as politics, economics, social reform, and education. His impact on all forms of education is immense.

Dewey thought that education would flourish if it took place in a democracy because a democratic society was committed to change. He felt that a democracy would develop

only if there were true education (Durant, 1961; Elias & Merriam, 1995; Goodlad, 1990). Dewey felt that democratic societies were progressive, and if freedom was allowed, people would develop a social consciousness. A democracy "is more than a form of government; it is primarily a mode of associated living, of conjoint communicated experience" (Dewey, 1916, p. 90).

It was through practical experience that Dewey drew his basic philosophy of education and for the schools of tomorrow. Perhaps his greatest book was Democracy and Education (1916) in which he centered the varied lines of philosophy on the task of developing a better generation. All Progressive teachers acknowledge his leadership. There is hardly a school in America that has not felt his influence (Durant, 1961, p. 521).

The vast writings of Dewey certainly emphasized a learner-centered orientation. This orientation in philosophy is shared with the orientation of the majority of the participants in this study. In addition, the learner-centered position is held by others in the field of Special Education (Pugach & Warger, 1996; Reddy, 1999; Sparkes & Hirsh, 1997). These major scholars in the field promote curricula trends that emphasize experience, applying knowledge to real-life situations, and engaging students in tasks that reflect the ways in which people make personal

and social decisions.

Humanist philosophy is another philosophical school of thought with a learner-centered orientation. The goal of humanistic education is the development of the learner. The goal is for the learner to be open to change and strive for self-actualization. The focus of Humanistic philosophy is on the individual learner rather than the content of information to be taught. The student is the center of the process, the teacher is a facilitator, and learning is largely by discovery (Elias & Merriam, 1995, p. 122).

Noted Humanists are Abraham Maslow and Carl Rogers who view education as a means of fostering self-actualizing and fully-functioning individuals. "For humanists, a student-centered approach is more than taking into account the individual learning style, needs, and interests of students. Rather, these formulate the starting point and guiding principles of the entire educational process" (Kolesnik, 1975, p. 55).

The Special Education majors in this study indicated they hold a learner-centered philosophical approach in the Humanistic and Progressive schools of thought. Slightly over one-third (37.4%) of the group hold the Progressive philosophy and another 22% of the group hold the Humanistic philosophy. Combined, over half of the Special Education majors in the study indicated a learner-centered philosophy

of education.

However, the general philosophy of the Special Education field in the past, and to some extent, currently, is one of a behaviorist perspective. Behaviorists from Watson through Skinner believe all human behavior is the result of a person's prior conditioning and is determined by external forces in the environment over which a person has little or no control. Behaviorist education, which has an emphasis upon arranging the contingencies of learning and then measuring the change in behavior, provides a basis for the impression of accountability (Elias & Merriam, 1995, p. 90).

For many Special Education teachers, a Behavioral approach to the teaching of basic skills is the mainstay of their educational belief system. Behavioral objectives and instructional objective are emphasized in Special Education teacher training. The field of Special Education has deep roots in Behaviorism as an offspring of behavior psychology, where psychological concepts often transfer into educational practice (Pugach & Warger, 1996, p. 165).

Applied behavior analysis techniques are used in the field of Special Education to develop behavior intervention plans for students with disabilities that exhibit problematic behaviors in school. Teachers are trained to develop these plans by utilizing consequences, behavioral



objectives, appropriate reinforcements, and positive behavior techniques. Furthermore, many of the tools and techniques of the field of Special Education are from the Behaviorist school of thought. Tools such as the Individualized Education Plan (IEP) are behavioristic instruments used to define the method of instruction developed by the IEP team. Only since the 1997 reauthorization of Individuals with Disabilities Education Act has it been suggested that the student be a part of the IEP.

“The roles of teacher and learner are quite defined in the behaviorist framework. The ultimate goal of education is to bring about behavior that will ensure survival of the human species, societies and individuals” (Elias & Merriam, 1995, p. 87). The teacher’s role is to design an environment that will evoke the desired behavior and to eliminate the behavior that is not desirable. Therefore, the teacher is a contingency manager, that controls the environment, or a behavioral engineer that plans in detail the conditions necessary to bring about the desired behavior. The student’s role in behavioral education is active rather than passive. The environment is arranged in such a way that certain student behaviors are emitted. It is essential that students act so that their behavior can be reinforced. A student has learned something if there is a

change in behavior and if the responses occur again under similar circumstances (Elias & Merriam, 1995; Pugach & Warger, 1999).

The findings of this study indicate that Special Education majors at Northeastern State University are predominately Progressive (37%) in philosophy which supports a learner-centered approach to teaching. This finding, coupled with their support of Humanism (22%) which is also a learner-centered approach, indicate that 57% of the Special Education majors support a philosophy of education that is learner-centered. Before these students leave the teacher-training program and enter the actual classroom, they should be encouraged to reflect upon the differences between their educational philosophies and the prevailing philosophy in the field of Special Education. These students have a strong belief in a learner-centered approach to education. However, the nature of the disabilities that many students face such as autism dictate that a Behaviorist or teacher-centered approach be used to implement their educational program in order to elicit the desired and necessary outcomes. If the pre-service teacher-training candidates do not reflect upon the implicit nature of the field of Special Education that they are about to enter and its relationship to their educational beliefs, they may be ill prepared to deal with the realities of their new job. However, through

serious reflection, they can contemplate how to incorporate behaviorist techniques into their overall teaching approach so that the implementation of these techniques is compatible with their philosophical beliefs. This is possible because the techniques are "what" the teacher does while the philosophy is "why" they do these things. In order to be able to adjust to the constantly changing world of the classroom and to adjust to the realities in it, teachers need to be conscious of their actions in the classroom and the reasons for those actions (Conti, 2004).

While over half of the participants in this study supported a learner-centered approach to learning, they for the most part identified their teaching style as teacher-centered measured by the Principles of Adult Learning Scale. The participants in this study say through their educational philosophy beliefs that they are learner-centered, but on the teaching style scale they are teacher-centered.

One theory that may account for the incongruity that exists between the educational philosophy and teaching style among the participants in this study is the Theory of Planned Behavior (Ajzen, 1991). The Theory of Planned Behavior is based on the Theory of Reasoned Action (TRA), which attempts to explain the relationship among behavior, behavior intention, attitude toward the behavior, social support of important others, and perceived behavioral

control. However, TRA has been found to be insufficient in explaining behavioral intention when people perceived that control over the behavior was incomplete. When people did not believe they possessed the required abilities, resources, or opportunities to engage in the behavior, TRA proved to be an unacceptable model for understanding and predicting behavior (Ajzen, 1985). Therefore, Ajzen (1985) proposed the Theory of Planned Behavior as an extension to TRA to account for the performance of behaviors that are not completely under volitional control.

Perceived behavioral control is "the person's belief as to how easy or difficult performance of the behavior is likely to be" (Ajzen & Madden, 1986, p. 457). If a person holds strong control beliefs about the existence of factors that will facilitate a behavior, then the individual will have high perceived control over a behavior. However, the person will have a low perception of control if that person holds strong control beliefs that impede the behavior.

