OKLAHOMA CAREER AND TECHNOLOGY TEACHERS' DISPOSITIONS TOWARD TEACHING STUDENTS OF DIVERSITY

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CHAPTER 1

INTRODUCTION

Dispositions

The word “dispositions” seems to be appearing more frequently in a wider arena of professional literature. Yet, Lilian Katz (Katz, 1993a; Katz & Chard, 2000; Katz & Raths, 1985) alerted the early childhood community to the important role dispositions play in the teaching and education of young children twenty years ago.

Dispositions, for purposes of this research, are related to career and technology (CareerTech) teachers’ “habitual ways of acting and thinking that affect the ways teachers will respond to teaching, to their students, to their administrators, to their fellow teachers, and the teaching profession” (Harrison, Smithey, & Weiner, 2003, p. 4).

All teachers must possess a disposition to work with others “in a manner that demonstrates caring, compassion, and respect” (NCATE, 2004), modeling positive dispositions towards all students and not assuming that different groups are deficient (Villegas & Lucas, 2002). According to

NCATE(2004), diversity is defined as “differences among groups of people and individuals based on: ethnicity, race, socioeconomic status, gender, exceptionalities, language, religion, sexual orientation, and geographical area.”

The National Council for Accreditation of Teacher Education (NCATE, 2004), one of the teaching profession’s accrediting bodies, has mandated that dispositions of teacher candidates which includes dispositions towards working with students of diversity, will be evaluated. According to Dr. Kay Grant(personal communication, December 8, 2006), dean of the College of Education at Northeastern State University, in order to recommend candidates to the Oklahoma State Department of Education for teacher licensure, a teacher education program must be approved by the Oklahoma Commission for Teacher Preparation (OCTP). With the current partnership between OCTP and NCATE, programs must meet NCATE standards, even if they choose to go with the other accrediting body, Teacher Education Accreditation Council (TEAC). NCATE accreditation implies that successful candidates meet an acceptable level of performance in the areas of knowledge (content), skills (pedagogy) and dispositions (professional habits). Programs may vary in how they measure and prepare

candidates but certain standard of performance is expected. Increasingly, teacher preparation programs are becoming familiar with their role in preparing future teachers to work with students of diversity. Consequently, higher education faculties are wrapping their minds around the concept of dispositions as they seek clarification about the nature and role of dispositions and attempt to address this issue in teacher preparation programs. This is recommended by NCATE and is highly desirable, but it may not actually be happening.

Teacher shortages have increased the number of alternatively-certified career and technology (CareerTech) teachers who are not required to take traditional education classes (Feistritzer & Chester, 2001). States have criteria that must be met in order to be alternatively certified to teach Oklahoma CareerTech education classes. Some states do not require a bachelor's degree and will grant certification based on work experience, military experience, coursework, or a bachelor's degree in the area they are hired to teach (NCEI, 2002). In order to receive alternative certification in Oklahoma, the following requirements must be met (Oklahoma CareerTech, 2006c, par. 1):

1. Must have bachelor's degree with a major that corresponds to an area of certification offered through the State Department of Education Alternative Placement Program.

2. Applicant must pass a series of tests determined by the Oklahoma Commission for Teacher Preparation. The tests generally consist of the Oklahoma General Education Test (OGET), Oklahoma Subject Area Test (OSAT), and the Oklahoma Professional Teaching Exam (OPTE).

3. Applicants, after successfully completing the OSAT and OGET, will be permitted to teach for a three-year period using this license. At the end of three years, the OPTE and any college coursework/professional development clock hours must be completed. Also, the candidate must apply and receive a favorable recommendation from the Teacher Competency Review Panel.

4. Applicants must include subject-related work experience.

In Oklahoma, many CareerTech teachers enter classrooms straight from industry on Provisional Certification without any prior teacher preparation or experience. Provisional certification is "traditional" certification for non-degreed teachers that provides a temporary certification when they enter teaching from industry (Oklahoma CareerTech, 2006d). The provisional certificate requires teachers to take traditional teacher education coursework and work toward standard certification (par. 7). The applicant must have three years of related experience in

the area in which they will be teaching within five years prior to receiving certification (par. 8).

The American federal government has a long history of federal legislation that has served to establish and expand vocational education. The federal government has supported the establishing and expanding of the Oklahoma CareerTech (formerly referred to as vocational education) system because of its interest in the education of all citizenry that would not discriminate based on race, socioeconomic status, gender, or intellectual ability. Several federal legislative acts have demonstrated support for the education of students of diversity.

The Smith-Hughes Act of 1917 provided the first federal money for vocational education (Gordon, 1999). This Act provided matching funding for states for the support of secondary vocational education which was originally a $1.7 million program. It provided annual appropriations for programs in Agriculture, Trade & Industry and Home Economics and for the training of teachers for those fields. It was the first major federal legislation supporting Vocational Education.

The Act of 1890 provided for the further endowment and support of Colleges of Agriculture and Mechanic Arts and was called the Second Morrill Act. It stated that a

“portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts” (OARDC, 2006). It also annually appropriated, out of any money in the Treasury not otherwise provided, to each State and Territory for the more complete endowment and maintenance of colleges for the benefit of agriculture and the mechanic arts now established, or which may be hereafter established, in accordance with an act of Congress and an annual increase of the amount of such appropriation thereafter for ten years by an additional sum of one thousand dollars over the preceding year, and the annual amount of be paid thereafter to each State and Territory shall be twenty-five thousand dollars to be applied only to instruction in agriculture, the mechanic arts, the English language and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to facilities for such instruction: Provided, That no money shall be paid out under this act to any State or Territory for the support and maintenance of a college where a distinction of race or color is made in the admission of students, but the establishment and maintenance of such colleges separately for white and

colored students shall be held to be a compliance with the provisions of this act if the funds received in such State or Territory be equitably divided as hereinafter set forth (2006).

According to Gordon (1999), the 1890 Morrill Act, provided permanent annual endowment for developing instructional programs in land-grant agricultural and mechanical colleges and universities and no funds should go to states that admitted students based on race or color. However, separate schools for whites and coloreds were allowed if the funds were divided equitably. The Act also established the black colleges: U of Md-Eastern Shore, Alabama A & M, Delaware State, NC A & T, Virginia State, Alcorn State, Florida A & M, Prairie View A & M, etc.

According to Gordon (1999), in 1963 the Vocational Education Act increased federal support of vocational education, included support of residential vocational schools, vocational work-study programs, and research, training and demonstrations in vocational education. Its sweeping provisions included: (1) Maintain, extend and improve vocational education; (2) Develop new vo-ed programs; (3) provide part-time employment while participating in vo-ed programs; and (4) expand training opportunities for all ages in all communities including

those in high school or out of school, those with jobs who need retraining or the unemployed, and persons with academic, socio-economic or other handicaps. The Act provided $118.5 million to $177.5 million for 1966. Under its provisions, Area Vocational Schools were established; funds had to be matched by states and locals 1 to 1; State Board and employment services had to work together; state plans had to consider needs of all groups in all communities; and vo-ed had to be readily available to all.

Gordon (1999) stated that in 1984 the Carl D. Perkins Vocational Education Act had provisions to: (1) Assist states to expand, improve, modernize quality vocational education programs to meet the needs of existing and future work force; (2) Assure access to quality vocational education programs, especially for the disadvantaged and handicapped, for men and women entering nontraditional occupations, for single parents, for individuals with limited English proficiency and for incarcerated persons; (3) Promote cooperation between public agencies and the private sector in preparing individuals for employment, and make vocational education more responsive to state labor markets; (4) Improve academic foundations of vocational students and aid in the application of newer technologies to employment and occupational goals; (5) Provide

vocational education services to train, retrain, and upgrade workers in new skills that are in demand; (6) Assist the most economically depressed areas of a state to raise employment competencies; (7) Assist states to utilize a full range of supportive services, special programs and guidance counseling and placement; (8) Improve the effectiveness of consumer and homemaking education and reduce sex-role stereotyping in employment; and (9) Authorize national programs to meet vocational education needs and strengthen the vocational education research process. The state basic funding grant supported diversity and access by dividing funding on a 57% set-aside and 43% discretionary basis. The set-asides were divided as follows: Handicapped – 10%; Disadvantaged – 22%; Adult Retraining – 12%; Single Parent Homemakers – 8.5%; Elimination of sex bias – 3.5%; and Correctional Institutions – 1%.

Data was not available for the total overall enroomentin Oklahoma CareerTech system, enrollment declined for high school students between 1982 and 1994, but the black, non-Hispanic, and Asian enrollment stayed about the same (Oklahoma CareerTech, 2006). Students with disabilities increased as there was an emphasis by the 1990 Perkins Act to serve students with special needs (NCES, 2000). The

predominant theme of the Perkins Act was to ensure access to vocational education for special-needs populations.

Federal legislation continued to show support for the educating of students of diversity by passing the Individuals with Disabilities Education Act Amendment of 1997 which requires schools to provide a statement of students' transition service needs for special students based on their individualized education program (IEP) beginning when the child turns 14 years of age. A year before the student becomes a legal adult, he or she must be made aware of their rights (Gordon, 1999).

Taken collectively, this series of Federal legislation demonstrates support by the federal government for CareerTech to provide quality education to students of diversity; therefore, Oklahoma CareerTech teachers must have the disposition to work with these students.

Theoretical Framework

The construct of dispositions as "habitual ways of acting and thinking that affect the ways teachers will respond to teaching, to their students, to their administrators, to their fellow teachers, and the teaching profession" (Harrison, Smithey, & Weiner, 2003, p. 4) is grounded in the work of Arthur Combs. According to Wasicsko et al. (2004), Combs devoted 40 years to

conducting numerous studies exploring the dispositions necessary to become an effective educator, completing more than 15 studies at the University of Florida and the University of Northern Colorado that supported his proposition that effective teachers have similar dispositions about students, teaching, and themselves. Combs' (1965) theory of teachers' disposition was based on the nature of human perceptions. His perceptual theory of dispositions had three basic propositions:

(1) People behave according to how they perceive,

(2) Perceptions are cumulative and change slowly, and

(3) Self is an instrument for assessing dispositions.

Based on the Combs perceptual theory of dispositions, this study was underpinned by three basic working propositions:

(1) The perceptions about, and resulting dispositions for, teaching a diverse student population affect the behavior of Oklahoma CareerTech teachers and influence their approaches to students, administrators, fellow teachers, and other stakeholders in their instructional environments, and thus have merit for study.

(2) The dispositions of some Oklahoma CareerTech teachers who have not experienced pre-service sensitizing

to student diversity may be different from teachers who have had this sensitizing experience.

(3) The dispositions for diversity of Oklahoma CareerTech teachers can be assessed effectively through an instrument that asks them to self-examine and self-report their personal beliefs about diversity.

The Combs perceptual theory of dispositions which guides this study gained further support in the work of Wasicsko. Wasicsko, former dean of the College of Education at Eastern Kentucky University (EKU) and current Bank of Kentucky Endowed Chair of Educational Leadership at Northern Kentucky University, was mentored by Combs at the University of Florida. Based on his work with Combs' theory, Wasicsko co-founded the National Network for the Study of Educator Dispositions. He also developed a quantitative and qualitative assessment of teacher candidates' written narrative analysis of their dispositions to teach. This instrument, Assessing Educator Dispositions: a Perceptual Psychological Approach, is used by numerous colleges of education to determine whether a teacher candidate should be admitted into the teacher education program (Wasicsko, 2005). In supporting his theoretical basis and operationalization of the dispositions construct through his instrument, Wasicsko

reported (1977) that school superintendents who used the instrument were able to make reliable perceptual assessments of teachers and teacher candidates.

While Wasicsko's instrument has both theoretical grounding and operational success, it was not easy to administer and interpret by teacher-candidates, teachers, and teacher educators in a learning situation. For this purpose, the concept of "instrumented learning" appeared to the researcher to be more appropriate. Ausburn (2004) defined instrumented learning as use of an "inventory-type device to gain understanding of self and others, to improve performance, and to enhance the processes of metacognition and learning how to learn" (p. 4). The instrumented learning concept was developed in the corporate sector by Blake and Mouton, who stated that through the use of learning instruments, people are given a way of "examining their behavior within a systematic framework of theory which can be directly translated into practice (1972, p. 114)." Instrumented learning is theoretically grounded in Flavell's (1979) and Brown's (1975) views of metacognition as the development of knowledge of and control over one's own thinking and learning. Instrumented learning tools are theory-based self-assessment devices that are condensed, easy to administer and interpret in learning situations,

and focused on helping individuals improve their personal effectiveness through self-knowledge and understanding the actions, beliefs, and needs of themselves and others (Blake & Mouton, 1972; Mouton & Blake, 1974, 1984). These characteristics position instrumented learning tools as appropriate instrumentation for measuring teachers' dispositions for diversity in the framework of Combs' perceptual theory of dispositions, with its emphasis on self as an instrument for dispositional assessment (Combs, 1965).

The work of Combs and Wasicsko provided an underpinning and theoretical lens for this study that examines behavior dispositions in Oklahoma CareerTech teachers that derive from their personal perceptions. Blake and Mouton's concept of instrumented learning guided the instrumentation decisions for the study and prompted the researcher to locate a self-assessment survey tool to collect information from Oklahoma CareerTech teachers about how they scored factors that may affect their dispositions to teach students with a diversity of characteristics and backgrounds.

Problem Statement

Linguistic and cultural diversity in American schools is greater now than it has ever been. English as a Second

Language (ESL) students in U.S. schools more than doubled between 1991 and 2000 (NCBE Clearinghouse, 2000). The increasing diversity of American schools and the demographic changes across the nation make it necessary for teachers to develop a more in-depth understanding of culture if there is to be true understanding among diverse populations (Teaching Diverse Learners, 2003). The increasing diversity in schools and demographic changes across the nation make it necessary for teachers to have the dispositions to work with diverse populations. Researchers have suggested that personal experiences have a direct bearing on teachers' ideas and dispositions toward teaching and learning (Wasicsko, 2003).

There has been an increasing challenge to teacher education programs to better prepare teacher candidates to work with students of diverse backgrounds. Teachers should possess dispositions which will provide all students with the best education possible, because they will have a direct impact on so many children throughout their career. All teachers must also have the dispositions necessary to work with diverse students. Many Oklahoma CareerTech teachers have a background in industry or the military but not in education, and may enter the teaching profession without assessment of their dispositions for diversity.

Although the CareerTech system was originally designed to educate students of diversity, currently little is known about Oklahoma CareerTech teachers' disposition to work with these students. Self assessment through the use of an instrumented learning tool should help them better understand whether or not they have the disposition to work with students of diversity. If their scores are low, this would indicate that they do not have the disposition to work with students of diversity, and they may adversely affect the education of these students.

Purpose of the Study

The purpose of this study was to describe Oklahoma CareerTech teachers' self-assessed dispositions towards issues of diversity (i.e., assumptions about race, ethnicity, culture, gender, social class, sexual orientation, religion, language, and exceptionality) associated with the teaching and learning process and to identify naturally-occurring clusters within this population. The disposition factors in this study related to diversity are based on National Council for Accreditation of Teacher Education Standard 4 (NCATE, 2004).

Research Questions

1. What is the demographic profile of CareerTech teachers in Oklahoma?
2. What is the disposition profile of CareerTech teachers in Oklahoma?
3. What are the differences in disposition scores among demographic groups?
4. What clusters exist among CareerTech teachers in Oklahoma?
5. What factors discriminate among the clusters?

Data sources and analysis techniques for each research question are shown in Table 1.

Table 1: Data Sources and Analysis Techniques for Research Questions

Research Questions	Data Source	Analysis Techniques
1. What is the demographic profile of CareerTech teachers in Oklahoma?	Population data: Supplied by the Oklahoma CareerTech Department Sample data: Questions 1-12 of survey	Descriptive statistics
2. What is the disposition profile of CareerTech teachers in Oklahoma?	Data from survey	Descriptive statistics, factor analysis

3. What are the differences in disposition scores among demographic groups?	Data from survey	ANOVA
4. What clusters exist among CareerTech teachers in Oklahoma?	Data from survey	Cluster Analysis
5. What factors discriminate among the clusters?	Data from survey	Discriminant Analysis, and Chi-Square

Research Methodology

This research was a descriptive study, summarizing the data obtained through an online survey. Descriptive research is used to "describe existing conditions" (Fraenkel & Wallen, 2003, p. G-2) and was used in this study to address the five research questions. This study was quantitative as the survey tool being used, the Professional Beliefs about Diversity (Pohan & Aguilar, 1999), is quantitative in nature. Quantitative data are scores which can be measured numerically with a continuum scale (Fraenkel & Wallen, 2003).

Procedures and Methods

WebSurveyor was used to mount a web-based survey, based on an established instrument, that was sent to all of

the Oklahoma CareerTech teachers who had an e-mail address on the CareerTech website. The results were submitted anonymously from the web site to a protected data file in order to preserve confidentiality and subject anonymity.

Population and Sample

The population is the "larger group to which the researcher would like the results of the study to be generalizable" (Fraenkel & Wallen, 2003, p. G-6). The population for this study was 2,345 Oklahoma CareerTech teachers who had an e-mail address on file as of May 2006. The e-mail addresses of all Oklahoma CareerTech teachers were available on the State Career Tech website (http://www.okcareertech.org/personnel_directory/), but the file was too large to download, so the researcher contacted Dr. Phil Berkenbile, state director of the Oklahoma CareerTech, requesting these e-mail addresses. A representative of the Oklahoma CareerTech sent the requested e-mail addresses of the 2,365 teachers to the researcher in an Excel spreadsheet.

A sample is "the group on which information is obtained" (Fraenkel & Wallen, 2003, p. G-7). The sample for this study was a self-selected convenience sample of 366 CareerTech teachers currently teaching in Oklahoma who chose to respond to the online survey.

Instrumentation

The survey instrument used for this study was the Professional Beliefs about Diversity (Pohan & Aguilar, 1999). Pohan's (1996) dissertation, which took six years to research and write, was the development and validation of a self-assessment instrument that could be used to measure personal and professional beliefs about diversity. In her review of the literature, Pohan determined that there was no instrument to measure these beliefs at that time. She designed this instrument to be used with pre-service and in-service teachers, education administrators, and school board members whether or not they had training in working with a diverse population.

Pohan (C. Pohan, personal communication, April 15, 2004) conducted eight years of validation and reliability studies to get this instrument accepted by NCATE and the educational community. It is currently being used by universities' colleges of education across the nation to determine whether a person has the diversity disposition to become an effective teacher. It is also being used by doctoral students in various studies.

The Professional Beliefs about Diversity (Pohan & Aguilar, 1999) instrument was copyrighted in 1998. It has 25 questions, and uses a 5-point Likert scale which

generates a score for each participant. The higher the score the better the teacher's disposition is to work with students of diversity. The Professional Beliefs about Diversity (1999) manual stated that it is not to be considered a "test" but should be referred to as a tool or activity. This places it in the category of "instrumented learning" as defined by Blake and Mouton (1972).

The online survey also included six basic demographic questions: age range, gender, race, marital status, range of years of teaching experience, religious affiliation, and educational attainment. There were an additional seven questions created by the researcher that were pertinent to Oklahoma CareerTech teachers: CareerTech agency division in which they are affiliated, type of teaching certificate, CareerTech environment in which they teach, whether they are National Board certified, and whether they have participated in any classes, workshops, or professional development involving working with students of diversity. The remaining questions were obtained from sample demographic sheets provided by Pohan & Aguilar (1999).

Data Analysis

The survey data were analyzed through several different quantitative statistical techniques. Research questions 1 and 2 were addressed by the construction of

demographic and disposition profiles of the Oklahoma CareerTech teachers through descriptive statistics and factor analysis. Question 3 analyzed relationships and differences between demographic groups on various dispositions through descriptive statistics and ANOVA for group comparisons. Questions 4 and 5 required exploratory statistics to search for clusters among the participants based on their responses to the instruments, along with a discriminant analysis to determine which demographic and disposition items distinguished among the clusters. This data exploration was accomplished with cluster and discriminant analysis as the obtained sample was adequate to support multivariate analysis.

Definition of Key Terms

Conceptual Definitions

Alternative Teacher Certification – "Nontraditional route into the teaching profession" (NDCCTE, 2005, p. xi)

CareerTech – The Oklahoma CareerTech "works closely with the State Department of Education and the State Regents for Higher Education to provide a seamless educational system for all Oklahomans. The department provides leadership, resources, and assures standards of excellence for a comprehensive statewide system of career and technology education. That system offers

programs and services in 29 technology center districts operating on 56 campuses, 398 comprehensive school districts, 25 skill centers and three juvenile facilities" (Oklahoma CareerTech, 2006)

Dispositions - Dispositions, for purposes of this research, are "habitual ways of acting and thinking that affect the ways teachers will respond to teaching, to their students, to their administrators, to their fellow teachers, and the teaching profession" (Harrison, Smithey, & Weiner, 2003, p. 4).

Diversity – Differences based on ethnicity, race, socio-economic status, gender, exceptionalities, language, religion, sexual orientation and geographical issues associated with the learning process which are factors related to diversity based on NCATE (2004) Standard 4.

Professional Beliefs about Diversity – "This 25-item scale measures one's beliefs regarding policies, practices, and/or procedures related to issues of diversity within schools. Selected areas of belief assessment include race/ethnicity, gender, social class, sexual orientation, religion, ability, language, multicultural education, and pluralism. This measure has been designed specifically for use with professional educators (i.e. practicing administrators

and teachers) and pre-professional educators, but may also be relevant to other educational affiliates and constituents (e.g., school board members, staff, parent groups, school counselors, etc.)" (Pohan & Aguilar, 1999).

