

**STUDENT PERCEPTIONS OF DIVERSITY IN A MULTICULTURAL
EDUCATION COURSE IN THE COLLEGE OF AGRICULTURE AND LIFE
SCIENCES AT TEXAS A&M UNIVERSITY**

A Dissertation

by

KYLE JASON MERTEN

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2012

Major Subject: Agricultural Leadership, Education, and Communications

Student Perceptions of Diversity in a Multicultural Education Course in the College of
Agriculture and Life Sciences at Texas A&M University

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Approved by:	
Chair of Committee,	Alvin Larke, Jr.
Committee Members,	Chris T. Boleman
	Landry L. Lockett
	Patricia J. Larke
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August 2012

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ABSTRACT

Student Perceptions of Diversity in a Multicultural Education Course in the College of
Agriculture and Life Sciences at Texas A&M University.

(August 2012)

Kyle Jason Merten, B.S., Texas A&M University;

M.Ed., Texas A&M University

Chair of Advisory Committee: Dr. Alvin Larke, Jr.

Over the past 30 years, the population of Texas has continued to grow and become diverse. Undergraduate students at Texas universities preparing to enter the workforce will be faced with working more in diverse environments than those of their parents and grandparents. The purpose of this study was to determine overall student perceptions of diversity in a Multicultural Education course within the College of Agriculture and Life Sciences.

The research design used in this study was a one-group pretest-posttest design, with a follow-up retrospective post evaluation at the conclusion of the study to ascertain differences between the pretest and posttest administrative types. The target population consisted of all junior and senior classified students enrolled in ALED 422: Cultural Pluralism in Agriculture for the 2011 fall semester. A purposive convenience sample was taken for the study. During the study 47 students completed the pretest portion while 45 completed posttest and retrospective posttest portion of the study. Two of the participants were lost to attrition. Descriptive statistics were used for reporting the

demographics of respondents. Mean scores and frequencies were used to assess students' perceptions of contributions in agriculture and diversity.

The sample consisted of 70.20% males and 29.80% females. The ethnic breakdown of the sample was 74.50% White (non-Hispanic), 10.60% Hispanic, 8.50% African American (non-Hispanic), 4.30% Other, and 2.10% Native American. Based on grand mean pretest ($M = 3.82$, $SD = .56$) and posttest ($M=4.29$, $SD =.55$) findings, results confirm the implementation of a multicultural education course were effective in changing students' perceptions about contributions in agriculture and diversity perceptions. Ten of the fourteen (71.43%) statements were found to have statistically significant differences between pretest and posttest measurements. Based on grand means for the pretest ($M = 3.84$, $SD = 1.04$) and posttest ($M=4.29$, $SD =1.15$), results confirm the implementation of a multicultural education course to discuss contributions in agriculture were effective in changing students' perceptions about contributions in agriculture. No statistically significant differences were found in age, permanent residence, and size of graduating class related to students' perceptions of diversity. Also, no statistical significant difference was found in the administration of a pretest and posttest versus a retrospective posttest.

DEDICATION

This dissertation and degree are dedicated to my family. I have been truly blessed with a large family who has supported me and stood by my side in all that I have set out to achieve. Without them, this would not be possible.

I dedicate this to my best friend and soul mate, Mindy, and son, Barrett. Mindy, I will never be able to express truly how much I love you! You are the rock that keeps our family together. Mindy and Barrett, you give me the strength and courage to try anything I set my mind to, even when times get tough.

Next, I dedicate this to my parents Jerry and Connie Merten. From the beginning, you have encouraged me to challenge myself and give 110% to everything I do. There is not one opportunity in life that you have pushed me away from. Not only have both of you been a true inspiration for me professionally, you have taught me about parenthood. Thanks for all you have done for Mindy, Barrett, and me.

Thirdly, to my brother Kory Merten, I dedicate this to you. You inspire and help me to put things in perspective. You are very gifted, and I have always been proud to have you as my brother. Your talents will take you far in life. Like you have done for me, I challenge you to continue to strive for perfection. Thanks for being the best brother, uncle, and brother-in-law a guy could desire.

Finally, I dedicate this to God for all the gifts He has given me. I thank Him for all the blessings He has bestowed on my family and me. He is my rock and my salvation and through Him, all things are possible. I know as long as He is by my side, all things are possible.

ACKNOWLEDGMENTS

The completion of this dissertation and degree would not have been possible without a group of special people. First, I would like to thank each of my committee members, Dr. Alvin Larke, Jr., Dr. Chris T. Boleman, Dr. Landry L. Lockett, and Dr. Patricia J. Larke. Each of you has been instrumental in my journey of completing this degree and dissertation. Words cannot express my gratitude.

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Dr. Patricia J. Larke, you are the voice of reason. You help me to see things differently. You have been a true inspiration in helping me see life in a different light. Your perspective on how we teach youth has infiltrated my work every day with youth.

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CHAPTER I

INTRODUCTION

Over the past 30 years, the population of Texas has continued to grow and become diverse. This is evident through research conducted by the Texas State Data Center at the University of Texas, San Antonio. Individuals at the center refer to Texas' population growth as "fast-growing and ethnically diverse" (Combs, 2010). An analysis developed by the Texas Comptroller of Public Accounts describes the population growth and diversification over the last 26 years in Table 1 listed below.

Table 1
Race/Ethnicity in Texas, 1980-2010

Racial/Ethnicity	1980	1990	2000	2006	2010
Anglo	65.7%	60.6%	53.1%	48.3%	49.8%
Hispanic	21.0%	25.6%	32.0%	35.7%	35.4%
Black	11.9%	11.6%	11.6%	11.4%	11.2%
Other	1.4%	2.2%	3.3%	4.6%	3.6%

This dissertation follows the style of the *Journal of Agricultural Education*.

This change in demographic information also is reflected throughout different areas of the Texas workforce, especially in agriculture (Phillips, Kim-Jun, & Shim, 2011). These changes in demographics are evident in a report by the State Data Center that evaluated the racial/ethnic breakdown of the Texas workforce in 2000 and its projections for 2040. In 2000, Anglos comprised 58.4% of the workforce followed by Hispanic (27.5%), Black (10.7%), and Other (3.4%). Projections for 2040 show Hispanics projected to comprise 58.7% of the workforce followed by Anglo (25.2%), Other (8.2%), and Black (7.9%) (Combs, 2008). As population shifts like these occur, the need for cultural awareness in workforce preparation heightens.

Undergraduate students at Texas universities preparing to enter the workforce will be faced with working more in diverse environments than those of their parents and grandparents. As a result, colleges and universities have begun providing multicultural education courses to prepare undergraduate students for working with populations different than themselves. Research by Allen et al. (2008) stated, “academic benefits of diversity can be categorized into two main outcomes: (a) *Cognitive Openness*, and (b) *Attitudes Favoring Equal Opportunity*.” Much of this study will elucidate student attitudes toward diversity through a multicultural education setting. In order to gain a better appreciation for diversity and allow accurate data to be collected from these courses, students must be open for discussion about diversity issues.