This theory applies to this study under the assumption that over half of the participants held philosophies of education that are the learner-centered philosophies of Progressive and Humanist. Contradictory to that message, the participants indicated by their PALS score that they were teacher-centered which supports the teacher being the source of knowledge. Elias and Merriam (1995) contend that

"Progressives opposed viewing the teacher as the sole source of knowledge" (p. 61). The Theory of Planned Behavior suggest that the participants may believe that they do not have control over the methods of strategies they use in the classroom.

The adult education literature supports learning which is reflective, real-life, and experience driven. Much has been written and researched to expand the field of adult learning. Most people are not prepared through formal education to learn from everyday life experience (Sternberg, 1990, p. 35).

Mandates such as "highstakes testing" and the No Child Left Behind Act require teachers to reach predetermined standards for students set by state and national policy makers (Darling-Hammond, 1999, Pugach & Warger, 1996). Special educators deal with unique issues in the education of student with disabilities. Individual differences among students must be acknowledged and addressed to deliver the most appropriate educational methods. Not all students learn at the same rate and in the same way. However, a message is sent to require teachers to meet set standards for all children. The pressure of accountability on teachers in the field is strong. Teachers may feel they must behave, or teach, in a certain way to accomplish the results required. Many teachers may feel they cannot let

the learner guide the learning and still keep their job.

One study conducted in China (Huang, 2005) on communicative language activities in teaching revealed that teachers indicated a desire to use these techniques in teaching but did not believe that they could effectively meet required mandates if they implemented the techniques. The Theory of Planned Behavior was used to explain their actions. The teachers wanted to implement communicative language activities but because of time, external control, cultural factors, other external factors, and most importantly, a standardized examination, they could not.

Researchers Heimlich and Norland (1994) contend that teaching style is influenced by current values, beliefs, attitudes, and behaviors. When there are areas in which a person may not be congruent, the person's philosophy does not match one's behaviors or vice versa. These inconsistencies can be identified and addressed in one of three ways. First, a person can discard the part of philosophy that does not match behavior, called congruence through a philosophical shift. Second, a person can discard the behavior that does not match the philosophy; this is called congruence through the reinforcement of philosophy (p. 178). Finally, a person can discard both the current behavior and the belief and select new, matching beliefs and behavior; this is called expansion (p. 178).

When inconsistencies in educational philosophy and teaching style occur, preservice teachers should utilize reflective thinking skills. Mezirow (1990) defines reflection as "examination of the justification for one's beliefs, primarily to guide action and to reassess the efficacy of the strategies and procedures used in problem solving" (p. xvi). This would be especially effective if the training program provided them real-life experiences before graduation. Unlike problems that are presented in formal educational settings, the learners have to learn to recognize and define problems in real-life situations (Sternberg, 1990, p. 35). Difficulties arise when the learner attempts to "solve problems in real life the way they probably were taught to solve problems in school" (p. 35). Thus, the challenge for teachers will be to assist the learners to solve real-world problems that occur in real-life (p. 40).

Finally, preservice teachers should employ metacognition strategies which require the preservice teachers to analyze, assess and ask why beliefs are held. Teachers need knowledge about what they do and why they do it (Conti & Kolody, 1999, p. 3). Elias and Merriam (1995) contend that "true professionals know not only what they are to do, but are also aware of the principles and reasons for acting" (p. 9).

Metacognition strategies may be fueled by techniques such as instrumented learning to help preservice teachers relate the concepts of educational philosophy and teaching style to themselves. Using instruments like PAEI, PALS, and ATLAS promotes reflection. The goal of instrumented learning is to stimulate the preservice teacher to reflect, take action, and then reflect again.

University faculty need to present preservice teachers with the knowledge about what constitutes a philosophy and how it relates to teaching style. Then the teachers may have the tools to decide for themselves which options for developing congruent beliefs about educational philosophy and teaching style are best. Once congruency is reached between educational philosophy and teaching style, the preservice teachers could once again be encouraged to reflect upon the relationship of their beliefs about educational principles and their implementation and the realities of the Special Education environment.

### Teaching Style

As a field, Special Education at NSU tends to draw students that believe the teacher is the most important factor in the teaching-learning transaction.

Undergraduate Special Education majors at NSU tend to focus more on learner needs than the graduate students in the Special Education program at NSU.

Teaching style is a mode of behavior (Heimlich & Norland, 1994, p. 40). It is a form of expression and the



way in which one consciously conducts the teaching-learning exchange. Heimlich and Norland (1994) proposed two ways that teachers develop teaching style: (a) teaching style is based on the teacher's characteristics, and (b) teaching style is based on the learner's characteristics. There is no single accepted definition for teaching style (pp. 43-47). The approach of a teaching style based on learner characteristics, supercedes the personality of the teacher and assumes that the teacher adapts all strategies to the individual learner. The approach of a teaching style with no single definition suggests that no single style is developed. No one style is better than another style. Teachers perform to their strengths.

Most of the participants in this study identified their teaching style as teacher-centered, based on the PALS score. The teacher-centered approach is the most dominant approach in all levels of education in America. This style of teaching is closely related to the behavioristic philosophy founded by the ideas of B. F. Skinner (Conti, 2004, p. 77).

Competency-based instruction, behavioral objectives, and accountability are all major concepts based in Behaviorism and pervade all areas of education (Elias & Merriam, 1995, p. 105). This teacher-centered approach to teaching assumes that learners are active and that it is the teacher's role to design an environment which will cause

learning to occur.

In Beyond Freedom and Dignity, Skinner (1971) elaborates on the role of man, human will, freedom, dignity and the concept of self-determinism in the behavioristic society.

Man's struggle for freedom is not due to a will to be free, but to certain behavioral processes characteristic of the human organism, the chief effect of which is the avoidance of or escape from the so called "adversive" features of the environment. (p. 42)

The popularity of Behaviorism may be attributed to learning outcomes that can be measured objectively and precisely, thus revealing how much progress has been made by the learner (Elias & Merriam, 1995).

The teacher preparation program curriculum in Special Education at NSU as well as across the nation strongly emphasizes behavior management techniques and strategies in behavior analysis. Students are required to complete courses that teach students how to teach in a behavioristic mode.

The undergraduate participants in the study differed in their preferences of teaching style from the graduates. The undergraduates supported the idea that learning should be related to experience and that climate building is important. However, graduate students in the study did not value as highly these ideas. The undergraduate students had

a more learner-centered view of the classroom while the experienced teachers in the graduate group maintained a somewhat more teacher-centered view, which is perhaps validated by their experiences. Their experience may have contributed to the view that there is not time for climate building or for relating to students' experiences.

The older students (ages 38-59) in the study were more teacher-centered than the younger (ages 23-36) group. The older students were probably more experienced and the ones likely to be working in the field. The two groups differed on Factor 4--Assessing the Student Needs on PALS. The older group (ages 38-59) did not support assessing the needs of the student while the younger group indicated a need to assess the student and to find out what the student needs are when it comes to learning. The experience of the older group that does not place as much importance on assessing the student needs may be due to the external pressure of the Special Education environment in which students vary from those with mild-moderate disabilities to those with severe-profound disabilities. This lack of control over the situation caused by the nature of the learners may be similar to the lack of control experienced by teachers in China (Huang, 2005).