Operational Definitions

Dispositions – Scores on the Professional Beliefs about Diversity, as delivered on the Internet via WebSurveyor

Significance of the Study

According to the mission statement of one of the teaching profession's accrediting bodies, the National Council for Accreditation of Teacher Education (NCATE):

> Accountability and improvement in teacher preparation are central to NCATE's mission. The NCATE accreditation process determines whether schools, colleges, and departments of education meet demanding standards for the preparation of teachers and other professional school personnel. Through this process, NCATE provides assurance to the public that the graduates of accredited institutions have acquired the knowledge, skills, and dispositions necessary to help all students learn. (NCATE, 2002, p. 1)

NCATE brought dispositions to the forefront as desirable qualities for an affective teacher, and in order to certify teachers in Oklahoma, colleges of education must be NCATE accredited. Although Oklahoma CareerTech Centers do not have to be accredited by NCATE, all teachers must

possess a disposition that fosters growth and learning in students. Teacher certification programs, whether the certification be traditional, provisional, or alternative, have an ethical responsibility to insure their teachers possess the disposition necessary to have a positive impact on students during their teaching careers. This research examines Oklahoma CareerTech teachers' dispositions. Findings could be used to evaluate Oklahoma's certification requirements for CareerTech teachers. Possible curriculum revisions, mandated coursework, or professional development in working with diverse students may need to be implemented for traditionally, provisionally, or alternatively-certified Oklahoma CareerTech teachers in order to assist them in areas where their personal dispositions and lack of pre-service teacher preparation might negatively affect their teaching behavior.

CHAPTER 2

LITERATURE REVIEW

Introduction

Support for Diversity in Occupational Education

The principles and philosophies of occupational education, formerly known as vocational education, are grounded in support of diversity. According to Herr and Shahnasarian (2005), in 1963 the Vocational Education Act increased federal support for the principle of diversity in vocational education by providing part-time employment while participating in vocational education programs, expanding training opportunities for all persons with academic, socio-economic or other handicaps.

Herr and Shahnasarian (2005) also stated that the Carl D. Perkins Vocational Education Act supported the diversity principle through assured access to quality vocational education programs, especially for the disadvantaged and handicapped, for men and women entering nontraditional occupations, for single parents, for individuals with limited English proficiency and for incarcerated persons, assisted the most economically depressed areas of a state

to raise employment competencies, and reduced sex-role stereotyping in employment. Occupational education also has a long history of legislative support for diversity. Many specific legislative acts are discussed in the sections below.

Women's Advancements

Thousands of women began working in the textile factories in the early part of the nineteenth century, but the general population considered it preferable that they stay home and take care of the family and house (Gordon, 1999). When the men went to fight in the Civil War, women started playing a more important role in industry and the production of goods. World War I and World War II also caused a shortage of male workers, so it became necessary for the women to work in factories, sewing rooms, and munitions plants (Gordon, 1999). The Kansas State Agricultural College, in 1874, "allotted [women] to take courses in drawing and do shop work in scroll sawing, carving, and engraving" (Gordon, 1999, p. 11), but there were usually departments for women which included sewing, household economy and household chemistry.

A legislative breakthrough for women was the Smith-Hughes Act of 1917 which provided a sex-role program for women of home economics. There was no separation of

training for the sexes until the Equal Pay Act of 1963. This Act called for the end of discrimination on the basis of sex and gave equal pay for equal work. This was considered the first significant legislation relating to vocational equity (Gordon, 1999).

According to Herr and Shahnasarian (2005), the 1972 Vocational Education Amendments included Title IX which deals with sex bias in education. This gave women the same educational opportunities as men. The Educational Amendment of 1973 was landmark legislation responsible for banning discrimination on the basis of sex in education, but despite these passages there was not much change in vocational enrollment patterns from the previous years. The Education Amendments of 1976 also overcame sex discrimination and sex stereotyping. Burge and Culver (in Gordon, 1999, p. 113) claimed that “developing sex equity in education through development of occupational skills and employment possibilities for women is a pragmatic, economic approach to equity that can be accomplished through vocational education”.

Congress realized that most women would work during their adult life and that they work out of necessity. The 1972 Vocational Education Amendments included Title IX which deals with sex bias in education. In 1978 women

students in vocational education who enrolled in nontraditional “women” classes experienced harassment by their male classmates (Gordon, 1999). The School-to-Work Opportunities Act required local and state administrators to make a plan which would increase opportunities for women in careers that were not traditional for them.

Special-Needs Population

The predominant theme of the Perkins Act was to ensure access to vocational education for special-needs populations. The reason for this was because vocational programs had been limited to English-proficient students, and some schools had legal action brought against them for discriminating against students who were not proficient in English. The Title VI section of the Civil Rights Act of 1964 prohibited the denial of benefits because of race, color, or national origin. The Office of Vocational and Adult Education of the U. S. Department of Education has funded a small amount of bilingual vocational programs since 1976 (Gordon, 1999).

The Individuals with Disabilities Education Act Amendment of 1997 requires that beginning at the age of 14, schools must provide a statement of students’ transition service needs for special students based on their individualized education program (IEP). A year before

students become a legal adult they must be made aware of their rights (Gordon, 1999).

Status of Diversity in Oklahoma CareerTech

According to the Oklahoma CareerTech (2005) webpage, in 1999-2000 there were 145,367 students enrolled in full-time programs. Forty-eight percent were female and 52% were male. Sixty-nine percent were Caucasian, 15% were American Indian, 10% were African American, 5% were Hispanic, and 1% were Asian. Thirty-four percent were economically disadvantage, 23% were academically disadvantaged, 12% were disabled, and 2% had limited-English proficiency. In 2003-2004 the number of full-time students increased to 154,732 which is an increase of almost 10,000 students. Sixty-four percent were Caucasian, 15% were American Indian, 12% were African American, 7% were Hispanic, 1% were Asian, and 1% were unknown. Thirty-eight percent were economically disadvantaged, 22% were academically disadvantaged, 14% were disabled, and 3% had limited-English proficiency. The increase of students with limited-English proficiency only went up by 1%, but the number of actual students with limited-English proficiency increased by 2,303. In 2004-2005 there were 2,553 Oklahoma CareerTech teachers, which included comprehensive schools, technology centers, and skills centers. Forty-six (1.8%)

of them were certified by the National Board of Professional Teaching Standards. There was no information about the race of the teachers on the webpage.

Ethnic Minorities in Occupational Education

There is a long history in vocational education for African Americans. There were numerous apprenticeship programs for slaves between 1619 and 1846, and there were several manual labor schools, such as Tuskegee and Hampton, which began to open in the South in the 1830s. Booker T. Washington and Frederick Douglass were strong supporters of expanding vocational education for African Americans after the Civil War. Manual training was offered in the secondary schools from 1910 to 1930 (Gordon, 1999).

Education opportunities during the first decade of the twentieth century slowly began to become available for African-American women. Parents of these women wanted opportunities for their daughters so that they would not have to do domestic work. Cosmetology, printing, and nursing were popular choices for African-American women (Gordon, 1999).

Vocational education programs that received federal funds were less likely to receive funds by 1935, but African-American educators sought to reduce these inequalities through a Black vocational guidance movement.

These educators noticed that African-American students were aspiring to low-level occupations or wanted to pursue professional or academic education rather than vocational education. Their efforts had little effect because of the depression, but World War II created more opportunities for them (Gordon, 1999).

The education of Native Americans was originally assumed by the federal government through missionaries and mission schools on reservations. Their goal was to Christianize them and give them basic literacy skills. The government's second effort was to have schools run by the Bureau of Indian Affairs (BIA). It was the job of the school to take the Indian out of the Indians. They wanted to eradicate the traditional Indian culture. A congressional study led to the passage of the 1934 Indian Reorganization Act which increased tribal self-government and input into education. It also encouraged Native Americans to retain their culture and religion and provided economic development of the reservations. In the 1990s most Native Americans were enrolled in the public schools, although about 10 percent still attended federally funded BIA schools and 5 percent attended private schools (Gordon, 1999).

The presence of ethnic and cultural diversity in CareerTech education raises recognition of the fact that there are differences among cultures in how parents teach children, how they expect their children to behave, and how adults and children interact. If teachers do not understand these cultural differences, there can be misunderstanding and frustration in the teaching and learning process. A small but growing body of literature questions whether cultural dissonance between instructors and learners is a factor in learner attrition, and advocates increasing cultural relevance in literacy practices (McLaughlin & McLeod, 1996).

Teachers must respect cultural diversity and differences so children will not devalue their opportunity to be bicultural (McLaughlin & McLeod, 1996). Teachers who have stereotypical beliefs have a direct impact on students' success or failure in school (Cummins, 1986), but most teacher preparation programs do not satisfactorily prepare teacher candidates to accept students from various cultures (Zeichner & Gore, 1990).

Teaching Diverse Learners (2003), a website hosted by Education Alliance at Brown University, states that teachers of diverse learners must realize that understanding cultural differences is an integral part of

being an effective teacher. The website asserts that these cultural differences dictate how a sensitive teacher should approach teaching. Although a teacher cannot be expected to know everything about all the languages and cultures in a classroom, it is essential to have a general understanding of the cultural norms.

Defining Dispositions

Katz (1993a) tentatively defined a disposition "as a pattern of behavior exhibited frequently and in the absence of coercion, and constituting a habit of mind under some conscious and voluntary control, and that is intentionally and oriented to broad goals" (p. 16). A more technical definition of dispositions was proposed by Buss and Craik (in Katz & Raths, 1985). They posited dispositions are summaries of act frequencies and are related to teacher candidates' feelings about people, ideas, and activities. Therefore, "When an individual enacts certain behaviors with sufficiency, one can infer that he or she has a given disposition" (p. 301). Similarly, Bertram and Pascal (2002) defined dispositions as "behavioral characteristics and attitudes exhibited frequently in young children and in the absence of external coercion, threat, or reward which indicate internalized habits or mind under conscious and volunteer control" (p. 246).

Given these definitions, an understanding emerges that regards dispositions as habits of thinking and doing that are voluntary and frequent. However, dispositions should not be confused with mindless habits, but instead, conceptualized as “habits of mind” (Katz, 1993, p. 303). Another important characteristic of dispositions is that they are environmentally sensitive, meaning they are acquired, supported, or weakened by interactive experiences in an environment, and with significant adults and peers (Bertram & Pascal, 2002). Dispositions can be further delineated as desirable and undesirable. Desirable dispositions such as resourcefulness, curiosity, persistence, and striving for accuracy should be strengthened. Conversely, diminishing undesirable dispositions such as selfishness, impatience, and intolerance is also a desirable goal.

Wasicsko (2004) stated that a teacher must be able to work with students of diversity. He said that a ten-year old summed it up best by stating this about her favorite teacher: “She can see what the world looks like through my shoes” (p. 1).

Dispositions as Teacher Education Goals

Twenty years ago Katz and Raths (1985) introduced the construct of dispositions as teacher education goals. They

provided clarity to the concept of dispositions by contrasting it with attitudes, habits, and traits. Briefly, attitudes can be thought of as “pre-dispositions to act positively or negatively with respect to a particular phenomenon” (Katz 1993a, p. 10). Therefore, having a particular attitude does not necessarily result in the displaying of the accompanying behavior. Regarding habits and traits, they can be delineated as behavioral patterns that are performed without conscious attention (Passmore, 1972).

Another reason dispositions should be included as goals for teacher education is the feasibility of the conceptual “fit”. Katz (1984b in Katz & Raths, 1985) recommended using dispositions as opposed to focusing on skills or philosophical orientations. For example, graduates of teacher education institutions should be skillful teachers, but to identify the myriad of skills necessary for pre-service teachers to have would likely entail a long and detailed listing of skills. Instead, grouping related skills associated with dispositions would better enable teacher educators to discern if goals were being achieved. Conversely, if a goal is too philosophically broad, such as the statement that all students will be life-long learners, teacher educators

might have difficulty orientating their efforts towards such a broad goal. Moreover, dispositions as goals for teacher education could form the basis upon which assessments of teacher candidates are established (Katz & Raths, 1985).

Raths (2001) provided another rationale for the use of dispositions. He examined the technical, theoretical, and ethical problems associated with students' beliefs and recommended teacher educators shift their focus away from changing students' beliefs and instead strengthen particular dispositions.

Assessing Dispositions

Wasicsko (2005) asserted that teacher educators must be more effective in producing educators who have the disposition necessary to positively impact students during their teaching career. Several researchers have suggested ways that teacher educators can assess whether their teacher candidates have achieved disposition standards. Wasicsko (2003) wrote Assessing Educator Dispositions: a Perceptual Psychological Approach as a means of assessing teacher candidates' dispositions as evidence for the NCATE 2000 standards. The instrument developed in this quantitative and qualitative study was used to assess dispositions of educators at Eastern Kentucky University.

According to Wasicsko (2003), the instrument was based on the work of Arthur W. Combs, who spent 30 years conducting numerous studies to explore the dispositions necessary to being an effective educator. These dispositions were determined through evaluations of teachers by pupils, peers, and administrators, the winning of national honors for outstanding teaching, and test scores on achievement tests by teacher candidates. Five categories were determined to differentiate effective from ineffective educators: (1) perceptions about subject matter, (2) perceptions about self (self-concept), (3) perceptions about other people, (4) perceptions about the teaching task, and (5) general frame of reference.

According to Galluzzo (2002), the qualities of an effective teacher cannot be measured with a paper-and-pencil test. He suggested that instead of a written test, a rigorous, performance-based assessment should encompass all routes to becoming a teacher, assessing “how well they understand the discipline, by how capable they are of reaching all learners, and by how hard they persevere in service of their students, (par. 10)”. Pohan and Aguilar (1999) would probably disagree with this statement, as their research has focused on the development and validation of a written instrument that could be used to

assess personal and professional beliefs about diversity. In their review of the literature, they confirmed that there was at that time no instrument to measure these beliefs.

Pohan and Aguilar (1999) developed a manual that includes the Professional Beliefs about Diversity scale with instructions on how to administer and score the survey. The Professional Beliefs about Diversity scale includes several factors including race/ethnicity, gender, social class, sexual orientation, religion, ability, language, multicultural education, and pluralism. The instrument's intended use is to evaluate the disposition of educators, teacher candidates, and other people associated with an educational setting such as school board members, staff, parent groups, counselors, etc.

The literature suggests that teacher candidates' dispositions affect their ability to work with students of diversity. However, the question of what factors in their lives helped form their dispositions should also be addressed. Diversity has different meanings to different people; therefore teacher candidates should be educated as to what student diversity means and whether they may have biases that should be revealed to them before they enter the field of education. To address these issues,

literature from the following areas was reviewed and is reflected in the content of this chapter: defining dispositions, the role of teacher education programs in the area of dispositions, the effect of teacher candidates' disposition on working with students of diversity, why studying about diversity is important, how national accrediting agencies' licensure and certification of dispositions have affected teacher education programs, and how teacher candidates' dispositions are being supported and assessed.

Dispositions and Teaching Diverse Students

Wasicsko (2002) stated that there is a relationship between perceptions and behavior. If a student perceives that the teacher considers him to be a troublemaker or stupid, then he will behave in this manner. Effective teachers are able to relate to a diverse population. Ineffective teachers are only able to relate to a population with beliefs similar to their own.

An ineffective teacher may think that children who do not speak English are dumb and may not be willing to work with them. Patricia Leek's (2001) dissertation at the University of Texas was a study of 271 teacher candidates' attitudes toward language diversity and linguistically diverse students. Leek's study determined that those who

plan to teach at the elementary school level have a more positive disposition towards language diversity. Gender, race, and age were not predictors of tolerance towards students with language diversity. Her findings did indicate a significant variation in disposition toward language diversity based on race/ethnicity, teacher certification sought, political ideology, psychological insecurity, and cognitive sophistication.

A small but growing body of literature addresses cultural dissonance between instructors and learners as a factor in learner attrition. These studies have suggested that those outside the dominant culture may find that their "differentness" may result in unequal and limited access to education and other resources that can facilitate social or economic progress. Nieto (2003) asserted that these students are marginalized in society, and their cultures, languages, and moral codes are frequently dismissed as inferior social practices, even in school settings. Cummins (1986) claimed that teachers who have stereotypical beliefs, which would be a poor disposition, have a direct impact on students' success or failure in school. However, according to Zeichner and Gore (1990) most teacher preparation programs do not satisfactorily prepare teacher candidates to accept students with diverse issues. The

experience of the researcher concurs with these assertions. The teacher education program in which the researcher teaches is one of the top producers of teacher educators in the state of Oklahoma, but she has sat in many intern teaching open-forums where the interns were able to speak freely about the preparation they gained through the program, and one of the complaints is that they were not adequately prepared for the challenges they will face in educating diverse students. Hopefully, the requirements that have been set by national accrediting agencies will force teacher educations programs to evaluate their curriculum and make the changes that are needed.

Role of Dispositions in Accrediting and Certification

The National Council for the Accreditation of Teacher Education (NCATE) is an organization that accredits colleges, schools, or departments of education in the nation and is the only accrediting organization that is officially recognized by the U.S. Department of Education (NCATE, 2004). The NCATE Board of Examiners Report for 2000 Standards requires teacher education member institutions to provide documentation of how dispositions are evidenced, used, nurtured in students, and assessed. The report requires evidence of dispositions in four of the six standards. They are as follows (NCATE, 2004):

"Standard 1: Candidates preparing to work in schools as teachers or other professional school personnel know and demonstrate the content, pedagogical, and professional knowledge, skill, and dispositions necessary to help all students learn" (p. 8).

Specific questions to be answered by the Board of Examiners in Standard 1 include:

- What dispositions does the unit expect its candidates to have developed by completion of the programs? How do these differ across programs?
- How are candidates informed about the dispositions they should develop?
- How are dispositions assessed?
- What evidence indicates candidates are knowledgeable about, and can demonstrate the professional dispositions delineated in state, professional, and institutional standards?
- What do interviews or surveys of cooperating teachers, internship supervisors, and school administrators indicate about candidates' dispositions?
- What do interviews and follow-up surveys of candidates and graduates indicate about their development of

dispositions expected by the profession (NCATE, 2002, p. 10)?

Standard 2 pertains to the unit's assessment system and evaluations. Specifically, it requires information about "How are assessments used to monitor candidate performance and to determine that candidates have develop[ed] the knowledge, skills, and dispositions required by the professional, state, and institution" (p. 13)?

Standard 3 relates to field experiences and clinical practice. It addresses how teacher candidates demonstrate dispositions necessary to help all students learn in field experiences and clinical practice. Standard 4 addresses the interplay of diversity and dispositions, asking "What knowledge, skill, and dispositions related to diversity are candidates expected to develop" (p. 19)? This standard asks for information about what assessments are used to determine candidates' dispositions to help all students and how field experiences support candidates' development and practice of dispositions as they work with diverse P-12 students.

Clearly, NCATE accreditation standards recognize and embody the role of dispositions for both teacher candidates and the children they teach. Carr and Claxton (2002)

pointed out that researchers are now turning their attention to the task of tracking the development of *students'* dispositions and that a focus on dispositions sends the message to future teachers that it is no longer adequate to plan only for students' learning and skill development. Wheatley (2002) advocated development of teacher dispositions and asserted that teacher preparation universities should use a measurement of disposition for persistence as a criterion for entry into the education program.

NCATE (2002) has recognized the role of the National Board for Professional Teacher Standards in assessing and rewarding appropriate dispositions in experienced teachers, stating that the Board "is an organization of teachers and other educators which has developed both standards and a system for assessing the performance of experienced teachers seeking national certification" (p. 54). These professional standards clarify what knowledge, skills, dispositions, and beliefs Board-certified teachers exemplify. The Board itself asserts that "Curiosity, tolerance, honesty, fairness, respect for diversity" (National Board for Professional Teaching Standards, 2000, p. 4) are considered virtues of a board-certified teacher. These virtues could readily be considered dispositions.

The National Board further supports teacher dispositions, stating that “Moreover, they [teachers] model other dispositions and traits as well as a commitment to be creative in their work and the disposition to take risks in exploring new intellectual, emotional, physical, and artistic territories” (2002, p. 16). According to the National Board, by teachers modeling these dispositions, the tacit goal is to strengthen the same dispositions in their students. To this end, Board-certified teachers display dispositions that are foundational to life-long learning while simultaneously nurturing the desire to learn in students.

Supporting Teacher Candidates’ Dispositions

Teacher educators and experienced teachers, particularly National Board certified educators, possess a strong disposition to reflect on their practices. Barbara Bowman (1989) considered it imperative that teachers engage in reflection to understand how children feel and to use reflection to understand themselves. Bowman asserted that providing opportunities for future and current teachers to reflect on how children feel can be accomplished when assignments cultivate their heightened awareness of the child. Two activities, one associated with observing chil-

dren playing math games, is detailed later in this literature review, and another is discussed below.

Cooney, Williams, and Nelson (1998) provided an in-depth explanation of an assignment that supports future teachers' disposition reflection by requiring undergraduate students to "practice being nonjudgmental and open to experiencing the child's perspective" (p. 220). Students' reflections revealed how this assignment required engaging in new experiences. For example, just observing and not interacting with a child was new to them. Additionally, this research found that students relied on each other to construct an understanding of what children understood. Playacting and storyacting their observations became a satisfying and insightful activity despite students' initial resistance. Woven in this process was the identification of best practices in the classrooms and other issues related to young children. As teacher candidates engaged in observations, their child's developmental patterns began to emerge in all the domains. The researchers claimed that the positive dispositions that were supported as teacher candidates sharpened their observation skills, grew to be less judgmental, and became more sensitive to the child's classroom experience (1998).