As college campuses create more opportunities for underrepresented audiences and Texas demographics become more diverse, the need for cultural understanding and sensitivity become a priority. According to Gay (2004), the introduction of multicultural

education dates back to the 1960s when its goal was “to genuinely ‘integrate’ educational programs, procedures, and practices with the ethnic, racial, cultural, and social diversity that characterizes U.S. society” (p. 193).

During the late 1990s, a plethora of research involving the importance of multicultural education was conducted (Artiles & McClafferty, 1998; Barry & Lechner, 1995; Cockrell, Placier, Cockrell, & Middleton, 1999; Smith, Moallem, & Sherrill, 1997). It was not until 2004 and after that more extensive research began to resurface and become published in educational journals (Banks & Banks, 2008, Chizhik & Chizhik, 2005; Gay, 2004; Garmon, 2004; Higbee & Barajas, 2007; Phipps, Osborne, Dyer, & Ball, 2008; Wong & Fernandez, 2008).

Using research studies from the late 1990s and mid 21st century, college instructors are attempting to construct new methods of teaching multicultural education. Through these attempts, instructors have seen a wide variety of responses from students. Some students view multicultural education as an opportunity to learn more about historical backgrounds, literature, arts, and social circumstances. Other students struggle with the concepts of multicultural education because it challenges their belief systems and how they view themselves (Chang, 2002; Gotfredson et al., 2008; Higginbotham, 1996; Meacham, 1996).

Understanding and managing students enrolled in multicultural education courses are important when addressing diversity and multiculturalism in higher education. Higginbotham (1996) discussed an instructor’s role of addressing diversity and multiculturalism when she stated: “As faculty, our goal is to provide an environment in

which all students can reflect on and entertain various perspectives, if only during the class” (p. 204). Gaining a better perspective on student perceptions of diversity enrolled in multicultural education courses will play a key role in assisting instructors in preparing students to enter the workforce and society.

Statement of the Problem

As the demographics of the workforce change, educators must look at how to prepare students to interact with individuals who may be different from them. Swank, Asada, and Lott affirmed this in an article where individuals are encouraged to, “disengage from their own stereotypical beliefs, learn to empathize with people from stigmatized groupings, develop some nuanced understandings of different sub-cultures, and acquire culturally appropriate intervention techniques” (2001). Learning to venture outside of one’s comfort zone and experience what other groups of people are like can be difficult. Erikson (1946, 1956) described this in more detail in his discussion over ego identity and the development of young adults’ identity through different experiences in society. Furthermore, it is through education that students can begin their first to attempts venture outside of their comfort zones.

Multicultural education courses provide a key component in building the knowledge needed to become culturally aware (Bowman, 2009, 2010; Denson, 2009; Denson & Chang, 2009;). However, education in the classroom is not enough. Instructors must create an atmosphere in their classroom that allows students to open up about diversity issues. Students who feel comfortable talking about diversity and

interacting with others different from themselves are more likely to leave the classroom and demonstrate cultural sensitivity to others in society (Larke & Larke, 2008).

The College of Agriculture and Life Sciences (COALS) at Texas A&M University offers undergraduate and graduate students the opportunity to enroll in multicultural education courses to prepare them better to enter the workforce. Although only a few courses completely focus on diversity and multicultural education, other courses briefly discuss diversity and the importance of cultural sensitivity in today's global society. Knowing Texas A&M is making attempts to inform its students about diversity, the question becomes, "How are educators at Texas A&M doing in preparing students to enter a diverse workforce, gain a better appreciation of diversity in agriculture and become culturally sensitive in society?" This question along with others will be explored to determine whether educators are creating conducive environments for students to open up about issues related to diversity.

Purpose and Objectives of Study

Having an appreciation for diversity and being able to work with others who are different from them is important as students enter the workforce and society. The opportunities for students to participate in multicultural education courses in the College of Agriculture and Life Sciences at Texas A&M University are available. The purpose of this study was to determine overall student perceptions of diversity in a Multicultural Education course within the College of Agriculture and Life Sciences. The researcher also sought to find what diversity means to students and the importance of seeing diversity's. Next, the study evaluated the environment of a multicultural education

classroom and the reactions students have when discussing different issues related to diversity. Lastly, the examined whether the instructor was creating an environment conducive to openness and acceptance as relate to diversity. Demographic information also was collected to determine if there were any patterns associated with data collected from participants. As a result, the following research objectives were established:

- a) Identify personal characteristics of the selected students participating in Agricultural Leadership and Development 422;
- b) Assess student perceptions of contributions in agriculture before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University;
- c) Assess student perceptions of diversity before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University;
- d) Determine if relationships exist between College of Agriculture and Life Sciences students' selected demographic and personal characteristics, as they relate to student perceptions of diversity in a multicultural education course;
- e) Examine the difference in student pre perceptions of diversity and post then pre perceptions of diversity before and after engaging in a multicultural education course.

Hypotheses

The following null and alternative hypotheses were developed to guide this study.

Null Hypotheses

- H_{O1}: No statistically significant difference exists in student change in perceptions of contributions in agriculture after being enrolled in a multicultural education course.
- H_{O2}: No statistically significant difference exists in student change in perceptions of diversity after being enrolled in a multicultural education course.
- H_{O3}: No statistically significant difference exists in student perceptions of diversity in a multicultural education course in the presence of student age, permanent residence, and size of graduating course.
- H_{O4}: No statistically significant difference exists in student responses to a pre test administered at the beginning of a multicultural education course versus student responses to a retrospective pretest administered at the conclusion of a multicultural education class.

Alternative Hypotheses

- H_{a1}: A statistically significant difference will exist in student change in perceptions of contributions in agriculture after being enrolled in a multicultural education course.

- H_{a2}: A statistically significant difference will exist in student change in perceptions of diversity after being enrolled in a multicultural education course.
- H_{a3}: A statistically significant difference will exist in student perceptions of diversity in a multicultural education course in the presence of student age, permanent residence, and size of graduating course.
- H_{a4}: A statistically significant difference will exist in student responses to a pre test administered at the beginning of a multicultural education course versus student responses to a retrospective pretest administered at the conclusion of a multicultural education class.

Significance of the Study

Understanding student perceptions of diversity in a multicultural education course focusing on agriculture can provide educators the opportunity to investigate how curriculum and classroom environments should be structured to equip student needs better when learning about diversity. Past studies indicated a discrepancy regarding the effectiveness of multicultural education courses in changing student perceptions about diversity (Garmon, 2004).

Limitations of the Study

The results, conclusions, and implications of this study have several limitations.

These limitations include:

1. The population of this study was limited to 49 Texas A&M University students (junior and senior classification) who attended the second day of class for the 2011 fall semester of Agricultural Leadership and Development (ALED) 422.
2. Findings for this study may not be generalized to any group other than students enrolled in Agricultural Leadership and Development 422 or a multicultural education course structured similar this one. Generalizing the conclusions, results, and implications of this study beyond the sample is inappropriate.
3. The results were limited to the truthfulness of the responses from participants of this study.