In Coming Full Circle, Jim Arnold (2004) states "Children are natural drummers and dancers until we teach

them not to do so. Much of life is lived suppressing who we are in an attempt to be what we feel others want us to be" (p. 99). For the learner-centered teacher, teaching is not about the drum; it is about the drummer. The more experienced participants in this study are focusing on the drum (the content to be learned), the less experienced participants are still idealistically focusing on the drummer.

### Learning Strategies

The field of Special Education draws individuals that are people oriented and who prefer learning with others.

Teacher candidates, unlike trainees in other professions, have had the unusual opportunity to observe their own teachers at work for 12 to 16 years. Throughout this process of observation, they have internalized to some extent the values, beliefs, and practices of former teachers (Goodlad, 1990, p. 206).

Many teachers enter the field of teaching because of a desire to help others become productive citizens. They want to contribute to the well-being and happiness of others. Many believe teaching is not just a profession, but rather it is a calling to the field of educating mankind. Furthermore, teaching students with disabilities is a field with unique challenges and opportunities to gain satisfaction from helping others to meet their full

potential. The field of Special Education draws individuals who have a preference for being involved and working with others. This is reasonable because:

Two of the elements in the selection framework involve the people in the teaching-learning transaction: the teacher and the learner. Most teachers do not want to concentrate on themselves. Instead, they are interested in the needs of the learner. However, a first step in selecting effective methods and techniques to help learners is for you as an instructor of adults to assess your own beliefs about learning and the learner. (Conti, 2004, p. 183)

A disproportionately large number of participants in this study were Engagers. "Engagers initiate a learning activity from the affective domain" (Conti, 2004, p. 187). Teaching students with disabilities is for the Special Education teacher a meaningful task in which the teacher has a strong desire to be involved with the learner. Teaching Special Education effectively requires the teacher to work closely with the student, often individually, and requires a relationship with the learner.

### Relationships

Relationships are important to individuals majoring in Special Education at NSU.

Special Education is a field involving relationships that emphasizes individual instruction. Education in general is about relationships. Research indicates that the relationship between the teacher and the learner impacts the learning of the student (Darling-Hammond, 2000b; Pugach &

Warger, 1996; Rogers, 1994).

“When students say they love school, they also say that people in their schools care” (Rogers, 1994 p. 266).

Participants in this study indicated that relationships were an important component of education. Most of the participants of this study coming into the field of Special Education indicated they are there because of personal caring about others. This was indicated in the study by the large number of Engagers and the need to focus on the individual that was uncovered by discriminant analysis. Almost half of the participants in this study (45.88%) indicated by the ATLAS instrument that their preferred learning strategy was that of an Engager. Engagers feel that “the key to learning is engagement--relationship between the learner, the task or subject matter, the environment, and the teacher” (Kidd, 1973, p. 266).

On the other hand, the field of Special Education has behavioristic roots (Pugach & Warger, 1996, p. 234). Behaviorism has had its greatest influence on education in curriculum design and program development. Writing specific objectives, developing learning experiences to facilitate obtaining the objectives, and delineating a process of evaluation are processes described that indicate whether students have acquired given types of behavior. Competency based education as well as programmed instruction as

developed by Skinner emanate from behaviorism.

### Groups of Special Education Teachers

Four distinct groups exist among Special Education majors based on their philosophical beliefs.

This study revealed four groups of teachers; (a) Social Activists, (b) Personal Coaches, (c) Facilitators, and (d) Classroom Managers. The teachers in the Social Activist group relate to the writings of the Progressive educator, John Dewey (1990), who advocated for the role of the school to be to form the ideas and beliefs of a democratic society. "All that society has accomplished for itself is put, through the agency of the school, at the disposal of its future members" (Dewey, 1990, p. 7). He thought, as the social activism group did in this study, that it is the teacher's role to bring about social progress.

The Social Activist group aligns with the ideas of Myles Horton (1998), the social activist and educator who founded the Highlander Research and Education Center. He believed that if people could come together to discuss problems and share experiences, they could solve their problems. People could make society better by becoming their own experts, researching and testing ideas, taking action, analyzing their actions and learning from their experiences. Horton sought to develop a form of education to change society by leading people to challenge the system and take

risks (p. xix).

The group of Personal Coaches and Facilitators tend to be the teachers that use guidance as a method of teaching. These teachers fit the role of teaching to the individual as called for in the field of Special Education. It is this individualized, deficit approach to the identification and remediation of all disabilities that has dominated Special Education and has tended to characterize nearly all of its programs and practices, focusing attention on individual students and not on the curriculum (Pugach & Warger, 1996, p. 9).

The participants in this study who are in the groups Personal Coaches and Facilitators relate to the educational philosophies of Carl Rogers and Abraham Maslow, which see education as a means of guiding self-actualizing and fully-functioning individuals (Elias & Merriam, 1995, p. 123). The philosophical school of thought here is Humanism. "Humanistic education is student-centered not only with regard to the responsibility for learning but in terms of the self-development of each learner." p. 123).

The Classroom Managers actions align philosophically with Behaviorism. This school of thought contends that education should reinforce cooperation and interdependence so the world's problems can be addressed. "The role of the teacher is to design an environment that elicits desired



behavior toward meeting these goals and to extinguish behavior that is not desirable. The teacher, then is a contingency manager, an environmental controller, or behavioral engineer" (pp. 87-88).

The literature reports a paradigm shift in teacher preparation that is taking place (Darling-Hammond, 1999, 2000a, Pugach & Warger, 1996, Sparks & Hirsh, 1997). This paradigm shift is a movement from teacher preparation programs utilizing teacher-centered methods that create teachers who are teacher-centered to one embracing learner-centered methods and enhancing learning environments that strive to meet the needs of the learner, and value self-directed learning.

Goodlad (1990) relates teacher preparation to a train that is on the tracks and just needs to go faster, more smoothly, or to new destinations making improvements to enable education to be more effective. Furthermore, it is suggested that the teacher education train is not coupled to the cars nor the cars to one another. The educators are sometimes not even sure where the train should go once it is on the tracks and coupled. Confusing signals have caused many teachers to be unsure about what is expected of them, and they are not sure where to direct their energies in order to attain success. The policy makers and stakeholders need to determine where the train should go, connect all of

its parts, charge the workers to get moving, and provide the fuel necessary for its fast movement along the tracks (pp. 270-271).

However, a first step in this process of moving toward professionalism is for the teachers to align their philosophical beliefs and their classroom actions. Currently, the Special Education majors in the study exhibited an inconsistency in the results of the PALS and the PAEI instruments. While they indicated a teacher-centered teaching style on PALS, approximately two-thirds of the participants expressed support for the Progressive and Humanist philosophy on the PAEI, and these are a learner-center philosophy orientation.