Some researchers have posited that teacher educators should possess the disposition to be reflective thinkers, but that due to the pressure of teaching, writing, and research, time for reflection is often scarce. Swaminathan (1999) addressed this issue by using a modified version of the exit slip that was a non-consuming strategy that enabled both teacher candidates and teacher educators to reflect and analyze their learning. The exit slip process involved putting aside the last five to seven minutes of class for teacher candidates to reflect and "write one thing they have learned and one question they have…" (Swaminathan, 1999, p. 146). The exit slip was left on the desk as they departed. Afterward, the exit slips were read and divided into three piles: those that required a response, those that had questions, and those that required clarifications. At the beginning of the next class, clarifications were provided and questions responded to.

A similar strategy called "think alouds" was developed by Gordinier, Moberly and Conway (2004). This strategy provided opportunities for university instructors to reflect on what concepts were dealt with effectively or ineffectively plus provided an overview of the next class session's material or activity. After the "think alouds", the teacher candidates were asked to conduct their own

reflections about the class session and what they observed before making any recommendations to the instructor.

Parrot and DaRos-Voseles (2004) used Bronfenbrenner's Ecology of Human Development model to help students understand how children directly and indirectly shape and are shaped by their environments. They welcome the opportunity to expand students' awareness of environmental factors that contributed to their own uniqueness by instituting an assignment that was the basis of a study conducted by Lowe, Martin, and Fox (2001). After students became acquainted with the Ecology of Human Development model, they examined their life using this model as a framework. In so doing, prospective teachers recognized how their interactions with the various systems (i.e. microsystem, mesosystem, etc.) have shaped their beliefs and attitudes. In turn, teacher candidates grew to appreciate how important it is to understand the context of children's lives, which may be drastically different than their own childhoods. Through the reflective process, it was hoped that the students' disposition to appreciate diversity is strengthened. Also, future teachers were nudged beyond their comfort zone to embrace and appreciate the uniqueness of all children.

Jalongo and Isenberg (2000) reported a study by Kramer that identified characteristics of outstanding early childhood educators. Some of the characteristics comprised dispositions: ability to view themselves as learners, willingness and ability to grow, being keen observers, ability to take risks, willingness to explore, flexibility, and being filled with a sense of wonder.

Given these characteristics, asking the question "How can I support future teachers' dispositions?" suggests an important concern. Kamii and Housman (2000) felt this question was important because teacher candidates who display a willingness and ability to grow are likely to display autonomy. They asserted that teacher candidates' autonomy is evidenced when they take into account the view points of others and make decisions for themselves. Consequently, this sense of professional autonomy develops when teacher candidates as well as graduate students who are novices and experienced teachers are given opportunities to share their views with others and to hear and to debate the views of others (Parrott & DaRos-Voseles, 2004). How are teacher education programs assessing their teacher candidates' dispositions?

CHAPTER 3

METHODOLOGY

Design

"Descriptive studies describe a given state of affairs as fully and carefully as possible" (Fraenkel & Wallen, 2003, p. 15) typically using a survey to "summarize the characteristics of individuals or groups" (p. 15). A descriptive study was designed to determine Oklahoma CareerTech teachers' dispositions towards teaching students of diversity and addressed five specific research questions.

Research Questions

1. What is the demographic profile of CareerTech teachers in Oklahoma?
2. What is the disposition profile of CareerTech teachers in Oklahoma?
3. What are the differences in disposition scores among demographic groups?
4. What clusters exist among CareerTech teachers in Oklahoma?
5. What factors discriminate among the clusters?

Population and Sample

The population is the “group to which the researcher would like the results of a study to be generalizable; it includes all individuals with certain specified characteristics” (Fraenkel & Wallen, 2003, p. G-6). According to the Oklahoma CareerTech (2005) webpage, in May 2006, there were 2,345 secondary and postsecondary CareerTech teachers which was the population of this study.

A sample is a representative group of a larger population (Brown & Curtis, 1987, p. 50). The sample for this study was a self-selected convenience sample of CareerTech teachers currently teaching in Oklahoma who chose to respond to a survey presented via the Internet. According to Fraenkel and Wallen (2003), a sample size of 10% is necessary for sampling adequacy in order for it to be generalizable to the population. Generalizability is the “degree to which a sample represents the population of interest” (p. 109). Based on Fraenkel and Wallen’s guideline, a sample size of 250 respondents was necessary for this study. There were 366 respondents to this survey, which represents an acceptable sample size. Statistical analysis of data will allow for the results to be generalized across the population of Oklahoma CareerTech teachers.

Instrumentation

This study was based on the Combs perceptual theory of dispositions theory that people behave according to how they perceive, perceptions are cumulative and change slowly, and self is an instrument for assessing dispositions. Combs demonstrated that effective and ineffective teachers could be differentiated "using a high inference instrument in conjunction with samples of behavior that can be written narratives, interviews and/or observations of teaching/helping situations" (Wasiscko, 2005). Wasiscko (2005), who was mentored by Combs, felt that this instrument was limited by the necessity for highly trained raters who received first hand, individualized training in its use by Combs.

Wasiscko (2005) was guided by Combs in developing an instrument which would not require first hand instruction. A quantitative and qualitative assessment of written narrative analysis of a person's dispositions to teach was developed, Assessing Educator Dispositions: a Perceptual Psychological Approach, and has been deemed an effective instrument for assessing dispositions of educators. This instrument is being used by numerous colleges of education to determine whether the teacher candidate should be admitted into the teacher education program, but it can

also be used by superintendents to assess the disposition of prospective teachers (2005).

Based on Combs' perceptual theory of dispositions that self is an instrument and Wasiscko's instrument, which has both theoretical and operational success, the concept of "instrumented learning" appeared to be the most appropriate to the researcher for this study. Ausburn (2004) defined instrumented learning as use of an "inventory-type device to gain understanding of self and others, to improve performance, and to enhance the processes of metacognition and learning how to learn" (p. 4). An instrumented learning tool is an appropriate instrument for measuring teachers' dispositions for diversity based on the framework of Combs' perceptual theory of dispositions, with its emphasis on self as an instrument for assessing dispositions (Combs, 1965).

The survey instrument chosen for this study was the Professional Beliefs about Diversity (Pohan & Aguilar, 1999), because it is a self-assessment survey which could be used to collect information from Oklahoma CareerTech teachers about how they scored factors that may affect their dispositions to teach students with a diversity of characteristics and backgrounds. Pohan's (1996) dissertation, which took six years to research and write,

was the development and validation of an instrument that could be used to assess personal and professional beliefs about diversity. In her review of the literature it was determined that there was no instrument to measure these beliefs at that time. This instrument was designed to be used with pre-service and in-service teachers, education administrators, and school board members whether or not they had training in working with a diverse population.

Pohan (C. Pohan, personal communication, April 15, 2004) conducted eight years of validation and reliability studies to get this instrument accepted by NCATE and the educational community. Pohan and Aguilar (1999) conducted 12 field tests with over 2000 subjects in five states. This instrument is both reliable and valid measures of one's professional beliefs about diversity (Pohan & Aguilar, 1999). It is being used by colleges of education across the nation to determine whether a person has the disposition to become an effective teacher. It is also being used by doctoral students in various studies.

The Professional Beliefs about Diversity (Pohan & Aguilar, 1999) instrument was copyrighted in 1998, has 25 questions, and uses a 5-point Likert scale which generates a score for each participant. The Professional Beliefs about Diversity (1999) manual stated that it is not to be

considered a “test” but should be referred to as an instrument or activity. In addition to the 25 disposition questions, there are six basic demographic questions: age range, gender, race, marital status, range of years of teaching experience, religious affiliation, and educational attainment. There are seven demographic questions which were created by this researcher and are pertinent to information regarding Oklahoma CareerTech teachers: CareerTech agency division in which they are affiliated, type of teaching certificate, CareerTech environment in which they teach, whether they are national board certified, whether they speak a language other than English, and whether they have participated in any classes, workshops, or professional development involving working with students of diversity.

The researcher was not able to match participants to their responses. A numerical code was assigned to each response set for the purpose of data matching and management only. The submission of the questionnaire was the participants’ agreement to participate in the study, which was clearly stated (see Appendix B) on the screen before the participant opened the questionnaire. A copy of the survey is provided in Appendix A.

The survey methodology of the study created some limitations. Since the researcher e-mailed the survey to groups of 25 CareerTech teachers at a time, some of the e-mails were considered spam and sent to the junk mail. The researcher was informed of this by some teachers through e-mail, and the survey was then individually sent to that teacher. There is no way of knowing how many e-mails went to the junk mail and were not noticed by the CareerTech teacher. Some teachers informed the researcher that their e-mail server would not allow them to open the weblink to the survey, so the researcher sent an individual e-mail to them. These teachers responded that they were then able to fill out the survey. There is no way of knowing how many teachers were unable to open the survey and deleted the e-mail rather than contacting the researcher. The researcher was also contacted by teachers that did not wish to respond to the survey as they felt that no matter how they answered that it would show a bias towards some group. There were others who e-mailed stating that they did not feel that there would be total anonymity since it was through an online survey.

Procedures

Approval was obtained through the Oklahoma State University IRB office to conduct the study. The survey was

submitted online using the Websurveyor program. The e-mail addresses of the Oklahoma CareerTech teachers are available on the web. Steps were followed to download them, but the file was too large, so a representative of the Oklahoma CareerTech State Department was contacted requesting help. The e-mail addresses were sent to the researcher in an Excel spreadsheet via e-mail. The Oklahoma CareerTech teachers were invited to complete the survey via an e-mail invitation. The online survey was designed so that the respondents' answers were automatically sent to a database when the "submit" button was clicked. The e-mail requested that they fill out the survey, assuring them that the survey was designed so that they would receive total anonymity. The researcher sent out the survey online May 15, 2006, and had it available for response for two weeks.

After the survey had been available online for two weeks, a second e-mail was sent to all the CareerTech teachers reminding them about the survey, and a third e-mail was sent to all the Oklahoma CareerTech centers thanking the teachers who had already responded and to again request that those who had not responded fill out the survey.

The researcher was not able to match participants to their responses. A numerical code was assigned to each

response set for the purpose of data matching and management only. The submission of the questionnaire was the participants' agreement to participate in the study, which was clearly stated (see Appendix B) on the screen before the participant opened the questionnaire. The data gained from the online survey were stored on the Websurveyor server which is available to faculty who teach at the university where the researcher works.

Analysis of Data

Before summing the participants' score, questions 1, 3, 5, 7, 8, 10, 13, 18, 23, and 25 were reversed (1 = 5, 2 = 4, 3 = 3, 4 = 2, and 5 = 1). This was done through the SPSS statistical software package. The lowest score possible was 25 and the highest was 125. The higher the score the better the disposition to teach students of diversity, but Pohan and Aguilar (1999) did not provide an interpretation of what level of scores would be indicative of a "good" disposition. The Professional Beliefs about Diversity (Pohan & Aguilar, 1999) manual provided a general guide for what could be expected for a pre-test. The range of scores for Pohan and Aguilar's pre-test was 67 to 119 for a sample size of 179, with a mean of 95.63, and a standard deviation of 9.39. The Cronbach's alpha co-efficient for internal reliability was .817.

The survey data were analyzed through several different quantitative statistical techniques using the SPSS statistical software program. Research question 1 was addressed by the construction of demographic profiles of the Oklahoma CareerTech teachers through descriptive statistics. Question 2 was addressed through factor analysis of the 25-question survey in order to examine the structure of the Oklahoma CareerTech teachers' responses on the 25 items of the Professional Beliefs about Diversity. The factor analysis used principal components extraction method and rotation to varimax criterion to create orthogonal factors and factor loadings for interpretation. A raw score was obtained for each item and summed to create a total disposition score for each participant (n=366). The lowest score possible was 25, and the highest score possible was 125. Using the 25 items of the survey, an initial unrotated exploratory principal component analysis of the raw data from this study was used to determine the numbers of factors to be considered and which, if any, additional items should be deleted from further analysis. The exploratory principal component analysis yielded eight factors with Eigenvalues greater than 1.000 with a total cumulative percent of variance of 52.046. A scree plot (see Figure 1) of the extracted principal components

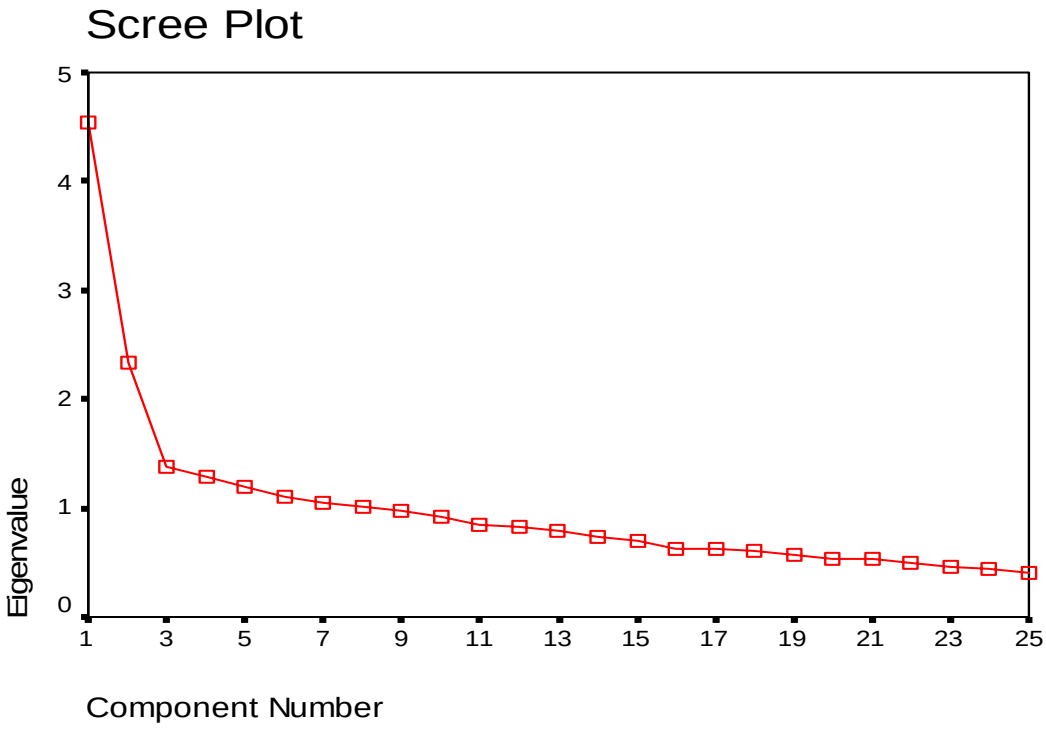
indicated that only three factors of the eight with eigenvalues greater than 1.000 should be retained for further analysis through factor rotation. The 3-factor extraction was then rotated to varimax to produce a factor matrix with factor loadings for each of the 25 disposition items on the factors. Total disposition scores and scores on each of the three factors identified in the factor analysis were used to construct disposition profiles for the Oklahoma CareerTech teachers to answer research question 2.

Research question 3 required analysis of differences in disposition scores among demographic groups in the Oklahoma CareerTech teachers. This was accomplished with Analysis of Variance (ANOVA) calculations to compare group means on total and factor disposition scores.

Research questions 4 and 5 addressed the identification of naturally occurring groups among the Oklahoma CareerTech teachers and the items that discriminated between the groups. These questions were answered using a cluster analysis using Ward's method to identify the groups and a set of discriminant analyses to examine the variables that separated the groups. Chi-Square analyses were conducted to determine the significance between the demographic variables and the

professional variables to the four groups that were revealed.

Figure 1: Scree Plot of rotated varimax component matrix data of the 25-item survey instrument



CHAPTER 4

FINDINGS

Profile of Participants

The first research question for this study addressed the demographic profile of the Oklahoma CareerTech Teachers. The list of the population of 2,345 was compiled and sent to the researcher by a representative of the Oklahoma CareerTech State Department. These only included those teachers who had an e-mail address on file as of May, 2006. An e-mail was sent to all the teachers on the list requesting their participation in the study. A total of 366 teachers voluntarily completed the research survey and become the sample in this study. Demographic information collected from the survey used for this study include age; years of teaching experience; gender; race; marital status; educational attainment; CareerTech agency division which they are affiliated; type of teaching certificate; CareerTech environment in which they teach; whether they are board certified; level of their students; and if/where they have participated in classes, workshops,

or professional development involving working with students of diversity.

In order to generalize to the population, the sample must be comparable to the population. Table 2 reports the comparative frequencies of the demographics of the sample and the population. Table 3 reports the comparative frequencies of the professional characteristics variables of the sample and the population.

According to the demographic information provided by the Oklahoma CareerTech department (see Table 2), 50% of the Oklahoma CareerTech teachers are male and 50% are female. There were slightly more females than males in the sample, but this difference was less than 10%. Nearly three-fourths (73.7%) of the participants were over the age of 40, which matches the population. The racial composition of the participants was similar to the population. Information was not available from the Oklahoma CareerTech department on the years of teaching experience of the population of teachers, so comparison to the sample could not be made. The distribution of levels of education was generally similar for the population and sample. The exception was that the sample had nearly 50% more with graduate degrees than the population, making the

sample somewhat more educated than the Oklahoma CareerTech teacher population.

Table 2: Demographic Comparison of the Sample to the Population

Sample			Population
Variable	Freq.	%	%
Gender			
Male	157	42.9	50.0
Female	207	56.6	50.0
Missing	2	.5	
Age			
21-29	15	4.1	6.0
30-39	81	22.1	18.0
40-49	133	36.3	32.0
Above 49	137	37.4	36.0
Unknown			8.0
Race			
White	311	85	84.0
African Amer	9	2.5	3.0
Asian	2	0.5	0.0
Hispanic	3	0.8	0.0
Latino	2	0.5	
Multiracial	2	0.5	
Amer Indian	36	9.8	8.0
Hawaiian or Pacific	1	0.3	
Other			1.0
Unknown			3.0
Experience			
First year	16	4.4	Numbers not available for Population
1 to 5 years	67	18.3	
6 to 10 years	76	20.8	
11 to 15 years	73	19.9	
16 to 20 years	43	11.7	
Over 20 years	91	24.9	
Education			
AA	16	4.4	7.0
BA	164	44.8	55.0
Grad/MS/Doc.	153	41.8	28.0
Some coll	31	8.5	
HS Grad	2	0.5	6.0
Technical School			3.0

Sample			Population
Variable	Freq.	%	%
Education (cont.)			
Unknown			1.0

Academic teachers at Oklahoma CareerTech centers were not listed separately for the population from the information sent to the researcher by the Oklahoma CareerTech Department (see Table 3), so a comparison between sample and population on this variable was not possible. The alternatively certified teachers were well represented as almost 7% of the participants have an alternative certificate compared to 2% of the population are alternatively certified. Nearly 70% of the participants had a standard certificate which was very similar to the population. The same was true of those who have provisional certificates. There were 46 Oklahoma CareerTech teachers who were National Board certified; 39 of these 46 (84.8%) participated in the survey and made up 10.7% of the sample. The agricultural education Oklahoma CareerTech teachers were not as well represented in this study as the other CareerTech divisions, which was the only marked division discrepancy between the population and sample. Forty-three percent of the participants taught at a comprehensive high school which was within 10% of the population figure. The population information provided by

the Oklahoma CareerTech department did not list how many taught at a skills center. There was no information provided by the Oklahoma CareerTech State Department as to how many teachers had training in working with students of diversity or where they received their training. In the sample, participants reported diversity training from several sources: 50% had received training on diversity through Oklahoma CareerTech professional development workshops, 14% had received no training on diversity, 9% had received training while working in industry, and 26% had received training through higher education. Overall, the sample was similar to the population on variables for which comparison was possible. Therefore, the sample can be concluded as a fair representation of the CareerTech teacher population in Oklahoma.

Table 3: Professional Characteristics Comparison of the Sample to the Population

Sample			Population
Variable	Freq.	%	%
Oklahoma CareerTech Division			
Acad. Teacher at CareerTech Cntr.	15	4.1	
Agricultural Ed.	27	7.4	16.0
Bus. & Inform. Tech Ed.	73	19.9	14.0
Fam. & Cons. Sci. Ed.	66	18	17.0
Hlth. Car. Ed.	53	14.5	15.0
Mar. Ed.	7	1.9	2.0

Sample			Population
Variable	Freq.	%	%
Tech. Ed.	35	9.6	9.0
Trade & Ind. Ed.	88	24	24.0
Client-Based/Other			2.0
Missing	2	.5	
Type of Teaching Certificate			
Alternative	24	6.6	2.0
Standard	256	69.9	63.0
Provisional	68	18.6	14.0
Emergency			0.0
License			5.0
None			3.0
Unknown			13.0
Missing	18	4.9	
Environment			
Technology Center	188	51.4	49.0
Comprehensive High School	157	42.9	51.0
Secondary Only			53.0
Approved for Both			32.0
Adult Only			15.0
State Funded			0.0
Missing	4	1.1	
National Board Certified			
Yes	39	10.7	1.7
No	325	88.8	98.3
Missing	2	.5	
Level			
Secondary	171	46.7	
Post Secondary	48	13.1	
Both	145	39.6	
Missing	2	.5	
Diversity Training			
No training	51	13.9	
Industry workshops	33	9.0	
CT Prof Development	184	50.3	

Sample			Population
Variable	Freq.	%	%
Higher Ed	95	26.0	
Missing	3	.8	

Diversity Scale

The disposition toward diversity of the 366 Oklahoma CareerTech participants was measured with the Professional Beliefs about Diversity survey (see Table 4). Before analyzing the profile of the participants, the properties and structure of the survey's 25 diversity disposition items were examined for the sample of Oklahoma CareerTech teachers. To do this, first the negative items were recoded according to the directions for scoring the instrument (Pohan & Aguilar, 1999). The responses for items 1, 3, 5, 7, 8, 10, 13, 18, 23, and 25 were reversed (1 = 5, 2 = 4, 3 = 3, 4 = 2, and 5 = 1). A factor analysis was then performed to determine if the 25 items in the instrument could "be reduced to a smaller, more manageable, and interpretable number of factors" (Kachigan, 1991, p. 238). The results of this factor analysis were then used to examine the disposition profile of the Oklahoma CareerTech teachers.