Delimitations

This study was delimited to 49 Texas A&M University students (junior and senior classification) who attended the second day of class for the 2011 fall semester of Agricultural Leadership and Development 422.

Assumptions

Several assumptions were made over the course of this study. The assumptions in this study include:

1. Participants in the study accurately completed all parts of the questionnaire.

2. The results of this study can be characterized only to those enrolled in ALED 422. Any generalizations made must be made by the reader and left up to their interpretation.

Definition of Terms

Several key terms were used throughout this study. To provide a better understanding of their meaning, the researcher provided the following definitions.

Agricultural education – the systematic instruction in agriculture and natural resources at the elementary, middle school, secondary, postsecondary, or adult levels for the purpose of (a) preparing people for entry or advancement in agricultural occupations and professions, (b) job creation and entrepreneurship, and (c) agricultural literacy (Phipps, Osborne, Dyer, & Ball, 2008).

Classroom diversity – refers to student exposure to issues of multiculturalism (minority and cultural issues) in formal academic settings (Gottfredson et al., 2008).

College of Agriculture and Life Sciences (COALS) – A college within the Texas A&M University System that is encompassed by the land-grant mission partnering with AgriLife Research, AgriLife Extension, the Texas Forest Service and the Texas Veterinary Medical Diagnostic Laboratory, service agencies of The Texas A&M University System. The college focuses on both undergraduate and graduate teaching in the areas of agriculture, natural resources, and life sciences.

Contact diversity - measures the frequency with which an individual interacts with persons of different ethnic/racial backgrounds, such as roommates, romantic partners, study partners, and close friends (Gottfredson et al., 2008).

Department of Agricultural Leadership, Education, and Communications – A department housed within the College of Agriculture and Life Sciences that focuses on teaching undergraduate and graduate level courses in leadership, agriculture teacher education, and communications in agriculture.

Diversity – the variety of differences within a category or classification; most often refers to differences of gender, ethnicity, and socioeconomic status, though other forms of diversity, including geography, religious belief, and language, need to be considered (Talbert, Vaughn, Croom, & Lee, 2007).

Ego Identity – a set of comprehensive gains which an individual, at the end of adolescence, must have derived from all of his pre-adult experiences in order to be ready for the tasks of adulthood (Erikson, 1956).

Multicultural education – an educational philosophy that seeks to help individuals acknowledge and understand the increasing diversity in society and in the workplace, and to see others' diverse backgrounds as assets that can support learning of others (Banks, 1993; Salend, 2008; Sleeter & Grant, 1987).

Student perceptions of diversity– students' attitudes, opinions, or views on issues related to diversity.

Chapter Summary

Students preparing to graduate from the College of Agriculture and Life Sciences at Texas A&M University will face a different workforce a their parents did at their age. As a result, it is important that students are prepared to work and be around individuals different from themselves. Providing multicultural education when students are

developing their identities will play a key role in assisting students actively to make informed decisions on new and more complex perspectives and relationships.

To ensure educators successfully prepare students to enter society after enrolling in a multicultural education course, a thorough understanding and recognition of students' perceptions of diversity must be examined. To examine the effectiveness of multicultural education courses in the College of Agriculture and Life Sciences at Texas A&M University, a study to understand students' perceptions enrolled in a multicultural education course was initiated. The need for multicultural education will continue to be a priority in the future. As a result, more and more research will need to be conducted to examine how students can be prepared better to enter society. The chapter concluded with a statement of the problem, the purpose of the study, and objectives of the study. The significance of the study, limitations, delimitations, assumptions, and definition of terms also were included in the chapter.

CHAPTER II

REVIEW OF LITERATURE

Purpose and Objectives of Study

Having an appreciation for diversity and being able to work with others who are different from themselves is important as students enter the workforce and society. The opportunities for students to participate in multicultural education courses in the College of Agriculture and Life Sciences at Texas A&M University are available. The purpose of this study was to determine overall student perceptions of diversity in a Multicultural Education course within the College of Agriculture and Life Sciences.

The researcher also sought to find what diversity means to students and why it was important to have a good understanding of diversity. Next, the investigator examined the environment of a multicultural education classroom and the reactions students had when discussing different issues related to diversity. Lastly, the study aimed to determine whether the instructor was creating an environment conducive to openness and acceptance regarding diversity. Demographic information also was collected to determine the existence of any patterns associated with data collected from participants. As a result, the following research objectives were established:

- a) Identify personal characteristics of the selected students participating in Agricultural Leadership and Development 422;
- b) Assess student perceptions of contributions in agriculture before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University;

- c) Assess student perceptions of diversity before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University;
- d) Determine if relationships exist between College of Agriculture and Life Sciences students' selected demographic and personal characteristics, as related to student perceptions of diversity in a multicultural education course;
- e) Examine the difference in student pre perceptions of diversity and post then pre perceptions of diversity before and after engaging in a multicultural education course.

Hypotheses

The following null and alternative hypotheses were developed to guide this study.

Null Hypotheses

- H₀₁: No statistically significant difference exists in student change in perceptions of contributions in agriculture after being enrolled in a multicultural education course.
- H₀₂: No statistically significant difference exists in student change in perceptions of diversity after being enrolled in a multicultural education course.
- H₀₃: No statistically significant difference exists in student perceptions of diversity in a multicultural education course in the presence of student age, permanent residence, and size of graduating course.

H_{O4}: No statistically significant difference exists in student responses to a pre test administered at the beginning of a multicultural education course versus student responses to a retrospective pretest administered at the conclusion of a multicultural education course.

Alternative Hypotheses

H_{a1}: A statistically significant difference will exist in student change in perceptions of contributions in agriculture after being enrolled in a multicultural education course.

H_{a2}: A statistically significant difference will exist in student change in perceptions of diversity after being enrolled in a multicultural education course.

H_{a3}: A statistically significant difference will exist in student perceptions of diversity in a multicultural education course in the presence of student age, permanent residence, and size of graduating course.

H_{a4}: A statistically significant difference will exist in student responses to a pre test administered at the beginning of a multicultural education course versus student responses to a retrospective pretest administered at the conclusion of a multicultural education course.

The Value of Understanding Diversity in Higher Education

Colleges and universities continue to face challenges during the 21st Century related to teaching students about diversity and accepting others. As demographics continue to change, so will the teaching methods and interactions faculty provide students (Anderson, 2008). In order to make this transition of teaching students about accepting diversity, educators must utilize “thoughtful preparation, visible leadership, renewed aspirations, and the firm belief that diversity and globalism benefit all students” (Anderson, 2008, p. 176). Whitla, et al. (2003) found students have less contact with individuals who look different than them in their formative years as compared to their college years. As individuals become older and have opportunities to go to college, they also have the opportunity to meet people who have different backgrounds from themselves. As a result, colleges and universities serve as an excellent foundation for students to begin to interact and learn about individuals from different backgrounds. Hurtado (2008) reinforced this when he discussed diversity as a tool to create productive citizens that produce leaders who are culturally aware and possess critical thinking skills to assist in alleviating social problems related to inequalities in society.