#### Recommendations

Improving teacher effectiveness has become the center of educational reform. Research confirms that teacher and teaching quality are the most powerful predictors of student success (Darling-Hammond, 2000a; Pugach & Warger, 1996; Sparks & Hirsh, 1997). After nearly 20 years of tinkering with increasing graduation requirements, curriculum standards, and high-stakes testing, both educational and political leaders now conclude that unless changes occur inside the classroom with improved teaching and learning, educators cannot prepare all students for the proficiency in advanced education and work. In short, schools will improve

if teachers are better prepared (National Association of State Board of Education, 1988; National Commission on Excellence in Education, 1983; National Commission on Teaching and America's Future, 1996).

Knowles (1980) suggested that the teacher is the most important factor influencing the nature of the learning climate (p. 41). Teacher preparation programs are paramount in training and preparing teachers to be effective in the classroom. If effective teacher preparation programs exist, schools will have highly qualified teachers available to produce world class schools and successful students.

It is important to first gain knowledge about the learner in the teacher preparation program to be able to adequately prepare them to be good teachers. The teaching-learning transaction must be explored and the foundations of adult learning analyzed to develop a program that will deliver the best results. Heimlich and Norland (2002) identified five elements of the teaching and learning transaction as (a) the teacher, (b) the learner, (c) the group, (d) the content, and (e) the environment (p. 17). This study focused on the teacher, and more specifically the Special Education major at Northeastern State University.

First and foremost, Special Education teacher preparation programs should utilize adult education principles. Principles, embedded throughout the curricula

such as reflection, real-life learning, and experiential learning, should be delivered to the student. The preservice teachers should be given opportunities to clarify and articulate what they believe about education and how it affects what they do. They should receive guidance to develop their personal philosophy of education. Preservice teachers must spend training time in the classroom environment throughout their years of training rather than just the last semester. They should be given the opportunity to experience the classroom and school environment and to participate as a member of the school and community.

University faculty must be made aware of adult education principles and given strategies and support to incorporate them into the program. All too often, university faculty feel pressure to apply traditional teaching strategies akin to pedagogy to insure rigor in the program. Misguided university administration may think rigor is offered only when students must learn at the knowledge level as described in Bloom's Taxonomy of Educational Objectives: Book 1 (1979). Bloom's hierarchy of learning indicates the knowledge level requires only recalling facts which is the lowest level of cognitive learning. University doctrine is sometimes interpreted as "we are the keepers of the knowledge". This philosophy does

not lead to helping the learner apply knowledge and employ critical thinking skills necessary for the field today. Students, rather, should be encouraged to analyze, synthesize, and evaluate knowledge; these are the highest levels in Bloom's Taxonomy.

In order to offer real-life learning experiences, programs for Special Education teachers must assure for each candidate the availability of a wide array of classroom settings for observation, hands-on experiences, and exemplary schools for internships and residencies. These experiences should take place early in the students training and not just at the end. It is important to teach the student how to learn. Smith (1982) contends:

Learning how to learn involves possessing, or acquiring, the knowledge and skill to learn effectively in whatever learning situation one encounters. If you possess the necessary knowledge and skill, you've learned how to learn; when you help yourself or others acquire that kind of knowledge or skill, the concept is still at work. (p. 19)

Special Education majors value relationships. Therefore, students must be given the opportunity to establish relationships with master teachers in the field as they train. The Special Education teacher preparation program could produce better qualified teachers if the program focuses on the learning preferences of the students and links these preferences to experiences in the local

schools.

The use of instrumental learning should be employed by students as well as faculty. This will promote students and faculty to reflect on what they believe about education and the role that their beliefs serve in their actions in the classroom. Instruments such as the PAEI, PALS, and ATLAS could be used not only at the beginning of the preservice process but throughout it to monitor changes as a result of the students new experiences or reflections. This could also allow the learners to apply it to their experiences. It is imperative to personalize the learning process and to promote the student and faculty to understand the role of philosophy and teaching style in the educational process.

Almost half of the teachers in this study (45.88%) indicated they had a learning strategy preference of an Engager. Thus, the Special Education teacher preparation program at NSU should provide classroom learning activities designed to meet their preferred learning strategies. The learning preferences of the Navigators and the Problem Solvers should be considered as well. If instructors are knowledgeable about the learners preferences, they can identify "ways to help adults learn effectively, this knowledge can be an important element in addressing individual differences in the learning process" (Conti & Kolody, 1999a, p. 17).

Special Education courses should be integrated with general education courses, giving students the opportunity to learn together and share experiences in the preparation process. Preparation for collaboration occurs in the Special Education portion of the program but may not occur in the general education portion. It is important to bridge the curriculum gap that exists between the two Special Education and general education teacher training tracks. This integration of the two programs can provide an approach of joint teacher preparation. Special and general teacher educators can become knowledgeable about curriculum from the outset and can come to terms with their differences and develop a unified perspective on what is worth teaching.

Special Education teacher candidates should be encouraged and guided to reflect on their individual beliefs about teaching to determine their philosophy of education and teaching style. Efforts should be made to enable the teacher candidate to explore their own beliefs about the educational process and learn how they can benefit from the knowledge and empower themselves as teachers. Self-awareness is the first step to becoming a highly qualified teacher. In order for these Special Education teacher candidates to become more aware of these important concepts, university faculty should first learn to assess the faculty members teaching style, educational philosophy, and

individual learning strategies. Instruments such as PAEI, PALS, and ATLAS can enable both university faculty and teacher candidates to become knowledgeable about what they believe. These three instruments should be tools used in every teacher preparation class as a first step to establishing a knowledge about the teaching and learning transaction. Metacognition strategies should be the first step in training highly qualified teachers. The preservice teacher must know about themselves as educators and be better able to understand what they do in the classroom and why (Conti & Kolody, 1999a). Instrumented learning is the technique for fueling this metacognition.

With a positive attitude towards Special Education teacher preparation and the unique ability to direct one's own learning needs, these teacher candidates lend themselves to becoming reflective practitioners. Through reflective action, the teacher candidates can become aware of what they are doing and why they are doing it. In order for education to meet the challenges of the future, it is important for the teacher to be keenly aware of themselves as professional educators. Educators need to send a unified message about what needs to be done in education, and unless educators know why they do what they do, they will continue to receive criticism as a profession (Conti, 2004, p. 75). "True professional know not only what they are to do, but are also



aware of the principles and the reasons for so acting”  
(Elias & Merriam, 1995, p. 9).

### Recommended Future Studies

In addition to the recommendations for learning and classroom practices, this study has implications for future research. Additional studies could include:

1. A study using the Theory of Planned Behavior (Ajzen, 1991) with preservice teachers.
2. Follow up qualitative studies to describe the four groups of learners identified in this study.
3. Longitudinal studies to track changes in the educational philosophy and teaching style of the students in the Special Education program as a result of
  - a. Being in the program
  - b. Reflections
  - c. Their experiences
4. Studies could be conducted with Special Education students and with parents
  - a. To see what classroom characteristics and actions they desire in teachers
  - b. To identify their learning strategy preference
  - c. To measure outcomes to see which teacher with which philosophy and teaching style are most successful.
5. A qualitative study with Special Education preservice teachers to see how the metacognition of their beliefs, teaching style, and learning strategy preference affected their learning in the program.