Table 4: Items of the Professional Beliefs about Diversity

No.	Items
1	Teachers should not be expected to adjust their preferred mode of instruction to accommodate the needs of all students.
2	The traditional classroom has been set up to support the middle class lifestyle.
3	Gays and lesbians should not be allowed to teach in public schools.
4	Students and teachers would benefit from having a basic understanding of different (diverse) religions.
5	Money spent to educate the severely disabled would be better spent on programs for gifted students.
6	All students should be encouraged to become fluent in a second language.
7	Only schools serving students of color need a racially, ethnically, and culturally diverse staff and faculty.
8	The attention girls receive in school is comparable to the attention boys receive.
9	Tests, particularly standardized tests, have frequently been used as a basis for segregating students.
10	People of color are adequately represented in most textbooks today.
11	Students with physical limitations should be placed in the regular classroom whenever possible.
12	Males are given more opportunities in math and science than females.
13	Generally, teachers should group students by ability levels.
14	Students living in racially isolated neighborhoods can benefit socially from participating in racially integrated classrooms.
15	Historically, education has been monocultural, reflecting only one reality and has been biased toward the dominant (European) group.
16	Whenever possible, second language learners should receive instruction in their first language until they are proficient enough to learn via English instruction.
17	Teachers often expect less from students from the lower socioeconomic class.

No.	Items
18	Multicultural education is most beneficial for students of color.
19	More women are needed in administrative positions in schools
20	Large numbers of students of color are improperly placed in special education classes by school personnel.
21	In order to be effective with all students, teachers should have experience working with students from diverse racial and ethnic backgrounds.
22	Students from lower socioeconomic backgrounds typically have fewer educational opportunities than their middle class peers.
23	Students should not be allowed to speak a language other than English while in school.
24	It is important to consider religious diversity in setting public school policy.
25	Multicultural education is less important than reading, writing, arithmetic, and computer literacy.

Note: Reversed items are shaded.

Factor Analysis

Factor analysis is a technique used to reduce several variables to a smaller set of factors. Variables should be “quantitative, have a wide range of scores, and be unimodally, symmetrically distributed” (Green & Salkind, 2005, p. 312). It can be used to determine which items can be excluded, but factor analysis should be used in conjunction with knowledge of the items being assessed. There are two stages of factor analysis: factor extraction and factor rotation. In the first stage, a determination is made as to how many factors make up the base of the

variables by “extracting factors from a correlation matrix” (p. 314). The eigenvalues are obtained through statistical analysis, and their absolute and relative magnitudes are assessed. As a general rule, a factor should have an eigenvalue of 1.00 or greater in order to be considered for being retained in a factor solution (Kashigan, 1991, p. 246). An eigenvalue represents the variability of a factor. In the second stage of factor analysis, the data are manipulated statistically to improve interpretability. The factors are rotated to make them more interpretable and meaningful. Varimax is the most popular method of rotation (Kim, 1974, p. 485), and this was the factor rotation method used in this study. In a varimax rotation, the factors created are “orthogonal” or uncorrelated.

Using the 25 items of the dispositions survey, a factor analysis of the raw data from this study was used to determine the number of factors to be considered and which, if any, additional items should be deleted from further analysis. The factor extraction using principal components method yielded eight factors with eigenvalues greater than 1.00 with a total cumulative percent of variance of 55.54. The eight eigenvalues that were greater than 1.0 were as follows: 4.54, 2.34, 1.37, 1.29, 1.20, 1.10, 1.05, and 1.01. Since each item in the 25-item instrument could

account on the average for 4% (100%/25 items = 4%) of the total variation in the instrument (Kachigan, 1991, p. 246), the first and strongest factor accounted for 18.15% of the variance in the analysis while the eighth factor accounted for only 4.01% of the variance. A scree plot, which graphs the "incremental variance accounted for by each successive factor" (p. 246), was created to facilitate selection of factors for retention in a rotated factor solution. The scree plots (see Figure 1, p. 61) suggested that only three factors of the eight should be considered for further analysis. Therefore, a 3-factor solution was calculated using a rotated varimax component matrix to obtain factor loadings for each survey item on the retained factors (see Table 5). All 25 items loaded on these three factors above the .3 level. The factors had the following number of items: Factor 1--10, Factor 2--8, and Factor 3--7.

Table 5: Items and Factor Loadings in 3-Factor Solution for Professional Beliefs about Diversity

Questions	Scale Item Stem Only	Factor 1	Factor 2	Factor 3
22	Fewer Opportunities, SES	0.618		
15	Education biased toward the dominant group	0.600		
17	Teacher Expectations by SES	0.593		
20	Students of Color in SPED	0.592		
12	Males in Math and	0.551		

Questions	Scale Item Stem Only	Factor 1	Factor 2	Factor 3
	Science			
9	Tests to Segregate Students	0.524		
10	People of Color in Texts	0.505		
8	Attention Girls Receive	0.469		
2	Middle Class Classrooms	0.463		
19	More Women in Administration	0.315		
23	English Only in Schools		0.618	
24	Religion and School Policy		0.599	
25	Importance of MCE		0.558	
6	All Fluent in 2nd Language		0.546	
4	Understanding Diverse Religions		0.507	
3	Gay and Lesbian Teachers		0.499	
16	2nd Language Instruction		0.478	
1	Integrated Classrooms		0.411	
14	Experience w/Diverse Students			0.642
7	Diverse Staff and Faculty			0.634
13	Group Students by Ability			0.516
21	Experience with Diverse Students			0.425
18	MCE for Students of Color			0.425
11	Physical Limitations, Reg. Classroom			0.409
5	SPED Money for Gifted			0.369

The 3-factor solution, which was determined to be the best explanation of the data, accounted for 32.97% of the variance in the analysis. Each of the factors accounted for the following amount of variance: Factor 1 – 18.15%, Factor 2 – 9.34%, and Factor 3 – 5.49%. The survey items which loaded for Factor 1 referred to gender, socio-economic, students of color, and ability inequities in the classroom (see Table 5). Based upon the survey items that loaded in Factor 1, this factor was named by the researcher of this study Dominant Culture Inequities. The survey items which loaded on Factor 2 referred to second language usage, religious diversity, and sexual preference (see Table 5). Based upon the survey items that loaded on Factor 2, this factor was named Language and Culture: The Seeds of Diversity. The survey items which loaded on Factor 3 referred to students of color, physical limitations, and ability levels (see Table 5). Based upon the survey items that loaded on Factor 3, this factor was named Physical Characteristics.

The reliability of the diversity scale and its three factors were checked with the sample of 366 Oklahoma CareerTech teachers for this study. Cronbach's alpha was used to check internal consistency of the instrument and its factors. Cronbach's alpha is "an index of reliability

associated with the variation accounted for by the true score" (Santos, 1999, p. 2) of the variable being measured. "Alpha coefficient ranges in value from 0 to 1 and may be used to describe the reliability of factors extracted from questionnaires or scales. The higher the score, the more reliable the generated scale is" (p. 2). Nunnally (1978) indicated that 0.7 is a good criterion level for a reliable coefficient. The Cronbach's alphas for the Professional Beliefs about Diversity survey with the sample for this study were as follows: Total Score = .80, Factor 1 = .74, Factor 2 = .70, and Factor 3 = .59.

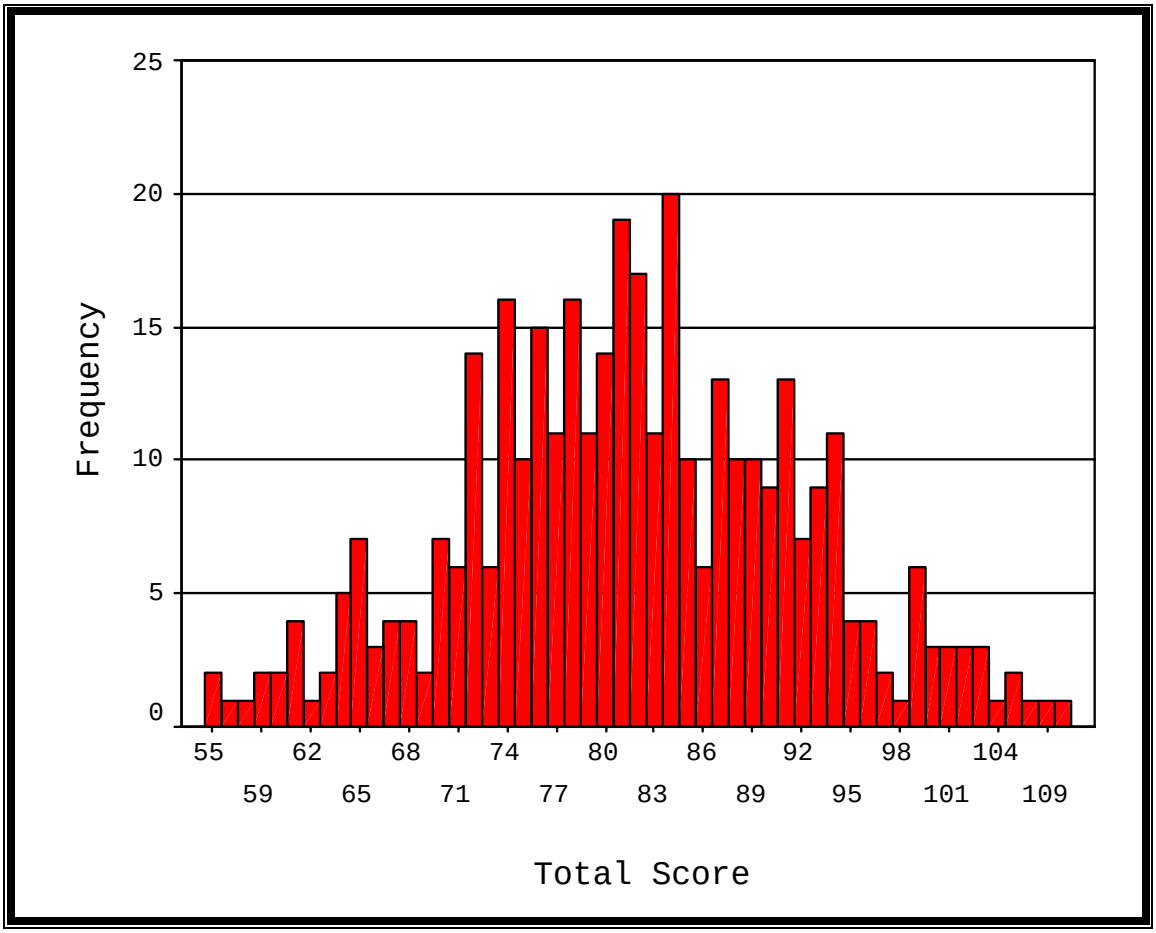
Disposition Profile

The second research question dealt with the disposition profile of Oklahoma CareerTech teachers. To determine this, scores were calculated for the overall instrument and for each of the three factors discovered in the factor analysis. After the negative items were recoded, responses for the items were summed to generate the scores for each respondent. Responses for each item were indicated on a Likert scale ranging from 1 to 5: 1—Strongly Disagree; 2—Disagree; 3—Neutral; 4—Agree; and 5—Strongly Agree. Items that were omitted by a respondent were assigned a Neutral value of 3; this allowed the scores to be computed and did not influence the person's score in either direction on the

survey.

The Total Score consisted of the responses to all 25 items in the survey. The possible range for Total Score is 25 to 125. A high score on Total Score and the three factors indicates the ability to work with students of diversity whereas a low score indicates a low ability to work with students of diversity. The Total Scores for the Oklahoma CareerTech teachers ranged from 55 to 121. The mean score was 81.67 with a standard deviation of 10.47, the median score was 81, and the mode was 84.1. A frequency distribution bar graph of the scores indicates an almost perfect normal distribution curve (see Figure 2).

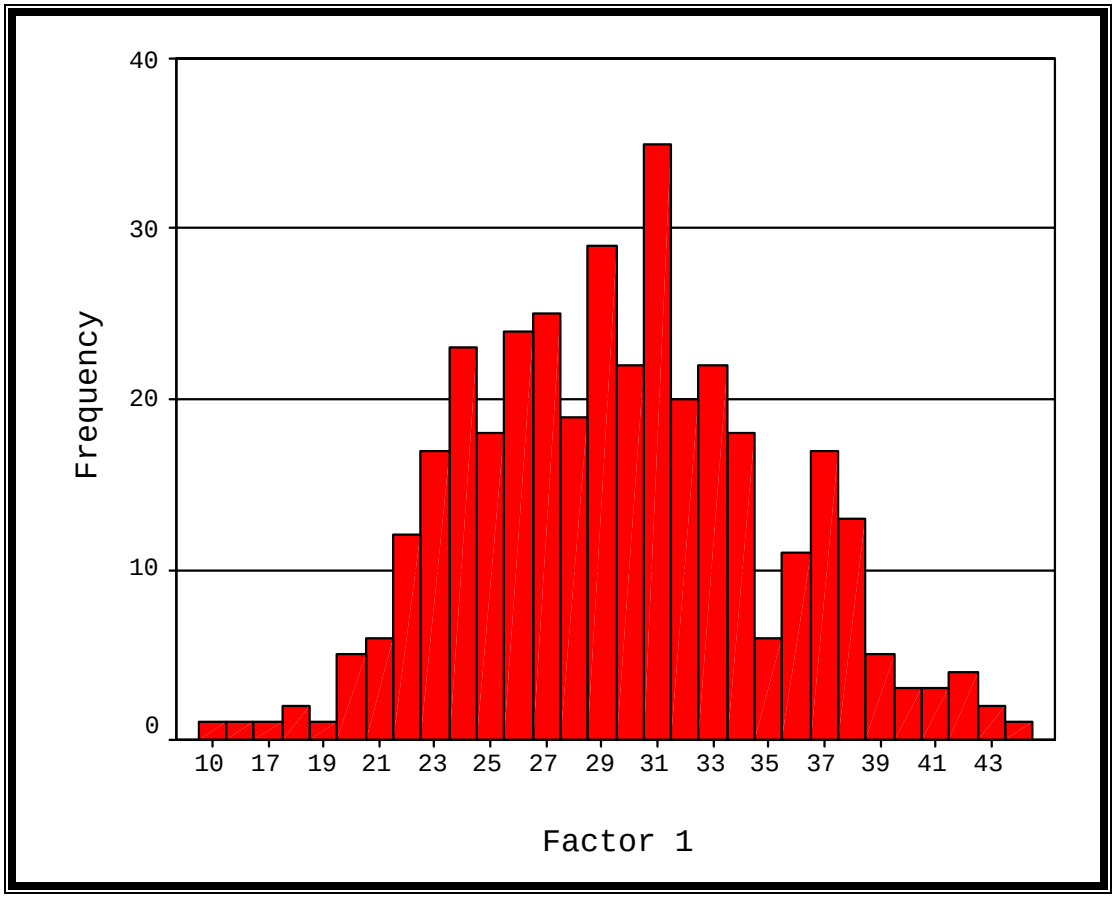
Figure 2: Frequency Distribution of Total Scores for Professional Beliefs about Diversity



The Dominant Culture Inequities score consisted of the responses to items 2, 8, 9, 10, 12, 15, 17, 19, 20, 22 in the survey (see Table 5). The possible range for Dominant Culture Inequities is 10 to 50. A high score indicates an awareness of influences the dominant culture has had on educational opportunities while a low score indicates a view that these factors do not greatly affect education. The scores on the Dominant Culture Inequities for the Oklahoma CareerTech teachers ranged from 10 to 46. The mean

score was 29.61 with a standard deviation of 5.46, the median score was 29.00, and the mode was 31. A frequency distribution bar graph of the scores indicates an almost perfect normal distribution curve (see Figure 3).

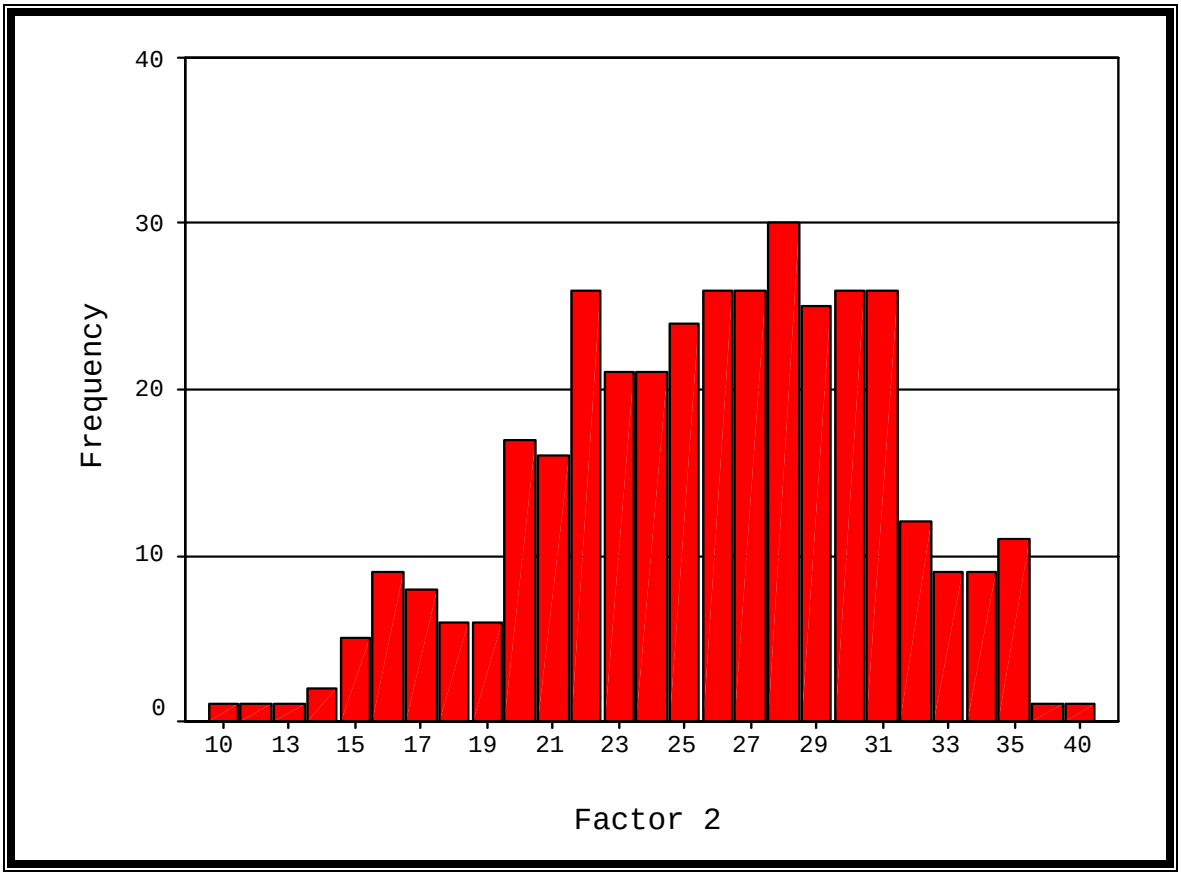
Figure 3: Frequency of Dominant Culture Inequities Group



The Language and Culture: The Seeds of Diversity score consisted of the responses to items 1, 3, 4, 6, 16, 23, 25, 25 in the survey (see Table 5). The possible range for Language and Culture: The Seeds of Diversity is 8 to 40. A high score indicates an awareness of the affect that language, religion, and culture has on the educational

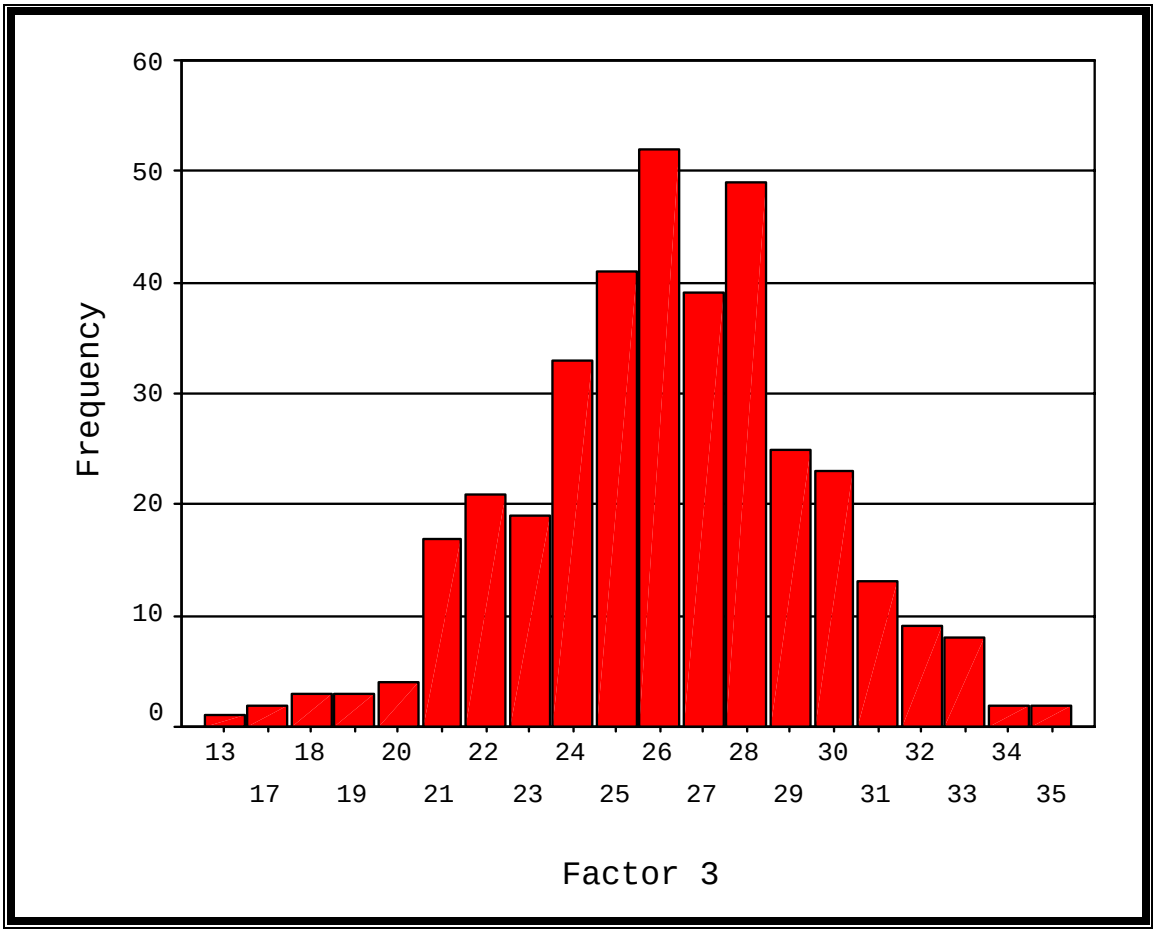
process while a low score indicates a view that these factors should not greatly affect the educational process. The scores on the Language and Culture: The Seeds of Diversity for the Oklahoma CareerTech teachers ranged from 10 to 40. The mean score was 25.83 with a standard deviation of 5.13, the median score was 26.00, and the mode was 28. A frequency distribution bar graph of the scores indicates a distribution curve with the scores slightly skewed toward the high scores (see Figure 4).