As more research is conducted on the effectiveness of teaching diversity in the 21st Century, a pattern has begun to evolve on how diversity should be defined. Recent research was initiated to focus more on defining diversity under a broad umbrella rather than focusing on just demographic characteristics (Phillips et al., 2011). According to Bowman (2010), “race and ethnicity clearly constitute only one aspect of ‘diversity’- Americans also are diverse in terms of language, religion, culture, ideology, disability,

socioeconomic status, gender, sexual orientation, and other attributes” (p. 4). Williams and O’Reilly (1998) supported this by defining diversity as resulting “from any attribute people use to tell themselves that another person is different” (p. 81). Van Knippenberg and Schippers (2007) examined diversity in an even broader spectrum when they stated:

diversity may be seen as a characteristic of a social grouping (i.e., group, organization, society) that reflects the degree to which there are objective or subjective differences between people within the group (without presuming that group members are necessarily aware of objective differences or that subjective difference are strongly related to more objective differences (p. 519).

A noticeable difference can be witnessed in how recent research defines diversity. As seen through aforementioned definitions, diversity can be described in many different ways and on many different levels. Therefore, the manner in which diversity is defined rests solely on the context in which educators are working with students or the setting in which diversity is being discussed (Phillips et al., 2011).

Anderson (2008) provided a lay version on how many universities and colleges discuss diversity. This simplistic approach is comprised of three levels: (a) planning issue, (b) process issue, and (c) person issue. Although any one level can be utilized within a college or university, the assumption that all levels should be intertwined within an institutional setting is relevant. Following is a description of the levels discussed by Anderson (2008):

- Planning issue refers to the ways an institution conceptualizes diversity and diversity’s relationship to the institution’s mission, vision, and strategic plan.

- Process issue refers to the established systems, procedures, and practices used to institute, develop, and manage diversity.
- Person issue refers to the context and quality of the interactions that occur as people who are diverse engage one another at all levels of the institution.

This simplistic model illustrates the need for differentiation when planning and implementing processes to educate and provide experiences for students. In addition to this model, other research confirms that in order for students to become better versed in diversity issues, educators must implement multiple methods for students.

Understanding how diversity is defined allows educators the opportunity to investigate further methods to teach student diversity concepts that students will need to know to be successful members of society. Although multiple methods should be used to teach students effectively about diversity, this study will focus on the importance of understanding and accepting diversity through the use of multicultural education.

Why Multicultural Education is Important

The inception of multicultural education dates back before to the *Brown v. Board of Education* decision. This decision challenged individuals to take responsibility for eliminating divisions among cultural groups and stressed the acceptance of the differences and similarities that are present among each race and ethnic group (Gay, 2004). Although many years have passed since this court decision, racial tensions still are prevalent throughout the United States. According to Banks, a major goal of multicultural education "...is to reform the school and other educational institutions so that students from diverse racial, ethnic, and social-class groups will experience

educational equality” (1993, p. 3). Multicultural education also must provide privileged students (i.e., white heterosexual males) the opportunity to recognize their position in society, and assist them in becoming culturally sensitive (Bowman, 2009).

Although evidence over the last 20 years suggests the need for multicultural education, research studies have been mixed on the success of this type of education (Garmon, 2004). Some researchers (Artiles & McClafferty, 1998; Bennett, Niggle, & Stage, 1990; Bondy, Schmitz, & Johnson, 1993) have found an overall positive attitude and belief change as a result of multicultural education. However, other studies (Barry & Lechner, 1995; Causey, Thomas, & Armento, 2000; Cockrell, Placier, Cockrell, & Middleton, 1999) contradicted the previous notion by reporting no statistically significant change in the attitudes and beliefs of students enrolled in multicultural education courses. Disparity in research raises many questions as to how multicultural education can bring about the change needed to inform students of the importance of diversity and cultural sensitivity in society. Additionally, the lack of recent research supports this discrepancy and makes it difficult for educators to develop a method of teaching that is current and innovative for students today.

Aforementioned studies examined the overall impact multicultural education courses have on students’ attitudes and beliefs. However, other studies have been conducted and show that different courses have a variety of effects on distinctive students (Chang, 2002; Gottfredson et al., 2008). Keeping this in mind, researchers and educators can look at these factors to determine teaching styles that will best fit the students. In a study conducted by Smith, Moallem, and Sherrill (1997), factors were

identified that contributed to students developing greater multicultural awareness and sensitivity. These factors included: (a) Exposure to different cultural backgrounds (e.g., friendships, dating, sports), (b) Education (e.g., influences of teachers and colleges), (c) Travel (e.g., moving, vacationing, and military experience), and (d) Personal experience with discrimination as a child or as an adult. Each factor illustrates the idea that a student's experience is important for molding his/her attitudes and beliefs of multicultural education.

In recent years, secondary and higher education have placed a high priority on integrating multicultural education into classrooms. This effort can be attributed to previously conducted research. Colleges and universities have developed specific multicultural education courses that focus on diversity and cultural sensitivity. With these changes, many ask the question, "Why is there a need for multicultural education in secondary and higher education?" Quite simply, most immigrants prior to the 1920s came from Europe. However, during the late 1990s most immigrants came from Africa and non-Western regions (i.e., Saudi Arabia, India, Pakistan, Iran, and Iraq) (Manning, 2000). This has created a population that has become more diverse since the beginning of the 19th century in the United States of America. Despite this evidence, many critics still believe multicultural education does not belong in secondary and higher education classrooms. Interesting research by Manning stated:

Nine percent of teachers felt students speaking languages other than English created a disadvantageous learning environment for other learners; eighteen percent felt a learner's native language should be sacrificed so English could be

learned more quickly; twenty-three percent believed that learning English should take precedence over learning subject content, and 32% felt they should not be expected to work with non-English speakers (2000).

Feeling uncomfortable while discussing diversity with students is one of the primary reasons why educators are not supportive of multicultural education (Manning, 2000). As a result, students can sense when educators are uncomfortable discussing diversity. Not being able to discuss openly and accept diversity can result in negative feelings and consequences for both educators and learners. Regardless, understanding the significance of multicultural education is important for educators. Supportive evidence suggests that certain methods of teaching and factors exist that can be attributed to the success of students in multicultural education. Educators should find a method that works best for them and their students. Instructors also must provide students with the necessary tools to form their own beliefs about diversity and cultural sensitivity.

Student Resistance to Multicultural Education

In multicultural education courses, students are challenged to integrate new perspectives with existing views they may have on society. This becomes a personal reorientation process for many students that can be “exhausting and difficult” (Nieto & Bode, 2008, p. 425). For example, research by Neuharth-Pritchett, Reiff, and Pearson (2001) asked pre-service teachers to define multicultural education. In this research, students “held a minimal understanding of multicultural education, viewing it as involving only race and ethnicity issues rather than including issues of class, gender,

linguistics, sexual orientation, and disabilities” (Chizhik & Chizhik, 2005, p. 115).

According to LaDuke (2009), “student resistance has been widely researched within the context of K-12 public schools” (p. 38). Although quite different in context, similarities exist between higher education and K-12 multicultural education. In order to see these similarities, one must examine the differences first.