### Personal Reflection

Mihaly Csikszentmihalyi, well-known author of Flow (1990) and Creativity (1996), addressed an audience of educators in Tulsa, Oklahoma, on September, 11, 2003, and

relayed the idea that learning and creativity are linked. It is because of creativity that we have to learn. People have always taught their children the skills they needed to survive. There are 200,000 links in the chain of knowledge representing the number of generations that have passed on knowledge to their young. This system of learning has resulted in schools, which only about four generations of mankind has experienced through formal education. From this perspective, we have just begun to refine our educational system. As Csikszentmihalyi proclaims, "We are trying to make fire with wet sticks." We are in the infant stages of formal education development. There is a strange disconnect in the education system we know today from the real-life learning system we had in the past.

In my 27 years of personal professional practice in the field of Special Education, many changes have occurred. Knowledge about the field of Special Education teacher preparation programs evolves as our culture changes. We continue to learn new ways to do things better. The knowledge that has been discovered in this study is the most basic and important answer to effective Special Education teacher preparation programs. The answer lies within the teacher.

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APPENDIX

## PHILOSOPHY OF ADULT EDUCATION INVENTORY

Each of the 15 items on the Inventory begins with an incomplete sentence, followed by five different options that might complete the sentence. Find the corresponding number and letter on the answer sheet and indicate your response by circling a number from 1 (strongly disagree) to 7 (strongly agree). **Please rate ALL the possible responses.** There are no "right" or "wrong" ratings.

1. In planning an educational activity, I am most likely to:
  - (a) identify, in conjunction with learners, significant social and political issues and plan learning activities around them.
  - (b) clearly identify the results I want and construct a program that will almost run itself.
  - (c) begin with a lesson plan that organizes what I plan to teach, when and how.
  - (d) assess learners' needs and develop valid learning activities based on those needs.
  - (e) consider the areas of greatest interest to the learners and plan to deal with them regardless of what they may be.
  
2. People learn best:
  - (a) when the new knowledge is presented from a problem-solving approach.
  - (b) when the learning activity provides for practice and repetition.
  - (c) through dialogue with other learners and a group coordinator.
  - (d) when they are free to explore, without the constraints of a "system."
  - (e) from an "expert" who knows what he or she is talking about.
  
3. The primary purpose of Adult Education is:
  - (a) to facilitate personal development on the part of the learner.
  - (b) to increase learners' awareness of the need for social change and to enable them to effect such change.
  - (c) to develop conceptual and theoretical understanding.
  - (d) to establish the learners' capacity to solve individual and societal problems.
  - (e) to develop the learners' competency and mastery of specific skills.
  
4. Most of what people know:
  - (a) is a result of consciously pursuing goals, solving problems as they go.
  - (b) they have learned through critical thinking focused on important social and political issues.
  - (c) they have learned through a trial-and-feedback process.
  - (d) they have gained through self-discovery rather than some "teaching" process.
  - (e) they have acquired through a systematic educational process.
  
5. Decisions about what to include in an educational activity:
  - (a) should be made mostly by the learner in consultation with a facilitator.
  - (b) should be based on what learners know and what the teacher believes they should know at the end of the activity.

- (c) should be based on a consideration of key social and cultural situations.
  - (d) should be based on a consideration of the learner's needs, interests and problems.
  - (e) should be based on careful analysis by the teacher of the material to be covered and the concepts to be taught.
6. Good adult educators start planning instruction:
- (a) by considering the end behaviors they are looking for and the most efficient way of producing them in learners.
  - (b) by identifying problems that can be solved as a result of the instruction.
  - (c) by clarifying the concepts or theoretical principals to be taught.
  - (d) by clarifying key social and political issues that affect the lives of the learners.
  - (e) by asking learners to identify what they want to learn and how they want to learn it.
7. As an adult educator, I am most successful in situations:
- (a) that are unstructured and flexible enough to follow learners' interests.
  - (b) that are fairly structured, with clear learning objective and built-in feedback to the learners.
  - (c) where I can focus on practical skills and knowledge that can be put to use in solving problems.
  - (d) where the scope of the new material is fairly clear and the subject matter is logically organized.
  - (e) where the learners have some awareness of social and political issues and are willing to explore the impact of such issues on their daily lives.
8. In planning an educational activity, I try to create:
- (a) the real world--problems and all--and to develop learners' capacities for dealing with it.
  - (b) a setting in which learners are encouraged to examine their beliefs and values and to raise critical questions.
  - (c) a controlled environment that attracts and holds learners, moving them systematically towards the objective(s).
  - (d) a clear outline of the content and the concepts to be taught.
  - (e) a supportive climate that facilitates self-discovery and interaction.
9. The learners' feelings during the learning process:
- (a) must be brought to the surface in order for learners to become truly involved in their learning.
  - (b) provide energy that can be focused on problems or questions.
  - (c) will probably have a great deal to do with the way they approach their learning.
  - (d) are used by the skillful adult educator to accomplish the learning objective(s).
  - (e) may get in the way of teaching by diverting the learners' attention.
10. The teaching methods I use:
- (a) focus on problem-solving and present real challenges to the learner.

- (b) emphasize practice and feedback to the learner.
  - (c) are mostly non-directive, encouraging the learner to take responsibility for his/her own learning.
  - (d) involve learners in dialogue and critical examination of controversial issues.
  - (e) are determined primarily by the subject or content to be covered.
11. When learners are uninterested in a subject, it is because:
- (a) they do not realize how serious the consequences of not understanding or learning the subject may be.
  - (b) they do not see any benefit for their daily lives.
  - (c) the teacher does not know enough about the subject or is unable to make it interesting to the learner.
  - (d) they are not getting adequate feedback during the learning process.
  - (e) they are not ready to learn it or it is not a high priority for them personally.
12. Differences among adult learners:
- (a) are relatively unimportant as long as the learners gain a common base of understanding through the learning experience.
  - (b) enable them to learn best on their own time and in their own way.
  - (c) are primarily due to differences in their life experiences and will usually lead them to make different applications of new knowledge and skills to their own situations.
  - (d) arise from their particular cultural and social situations and can be minimized as they recognize common needs and problems.
  - (e) will not interfere with their learning if each learner is given adequate opportunity for practice and reinforcement.
13. Evaluation of learning outcomes:
- (a) is not of great importance and may not be possible, because the impact of learning may not be evident until much later.
  - (b) should be built into the system, so that learners will continually receive feedback and can adjust their performance accordingly.
  - (c) is best done by the learners themselves, for their own purposes.
  - (d) lets me know how much learners have increased their conceptual understanding of new material.
  - (e) is best accomplished when the learner encounters a problem, either in the learning setting or the real world, and successfully resolves it.
14. My primary role as a teacher of adults is to:
- (a) guide learners through learning activities with well-directed feedback.
  - (b) systematically lead learners step by step in acquiring new information and understanding underlying theories and concepts.
  - (c) help learners identify and learn to solve problems.
  - (d) increase learners' awareness of environmental and social issues and help them to have an impact on these situations.

- (e) facilitate, but not to direct, learning activities.
15. In the end, if learners have not learned what was taught:
- (a) the teacher has not actually taught.
  - (b) they need to repeat the experience, or a portion of it.
  - (c) they may have learned something else which they consider just as interesting or useful.
  - (d) they do not recognize how learning will enable them to significantly influence society.
  - (e) it is probably because they are unable to make practical application of new knowledge to problems in their daily lives.