Figure 4: Frequency of Language and Culture: The Seeds of Diversity Scores Group



The Physical Characteristics score consisted of the responses to items 5, 7, 11, 13, 14, 18, 21 in the survey (see Table 5). The possible range for Physical Characteristics is 7 to 35. A high score indicates an awareness of the importance of treating severely disabled students, students of color, and students with physical limitations equal to the dominant culture while a low score indicates a view that the dominant culture should have preferential treatment. The scores on the Physical Characteristics for the Oklahoma CareerTech teachers ranged from 13 to 35. The mean score was 26.22 with a standard deviation of 3.34, the median score was 26.00, and the mode was 26. A frequency distribution bar graph of the scores indicates an almost perfect normal distribution curve (see Figure 5).

Figure 5: Frequency of Physical Characteristics Scores Group



Disposition Scores and Demographic Variables

The third research question dealt with the differences in disposition scores among demographic groups. Analysis of variance (ANOVA) was used to investigate the differences between the groupings on the demographic variables and the overall score and factor scores on the Professional Beliefs about Diversity survey. ANOVA is a versatile statistical technique that can be used to see if there is a significant difference among the means of two or more

groups (Huck, 2004, p. 267). When significant differences were found in analyses with three or more groups, the Tukey's post hoc procedure was used to locate differences among the groups. The .05 level of significance was used to evaluate the significance of the analyses.

Four separate analyses were calculated for gender, age, race, marital status, and education to determine whether there were any significant differences between the variable and the Total Score, Factor 1 (Dominant Culture Inequities), Factor 2 (Language and Culture: The Seeds of Diversity), and Factor 3 (Physical Characteristics).

There was a significant difference on gender for the Total Score, Dominant Culture Inequities, Language and Culture: The Seeds of Diversity, and Physical Characteristics. The females scored higher on the Total Score (M=84.88) than the males (M=77.52). The females scored slightly higher on Dominant Culture Inequities (M=30.66) compared to the males (M=28.24). The females scored higher on Language and Culture: The Seeds of Diversity (M=27.39) compared to the males (M=23.85). The females scored slightly higher on Physical Characteristics (M=26.84) compared to the males (M=25.43).

Table 6: ANOVA for Demographic Variables

Source	SS	df	MS	F	p
Gender					
Total Score					
Between	4847.12	1	4847.12	51.19	0.000
Within	34274.43	362	94.68		
Dominant Culture Inequities					
Between	523.45	1	523.45	18.66	0.000
Within	10152.93	362	28.05		
Language and Culture: The Seeds of Diversity					
Between	1121.50	1	1121.50	48.72	0.000
Within	8333.64	362	23.02		
Physical Characteristics					
Between	175.65	1	175.65	16.49	0.000
Within	3856.96	362	10.65		
Age					
Total Score					
Between	98.98	2	49.49	0.45	0.638
Within	39886.36	363	109.88		
Dominant Culture Inequities					
Between	46.34	2	23.17	0.78	0.461
Within	10830.34	363	29.84		
Language and Culture: The Seeds of Diversity					
Between	108.02	2	54.01	2.07	0.128
Within	9488.82	363	26.14		
Physical Characteristics					
Between	10.36	2	5.18	0.46	0.629
Within	4050.15	363	11.16		
Race					
Total Score					
Between	577.84	1	577.84	5.34	0.021
Within	39407.49	364	108.26		
Dominant Culture Inequities					
Between	148.08	1	148.08	5.02	0.026
Within	10728.60	364	29.47		
Language and Culture: The Seeds of Diversity					
Between	49.64	1	49.64	1.89	0.170
Within	9547.19	364	26.23		
Physical Characteristics					
Between	23.27	1	23.27	2.10	0.148
Within	4037.24	364	11.09		
Marital Status					
Total Score					

Source	SS	df	MS	F	p
Between	804.29	1	804.29	7.47	0.007
Within	39181.04	364	107.64		
Dominant Culture Inequities					
Between	184.51	1	184.51	6.28	0.013
Within	10692.17	364	29.37		
Language and Culture: The Seeds of Diversity					
Between	186.65	1	186.65	7.22	0.008
Within	9410.18	364	25.85		
Physical Characteristics					
Between	1.24	1	1.24	0.11	0.739
Within	4059.27	364	11.15		
Education					
Total Score					
Between	1171.84	2	585.92	5.48	0.005
Within	38813.49	363	106.92		
Dominant Culture Inequities					
Between	274.46	2	137.23	4.70	0.010
Within	10602.22	363	29.21		
Language and Culture: The Seeds of Diversity					
Between	67.56	2	33.78	1.29	0.277
Within	9529.27	363	26.25		
Physical Characteristics					
Between	102.13	2	51.06	4.68	0.010
Within	3958.39	363	10.90		

The participants were grouped into the three age groups of “Under 40”, “40-49”, and “Over 49”. There was no significant difference based on age (see Table 6).

For race, the participants were grouped into two groups: Whites and Non-Whites. Eighty-five percent of the sample was White, and each of the remaining races were very small, so they were combined to form the group, Non-Whites. There were significant differences in race on the Total Score and Dominant Culture Inequities (see Table 6). The Non-whites scored higher on the Total Score ($\underline{M}$=84.65) than

the Whites (M=81.14). The Non-whites scored slightly higher on Dominant Culture Inequities (M=31.13) compared to the Whites (M=29.35).

For marital status, the participants were grouped into two groups: Married and Non-married. There was significant difference in marital status and the Total Score, Dominant Culture Inequities, and Language and Culture: The Seeds of Diversity (see Table 6). The Non-married group scored higher on the Total Score (M=84.59) than the Married group (M=80.91). The Non-married group scored slightly higher on Dominant Culture Inequities (M=31.01) compared to the Married group (M=29.25). The Non-married group scored higher on Language and Culture: The Seeds of Diversity (M=27.24) compared to the Married group (M=25.47).

For education, the participants were grouped into three groups: Below Bachelor's Degree, Bachelor's Degree, and Graduate Degree. There was a significant difference in education and the Total Score, Dominant Culture Inequities, and Physical Characteristics (see Table 6). Those with a Graduate degree scored higher on the Total Score (M=83.78) compared to those with a Bachelor's Degree (M= 80.16) and Below Bachelor's Degree (M=80.10). Graduate Degree scored slightly higher on Dominant Culture Inequities (M=30.62)

compared to Bachelor's Degree (M=29) and Below Bachelor's Degree (M=28.53). The Tukey post hoc revealed the difference in the Total Score was between those who had a graduate degree and those who did not have a graduate degree. The Tukey post hoc revealed that the difference in Dominant Culture Inequities was between those who had a graduate degree and those who did not have a college degree. The Tukey post hoc did not reveal the difference in the Physical Characteristics Score.

Disposition Scores and Professional Variables

Four separate analyses were calculated for experience, division, certificate, environment, national board certification, level, and training in diversity to determine whether there were any significant differences between the variable and the Total Score, Factor 1 (Dominant Culture Inequities), Factor 2 (Language and Culture: The Seeds of Diversity), and Factor 3 (Physical Characteristics).

For experience, the participants were grouped into five groups: 5 or Less, 6 to 10, 11 to 15, 16 to 20, and Over 20. There was significant difference for years of experience for Language and Culture: The Seeds of Diversity (see Table 7). However, the Tukey post hoc did not reveal the difference. Oklahoma CareerTech teachers with 5 or less

years of experience scored slightly higher on Language and Culture: The Seeds of Diversity(M=30.41) compared to 6 to 10 years of teaching experience (M=30.17), 11 to 15 years of teaching experience ((M=29.85, 16 to 20 years of teaching experience(M=29.56), and over 20 years (M=28.26).

Table 7: ANOVA for Professional Demographic Variables

Source	SS	df	MS	F	p
Experience					
Total Score					
Between	1006.91	4	251.73	2.33	0.056
Within	38978.42	361	107.97		
Dominant Culture Inequities					
Between	246.21	4	61.55	2.09	0.082
Within	10630.47	361	29.45		
Language and Culture: The Seeds of Diversity					
Between	249.79	4	62.45	2.41	0.049
Within	9347.04	361	25.89		
Physical Characteristics					
Between	55.32	4	13.83	1.25	0.291
Within	4005.19	361	11.09		
Division					
Total Score					
Between	5908.84	7	844.12	8.84	0.000
Within	34000.70	356	95.51		
Dominant Culture Inequities					
Between	703.70	7	100.53	3.52	0.001
Within	10153.54	356	28.52		
Language and Culture: The Seeds of Diversity					
Between	1364.36	7	194.91	8.46	0.000
Within	8198.33	356	23.03		
Physical Characteristics					
Between	350.26	7	50.04	4.85	0.000
Within	3672.47	356	10.32		
Certificate					
Total Score					
Between	383.00	1	383.00	3.49	0.063
Within	38006.00	346	109.84		
Dominant Culture Inequities					
Between	99.21	1	99.21	3.35	0.068

Source	SS	df	MS	F	p
Within	10237.74	346	29.59		
Language and Culture: The Seeds of Diversity					
Between	95.33	1	95.33	3.59	0.059
Within	9184.35	346	26.54		
Physical Characteristics					
Between	0.02	1	0.02	0.00	0.964
Within	3929.72	346	11.36		
Environment					
Total Score					
Between	1418.34	2	709.17	6.65	0.001
Within	38264.17	359	106.59		
Dominant Culture Inequities					
Between	243.40	2	121.70	4.14	0.017
Within	10561.72	359	29.42		
Language and Culture: The Seeds of Diversity					
Between	208.51	2	104.26	4.03	0.019
Within	9292.95	359	25.89		
Physical Characteristics					
Between	86.76	2	43.38	3.94	0.020
Within	3956.43	359	11.02		
National Board					
Total Score					
Between	19.09	1	19.09	0.17	0.677
Within	39893.66	362	110.20		
Dominant Culture Inequities					
Between	1.89	1	1.89	0.06	0.802
Within	10842.03	362	29.95		
Language and Culture: The Seeds of Diversity					
Between	0.48	1	0.48	0.02	0.892
Within	9571.59	362	26.44		
Physical Characteristics					
Between	25.48	1	25.48	2.31	0.130
Within	3996.20	362	11.04		
Level					
Total Score					
Between	1276.03	2	638.02	6.00	0.003
Within	38407.00	361	106.39		
Dominant Culture Inequities					
Between	262.05	2	131.03	4.48	0.012
Within	10559.39	361	29.25		
Language and Culture: The Seeds of Diversity					
Between	151.86	2	75.93	2.91	0.055
Within	9403.54	361	26.05		

Source	SS	df	MS	F	p
Physical Characteristics					
Between	77.83	2	38.92	3.56	0.029
Within	3943.85	361	10.92		
Training					
Total Score					
Between	377.09	3	125.70	1.16	0.325
Within	38864.93	359	108.26		
Dominant Culture Inequities					
Between	36.94	3	12.31	0.41	0.745
Within	10758.21	359	29.97		
Language and Culture: The Seeds of Diversity					
Between	84.67	3	28.22	1.07	0.362
Within	9473.88	359	26.39		
Physical Characteristics					
Between	59.37	3	19.79	1.86	0.135
Within	3810.17	359	10.61		

For division, the participants were grouped into eight groups: Academic Teacher at Oklahoma CareerTech Center, Agricultural Education, Business and Information Technology Education, Family and Consumer Sciences Education, Health Careers Education, Marketing Education, Technology Education, and Trade and Industrial Education. There was a significant difference in the division with which the Oklahoma CareerTech teacher is affiliated and the Total Score, Dominant Culture Inequities, Language and Culture: The Seeds of Diversity, and Physical Characteristics (see Table 7). Oklahoma CareerTech teachers affiliated with the health careers division scored the highest on Total Score ($\underline{M}$=87.45). The Oklahoma CareerTech teachers affiliated with the agricultural education division scored the lowest

on Total Score (M=73.89). Academic teachers teaching at the Oklahoma CareerTech scored the highest on Dominant Culture Inequities (M=32.13). Oklahoma CareerTech teachers affiliated with the agricultural education division scored the lowest on Dominant Culture Inequities (M=26.52). Oklahoma CareerTech teachers affiliated with the health careers division scored the highest on Language and Culture: The Seeds of Diversity (M=28.72). Oklahoma CareerTech teachers affiliated with the agricultural education division scored the lowest on Language and Culture: The Seeds of Diversity (M=23.15). Oklahoma CareerTech teachers affiliated with the marketing education division scored the highest on Physical Characteristics (M=28.57). Oklahoma CareerTech teachers affiliated with the agricultural education division scored the lowest on Physical Characteristics (M=24.22). The Tukey post hoc revealed that for Total Score the significant difference was formed by two groups: those in Agricultural Education (M=73.9) formed one group while the Academic Teachers (M=87.1) and the teachers in Health Career Education (M=87.5) formed the other group. For Dominant Culture Inequities, there were also two groups that accounted for significant difference: Agricultural Education (M=26.5) formed one group and Health Careers (M=31.8) and Academic

Teachers (M=32.1) formed the other group. For Language and Culture: The Seeds of Diversity, there were also two significantly different groups: Agricultural Education (M=23.3) formed one group and Health Careers (M=28.7) and Family and Consumer Sciences (M=28.0) formed the other group. For Physical Characteristics, there were also two significantly different groups: Agricultural Education (M=24.2) and Technology Education (M=24.7) formed one group and Academic Teachers (M=28.1) and Marketing Education (M=28.6) formed the other group.

For teaching environment, the participants were grouped into three groups: Technology Center, Comprehensive High School, and Skills Center. There was a significant difference in whether the teacher taught at a technology center, comprehensive high school, or skills center and the Total Score, Dominant Culture Inequities, Language and Culture: The Seeds of Diversity, and Physical Characteristics (see Table 7). Oklahoma CareerTech teachers who taught at a technology center scored the highest on Total Score (M=83.50), Dominant Culture Inequities (M=30.36), and Language and Culture: The Seeds of Diversity (M=26.49). Oklahoma CareerTech teachers who taught at a comprehensive high school scored slightly lower than those who taught at a skills center on the Total Score

(M=79.46). Oklahoma CareerTech teachers who taught at a skills center scored the lowest on Language and Culture: The Seeds of Diversity (M=24.12). Oklahoma CareerTech teachers who taught at a skills center scored slightly higher on Physical Characteristics than those who taught at a technology center (M=26.65). The teachers who taught at a comprehensive high school scored the lowest (M=25.66). The Tukey post hoc did not reveal the sources of the significant differences.

For National Board Certification, the participants were grouped into two groups: Yes or No. There was no significant different based on whether the teacher was National Board Certified (see Table 7).

For level, the participants were grouped into three groups: Secondary, Post-Secondary, and Both. There was a significant difference in the level the Oklahoma CareerTech is teaching and the Total Score, Dominant Culture Inequities, and Physical Characteristics (see Table 7). The Tukey post hoc revealed that for Total Score, Secondary (M=79.71) formed one group while Both (M=83.61) formed the other group. For Dominant Culture Inequities, there were also two groups that were significantly different: Secondary (M=28.74) formed one group while Post Secondary (M=30.83) formed the other group. For Physical

Characteristics the Tukey post hoc did not reveal the source of significance.

For certificate, the participants were grouped into two groups: Standard and Non-Standard. There was no significant difference based on the type of certificate the teacher had.

For training, the participants were grouped into four groups: No Training, Industry Workshops, Oklahoma CareerTech Professional Development, and Higher Education. There was no significant difference based on the type of training received for working with students of diversity.

Clusters of Teachers

The fourth research question in this study identified the clusters which exist among Oklahoma CareerTech teachers. Cluster analysis is an exploratory statistical procedure for classifying data into homogenous groups so that the association of the members of one cluster is strong and weak between members of different clusters (Aldenderfer & Blashfield, 1984). Cluster analysis may be used to discover associations in data that are not easily evident but are sensible and useful when found.

> Cluster analysis is a powerful multi-variate tool available to adult educators for inductively identifying groups which inherently exist in the data. Its power lies in its ability to examine

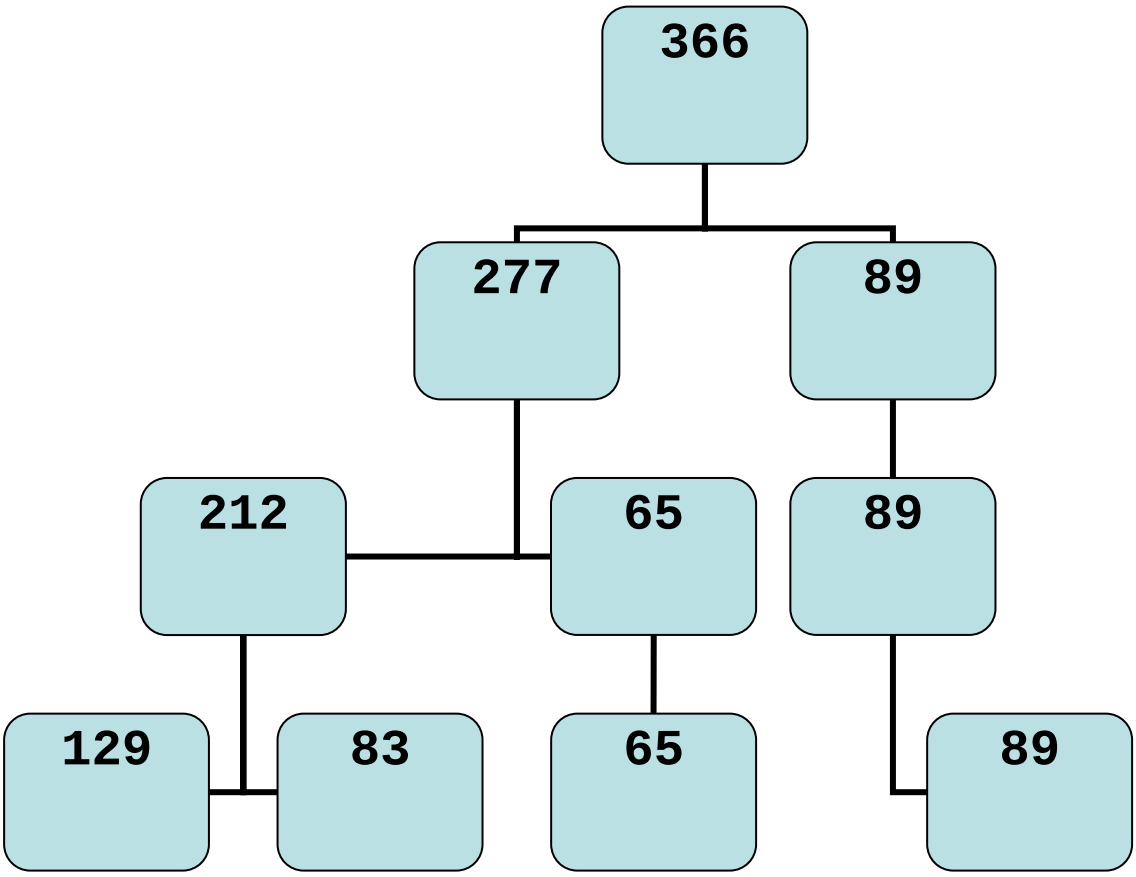
> the person in a holistic manner rather than as a set of unrelated variables (Conti, 1996, p. 67).

Agglomerative hierarchical cluster analysis is a widely used method for forming clusters. This clustering method begins with each observation being considered as separate clusters and then proceeds to merge them until all observations belong to one cluster (Kachigan, 1991, p. 270).