Students in higher education are able to resist concepts within multicultural education while still experiencing school success. For example, students openly may resist or not agree with certain multicultural teachings but still work hard and receive high grades. However, K-12 students who openly resist teachings may be punished for their resistance by receiving lower grades or disciplined by teachers and administration. As a result, students in K-12 often do not challenge or question teachings in fear of disciplinary action (LaDuke, 2009).

While closely examining the heart of the discussion, it becomes evident that a glaring similarity exists between multicultural education in K-12 schools and higher education. Cultural conflict may be intact when dealing with white students and professors or teachers of color. Both K-12 and higher education students have exhibited some form of resistance when instructed by teachers or professors of color. Many times this resistance carries on into higher education and society (post college years) and can have an effect on how individuals view others who are different than them. Educators must always keep this in mind while working with students.

Within the research (Dittmar, 1999; Griffin, 1997; Tatum, 1994), a number of studies exist that identify different forms of resistance. According to a number of

research studies, multicultural education courses confront issues of power and privilege with students who exhibit defensive, resistant, angry, and even antagonistic behavior (Berlak, 1999; Bowman, 2009; Higginbotham, 1996; Peters-Davis & Shultz, 2005; Ringrose, 2007). For the purpose of this discussion, Higginbotham (1996) demonstrated three general forms of resistance: (a) vocal, (b) silent, and (c) absent. Each form of resistance is equally as common as the other, but requires different actions by educators to handle them.

Vocal resistance is considered to be the “open questioning or challenging of the premise of the course or information that is presented as facts or the truth” (Higginbotham, 1996, p. 207). This form of resistance is seen most among privileged groups (Brown, 2004). Identifying privileged groups can be situational, but mostly, they are seen as white, middle-class men who are heterosexual and the normative age of the student population. Vocal resistance is considered to be one of the easiest perceived and noticeable forms of resistance; it is also the form of resistance that makes educators most uncomfortable. Students who exhibit vocal resistance question authority and challenge the status quo. As a result, this makes educators uncomfortable and causes them sometimes to take a defensive stance. Because vocal resistance is the most noticeable form of resistance, other forms (i.e., silent and absent) tend to be overlooked. Therefore, no action is taken to reduce these other forms of resistance.

Silent resistance may include knowing students that disagree with the educator, but rather than expressing their opinions on the matter remain silent. Often less privileged students exhibit silent forms of resistance. This can become an issue if the

instructor does not find a way to get these students to talk about their feelings and emotions toward multicultural education. Educators struggle to determine the best methods in getting silent students to express their opinions. As a result, educators often will let these types of students slip through the cracks and allow them to be silent for the duration of the class.

The most overlooked and difficult form of resistance to detect is absent resistance. Regularly, educators fail to notice the continued absence of a student from class as a means of resistance to learning. Like silent resistance, less privileged students also are known to exhibit absent forms of resistance. Despite absence being a less visible form of resistance, educators will go on with their teaching to avoid students that may raise questions. Regardless, educators still must recognize this as a form of unwillingness to learn and ensure proper methods are in place to get these students engaged (Higginbotham, 1996).

In order for benefits to be seen from multicultural education, educators must find new and innovative ways to minimize student resistance (Bowman, 2009). Knowing these three general forms of resistance and how to handle each form within the confines of an educational setting is the key for educators.

Shaping Multicultural Education Courses to Reduce Student Resistance

Individuals feeling uncomfortable with diversity deserve to be addressed. If approached correctly by educators, enrolling in multicultural education courses can be beneficial for both the student and the instructor. However, a stigma may fall upon students if the instructor's engagement of students is handled incorrectly.

Numerous research studies have been conducted and demonstrated the importance of structuring multicultural education courses correctly (Gurin, Dey, Hurtado, & Gurin, 2002; Higbee & Barajas, 2007; Higginbotham, 1996; Manning, 2000; Martin, 2010; Wong & Fernandez, 2008). Many of these studies built a solid argument for effective methods that can be utilized in structuring multicultural education courses. Meacham (1996) discussed the factors that should be considered when structuring a multicultural education course. These factors include:

- (a) The selection of course content and readings is central to the design of a course, but even this should follow from a statement of goals for student learning;
- (b) The goals for student learning must follow from who the students are, including their backgrounds, experiences, and identities, what they already know and what they hope to do with their education, and the prior perspectives they will bring to the course content and to the classroom;
- (c) The faculty will bring not only their own backgrounds, experiences, identities, prior beliefs, and values, but also their unique vantage point as members of an older generation;
- (d) Appropriate intellectual tools- Conceptual frameworks, methods of research and evaluation, and precision in the use of language-will enable the students to grasp the course content and issues at a sophisticated level; and
- (e) Careful attention to the classroom dynamics makes it possible for the course content, the students' characteristics and needs, the teacher's strengths and

weaknesses, and the intellectual tools to be woven together in the creation of an effective course.

The type of course content selected should be based on the type of information the instructor is trying to convey to the learner. This may include different dimensions of class, ethnicity, language, race, religion, and sexual orientation. In addition to the type of course content, the instructor also must consider the length of time to be spent on each topic (Meacham, 1996). He or she must ask the question, “Will I give brief attention to many topics or in-depth attention to a few topics?” After answering this question, instructors should be able to outline the content accordingly.

Understanding students is the second factor that should be considered when working with multicultural education. Different students bring distinctive backgrounds and experiences to the classroom. For instructors to have success in teaching multicultural education, they must closely examine these different backgrounds and experiences. The atmosphere the instructor creates should be one of openness without judgment. Students must feel safe discussing their backgrounds and experiences while relating the experiences to the course content (Meacham, 1996).

The third factor that many instructors do not like discussing or recognizing is their own personal bias and stereotypes. Many times, educators feel they have checked their biases and stereotypes at the door, when, in fact, they most likely have not. Not recognizing this can cause a great deal of damage to the students in the classroom. In many cases, these hidden stereotypes and biases create an atmosphere for students that

make them uncomfortable. As students become uncomfortable, they become resistant to learning.

Intellectual tools are the fourth factor discussed by Meacham. In this discussion, he emphasized the importance of providing conceptual frameworks, methods of research and evaluation, vocabulary and definitions that enable students to grasp course content, and issues related to multicultural education. The intellectual tools used should be based on the level of the students and the topics that are being taught in the course. It also should be the expectation of the instructor to ensure, as the course progresses, that students are able to use these tools in a more sophisticated manner (1996).

The last factor discussed by Meacham inspected classroom dynamics. Meacham divided the last factor into three sub factors. He went on to describe the first factor by stating, “the classroom itself should become a model for living with diversity, so that both the students and the teacher need to strive to listen with respect and to understand, even if they do not agree with, what others have to say on controversial issues” (Meacham, 1996). The second factor discussed multiculturalism and diversity as being in a state of confusion. This is because there is no correct answer to many of the diversity questions being asked in today’s society. The last factor discussed illustrated the importance of instilling actively constructed knowledge versus passively constructed knowledge. Actively constructed knowledge is retained much longer than passively. In order for instructors to teach multicultural education effectively, they must actively construct knowledge in their students. Creating effective classroom dynamics can be difficult for instructors. A safe, respectful atmosphere that allows all students to

participate is one of the most difficult tasks instructors face when teaching multicultural education.