## Principles of Adult Learning Scale


**Directions:** The following survey contains several things that a teacher of adults might do in a classroom. You may personally find some of them desirable and find others undesirable. For each item please respond to the way you most frequently practice the action described in the item. Your choices are Always, Almost Always, Often, Seldom, Almost Never, and Never. On your answer sheet, circle 0 if you always do the event; circle number 1 if you almost always do the event; circle number 2 if you often do the event; circle number 3 if you seldom do the event; circle number 4 if you almost never do the event; and circle number 5 if you never do the event. If the item **does not apply** to you, circle number 5 for never.

Always	Almost Always	Often	Seldom	Almost Never	Never
0	1	2	3	4	5

1. I allow students to participate in developing the criteria for evaluating their performance in class.
2. I use disciplinary action when it is needed.
3. I allow older students more time to complete assignments when they need it.
4. I encourage students to adopt middle-class values.
5. I help students diagnose the gaps between their goals and their present level of performance.
6. I provide knowledge rather than serve as a resource person.
7. I stick to the instructional objectives that I write at the beginning of a program.
8. I participate in the informal counseling of students.
9. I use lecturing as the best method for presenting my subject material to adult students.
10. I arrange the classroom so that it is easy for students to interact.
11. I determine the educational objectives for each of my students.
12. I plan units which differ as widely as possible from my students' socio-economic backgrounds.
13. I get a student to motivate himself/herself by confronting him/her in the presence of classmates during group discussions.
14. I plan learning episodes to take into account my students' prior experiences.
15. I allow students to participate in making decisions about the topics that will be covered in class.
16. I use one basic teaching method because I have found that most adults have a similar style of learning.
17. I use different techniques depending on the students being taught.
18. I encourage dialogue among my students.
19. I use written tests to assess the degree of academic growth in learning rather than to indicate new directions for learning.
20. I utilize the many competencies that most adults already possess to achieve educational objectives.

21. I use what history has proven that adults need to learn as my chief criteria for planning learning episodes.
22. I accept errors as a natural part of the learning process.
23. I have individual conferences to help students identify their educational needs.
24. I let each student work at his/her own rate regardless of the amount of time it takes him/her to learn a new concept.
25. I help my students develop short-range as well as long-range objectives.
26. I maintain a well-disciplined classroom to reduce interferences to learning.
27. I avoid discussion of controversial subjects that involve value judgments.
28. I allow my students to take periodic breaks during the class.
29. I use methods that foster quiet, productive, deskwork.
30. I use tests as my chief method of evaluating students.
31. I plan activities that will encourage each student's growth from dependence on others to greater independence.
32. I gear my instructional objectives to match the individual abilities and needs of the students.
33. I avoid issues that relate to the student's concept of himself/herself.
34. I encourage my students to ask questions about the nature of their society.
35. I allow a student's motives for participating in continuing education to be a major determinant in the planning of learning objectives.
36. I have my students identify their own problems that need to be solved.
37. I give all students in my class the same assignment on a given topic.
38. I use materials that were originally designed for students in elementary and secondary schools.
39. I organize adult learning episodes according to the problems that my students encounter in everyday life.
40. I measure a student's long-term educational growth by comparing his/her total achievement in class to his/her expected performance as measured by national norms from standardized tests.
41. I encourage competition among my students.
42. I use different materials with different students.
43. I help students relate new learning to their prior experiences.
44. I teach units about problems of everyday living.

# ATLAS<sup>TM</sup>



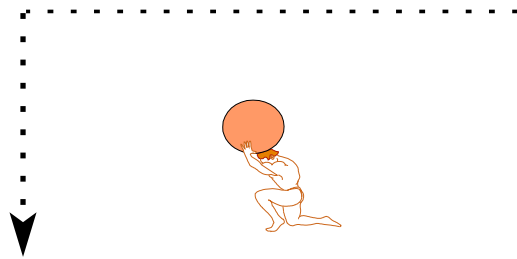
Assessing The Learning Strategies of Adults