Several decisions must be made by the researcher before computing a cluster analysis. “An essential step in the cluster analysis procedure is to obtain a measure of the similiarity or ‘proximity’ between each pair of objects under study” (Kachigan, 1991, p. 262). Another essential step is to determine how distance between the clusters will be measured (Norusis, 1988). The four types of measures of similarity are correlation coefficients, Euclidean distances, matching-type measures of similarity, and direct scaling of similarities (Kachigan, 1991). Another decision to be made by the researcher is to determine the criteria for combining objects into the clusters (Norusis, 1988). There are several cluster formation techniques, but the Ward’s method is the most widely used in the social sciences (Aldenderfer & Blashfield, 1984, p. 43).

A hierarchical cluster analysis using Ward's method was conducted on the 366 participants' responses to the 25-item instrument. This method was chosen as "it is designed to optimize the minimum variance within clusters and tends to create clusters of relatively equal sizes" (Alenderfer & Blashfield, 1984, p. 43). Objects in a data set are merged into clusters depending upon the similarities of the objects (Kachigan, 1991, p. 270). Using the 25 items from the Professional Beliefs about Diversity survey, a cluster analysis revealed four distinguishable clusters of 129, 83, 65, and 89 individuals as the best description of the data. The 4-cluster solution is displayed in a flow chart to help describe in a meaningful manner how Oklahoma CareerTech teachers' disposition towards working with students of diversity interacted across the group (see Figure 6).

Figure 6: Formation from Cluster Analysis



Discriminant Analysis

The fifth research question in this study identified the processes that discriminate among the clusters. Cluster analysis is a powerful technique for identifying groups, and discriminant analysis can be used to give meaning to the groups (Conti, 1996, pp. 70-71). Discriminant analysis is used to determine which discriminating variables contributed the most to the formation of the clusters (Kachigan, 1991, p. 269) and provides researchers a method of giving the clusters

qualitative meaning (Conti, 1996, p. 71). "Discriminant analysis provides a powerful technique for examining differences between two or more groups of objects with respect to several variables simultaneously" (Klecka, 1980, p. 7).

The criterion variables and the predictor variables are the key components of discriminant analysis (Kachigan, 1991). The criterion variable is a qualitative label given to a group (Kachigan, 1991, p. 218), and the predictor variable is a quantitative variable that discriminates or distinguishes criterion groups (p. 216). Discriminate analysis places given objects into criterion groups according to information on predictor variables (p. 218). The discriminant function is used to classify objects into the criterion variable groups (Kachigan, 1991, p. 219). In order to determine the usefulness of the discriminant analysis, two criteria of the discriminant function are examined. The structure matrix reveals "how closely a variable and the discriminant function are related" (Conti, 1993, pp. 93-94), and a certain percentage of the objects should be correctly classified into the proper group (p. 93). A good criterion level to use in selecting variables from the structure matrix for the naming process is 0.3 or greater (Conti, 1993, p. 93).

Discriminant analysis was used to help determine which variables contributed the most to the formation of the groups (Kachigan, 1991, p. 269) found by the cluster analysis so that the researcher could interpret how the groups differed in order to name them (Klecka, 1980). Three discriminant analyses were conducted to help determine the process that separated the four clusters. For each of the discriminant analyses, the clusters from the cluster analysis were used as the grouping variable, and the discriminating variables were the 25 items of the Professional Beliefs about Diversity instrument. In a cluster analysis, “once a cluster is formed, it cannot be split; it can only be combined with other clusters” (Norusis, 1988, p. 14).

The first discriminant analysis was conducted to identify what separated the Oklahoma CareerTech teachers at the 2-cluster level. One cluster contained 277 Oklahoma CareerTech teachers, and the other cluster contained 89 Oklahoma CareerTech teachers. At this 2-cluster level, the Oklahoma CareerTech teachers were correctly classified with 92.6% accuracy. The structure matrix was examined to see what separated the two clusters. Using a minimum structure-coefficient criteria of .3, items 4, 6, 7, 16, 21, 24, and 25 (see Table 8) discriminated between the two

clusters. It is the interaction of these seven items that separated the two clusters of Oklahoma CareerTech teachers. Five of the items (items 4, 6, 16, 24, and 25) are from the Language and Culture factor, and two of the items (items 5 and 7) were from the Physical Characteristics factor. Because the preponderance of these items related to cultural factors and since physical characteristics are included, this process was named Observable Cultural Characteristics (see Table 8).

Table 8: Structure Matrix for Clusters 277 and 89

Coeff.	No.	Item
0.512	6	All students should be encouraged to become fluent in a second language.
0.422	21	In order to be effective with all students, teachers should have experience working with students from diverse racial and ethnic backgrounds.
0.380	25	Multicultural education is just as important as reading, writing, arithmetic, and computer literacy. (Reversed)
0.371	4	Students and teachers would benefit from having a basic understanding of different (diverse) religions.
0.355	16	Whenever possible, second language learners should receive instruction in their first language until they are proficient enough to learn via English instruction.
0.326	24	It is important to consider religious diversity in setting public school policy.
0.315	7	All schools (not just schools serving students of color) need a racially, ethnically, and culturally diverse staff and faculty. (Reversed)

The average scores for the items for the cluster of 277 Oklahoma CareerTech teachers were higher than the average scores for the cluster of 89 (see Table 9). The cluster of 277 Oklahoma CareerTech teachers somewhat agree ($\underline{M}$ = 3.6) that Observable Cultural Characteristics are important while the cluster of 89 disagreed ($\underline{M}$ = 2.6) that Observable Cultural Characteristics are important.

Table 9: Stems from Structure Matrix for Clusters of 277 and 89

Item	Group of 277	Group of 89
6	3.7	2.3
21	3.8	2.7
25 (reversed)	3.1	2.1
4	4.0	3.1
16	3.0	1.9
24	3.4	2.5
7 (reversed)	4.3	3.7

Likert Scale	SD	D	N	A	SA
	1	2	3	4	5
Average			**2.6**	**3.6**	

The second discriminant analysis was conducted to further discriminate between the two clusters in the cluster of 277 which somewhat agreed that Observable

Cultural Characteristics are important. Within this cluster of 277 was one cluster of 212 Oklahoma CareerTech teachers and another cluster of 65. In this analysis, the Oklahoma CareerTech teachers were correctly classified with 94.6% accuracy. The structure matrix was examined to see what separated the two clusters. Using a minimum structure-coefficient criteria of .3, items 17, 15, 20, and 22 (see Table 10) discriminated between the two clusters. All four items were from the Dominant Culture Inequities group. Two of the items referred to inequities of the lower socioeconomic students, one referred to reality being biased toward the dominant (European) group, and another item referred to students of color being improperly placed in special education classes (see Table 10). This process was named Cultural Inequities.

Table 10: Structure Matrix for Clusters 212 and 65

Coeff.	No.	Items
0.343	17	Teachers often expect less from students from the lower socioeconomic class.
0.327	15	Historically, education has been monocultural, reflecting only one reality and has been biased toward the dominant (European) group.
0.323	20	Large numbers of students of color are improperly placed in special education classes by school personnel.
0.309	22	Students from lower socioeconomic backgrounds typically have fewer educational opportunities than their middle class peers.

The average scores for the items for the cluster of 212 Oklahoma CareerTech teachers were lower than the average scores for the cluster of 65 (see Table 11). The cluster of 212 Oklahoma CareerTech teachers were neutral (M = 3.0) that Cultural Inequities are important while the cluster of 65 agreed (M = 3.9) that Cultural Inequities are important.

Table 11: Stems from Structure Matrix for Clusters of 212 and 65

Item		Group of 212		Group of 65	
17		2.9		3.9	
15		3.2		4.1	
20		2.5		3.3	
22		3.3		4.2	
Likert Scale	SD	D	N	A	SA
	1	2	3	4	5
Average			**3.0**	**3.9**	

The third discriminant analysis was conducted to further discriminate between the two clusters in the cluster of 212 Oklahoma CareerTech teachers who are neutral that there are inequities among the cultures. Within this cluster of 212 was one cluster of 129 Oklahoma CareerTech teachers and another cluster of 83. In this analysis, the

Oklahoma CareerTech teachers were correctly classified with 93.9% accuracy. The structure matrix was examined to see what separated the two clusters. Using a minimum structure-coefficient criteria of .3, items 13, 17, and 5 discriminated between the clusters (see Table 12). Two items are from the Physical Characteristics group. One item referred to money spent on the severely disabled, and the other item from this factor referred to grouping students by ability levels (see Table 12). The third item referred to less expectation from students from the lower socioeconomic class. This process was named Ability Grouping.

Table 12: Structure Matrix for Clusters 129 and 83

Coeff.	No.	Item
0.409	13	Generally, teachers should not group students by ability levels. (Reversed)
-0.406	17	Teachers often expect less from students from the lower socioeconomic class.
0.357	5	Money spent to educate the severely disabled would be better spent on programs for gifted students. (Reversed)

The average scores on the items for the cluster of 129 Oklahoma CareerTech teachers were somewhat lower than the average scores for the cluster of 83 Oklahoma CareerTech teachers (see Table 13). The cluster of 129 are neutral ($\underline{M}$ = 3.2) about Ability Grouping. The cluster of 83 disagrees ($\underline{M}$ = 3.5) on Ability Grouping.

Table 13: Stems from Structure Matrix Clusters 129 and 83

Item		Group of 129		Group of 83	
13 (reversed)		3.0		4.1	
17		3.3		2.3	
5 (reversed)		3.4		4.2	
Likert Scale	SD	D	N	A	SA
	1	2	3	4	5
Average			**3.2**	**3.5**	

Clusters and Other Variables

Chi-square analysis was used to compare the demographic variables and professional variables to the four clusters that were revealed. A chi-square analysis was calculated to determine if there was a significant difference between the expected frequency distribution and the actual frequency distribution for the categorical data of the demographic and professional. “Chi-square is a nonparametric test of statistical significance appropriate when the data are in the form of frequency counts; it compares frequencies actually observed in a study with expected frequencies to see whether they are significantly different” (Fraenkel & Wallen, 2003, p. G-1). Chi-square tests for independence were used to examine the

relationship between the variables with a criterion-level set at .05.

The chi-square analysis indicated significant differences for the two demographic variables of gender and martial status.

a. With the teachers grouped as males and females, a significant relationship was found between the four clusters and the gender of the Oklahoma CareerTech teacher ($\chi^2 = 38.33$, $\underline{df} = 3$, $\underline{p} < .001$). Cluster 2 and Cluster 3 had more females than expected while Cluster 4 had more males than expected.

b. With the marital status grouped into the two groups of Married and Non-Married, a significant relationship was found between the four clusters and the marital status of the Oklahoma CareerTech teacher ($\chi^2 = 26.92$, $\underline{df} = 12$, $\underline{p} = .008$). Cluster 1 had more separated and less never married members than expected while Cluster 4 had less married and more divorced and never married members than expected.

The chi-square analysis indicated no significant differences for the other four demographic variables of race, age, experience, and level of education.

a. With race grouped into the two groups of Whites and Non-Whites, no significant relationship was found between the four clusters and the race of the Oklahoma CareerTech teacher ($\chi^2 = 15.55$, $\underline{df} = 18$, $\underline{p} = .624$).

b. With the ages grouped into the three groups of Under 40 years, 40-49 years, and Over 49 years, no significant relationship was found between the four clusters and the age of the Oklahoma CareerTech teacher ($\chi^2 = 4.95$, $\underline{df} = 9$, $\underline{p} = .839$).

c. With experience grouped into five groups of 5 or less years, 6 to 10 years, 11 to 15 years, 16 to 20 years, and over 20 years, no significant relationship was found between the four clusters and the years of experience of the Oklahoma CareerTech teacher (χ^2 = 22.43, df = 15, p = .097).

d. With education grouped into the three groups of Below Bachelor's, Bachelor's, and Graduate, no significant relationship was found between the four clusters and the education of the Oklahoma CareerTech teacher (χ^2 = .19.20, df = 12, p = .084).

The chi-square analysis indicated significant differences for the one professional variable of Oklahoma CareerTech division. With the division of the Oklahoma CareerTech teachers grouped into the eight groups of Agricultural Education, Trade and Industrial Education, Business and Industry Technology Education, Family and Consumer Sciences Education, Health Careers Education, Academic Teacher at an Oklahoma CareerTech Center, and Marketing Education, a significant relationship was found between the four clusters and the division of the CareerTech teacher (χ^2 = 67.62, df = 18, p < .001). The differences were as follows:

a. Cluster 1 had more Family and Consumer Sciences Education teachers but less Agricultural Education teachers than expected.

b. Cluster 2 had more Agricultural Education and Trade and Industrual Education teachers but less Health Career Education teachers than expected.

c. Cluster 3 had more Academic Teachers at Oklahoma CareerTech Centers and Trade and Industrial

Education teachers but less Family and Consumer Sciences Education teachers than expected.

d. Cluster 4 had more Health Career Education teachers but less Trade and Industrial Education teachers than expected.

The chi-square analysis indicated no significant differences for the five professional variables of Oklahoma CareerTech type of certification, environment in which the teacher worked, National Board certification, level of certification, and type of training received.

a. With the certification of the Oklahoma CareerTech teachers grouped into the two groups of Standard and Non-Standard, no significant relationship was found between the four clusters and the certification of the Oklahoma CareerTech teacher ($\chi^2 = 7.34$, $\underline{df} = 6$, $\underline{p} = .291$).

b. With environment grouped into the three groups of Technology Center, Comprehensive High School, and Skills Center, no significant relationship was found between the four clusters and the environment of the Oklahoma CareerTech teacher ($\chi^2 = 8.21$, $\underline{df} = 6$, $\underline{p} = .223$).

c. With the National Board certification of the Oklahoma CareerTech teachers grouped into the two groups of National Board Certified and Not National Board Certified, no significant relationship was found between the four clusters and National Board certification of the Oklahoma CareerTech teacher ($\chi^2 = 1.30$, $\underline{df} = 3$, $\underline{p} = .729$).

d. With the level of the Oklahoma CareerTech teachers grouped into the three groups of Secondary, Post Secondary, and Both, no significant relationship was found between the four clusters and the level of the Oklahoma CareerTech teacher ($\chi^2 = 11.07$, $\underline{df} = 6$, $\underline{p} = .086$).

e. With the training of the Oklahoma CareerTech teachers grouped into the four groups of No Training, Industrial Workshop, Oklahoma CareerTech Professional Workshop, and Higher Education, no significant relationship was found between the four clusters and the training of the Oklahoma CareerTech teacher ($\chi^2 = 6.59$, df = 9, p = .680).

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Purpose

The purpose of this study was to describe Oklahoma CareerTech teachers' self-assessed dispositions towards issues of diversity (i.e., assumptions about race, ethnicity, culture, gender, social class, sexual orientation, religion, language, and exceptionality) associated with the teaching and learning process and to identify naturally-occurring clusters within this population. The disposition factors in this study related to diversity are based on National Council for Accreditation of Teacher Education Standard 4 (NCATE, 2004).

Design

The data gathered from the online Professional Beliefs about Diversity survey were used to describe the participants. To achieve this, both descriptive statistics and inferential statistics were used. A demographic profile of the Oklahoma CareerTech teachers was constructed using descriptive statistics. Factor analysis, analysis of variance (ANOVA), cluster analysis, discriminant analysis, and chi-square were used to describe and differentiate the dispositions towards students of diversity of the Oklahoma CareerTech teachers. SPSS was used to analyze the data.

Data Collection

The Professional Beliefs about Diversity was put online using the Websurveyor program on May 15, 2006. E-mail addresses of the Oklahoma CareerTech teachers were provided by the Oklahoma CareerTech Department. The teachers' responses were sent to a database on the Websurveyor server which is available at the researcher's university.

Findings

Descriptive statistics were used to describe the demographic variables of the Oklahoma CareerTech teachers who participated in the survey. Overall, the sample (n = 366) was similar to the population (N = 2395) on variables for which comparison was possible. The following summary characterizes the demographics of the Oklahoma CareerTech teachers in this study:

(a) There were slightly more females than males in the sample, but this difference was less than 10%;
(b) Approximately 85% were white;
(c) Nearly three-fourths of the participants were over the age of 40;
(d) More than twice the percentage of the sample had graduate degrees;
(e) Fifty percent had received professional development training in working with students of diversity through the Oklahoma CareerTech; and
(f) Fourteen percent had received no training in working with these students.

A factor analysis revealed three factors within the dispositions for the 25 diversity questions which were named Dominant Culture Inequities, Language and Culture: The Seeds of Diversity, and Physical Characteristics based on the survey items that loaded on each factor. Based on the frequency distribution of the Total Scores, Dominant Culture Scores, and Physical Characteristics Scores, there is an almost perfect normal distribution curve showing that most of the Oklahoma CareerTech teachers' scores were in the middle but that there were some who scored very high and some who scored very low on the Professional Beliefs about Diversity instrument. The frequency distribution of the Language and Culture: Seeds of Diversity Scores was slightly skewed towards the high end, indicating that most Oklahoma CareerTech teachers are aware of the importance of working with students with English as a second language.

Analysis of variance (ANOVA) was used to investigate the differences between the groupings on the demographic variables and the overall score and factor scores on the Professional Beliefs about Diversity survey. The females scored higher on the Total Score and all three factors: Dominant Culture, Language and Culture: The Seeds of Diversity, and Physical Characteristics. The Non-Whites scored higher than the Whites on the Total Score and the Dominant Culture score. There was

significant difference in marital status and the Total Score, Dominant Culture Inequities, and Language and Culture: The Seeds of Diversity. The Non-married group scored higher than the Married group on the Total Score, Dominant Culture Inequities, and Language and Culture: The Seeds of Diversity. The Oklahoma CareerTech teachers who had graduate degrees scored higher than those who did not have a graduate degree on the Total Score, Dominant Cultural Inequities, and Language and Culture: The Seeds of Diversity. Oklahoma CareerTech teachers affiliated with the agricultural education division scored the lowest on the Total Score and on all three factors.

Cluster and discriminant analysis were used to identify and describe groups of Oklahoma CareerTech teachers' disposition towards working with students of diversity. Using the 25 items from the Professional Beliefs about Diversity instrument, a cluster analysis revealed four distinguishable groups of Oklahoma CareerTech teachers with similar dispositions towards working with students of diversity. Three separate discriminant analyses were calculated to identify the process that differentiated between the four groups.

The univariate analysis technique of chi-square was used to compare the demographic and professional variables with the four clusters. This analysis revealed that there were significant

differences in scores by clusters for age, experience, gender, teaching environment, and level of students taught.

Elements of Diversity

Conclusion:

> When conceptualized by this analysis of the Professional Beliefs about Diversity instrument, diversity can be viewed as consisting of three distinct elements: Dominant Culture Inequities, Language and Culture: The Seeds of Diversity, and Physical Characteristics.

Discussion:

There is strong support in the literature for these three elements, as discussed below.

Dominant Culture Inequities

According to the National Assessment of Vocational Education (NAVE, 2004, p. xvii), nearly 50% of secondary students and about one-third of college students have taken vocational education classes, and approximately 25% of the population have received postsecondary occupational training. “Given the magnitude of the vocational education enterprise, the ways in which students participate and the benefits they may receive can have significant consequences for the nation’s work force” (2004). Therefore, Oklahoma CareerTech teachers must have the dispositions necessary to work with students of diversity as

> the increasing diversity in our schools, the ongoing demographic changes across the nation and

> the movement towards globalization dictate that we develop a more in-depth understanding of culture if we want to bring about true understanding among diverse populations (Teaching Diverse Learners, 2003, p. 2).

It has been over 40 years since Congress passed Title VII of the Civil Rights Act of 1964 which prohibited employment discrimination based on race, color, or national origin in order to address the inequities inherent in the dominant culture. However, when teachers of color have different views on accepted pedagogy, their opinions are often discounted and ignored by the dominant European-American culture (Delpit, 1996); these are the "silenced dialogue". "The preferred ways of learning and thinking of the dominant communities and other biases can create conflicts for learners from other pedagogical traditions" (Canagarajah, 1999, pp. 15-16). Diverse cultures have different opinions on authority, knowledge, and interaction between children and adults (Genesee, 1994). The majority of the Oklahoma CareerTech teachers are White. While specific data have not been collected about these teachers, studies of White student teachers have indicated little understanding of discrimination (Avery & Walker, 1993, p. 95). Although they do not bring more knowledge, preservice student teachers of color are more committed to multicultural teaching and provide students of color with a more academically challenging

curriculum (p. 95), yet only 16% of the Oklahoma CareerTech teachers are Non-White.

"There is no such thing as a culturally neutral classroom" (Bailey, 2005, p. 22), and an "equitable multicultural classroom cannot be based solely on dominant-culture norms" (p. 22). A teacher may believe in equity but may not provide an equitable educational environment. Teachers must learn to build a bridge between the dominant culture's preferred educational method and those of their students' home cultures. The disposition profile of the Oklahoma CareerTech teachers shows that while some of the teachers support this, most are moderate about this, and some disagree that it is important. Oklahoma CareerTech teachers work with a diverse population; therefore, they must examine their own cultural beliefs, and learn about the neediest students in order to make sure that all their students have the opportunity to learn.

Language and Culture: The Seeds of Diversity

"Why can't we just ignore race? I am sure that when I walk into my classroom that I will notice that there are different races of kids, but I will just ignore it. I do not consider race a problem. I will treat all of my students the same." This was a comment made to the researcher by a pre-service teacher who meant well but is a bit naïve. There is more to

consider than just the color of their skin. What if some of the students cannot speak English?