Diversity and multicultural education are issues that make many people uncomfortable. Studies show, as a result, many students enrolled in multicultural education courses experience resistance. As the demographics of Texas continue to shift, the need for cultural acceptance also increases. The opportunity for students to gain a better understanding of individuals different than they is available on many college campuses today. Instructors should create an environment that is conducive to learning about cultural differences. Gaining student perceptions on diversity for students enrolled in multicultural education courses has never been as important as it is today. Student perceptions can be used to provide feedback for instructors on how to best structure their classes so students actively can engage in discussion related to diversity.

Types of Student Diversity Experiences

In a study by Gottfredson et al. (2008), a 2003 court case involving the University of Michigan Law School explained the significance of providing the tools necessary for students to interact with “diverse individuals, ideas, and values”(p. 80). Stewart, Crary, and Humberd (2008) agreed that diverse perspectives can enhance group and organization creativity, decision-making, problem solving, and strategy generation. Each of these characteristics aids in generating continuous performance gains for society. Other studies confirmed the need for cultural sensitivity when they discussed America’s future population 18 years and younger as being ethnically diverse over the next 15 years (Bowman, 2009, 2010).

Although race and ethnicity constitute only one aspect of diversity, language, religion, culture, ideology, disability, socioeconomic status, gender, and sexual orientation also are areas of diversity that should be addressed. Hurtado (2008) further elaborates on understanding diversity in society as producing “citizens for a multicultural society that can result in leadership with greater social awareness and the complex thinking skills to alleviate social problems related to complexities of inequality” (p. 8). A novel concept in nature, literature reveals the reality of bringing this utopian society to fruition as volatile at best. In fact, research has found mixed results when working with college students in preparing them to interact with individuals different from themselves (Bowman, 2009; Gottfredson et al., 2008; Gurin, et al., 2002; Hurtado, 2004; Kuklinski, 2006).

Results vary on the effectiveness of preparing students to go and be contributing members of society through the experiences and interactions they encounter at colleges and universities. As a result, researchers continue to look for new and innovative methods of measuring the educational and societal benefits of teaching diversity in college settings. According to Stewart et al. (2008),

diversity management competence relates to an individual's awareness and knowledge of how culture and other aspects of one's group identity inform human behavior in and outside of work, and the interpersonal skills necessary to effectively work with demographically diverse others (p. 375).

In order to work toward providing students the necessary skills to work in these conditions, educators typically focus on three types of student diversity experiences: (a) structural diversity, (b) informal interactional/contact diversity, and (c) curricular/classroom diversity. Research finds each form is equally important when preparing students to engage and interact with others different from themselves (Bowman, 2010; Chang, 2002; Denson, 2009; Gottfredson et al. 2008; Shaw, 2005). This study focused primarily on the effects of curricular/classroom diversity on student educational outcomes. However, a brief overview of structural diversity and informal interactional/contact diversity was provided to demonstrate each type of student diversity.

Reducing intergroup (or racial) bias is one of the primary goals of each of the aforementioned forms of diversity experiences. Dovidio et al. (2004) illustrated a model in which racial bias can be reduced. Figure 1 demonstrates an overview of the processes and interventions (i.e., curricular and cocurricular diversity activities) that reduce racial bias. Based on the model, the trainings and interventions operate through enlightenment, contact, or both. Enlightenment focuses on learning and gaining knowledge about other groups. Contact approaches involve taking groups (structural diversity), bringing them together, and allowing them to interact. Each component stimulates different mediators, cognitive and emotional, which reduce racial bias. The end result targets change in the areas of attitudes (prejudice), cognition (stereotypes), emotions (negative affect), and behavior (discrimination).

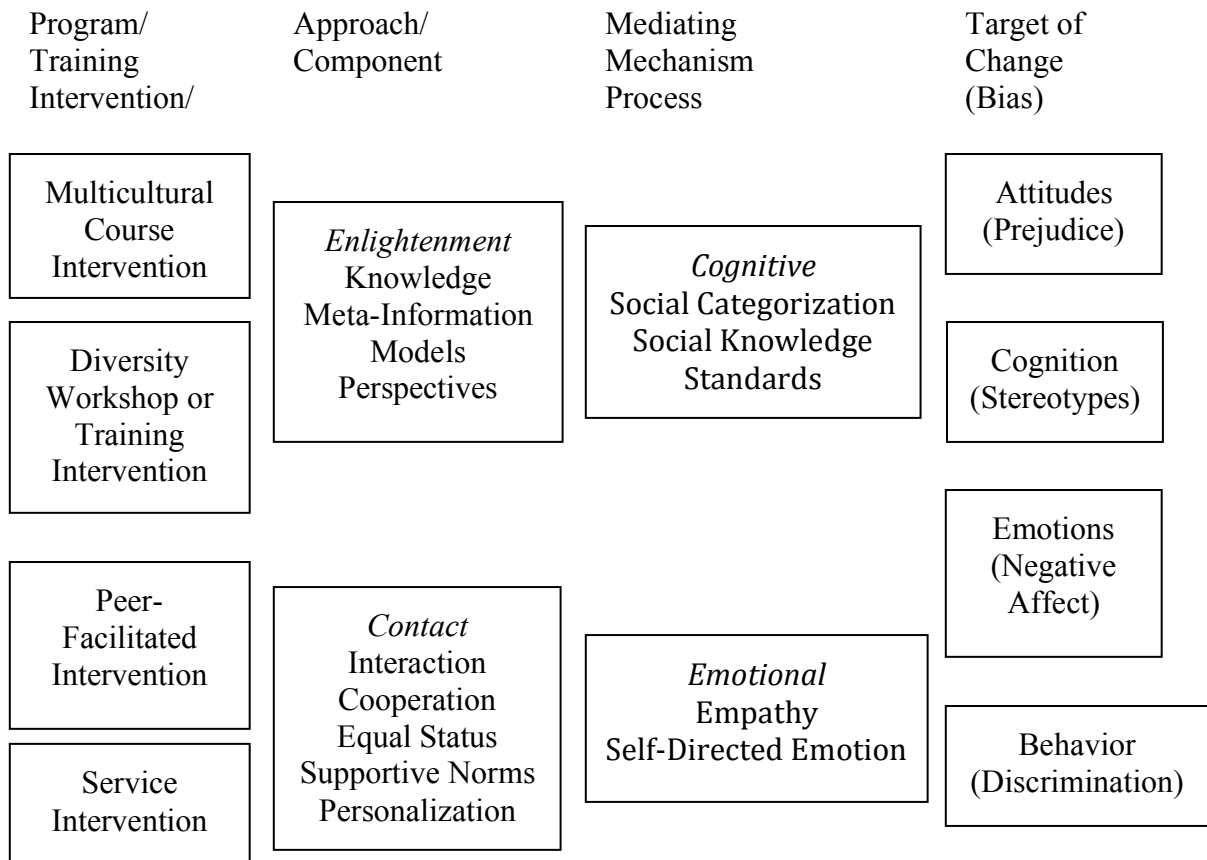


FIGURE 1. Reducing Racial Bias. Adapted from Dovidio et al. (2004, p. 245).