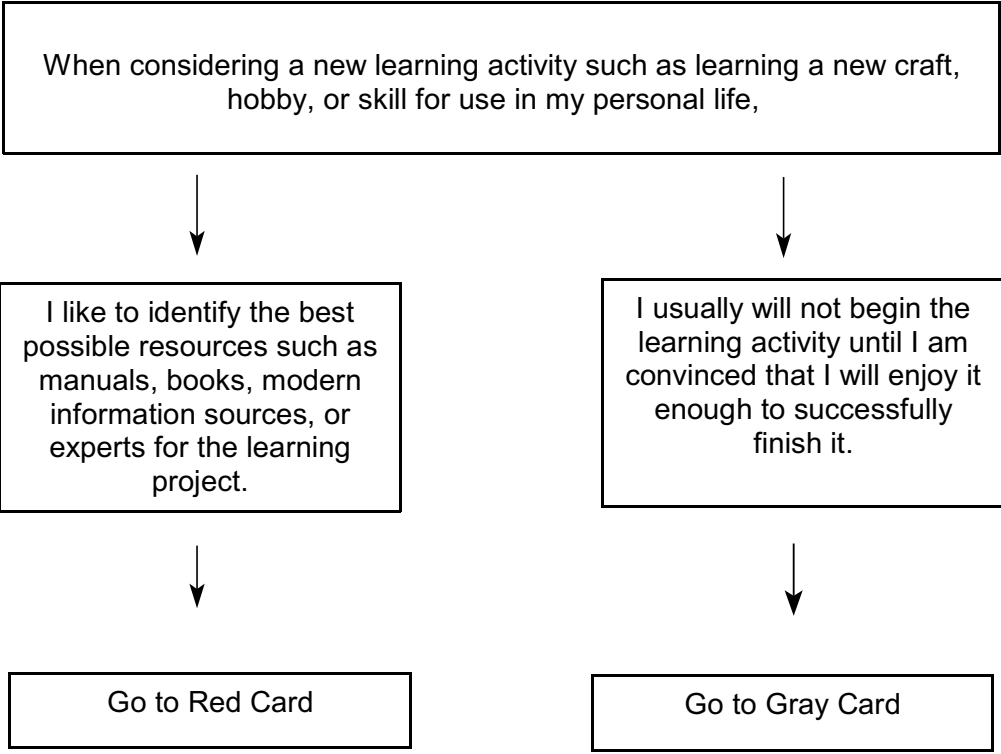


# ATLAS

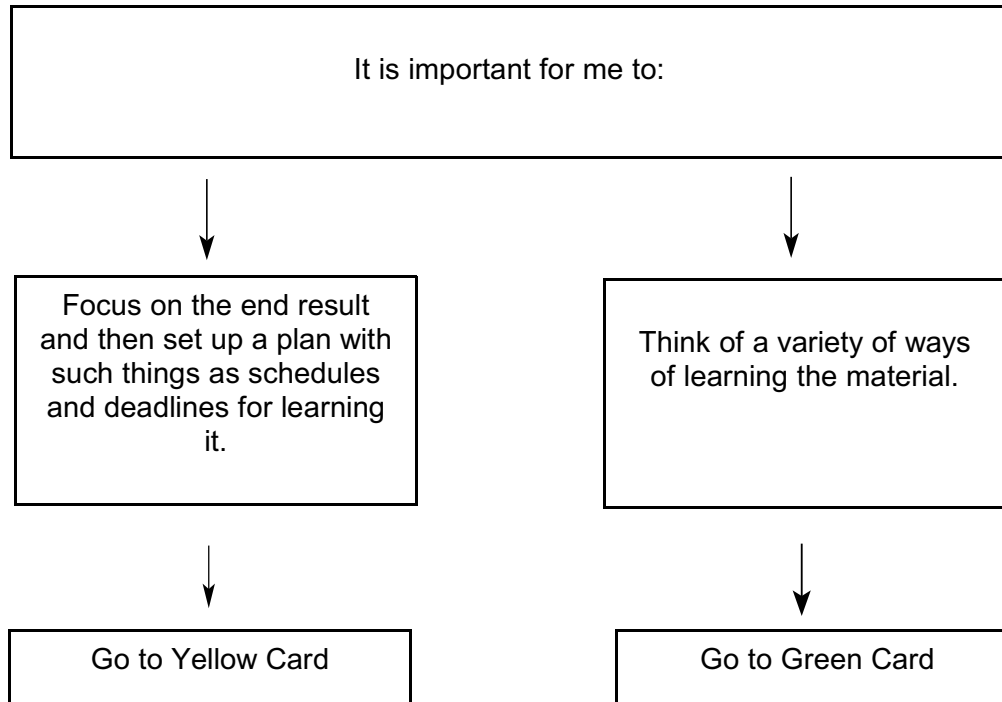
(Assessing *The Learning Strategies of AdultS*)

**Directions:** The following colored cards have statements on them related to learning in real-life situations in which you control the learning situation. These are situations that are **not** in a formal school. For each one, select the response that best fits you, and follow the arrows to the next colored card that you should use. Only read the cards to which you are sent. Continue this process until you come to the Groups of Learners sheet. Along the way, you will learn about the group in which you belong. Follow the arrow to start.

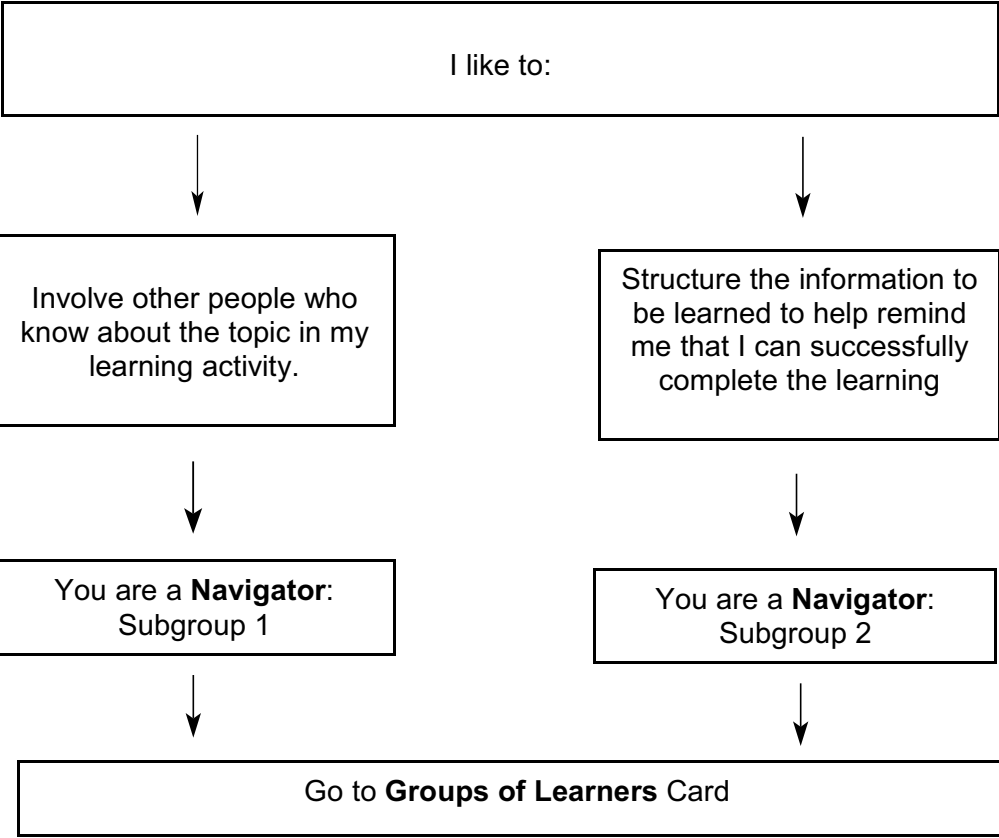




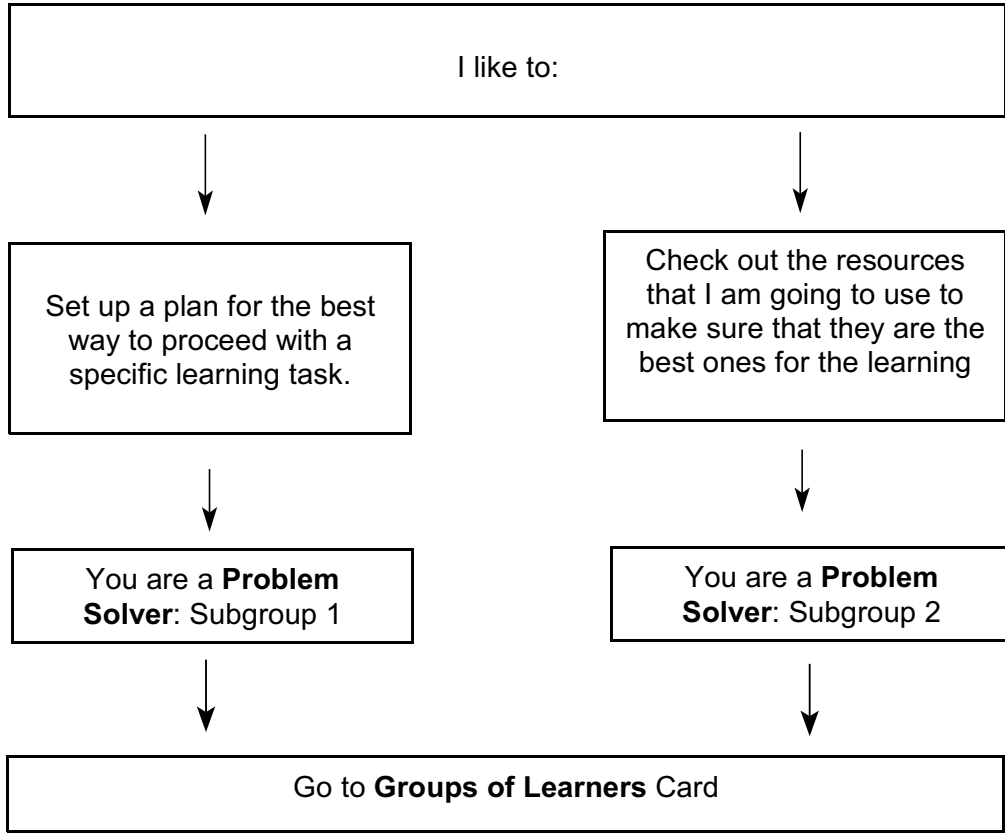
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Page 1