> Whatever knowledge we acquire, it is always acquired through language and culture, two interlocked symbolic systems considered essential for human interaction and survival. Culture and language are so intricately intertwined that even trained scholars find it impossible to decide where language ends and culture begins, or which one of the two impacts the other the most. (Trueba in Nieto, 2003, p. 208)

The passage of Proposition 203 in Arizona confirms that voters do not know the facts about bilingual education. Proposition 203 (AZSOS, 2006) requires that all instruction in public schools be conducted in English. Students who are not fluent in English shall be placed in an intensive English immersion program for one year to teach them the language while learning the academic subjects. A waiver of these requirements may be requested by parents if their child already knows English, is ten years of age or older, or has needs that are best suited to a different educational approach. Regular foreign language classes are not affected. Enforcement of these requirements through lawsuits by parents or guardians is permitted.

Bilingual education can be very good for the development of the English language. There has been a lot of confusion over media reports on bilingual education. Many people, including teachers, have the opinion that if you are going to live in

America, then you need to speak English; however, providing education in the first language can greatly help second language development (Krashen, 1998). If limited-English proficient students have the opportunity to learn the subject matter in their first language, this gives them knowledge which will help them have better comprehension of what they hear in the classroom. Learning to read in the primary language is a short-cut to literacy in the second language because once a student learns to read, it is easy to transfer knowledge to the second language (1998). When you can read, you can read. Studies have shown that children in bilingual classes acquire as much English as the students in all-English classes (Krashen, 1996). Another study concluded that eliminating the use of the first language in instruction can harm students by denying them a more beneficial approach (Greene, 1997). Students must be given the opportunity to learn and not made to feel that they are inferior because they have limited English proficiency.

Physical Characteristics

Concern with equity has been dwindling as voters, school boards, and federal courts look instead to policies which are racially neutral. Ever since the Civil Rights Movements people of color have fought for equal education for their children. They have struggled in battles over desegregation of public schools, admissions policies into public and private

universities, and discrimination through tracking and ability grouping. There was a bipartisan consensus that attempting to overcome discrimination was a good educational goal and was supported by Richard Nixon. However, during the Reagan years, the attention was shifted to protecting the rights of the white student and already-privileged student. Historically, ability grouping has discriminated against the poor, the working class, and students of color by offering educational programs of unequal quality to different students (Nieto, 2003, p. 404). Schools are still rank-ordering students based on their learning ability and the lower tracks are predominantly students of color or lower socio-economic status (2003). Hence, ability grouping has become institutional racism where students are sorted based on race and social class (p. 404). Ability grouping is generally acknowledged to be a problem in promoting equity in education (p. 404).

Standardized tests are a mainstay of education in the United States and affect students' lives, but tests "correlate more with family income than with intelligence or ability, and the result is that poor students of all backgrounds are unfairly jeopardized in the process" (Nieto, 2003, p. 406). Privileged students are able to pay for special classes and tutoring that the poor student cannot afford. The effects of standardized testing are often negative for poor students and students of

color, and these students should not be placed at risk because of these types of tests (p. 406).

Diversity Among Oklahoma CareerTech Teachers

Conclusion:

> Not all Oklahoma CareerTech teachers need the same type of training in working with students of diversity.

Discussion:

A frequency-distribution of the Total Scores, the Dominant Cultural Inequities Scores, the Language and Culture: The Seeds of Diversity Scores, and the Physical Characterstics Scores were generally distributed in a bell curve. This indicates that there are some Oklahoma CareerTech teachers who scored very low, some scored very high, and most were in the middle. The scores for Physical Characteristics were skewed towards the positive which would indicate that Oklahoma CareerTech teachers are more aware of this facet of diversity. Pohan and Aguilar (1999) provided a general guide as to what could be expected for the Total Score on the Professional Beliefs about Diversity instrument: M = 95.63, sd = 9.39, min = 67, and max = 119. These are the Total Score statistics for the Oklahoma CareerTech teachers: M = 81.67, sd = 10.47, min = 55, and max = 121. The average scores for the Oklahoma CareerTech teachers were much lower than the scores provided as a general guide.

Conclusion:

Females and teachers with graduate degrees have a better disposition towards working with students of diversity.

Discussion:

Analysis of variance (ANOVA) was used to investigate the differences between the groupings on the demographic variables and the overall score and factor scores on the Professional Beliefs about Diversity survey. Females scored higher than the males on the overall score on all three factors. Women are commonly acknowledged to be more caring, compassionate, and sensitive than men, but there may be underlying reasons why they acknowledge the injustice of the dominant culture. Women have had to fight for their rights just as people of color and people with physical limitations have which may help them be more empathetic towards people of diversity. They understand that there is a dominant privilege of which they were not a part. In 1848 the first women's rights convention was held and a list of grievances called for equal treatment for women and men and women's right to vote (Imbornoni, 2006). In 1920 the 19th amendment was signed into law granting them the right to vote. In 1961 President John Kennedy established the President's Commission on the Status of Women with Eleanor Roosevelt as the chairperson. The Commission issued a report in 1963 documenting

substantial discrimination against women in the workplace and made recommendations for improvement which included fair hiring practices, paid maternity leave, and affordable child care. Title IX of the Educational Amendments of 1972 is the landmark legislation that bans sex discrimination in schools, whether it be in academics or athletics. According to the U.S. Department of Labor (2006), Title IX of the Education Amendment of 1972 states:

> No person in the U.S. shall, on the basis of sex be excluded from participation in, or denied the benefits of, or be subjected to discrimination under any educational program or activity receiving federal aid. (par. 1)

Athletics has created the most controversy regarding Title IX, but its gains in education and academics are vital. Many schools refused to admit women or enforce strict limits before Title IX.

There was also significant differences in the scores of the Oklahoma CareerTech teachers who had graduate degrees for the Total Score and the Dominant Cultural Inequities Scores. One of the most consistent findings in studies state that more educated teachers are more tolerant towards minorities than those who are less educated (Hello, 2006).

There was significant differences in the scores of the Non-Marrieds and the Marrieds. The Non-Marrieds scored higher on the Total Score, the Dominant Cultural Inequities, and Language

and Culture: The Seeds of Diversity. People often remake themselves in order to get along in close relationships (such as marriage) and otherwise tolerant people may become less tolerant due to association with others who already are less tolerant. Alternatively, people who are in the world solo may be more open to building relationships which, in turn, makes them generally more open to others while marrieds are already part of a significant relationship and don't feel the need for connections (not to mention connections across diversity boundaries.)

There was a significant difference in the scores by the division in which the teacher is affiliated. The teachers who were affiliated with the agricultural education division scored the lowest on the Total Score, Dominant Cultural Inequities, Language and Culture: The Seeds of Diversity, and Physical Characteristics. Agricultural education teachers are predominantly male, and it has been shown in numerous studies, including this one, that females have a better disposition towards working with students of diversity than males.

Distinct Groups of Oklahoma CareerTech Teachers

Conclusion: There are four groups of teachers who have similar dispositions towards working with students of diversity.

Discussion

Cluster analysis and discriminant analysis were used to identify and describe groups of Oklahoma CareerTech teachers'

disposition towards working with students of diversity. Through cluster analysis four groups were formed. In order to name the groups, each cluster was analyzed using discriminant analysis. The group of 129 Oklahoma CareerTech teachers somewhat agree that Observable Cultural Characteristics are important, they are neutral about Cultural Inequities being important, and they are neutral about Ability Grouping. The group of 83 Oklahoma CareerTech teachers somewhat agree that Observable Cultural Characteristics are important, they are neutral about Cultural Inequities being important, and they do not favor Ability Grouping. The group of 65 Oklahoma CareerTech teachers somewhat agree that Observable Cultural Characteristics are important, and they agree that Cultural Inequities are important. The group of 89 Oklahoma CareerTech teachers disagree that Observable Cultural Characteristics are important.

Through chi-square analyses, it was determined that there was a significant relationship between the four clusters and the gender of the Oklahoma CareerTech teacher. There were more females than expected in the group of 83 Oklahoma CareerTech teachers who somewhat agree that Observable Cultural Characteristics are important, are neutral about Cultural Inequities being important, and do not favor Ability Grouping. There were more females than expected in the group of 65 Oklahoma CareerTech teachers who somewhat agree that Observable

Cultural Characteristics are important, and agree that Cultural Inequities are important. There were more males than expected in the group of 89 Oklahoma CareerTech teachers who disagree that Observable Cultural Characteristics are important.

Through chi-square analyses, it was determined that there was a significant relationship between the four clusters and the marital status of the Oklahoma CareerTech teachers. There were more separated teachers and less never-married teachers than expected in the group of 129 Oklahoma CareerTech who somewhat agree that Observable Cultural Characteristics are important, are neutral about Cultural Inequities being important, and are neutral about Ability Grouping. There were less married teachers and more divorced and never-married teachers in the group of 89 Oklahoma CareerTech teachers who disagree that Observable Cultural Characteristics are important.

Recommendations

All teachers must have the dispositions to work with students of diversity as they touch the lives of many students throughout their career. From the evidence revealed through this study, there are several areas of diversity that the Oklahoma CareerTech can work to strengthen. According to the frequency-distribution bell curve, there are some Oklahoma CareerTech teachers who score very high on the Professional Beliefs about Diversity instrument, some who score very low, and

most score in the middle. Differentiated training for working with students of diversity is recommended as obviously not everyone needs the same information. Further research through interviews or focus groups should be conducted to determine why the Non-Marrieds scored higher than the Marrieds.

There was no significant difference in the scores based on the type of training or lack of training the Oklahoma CareerTech teachers had received which means that the training they are receiving is not making a difference. If the Oklahoma CareerTech provides workshops for working with students of diversity, they should better meet the needs of the teachers rather than providing generic workshops. The teachers who scored high on the Professional Beliefs about Diversity instrument do not necessarily need the same type of diversity training that the teachers who scored very low need. Through differentiated instruction, teachers' disposition towards working with students of diversity should be assessed in order to identify their particular needs. Diversity training workshops should be available that address the individual needs of each teacher rather than offering one-size-fits-all type of workshops.

Only 16% of the Oklahoma CareerTech teachers are Non-White. The Oklahoma CareerTech might seek to hire more teachers of color. This should be done not because there should be a quota

but because they can provide a more challenging curriculum to students of diversity, and they have a potentially rich multicultural knowledge base to bring to the classroom.

Incentives could be provided to Oklahoma CareerTech teachers to work on a graduate degree as their scores on the Total Score and all three factors were higher, indicating that they had a better disposition to work with students of diversity. It has been indicated in many studies, including this one, that teachers with graduate degrees have more tolerance towards working with students of diversity.

There was no significant difference in the diversity disposition scores based on the type of training or lack of training the Oklahoma CareerTech teachers had received, which suggests that the training they are receiving is getting the same results. A better approach would be individualized training specifically related to needs. This model has been implemented by Oklahoma CareerTech in its Professional Development Center. The findings for this study can be used by the Center to develop such personal training in diversity dispositions. If the CareerTech provides workshops for working with students of diversity, they could be targeted to better meet the specific needs of the teachers rather than providing generic workshops. The teachers who scored high on the Professional Beliefs about Diversity instrument do not

necessarily need the same type of diversity training as the teachers who scored very low need.

One way to being strengthening the diversity dispositions of Oklahoma CareerTech teachers would be to have all of them take the Professional Beliefs about Diversity (Pohan & Aguilar, 1999) survey, however, it should be noted that with having to reverse the scores of certain questions, it is difficult to provide immediate feedback on the Total Score. According to Conti (2002), "the assumption inherent in this approach is that inaccuracies in the items will be averaged out over all of the items and that the final result will be an accurate representation of the degree to which the respondent possesses the characteristic under study (p. 44)". The Total Score is only a minor part of what can be learned from taking the survey, but the analyses are too complicated to run for each individual teacher. A computer program could be written to score the instrument and give immediate feedback, but it would be a time-consuming endeavor.

An alternative to administration and scoring of the Professional Beliefs about Diversity instrument is to develop an alternative assessment tool based on the principles of instrumented learning. A user-friendly instrumented learning tool would be beneficial in providing a tool which could be used to self-assess one's disposition towards working with students

of diversity quickly and is highly accurate, self-scoring, appreciated by the participants (Conti, 2002, p. 44), and facilitates self-understanding and improved personal performance (Ausburn, 2004).

> A learning instrument is designed so that you can "look into it and see yourself", as though in a mirror. Yet, unlike the mirror, it gives you a penetrating look inside yourself. Using it, you can study yourself as you really are –- underneath the skin, behind the eyes, so to speak. (Blake & Mouton, 1972, p. 113)

The purpose of a learning instrument to assess dispositions towards working with students of diversity would be to afford people "alternative modes of behaving" (p. 115) that would result in a "changed and more effective behavior" (p. 115).

> Instrumented learning uses instruments to provide information for participants so that it can be used for various types of self-improvement. This information is provided in the context and in relationship to a particular model so that the participant can use it to focus learning. (Conti, 2002, p. 47)

The results of the cluster analysis and the discriminant analyses using the Professional Beliefs about Diversity instrument can be used to devise a new "group" instrument that is easy to administer and provides methods for affecting change in behavior. It is recommended that this study be replicated to validate the clusters. Creating a new, user-friendly instrument utilizes cluster analysis and discriminant analysis along with

the traditional instrument (Conti, 2002, p. 44). This would provide Professional Development Centers an opportunity to use the longer Professional Beliefs about Diversity instrument created by Pohan to determine Total Scores and Factor Scores. A shorter form would be used to determine which of the four groups the CareerTech teacher is categorized into.

In order to develop a new instrument, validity and reliability must be established (Conti, 2002, p. 44). Validity is the "degree to which inferences can be made based on results from an instrument" (Fraenkel & Wallen, 2003, p. G-9). The construct and content validity for a measure of dispositions towards teaching students of diversity already exists from the analyses for this study. Construct validity is "how well the measure of the construct explains differences in the behavior of individuals" (p. 159). The 25 items from the traditional Professional Beliefs about Diversity instrument will be the pool from which the items in the new instrument will be based (Conti, 2002, p. 44). Content validity is the "degree to which an instrument logically appears to measure an intended variable and is determined by expert judgment" (Fraenkel & Wallen, 2003, p. G2). Findings from the structure matrix of this study will be used to construct the items for the new instrument. Criterion-related validity "refers to whether scores from an instrument are a good predictor of some outcome they are expected to

predict" (Creswell, 2005, p. 590) and would have to be established for the new instrument. This can be done by using the original instrument, The Professional Beliefs about Diversity, to check criterion-related validity. To do this, a comparison of the scores on both instruments can be compared (Conti, 2002, p. 48). Rather than receiving a total score, the participant will be placed into one of four categories. With this new instrument, participants can gain insight on how to teach students of diversity that will be rewarding for them and their students.

According to the mission statement of one of the teaching profession's accrediting bodies, the National Council for Accreditation of Teacher Education (NCATE):

> Accountability and improvement in teacher preparation are central to NCATE's mission. The NCATE accreditation process determines whether schools, colleges, and departments of education meet demanding standards for the preparation of teachers and other professional school personnel. Through this process, NCATE provides assurance to the public that the graduates of accredited institutions have acquired the knowledge, skills, and dispositions necessary to help all students learn. (NCATE, 2002, p. 1)

NCATE brought dispositions to the forefront as desirable qualities for an affective teacher, and in order to certify teachers in Oklahoma, colleges of education must be NCATE accredited. Although Oklahoma CareerTech Centers do not have to be accredited by NCATE, all teachers must possess a disposition

that fosters growth and learning in all students. Teacher certification programs, whether the certification be traditional, provisional, or alternative, have an ethical responsibility to insure their teachers possess the disposition necessary to have a positive impact as they will affect the lives of many students throughout their teaching career. At the university where the researcher teaches, every professor that teaches for the college of education is required to document in their syllabus how they incorporate the teaching of positive dispositions and working with students of diversity into their curriculum. This is a requirement that should be mandated by the Oklahoma State Department's certification office. Mandated coursework or professional development in working with diverse students should be implemented for all Oklahoma CareerTech teachers in order to assist them in areas where their personal dispositions might negatively affect their teaching behavior.

Recommendations for Further Research

CareerTech teachers touch the lives of many students, including students of diversity, so they must be prepared to provide positive experiences in the classroom. Continued research is needed to help discover what affects teachers' dispositions towards working with students of diversity and how their dispositions can be improved. Recommendations for further research from this study include:

1. This study should be replicated with regular classroom teachers who teach at a public school.
2. Four qualitative researches of focus groups should be conducted of the participants in study number based on which cluster they belong in an effort to gain more information to be used to create an instrumented-learning tool.
3. Qualitative research using interviews should be conducted of the participants in study number one based on which cluster they belong as an alternative method to gain more information to be used to create an instrumented-learning tool.
4. A computer program should be written which would help make the scoring of the Professional Beliefs about Diversity instrument easier. Another quantitative research study should be conducted using this computer program so that participants could immediately see their score.
5. A study should be conducted in which the participants take both the Professional Beliefs about Diversity online survey and the new instrumented-learning tool in order to make a comparison to determine whether the participants are placed in the same group.

Conclusion

The information gained from this study can be used to create individualized differentiated-training professional developments which are meaningful for Oklahoma CareerTech teachers and may help them assess their own disposition towards working with students of diversity. An instrumented-learning tool should be created which can be used to quickly self assess dispositions towards working with students of diversity. More teachers of color should be hired at the Oklahoma CareerTech centers as they may provide more cultural enrichment to the students. Oklahoma CareerTech teachers should be encouraged to obtain a graduate degree as it has been shown that they have a better disposition towards working with students of diversity.

REFERENCES

Aldenderfer, M. & Blashfield, R. 1984. Cluster Analysis. Beverly Hills, CA: Sage Publications.

Ary, D., Jacobs, L.C., & Razavieh, A. (1996). Introduction to Research in Education. Fort Worth, TX: Harcourt Brace College Publishers.

Ausburn, L. (2004). Gender and Learning Strategy Differences in Nontraditional Adult Students' Design Preferences in Hybrid Distance Courses. The Journal of Interactive Online Learning, 3(2), 1-17.

Avery, P. G., & Walker, C. (1993). Prospective teachers' perceptions of ethnic and gender differences in academic achievement. Journal of Teacher Education, 44(1), 27-37.

Arizona Secretary of State (AZSOS). 2006. Proposition 203. Retrieved November 20, 2006, from http://www.azsos.gov/election/2000/info/PubPamphlet/english/prop203.htm.

Bailey, F. (2005). Are "other people's children" constructivist learners too? Theory into Practice, 44(1), 19-26.

Bertram, T., & Pascal, C. (2002). What counts in early learning. In Contemporary perspectives in early childhood curriculum, eds. O. N. Saracho & B. Spodek, 241-256. Greenwich, CT: Information Age Publishing.

Blake, R., & Mouton, J. (1972). What is instrumented learning? Part I – Learning instruments. Industrial Training International, 7(4), 113-116.

Bronfenbrenner, U. (1979). The Ecology of Human Development: Experiments By Nature and Design. Cambridge, MA: Harvard University Press.

Brown, A. L. (1985). Knowing when, where, and how to remember: A problem of metacognition. In D. Claser (Ed.), Advanced in Instructional Psychology, 1(3), 77-165. Hillsdale; NJ: Erlbaum.

Brown, S. E, & Curtis, J. H. (1987). Fundamentals of Criminal Justice Research. Cincinnati: Anderson.

Canagarajah, A. (1999). Resisting Linguistic Imperialism in English Teaching. Oxford, UK: Oxford University Press.

Career Clusters (2004). Retrieved June 24, 2005, from http://www.careerclusters.org/whatis.htm

Carr, J. & Claxton, G. (2002). Tracking the development of learning dispositions. Assessment in Education, 9(1), 9-36.

Cockrell, K., Placier, P., Cockrell, D., & Middleton, J. (1999). Coming to terms with “diversity” and “multiculturalism” in teacher education: learning about our students, changing our practice. Teaching and Teacher Education (15).

Combs, A. W. (1965). The Professional Education of Teachers. Boston, MA. Allyn and Bacon.

Conti, G. J. (1993). Using discriminant analysis in adult education. Paper presented at the 34th annual Adult Education Research Conference (AERC). University Park, Pennsylvania.

Conti, G. J. (1996). Using cluster analysis in adult education. Paper presented at the 37th annual Adult Education Research Conference (AERC). Tampa, FL.

Conti, G. J. (2002). Constructing user-friendly instruments: The power of multivariant statistics (pp. 43-48). Proceedings of the Midwest Research-to Practice Conference in Adult, Continuing, and Community Education. DeKalb, IL: Northern Illinois University.

Cooney, M., Williams, K., & Nelson, J. (1998). Understanding the child’s perspective: Preservice teachers see the classroom with new eyes. Journal of Early Childhood Teacher Education, 19 (3), 219-225.

Creswell, J. (2005). Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research. Upper Saddle River, NJ: Pearson.

Cummins, J. (1986) Empowering minority students: A framework for intervention. Harvard Educational Review, 56, 18-36.

Delpit, L. (1996). Other People's Children: Cultural Conflict in the Classroom. New York: The New Press.

Feistritzer, C., & Chester, T. (2001). Alternative teacher certification: A state-by-state analysis 2001. Washington, DC: National Center for Education Information.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of psychological inquiry. American Psychology, 34, 906-911.

Fraenkel, J., & Wallen, N. (2003). How to Design and Evaluate Research in Education. New York, NY: McGraw-Hill Higher Education.

Galluzzo, G. (2002). The responsibility for assessing beginning teachers. Council for Basic Education Journal Online Education,(46). Retrieved February 13, 2004, from http://www.c-b-e.org/be/iss0206/a2galluzzo.htm.

Gay, L. R. (1987). Educational Research: Competencies for Analysis and Application. (3rd ed.). Columbus, OH: Merrill.