Structural Diversity

Structural diversity refers to the representation of diverse students within a larger group on a campus setting (Bowman, 2010). This form of diversity most commonly is heard and read about on college and university campuses because of its relation to admissions and admission standards. However, very few studies have been conducted to examine its effect on educational outcomes related to diversity (Denson, 2009). As a result of the publicity structural diversity brings to college campuses, many states continue to struggle over what aspects of diversity should be considered in the academic admission process. In the end, many of these struggles have led to legal battles that have taken place in the courtroom over the last 10 years (Bowman, 2009, 2010; Chang, 2002; Gurin et al., 2002).

Gurin (1999) argued the presence of structural diversity alone does not contribute to student development. However, creating a diverse setting of peers allows students to interact with others different than themselves, which may lead to positive outcomes. Other studies confirm this notion and provide mixed results on the overall strength of structural diversity as a stand-alone method of producing educational outcomes. This is in contrast to it working as a more interactional approach (Denson & Chang, 2009; Gurin, 1999; Herzog, 2007; Rothman, Lipset, & Nevitte, 2003; Terenzini, Cabrera, Colbeck, Bjorklund, & Parente, 2001).

Informal Interactional/Contact Diversity

Gottfredson et al. (2008) discussed informal interactional/contact diversity as the “frequency with which an individual interacts with persons of different ethnic/racial

background” (p. 82). The success of contact diversity depends on the opportunities students have to interact with others different from themselves. The literature places a heavy emphasis on structural diversity in creating a diverse setting needed to provide students with the interactions necessary to create positive educational outcomes (Bowman, 2010, Denson & Chang, 2009). Providing students the opportunities to interact with outgroups, even when not under optimal conditions, produces a small-to-medium effect on reducing prejudice and increasing positive attitudes towards diversity (Pettigrew & Tropp, 2006). Other research provides evidence that contact diversity increases students’ willingness to engage in perspective taking and their ability to understand and incorporate different perspectives into one’s own point of view (Gottfredson, 2008). Structural and contact diversity are dependent on one another to be effective in producing positive educational outcomes. Structural diversity provides the setting for which interaction can occur physically. At the same time, contact diversity provides the actual interaction among students that produces positive educational outcomes.

Curricular/Classroom Diversity

Contact diversity and classroom diversity are considered the two most studied forms of student diversity experiences by researchers (Denson, 2009). This study will focus on curricular/classroom diversity and the effects it has on student perceptions of diversity. According to Gottfredson et al. (2008), classroom diversity refers to “student exposure to issues of multiculturalism (minority and cultural issues) in formal academic settings” (p. 82). Others see classroom diversity as a systematic and purposeful approach

to teaching diversity concepts (both ideas and people) that is structured institutionally (Denson & Chang, 2009; Terenzini, Cabrera, Colbeck, Bjorklund, & Parente, 2001). Students engaged in curricular/classroom diversity typically encounter this form of diversity through enrolling in coursework, curriculum, or through participation in various racial, ethnic, or cultural awareness workshops and organizations.

Research findings discussed by Denson and Chang (2009) indicated classroom diversity to be positively correlated to producing the following outcomes: intergroup attitudes (Lopez, 2004); racial prejudice and intergroup understanding (Chang, 2002); attitudes toward campus diversity (Springer, Palmer, Terenzini, Pascarella, & Nora, 1996); critical thinking skills (Nelson Laird, 2005; Pascarella, Palmer, Moye, & Pierson, 2001); cognitive and affective development (Astin, 1993); learning and “democracy” outcomes (Gurin, Dey, Hurtado, & Gurin, 2002); civic, job related, and learning outcomes (Hurtado, 2001); academic self-confidence and social agency (Nelson Laird, 2005); social action engagement outcomes (Nelson Laird, Engberg, & Hurtado, 2005); and action-oriented democratic outcomes (Zúñiga, Williams, & Berger, 2005).

Despite many studies indicating positive results, there are a small number of studies have reported statistically nonsignificant effects of curricular/classroom diversity on racial bias and cultural understanding (Brehm, 1998; Henderson-King & Kaleta, 2000; Hyun, 1994; Neville & Furlong, 1994; Taylor, 1994). Adding to the complexity of classroom diversity, other studies have shown mixed results on its effects on students becoming more culturally aware (Bidell, Lee, Bouchie, Ward, & Brass, 1994; Gurin et al., 2002; Hathaway, 1999). Research indicates great deal of disparity exists in the

results of classroom diversity on college campuses. Although most evidence indicates classroom diversity has a significant positive effect on students' educational outcomes, other evidence that indicates a need for more research.

Importance of Multicultural Education to the College of Agriculture and Life Sciences at Texas A&M University

Texas A&M University has a rich history that dates back to the passing of the Morrill Act of 1862. This act provided for "donation of public land to the states for the purpose of funding higher education, whose leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and mechanic arts" (Texas A&M University, 2011a). As a result of this legislation, a commission was created to provide a location in which the institution would be built. In 1871, 2,416 acres was given by the citizens of Brazos County to build what was then called the Agricultural and Mechanical College of Texas. Instruction did not begin until 1876. In the beginning, admission was limited to white males, and, as required by the Morrill Act, all students were required to participate in military training (Texas A&M University, 2011a).

It was not until the late 1960s that Texas A&M began to diversify. Under the presidency of General James Earl Rudder, women and minorities began being admitted to the university. Also during this time, participation in the Corps of Cadets became voluntary. In 1963, the Agricultural and Mechanical College of Texas was renamed Texas A&M University. During this transition, the "A" and "M" became a symbolic link to Texas A&M's past, but no longer officially stood for "Agricultural and Mechanics."

As time has progressed, so has Texas A&M in its look, structure, and services it provides (Texas A&M University, 2011a).

Today, diversification at the university and college level is more important than ever. According to spring 2012 preliminary (Based on 5th day of classes) enrollment statistics, 46,721 students will be enrolled at Texas A&M University. This is a 6.8% (2,970 total students) increase since 2008. The College of Agriculture and Life Sciences enrollment projects 6,822 students to be enrolled in the spring 2012 semester. This is a 7.5% (475 total students) increase since 2008. Although it is important to show growth in the university and COALS, understanding the demographic makeup of each, and how they compare is equally as important. Table 2 compares the ethnic breakdown of the entire University and COALS based on the fall 2011 semester (Texas A&M University, 2011b). According to Table 2, underrepresented audiences constitute 33.8% of the Texas A&M University student body. Also, 28.4% of the COALS student body consists of members of underrepresented audiences. A more detailed breakdown is listed in Table 2.