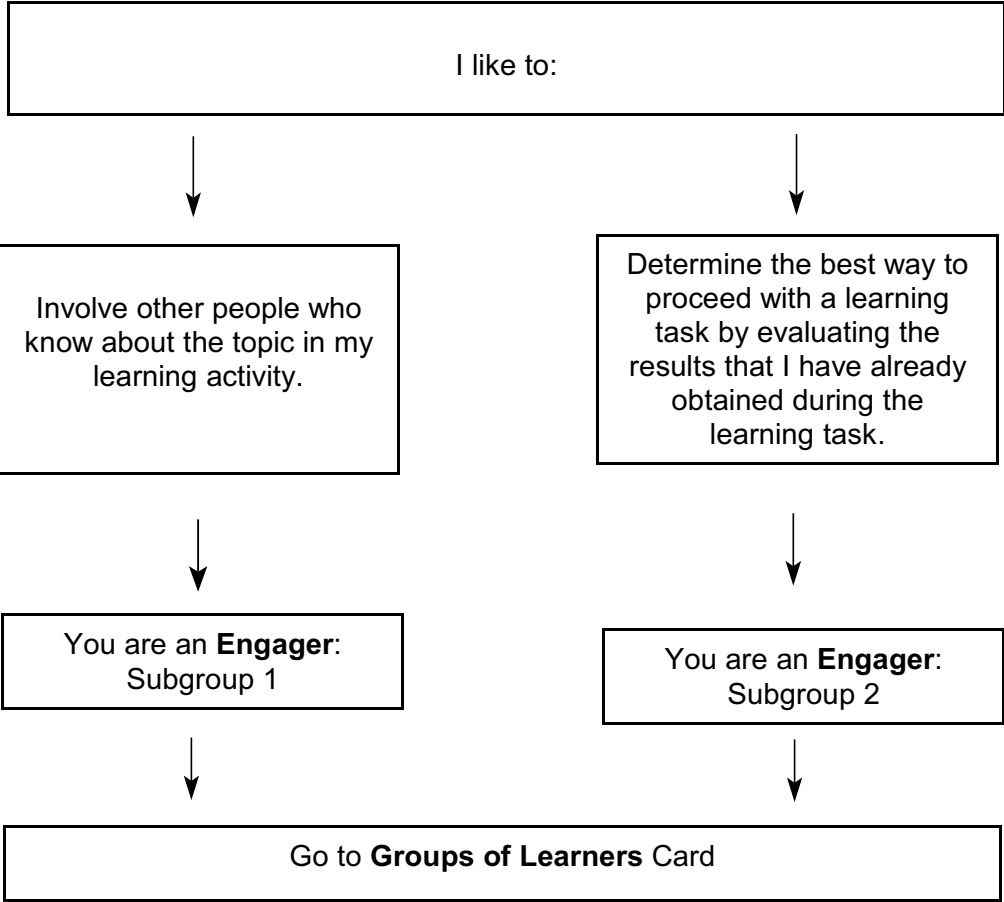
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### Navigators

**Description:** Focused learners who chart a course for learning and follow it. Subgroup 1 likes to use human resources while Subgroup 2 is more concerned with the organization of the material into meaningful patterns.

**Characteristics:** Focus on the learning process that is external to them by relying heavily on planning and monitoring the learning task, on identifying resources, and on the critical use of resources.



**Instructor:** Schedules and deadlines helpful. Outlining objectives and expectations, summarizing main points, giving prompt feedback, and preparing instructional situation for subsequent lessons.

### Problem Solvers



**Description:** Learners who rely heavily on all the strategies in the area of critical thinking. Subgroup 1 likes to plan for the best way to proceed with the learning task while Subgroup 2 is more concerned with assuring that they use the most appropriate resources for the learning task.

**Characteristics:** Test assumptions, generate alternatives, practice conditional acceptance, as well as adjusting their learning process, use many external aids, and identify many of resources. Like to use human resources and usually do not do well on multiple-choice tests.

**Instructor:** Provide an environment of practical experimentation, give examples from personal experience, and assess learning with open-ended questions and problem-solving activities.

### Engagers

**Description:** Passionate learners who love to learn, learn with feeling, and learn best when actively engaged in a meaningful manner. Subgroup 1 likes to use human resources while Subgroup 2 favors reflecting upon the results of the learning and planning for the best way to learn.

**Characteristics:** Must have an internal sense of the importance of the learning to them personally before getting involved in the learning. Once confident of the value of the learning, likes to maintain a focus on the material to be learned. Operates out of the Affective Domain related to learning.

**Instructor:** Provide an atmosphere that creates a relationship between the learner, the task, and the teacher. Focus on learning rather than evaluation and encourage personal exploration for learning. Group work also helps to create a positive environment.



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### Groups of Learners

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Oklahoma State University  
Institutional Review Board

Protocol Expires: 4/12/2005

Date: Friday, April 23, 2004

IRB Application No EDO4106

Proposal Title: Teaching\_Learning Style Preferences of Special Education Teacher Candidates

Principal  
Investigator(s):

Vickie Foster  
8011 South Toledo  
Tulsa, OK 74136

Gary J Conti  
206 Willard  
Stillwater, OK 74078

Reviewed and  
Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

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Dear PI :

Your IRB application referenced above has been approved for one calendar year. Please make note of the expiration date indicated above. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact me in 415 Whitehurst (phone: 405-744-5700, colson@okstate.edu).

Sincerely,



Carol Olson, Chair  
Institutional Review Board



VITA

Vickie Lee Foster

Candidate for the Degree of  
Doctor of Education

Thesis:

TEACHING-LEARNING STYLE PREFERENCES OF SPECIAL  
EDUCATION TEACHER CANDIDATES AT NORTHEASTERN STATE  
UNIVERSITY IN OKLAHOMA

Major Field: Occupational and Adult Education

Education: Graduated from Cordell High School, Cordell,  
Oklahoma May 1974; received Bachelor of Education  
degree in Special Education from Oklahoma State  
University in May 1978; received a Master of Education  
degree in Learning Disabilities from Lesley College in  
Cambridge Massachusetts in August 1980. Completed the  
requirements for the Doctor of Education degree with a  
major in Human Resources and Adult Education at  
Oklahoma State University, Stillwater, Oklahoma in May,  
2006.

Experience: Instructor of Special Education at Northeastern  
State University, 2002 to present. Administrator and  
Psychometrist, Oklahoma State Department of Education,  
1985-2002. Special Education teacher, 1980-1985.

Professional Memberships/Certifications: Oklahoma Standard  
Teaching Certificate - School Psychologist,  
Psychometrist, Learning Disabilities, Mental  
Retardation, Psychology K-12, Sociology K-12. Member  
of National Association of School Psychologist,  
National Council for Exceptional Children, National  
Learning Disabilities Association.