Genesee, F. (1994). Educating Second Language Children. Cambridge, UK: Cambridge University Press.

Gordinier, C., Moberly, D., & Conway, K. (2004). Scaffolding enables reflective thinking to become a disposition. Childhood Education, 80(3), 146-F.

Gordon, H. (1999). The History and Growth of Vocational Education In America. Needham Heights, MA: Allyn & Bacon.

Green, S., & Salkind, N. (2005). Using SPSS for Windows and MacIntosh: Analyzing and Understanding Data. (4th ed.) Upper Saddle River, NJ: Pearson-Prentice Hall.

Greene, J. 1997. "A meta-analysis of the Rossell and Baker review of bilingual education research." Bilingual Research Journal 21(3): 103-122.

Harrison, J., Smithey, G., & Weiner, C. (2003). As Disposed as You Can Be: Improving the Disposition to Teach. Unpublished paper presented at the 2003 Educator Dispositions Symposium at Eastern Kentucky University

Hello, E. (2006). Why the more educated are less inclined to keep ethnic distance: An empirical test of four explanations. Ethic and Racial Studies 29(5), 959-985.

Helm, J., & Katz, L. 2001. Young Investigators: The Project Approach in Early Years. New York: Teachers College Press.

Herr, E. & Shahnasarian, M. Selected Milestones in the Evolution of Career Development Practices in the Twentieth Century - industry historical information. Career Development Quarterly. Retrieved October 6, 2005 from

http://www.findarticles.com/p/articles/mi_m0JAX/is_3_49/ai_72703620.

Huck, S. (2004). Reading Statistics and Research (4th ed.) Boston: Allyn & Bacon.

Imbornoni, A. (2006). Women's Rights Movements in the United States. Retrieved November 16, 2006 from http://www.infoplease.com/spot/womenstimeline1.html.

INTASC. (1992). Model standards for beginning teacher license and development: a resource for state dialogue. Retrieved February 12, 2005, from http://www.ccsso.org/intascst.html.

Jalongo, M., & Isenberg, J. (2000). Exploring Your Role: A Practitioner's Introduction to Early Childhood Education. Upper Saddle River, NJ: Prentice-Hall Press.

Kachigan, S. (1991). Multivariant Statistical Analysis: A Conceptual Introduction. (2nd ed.). New York: Radius Press.

Kamii, C, & Housman L. (2000). Young Children Reinvent Arithmetic: Implications of Piaget's Theory (2nd ed.). New York: Teachers College Press.

Katz, L. (1993a). Dispositions: Definitions, and implications for early childhood practices. Catalog No. 211 Perspectives from ETIC/EECE: A Monograph Series, No. 4. Urbana, IL: ERIC Clearinghouse on Elementary and Early Childhood Curriculum.

Katz, L. (1993b). Dispositions as educational goals. ERIC digest EDO-PS-93-10. Urbana, IL: ERIC Clearinghouse on Elementary and Early Childhood Curriculum.

Katz, L. & Chard, S. (2000). Engaging Children's Minds: The Project Approach (2nd ed.). Stamford, CN: Ablex Publishing Corp.

Katz. L., & Raths, J. (1985). Dispositions as goals for education. Teaching and Teacher Education,1(4), 301-307.

Kim, J. O. (1975). Factor analysis (pp. 461-514). In N. Nie et al. (ed.), Statistical Package for the Social Sciences. Chicago: McGraw Hill.

Kinnison, L., & Nolan, J. (2000). An examination of GOA, TASP, and EXCET scores for undergraduate teacher education candidates. National FORUM Journals. Retrieved January 28, 2005, from http://www.nationalforum.com/19Kimm-1.htm.

Klecka, W. (1980). Discriminant Analysis. Beverly Hills, CA: Sage Publications.

Krashen, S. 1996. Under Attack: The Case Against Bilingual Education. Culver City, CA: Language Education Associates.

Krashen, S. (1998). Condemned Without a Trial: Bogus Arugments Against Bilingual Education. Portsmouth, NH: Heinemann.

Leek, P. (2001). Pre-service teachers' attitudes toward language diversity. Unpublished doctoral dissertation, Denton, TX: University of North Texas. (UMI No: 9992649)

McLaughlin, B., & McLeod, B. (1996). Educating all our students: improving education for children from culturally and linguistically diverse backgrounds. National Center for Research on Cultural Diversity and Second Language Learning (1). University of California Santa Cruz.

Mertens, D. (1998). Research Methods in Education and Psychology: Integrating Diversity with Quantitative and Qualitative Approaches. California: Sage Publications.

Mouton, J. S., & Blake, R. R. (1974). Instrumented Team Learning: A Behavioral Approach to Student-Centered Learning. Austin, TX: Scientific Methods.

Mouton, J. S., & Blake, R. R. (1984). Principles and designs for enhanced learning. Training and Development Journal, 38(12), 60-63.

National Assessment of Vocational Education (NAVE). (2004). Retrieved November 14, 2006, from www.ed.gov/rschstat/eval/sectech/nave/navefinal.pdf

National Board for Professional Teaching Standards (NBPTS). (2000). What teachers should know and be able to do. Washington, DC. National Board for Professional Teaching Standards.

National Center for Education Information (NCEI). (2002) Alternative routes for certifying teachers escalate to meet multiple demands. Retrieved July 16, 2005, from http://www.ncei.com/

National Center for Education Statistics (NCES). U.S. Department of Education. Vocational Education in the United States: Toward the Year 2000, NCES 2000–029, by Karen Levesque, Doug Lauen, Peter Teitelbaum, Martha Alt, and Sally Librera. Project Officer: Dawn Nelson. Washington, D.C.: 2000.

National Clearinghouse for Bilingual Education (2000). Retrieved June 21, 2005 from http://www.ncbe.org.

National Council for Accreditation of Teacher Education (NCATE). (2002). Standards, procedures and policies for the accreditation of professional educational units. Washington, DC: National Council for Accreditation of Teacher Education.

National Council for Accreditation of Teacher Education (NCATE) Online. (2004). Retrieved April 13, 2005, from http://ncate.org.

National Dissemination Center for Career and Technical Education (NDCCTE). (2005). Retrieved July 17, 2005, from http://www.ndccte.org

Nie, H., Hull, C., Jenkins, J., Steinbrenner, K., & Bent, D. (1975). Statistical Package for the Social Sciences (2nd Ed.). McGraw-Hill Book Company.

Nieto, S. (2003). Affirming Diversity: The Sociopolitical Context of Multicultural Education. New York: Longman.

Norusis, M. J. (1988). SPSS/PC+ advanced statistics V2.0. Chicago: SPSS Inc.

Nunnally, J. (1978). Psychometric Theory. New York: McGraw-Hill.

OARDC (Ohio Agricultural Research and Development Center). (2006). Retrieved October 5, 2006 from http://www.oardc.ohio-state.edu/www/morrill.html.

Oklahoma CareerTech. (2006a). Facts and Figures. Retrieved November 10, 2006 from http://www.okcareertech.org/measuringup/FastFacts/FastFacts-home.html.

Oklahoma CareerTech. (2006b). About Us. Retrieved October 5, 2006 from http://www.okcareertech.org/whoweare/whowe.htm.

Oklahoma CareerTech. (2006c). Certification Requirements for Career and Technology Education Teachers. Retrieved December 8, 2006 from http://www.okcareertech.org/teacherinduction/Supplemental%20Pages/Certification/All%20Other%20Divisional%20Certifications.htm

Oklahoma CareerTech (2006, d). Certification Requirements for Career and Technology Education Teachers. Retrieved December 8, 2006, from http://www.okcareertech.org/isd/Word%20Documents/Certification%20Requirements%20for%20CareerTech%20Teachers.doc

Parrott, M., & Da Ros-Voseles, D. 2004. The role dispositions, efficacy, and autonomy play in the education of preservice teachers. The Constructivist, 15(1), 1-15.

Pascal, C., & Bertram, A. (2000). Accounting early for life long learning: Phase 2 report. Worchester: University College, Amber Publications.

Passmore, J. (1972). On teaching to be critical. In R.F. Dearden, P.H. Hirst, and R.S. Peters (Eds.). Education and the Development of Reason. London: Routledge and Kegan Paul.

Pohan, C. (1996). Preservice teachers' beliefs about diversity: Uncovering factors leading to multicultural responsiveness. Equity & Excellence in Education, 29(3), 62-69.

Pohan, C., & Aguilar, T. (1999). The Personal and Professional © Beliefs About Diversity Scales User Manual and Scoring Guide. San Diego State University College of Education.

Raths, J. (2001). Teachers' beliefs and teaching beliefs. Early Childhood Research and Practice. Retrieved February 12, 2005, from http:/ecrp.uiuc.edu/v3n1/raths.html

Santos, J. (1999). Cronbach's Alpha: A Tool for Assessing the Reliability of Scales. Journal of Extension. 37(2), 1-5.

Schmitz, C. D., & Lucas, C. J. (1990). Seeking the right stuff: attitudinal traits, personal style, and other affective variables as predictors of exemplary student teaching. Education, 110.

Shakeshaft, C. (1986). A gender at risk. Phi Delta Kappan, March, 499-503.

Short, E. (1991). Forms of Curriculum Inquiry. State University of New York Press, Albany.

Swaminathan, S. (1999). Exit slips: A medium for daily reflection for preservice teachers and teacher educators. Journal of Early Childhood Teacher Education, 20(2), 145-149.

Taylor, R. & Wasicsko, M. (2000). The dispositions to teach. Retrieved February 12, 2005 from http://teacherdispositions.org/

Teaching Diverse Learners. (2003). Culturally responsive teaching: nine principles. Retreived February 12, 2005, from http://www.lab.brown.edu/tdl/.

U.S. Department of Labor. (2006). Title IX, Education Amendments of 1972. Retrieved November 16, 2006 from http://www.dol.gov/index.htm

Villegas, A. M. & Lucas, T. (2002). Educating Culturally Responsive Teachers: A Coherent Approach. Albany, NY: State University of New York Press.

Wasicsko, M. (1977). Improving teacher selection using perceptual inference in the teacher selection process. ERI, Item #ED 19395.

Wasicsko, M. Assessing Educator Dispositions: A Perceptual Psychological Approach. Retrieved January 28, 2005, from http://www.education.eku.edu/Dean/Assessing.020Educator.020Dispositions.020Manual.pdf.

Wheatley, K. (2002). Teacher persistence: a crucial disposition, with implications for teacher education. Essays in Education, 3. Published by the Department of Education at Columbia College. Retrieved January 28, 2005, from http://www.columbiacollegesc.edu/essays/vol.3_fall_2002/wheatley.pdf.

Zeichner, K., & Gore, J. (1990). Teacher socialization. In W. Robert Houston (Ed.), Handbook of research on teacher education, 329-348. New York: Macmillan.

APPENDICES

APPENDIX A – ONLINE SURVEY INSTRUMENT

http://arapaho.nsuok.edu/websurvey/wsb.dll/moss001/diversity2.htm Created using WebSurveyor

Top of Form

Professional Beliefs about Diversity Survey

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1) Age:

- ☐ 21-29
- ☐ 30-39
- ☐ 40-49
- ☐ Above 49

2) Years of teaching experience:

- ☐ First year to teach
- ☐ 1 to 5 years
- ☐ 6 to 10 years
- ☐ 11 to 15 years
- ☐ 16 to 20 years
- ☐ Over 20 years

3) Gender

- ☐ Male
- ☐ Female

4) Race

- ☐ Caucasian/White
- ☐ African American
- ☐ Asian
- ☐ Hispanic

- [ ] Latino
- [ ] Multiracial
- [ ] American Indian, Eskimo, Aleut
- [ ] Native Hawaiian or other Pacific Islander

5) Marital Status

- [ ] Married
- [ ] Divorced
- [ ] Separated
- [ ] Widowed
- [ ] Never married

6) Educational Attainment

- [ ] College: Associate Degree
- [ ] College: Bachelors Degree
- [ ] College: Graduate Degree
- [ ] College: Some College, No Degree
- [ ] School: 9th to 11th grade, No Diploma
- [ ] School: Grade: K - 9
- [ ] School: High School Graduate

7) CareerTech Agency Division with which you are affiliated

- [ ] Academic Teacher at CareerTech Center
- [ ] Agricultural Education
- [ ] Business and Information Technology Education
- [ ] Family and Consumer Sciences Education
- [ ] Health Careers Education
- [ ] Marketing Education

- [ ] Technology Education
- [ ] Trade and Industrial Education

8) Type of Teaching Certification

- [ ] Alternative Teaching Certificate
- [ ] Standard Teaching Certificate
- [ ] Provisional Certificate

9) CareerTech environment in which you teach

- [ ] Technology Center
- [ ] Comprehensive High School
- [ ] Skills Center

10) Are you National Board certified?

- [ ] Yes
- [ ] No

11) What is the level of your students?

- [ ] Secondary
- [ ] Post Secondary
- [ ] Both

12) Where have you participated in classes, workshops, or professional development involving working with students of diversity?

- [ ] I have not received training to work with students of diversity
- [ ] Through industry workshops
- [ ] CareerTech professional development
- [ ] Higher-education classes

Next Page (1 of 3) This online survey is powered by

This scale measures your beliefs about issues of diversity as they relate to policies and practices within educational settings. Indicate the degree to which you agree or disagree with each item the following scale to select your answers:

(1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

13) Teachers should not be expected to adjust their preferred mode of instruction to accommodate the needs of all students.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

14) The traditional classroom has been set up to support the middle class lifestyle.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

15) Gays and lesbians should not be allowed to teach in public schools.

- ☐ Strongly Agree
- ☐ Agree

- Neutral
- Disagree
- Strongly Disagree

16) Students and teachers would benefit from having a basic understanding of different (diverse) religions.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

17) Money spent to educate the severely disabled would be better spent on programs for gifted students.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

18) All students should be encouraged to become fluent in a second language.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

19) Only schools serving students of color need a racially, ethnically, and culturally diverse staff and faculty.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

20) The attention girls receive in school is comparable to the attention boys receive.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

21) Tests, particularly standardized tests, have frequently been used as a basis for segregating students.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

22) People of color are adequately represented in most textbooks today.

- Strongly Agree

- Agree
- Neutral
- Disagree
- Strongly Disagree

23) Students with physical limitations should be placed in the regular classroom whenever possible.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

24) Males are given more opportunities in math and science than females.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

25) Generally, teachers should group students by ability levels.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

26) Students living in racially isolated neighborhoods can benefit socially from participating in racially integrated classrooms.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

27) Historically, education has been monocultural, reflecting only one reality and has been biased toward the dominant (European) group.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

28) Whenever possible, second language learners should receive instruction in their first language until they are proficient enough to learn via English instruction.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

29) Teachers often expect less from students from the lower socioeconomic class.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

30) Multicultural education is most beneficial for students of color.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

31) More women are needed in administrative positions in schools.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

32) Large numbers of students of color are improperly placed in special education classes by school personnel.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

33) In order to be effective with all students, teachers should have experience working with students from diverse racial and ethnic backgrounds.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

34) Students from lower socioeconomic backgrounds typically have fewer educational opportunities than their middle class peers.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

35) Students should not be allowed to speak a language other than English while in school.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

36) It is important to consider religious diversity in setting public school policy.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

37) Multicultural education is less important than reading, writing, arithmetic, and computer literacy.

- ☐ Strongly Agree
- ☐ Agree

- Neutral
- Disagree
- Strongly Disagree

Submit Survey (3 of 3)

This online survey is powered by WebSurveyor.

APPENDIX B – INFORMED CONSENT DOCUMENT

The election to continue to the questionnaire will be participants' agreement to participate in the study. The online questionnaire will be preceded on the screen by consent information, shown below:

Dear CareerTech Teacher:

I am a doctoral student at Oklahoma State University working on my dissertation in Occupational Education and need your assistance. Your participation in my online questionnaire, which should take about 15 minutes, is much appreciated and will provide invaluable information for my study on what factors affect CareerTech teachers' disposition towards diversity.

Please answer the questions honestly and to the best of your ability. Read the following Informed Consent below before filling out the questionnaire:

Questionnaire Informed Consent

The purpose of this research is to add to the available knowledge of Oklahoma CareerTech teachers' dispositions toward issues of diversity. By participating, you may contribute to knowledge that could benefit the CareerTech system in better serving students from a diversity of backgrounds.

Your participation will require you to complete only a single online questionnaire, which should take about 15 minutes of your time.

There are no known risks to participating in this research beyond those encountered in daily life.

The following measures have been taken to ensure the anonymity and confidentiality of the participants:

- Answers to the questionnaire are submitted to a protected electronic database with no identification of the participant available to

the researcher, making the survey completely anonymous.

- The responses will be assigned a number for data checking purposes only.
- Data will be stored in the database and will never be printed. The data will be deleted one year from the completion of the analysis.
- Submission of the online questionnaire will serve as your agreement to participate.
- Data will be reported in aggregate so no individual information about any participant, institute affiliation, or any other identifying characteristic will be reported.

Participation in this survey is voluntary and participants may discontinue the research at any time without reprisal or penalty by closing the internet site. You may also request that your data be withdrawn from the study at any time. For information on participant's rights, contact Dr. Sue Jacobs, Oklahoma State University, IRB Chair, 415 Whitehurst Hall, Stillwater, Oklahoma, 405-744-1676. For information about the study, contact Linda Moss via e-mail at moss001@nsuok.edu, or by phone 918-456-5511 ext. 3718.

APPENDIX C – INSTITUTIONAL REVIEW BOARD APPROVAL

Oklahoma State University Institutional Review Board

Date:	Monday, May 01, 2006
IRB Application No	ED06122
Proposal Title:	Oklahoma Career and Technology Teachers' Disposition Towards Students of Diversity
Reviewed and Processed as:	Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 4/30/2007

Principal Investigator(s)

Linda Moss
1141 E. Omaha St. #A1
Broken Arrow, OK 74102

Darlinda Cassel
233 Willard
Stillwater, OK 74078

The IRB application referenced above has been approved. 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.

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

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 Beth McTernan in 415 Whitehurst (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,

Sue C. Jacobs

Sue C. Jacobs, Chair
Institutional Review Board

The election to continue to the questionnaire will be participants' agreement to participate in the study. The online questionnaire will be preceded on the screen by consent information, shown below:

Dear CareerTech Teacher:

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There are no knows risks to participating in this research beyond those encountered in daily life.

The following measures have been taken to ensure the anonymity and confidentiality of the participants:

- Answers to the questionnaire are submitted to a protected electronic database with no identification of the participant available to the researcher, making the survey completely anonymous.
- The responses will be assigned a number for data checking purposes only.
- Data will be stored in the database and will never be printed. The data will be deleted one year from the completion of the analysis.
- Submission of the online questionnaire will serve as your agreement to participate.
- Data will be reported in aggregate so no individual information about any participant, institute affiliation, or any other identifying characteristic will be reported.

Participation in this survey is voluntary and participants may discontinue the research at any time without reprisal or penalty by closing the internet site. You may also request that your data be withdrawn from the study at any time. For information on participant's rights, contact Dr. Sue Jacobs, Oklahoma State University, IRB Chair, 415 Whitehurst Hall, Stillwater, Oklahoma, 405-744-1676. For information about the study, contact Linda Moss via e-mail at moss001@nsuok.edu, or by phone 918-456-5511 ext. 3718.

Click here to continue.

Click here to exit.

Oklahoma State University Institutional Review Board

Date	Wednesday, September 27, 2006	Protocol Expires:	4/30/2007
IRB Application	ED06122		
Proposal Title:	Oklahoma Career and Technology Teachers' Disposition Towards Students of Diversity		
Reviewed and Processed as:	Exempt **Modification**		

Status Recommended by Reviewer(s) **Approved**

Principal Investigator(s) :

Linda Moss
1141 E. Omaha St. #A1
Broken Arrow, OK 74102

Lynna Ausburn
217 Willard
Stillwater, OK 74078

The requested modification to this IRB protocol has been approved. Please note that the original expiration date of the protocol has not changed. The IRB office MUST be notified in writing when a project is complete. All approved projects are subject to monitoring by the IRB

☐ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

Signature :
Sue C. Jacobs, Chair, OSU Institutional Review Board

Wednesday, September 27, 2006
Date

(1)

VITA

Linda Kay Moss

Candidate for the Degree of

Doctor of Philosophy

Thesis: OKLAHOMA CAREER AND TECHNOLOGY TEACHERS' DISPOSITIONS TOWARD TEACHING STUDENTS OF DIVERSITY

Major Field: Occupational Education Studies

Biographical:

Personal: I was born and raised in a small rural community with my parents and two sisters. After graduation from high school, I was married and attended Northeastern State University (NSU) to become a business teacher. My first job after graduation from college was secretary to the Director of Intern Teaching at NSU. I am currently teaching at this same university.

Education:
BS in business education, minor in mathematics - Northeastern State University (Tahlequah, OK), graduated 1977 MS in business education with emphasis in vocational business - Northeastern State University (Tahlequah, OK), graduated 1986 Doctor of Philosophy, Occupational Education Studies, Oklahoma State University, Stillwater, Oklahoma, Expected Graduation Date December, 2006.

Experience:

2001 - Present	Northeastern State University, Tahlequah, OK
1983 – 2001	Tahlequah Public Schools, Tahlequah, OK
1982 – 1983	Substitute Teacher at Tahlequah High School
1981 – 1982	John Brown University, Siloam Springs, AR
1980 – 1981	Christie Elementary School, Christie, OK
1979 – 1979	Colcord Public Schools, Colcord, OK

Professional Memberships: OTT; AAUP; PDP; KDP; AERA; AACTE; Graduate and Professional Student Government Association at OSU