Table 2
*Spring 2012 Demographic Comparison of Overall University Students Versus Students
 in the College of Agriculture and Life Sciences*

Ethnic Origin	University		COALS	
	<i>n</i>	% ^a	<i>n</i>	% ^a
White Only	32,808	65.8	4,991	71.5
Black only + or more/1Black	1,717	3.4	214	3.1
Hispanic or Latino or any Race	7,561	15.2	969	13.9
Asian Only	2,245	4.5	187	2.7
Native Hawaiian Only	48	.1	4	.1
American Indian Only	160	.3	34	.5
International	4,310	8.6	456	6.5
2 or more/excluding Black	846	1.7	113	1.6
Unknown or Not Reported	166	.3	16	.2

Note. ^aPercentages may not total 100 because of missing data. ^bBlack only + or more/1Black is also known as biracial

Like the university as a whole, COALS has seen many transitions and cultural changes within its college. Over the last 10 years, the demographic makeup of the college has been one of the most visible changes. Table 3 shows this transition. The numbers indicate COALS is making strides in providing opportunities to create a more diverse student body. The numbers in Table 3 also mirror demographic changes that are occurring in the workforce and in society as well.

Table 3
Demographic Trends for COALS 1999-2011

Ethnic Origin	Fall 1999		Fall 2011		% Change ^c
	<i>n</i>	% ^a	<i>n</i>	% ^a	%
White Only	5011	87.2	4,991	71.5	-.4
Black only + or more/1Black	114	2.0	214	3.1	87.7
Hispanic or Latino or any Race	365	6.3	969	13.9	165.5
Asian Only	75	1.3	187	2.7	149.3
Native Hawaiian Only ^b	NA	NA	4	.1	NA
American Indian Only	24	.4	34	.5	41.7
International	62	1.1	456	6.5	635.5
2 or more/excluding Black ^b	NA	NA	113	1.6	NA
Unknown or Not Reported ^b	98	1.7	16	.2	-83.7

Note. ^aPercentages may not total 100 because of missing data. ^bAccording to 1999 Demographic Summary Native Hawaiian Only, 2 or more/excluding Black, and Unknown or Not Reported were reported as Unknown/Other. ^cPercentage Change is calculated by the following formula: (Fall 2011 – Fall 1999) / Fall 1999 * 100, ^dBlack only + or more/1Black is also known as biracial

Projections for 2040 show Hispanics projected to comprise 58.7% of the workforce followed by Anglo (25.2%), Other (8.2%), and Black (7.9%) (Combs, 2008). As population shifts continue to occur, so will the need for multicultural education courses at colleges and universities (Bowman, 2010). Population shifts will continue to occur in Texas; so will the culture of Texas A&M University. The last 40 years have seen a number of changes in the culture of Texas A&M, especially the College of Agriculture and Life Sciences (Texas A&M University, 2011a). As a result, changes will

need to be made continuously in order to meet the needs of students and prepare them to take on roles in society once they graduate.

Theoretical/Conceptual Framework

The theoretical framework that will guide this research study is based upon the dimensions of multicultural education discussed by Banks (1993): (a) content integration, (b) the knowledge construction process, (c) prejudice reduction, (d) an equity pedagogy, and (e) an empowering school culture and social structure. As educators work in multicultural education settings, they must realize that not moving their students through each dimension can cause more harm than good. Each dimension is critical and serves as a critical piece in the multicultural education process (Banks, 1993).

Content Integration

According to Banks (1993), content integration “deals with the extent to which teachers use examples, data, and information from a variety of cultures and groups to illustrate key concepts, principles, generalizations, and theories in their subject area or discipline” (p. 5). In many publications and school districts, a belief exists that content integration comprises all of the multicultural education dimensions. Many teachers view content integration as the level that should be incorporated only into subjects like history and language arts. This leaves those students in other subject areas like science and math disengaged.

Knowledge Construction Process

Banks (1993) defined the knowledge construction process as the process by which “social, behavioral, and natural scientists create knowledge and how the implicit cultural assumptions, frames of references, perspectives, and biases within a discipline influence the ways that knowledge is constructed within it” (p. 5). When implemented in classrooms, the knowledge construction process helps students understand (a) how knowledge is created and (b) how influences like race, ethnicity, gender and social class position affect the knowledge construction process.

Prejudice Reduction

Banks (1993) described prejudice reduction as using students’ racial attitudes and beliefs to assist with the development of more democratic attitudes and values. For many, this can be a difficult stage because it challenges their belief system. In this dimension, researchers continue to look for ways in which racial prejudice and biases can be minimized.

Equity Pedagogy

According to Banks (1993), an “equity pedagogy exists when teachers use techniques and methods that facilitate the academic achievement of students from diverse racial, ethnic, and social-class groups” (p. 6). Teachers in this dimension focus on youth considered to be “at-risk” both in society and academically. Overall, the goal of educators in this stage is to assist underrepresented audiences in minimizing the academic achievement gap that exists between Whites and underrepresented audiences.

Empowering School Culture

The dimension of empowering school culture focuses on providing students from diverse racial, ethnic, and social-class groups educational equality and cultural empowerment (Banks, 1993). To empower school culture would require faculty and staff to buy-in and create a culture change within the school. Variables that must be considered when undergoing change include: (a) cultural grouping practices, (b) the social climate of the school, and (c) staff expectations for student achievement.

As indicated previously, not mentioning the very foundation of multicultural education would be unacceptable. Through his works, Banks created a foundation in which multicultural education can be taught at any level. Within his research, the five dimensions of multicultural education should be used concurrently and not interdependently.

The conceptual framework that guided this research study was based upon the concept of ego identity. Erik Erikson (1946, 1956) described ego identity as a time during late adolescence and early adulthood where individuals gain a sense of personal and social identity. This stage of development also happens to align with the traditional age of undergraduate students (Bowman, 2010). Erikson continued to state:

Identity develops best when young people are given a psychosocial moratorium – a time and a place in which they can experiment with different social roles before making permanent commitments to an occupation, to intimate relationships, to social and political groups and ideas, and to a philosophy of life. (in Gurin et al., 2002, p. 334)

This study further expands on ego identity by demonstrating the importance of providing multicultural education during this time of development. Doing so will provide young adults the opportunity to experience important issues related to diversity. According to Bowman (2009), diversity courses that help serve as an intervention for students can be defined best as “those that have a primary emphasis on ethnic studies, women’s studies, diverse cultures, and/or social justice” (p. 182). Providing these interventions allow young adults to make decisions based on sound research rather than past and present experiences alone.

Additional studies by Piaget (1971, 1975/1985) and Ruble (1994) described individuals who encounter new and/or differing views from their own, those who have an opportunity for cognitive growth. Some courses cause students to question their worldviews by discussing issues and perspectives different from their own. These courses cause students to decide whether they can deal with these differences or change their views to fit within the new information provided to them (Bowman, 2010). Bowman (2010) also stated “this perceived discrepancy, along with the uncertainty, instability, and possible anxiety associated with this state, as disequilibrium; this state may be triggered by one’s own internal recognition of incompatible beliefs or experiences or by one’s social interactions (in Ruble, 1994). A conceptual overview developed by Bowman (2010) that summarized the processes and conditions under which cognitive growth occurs related to diversity interactions is listed in Figure 2.

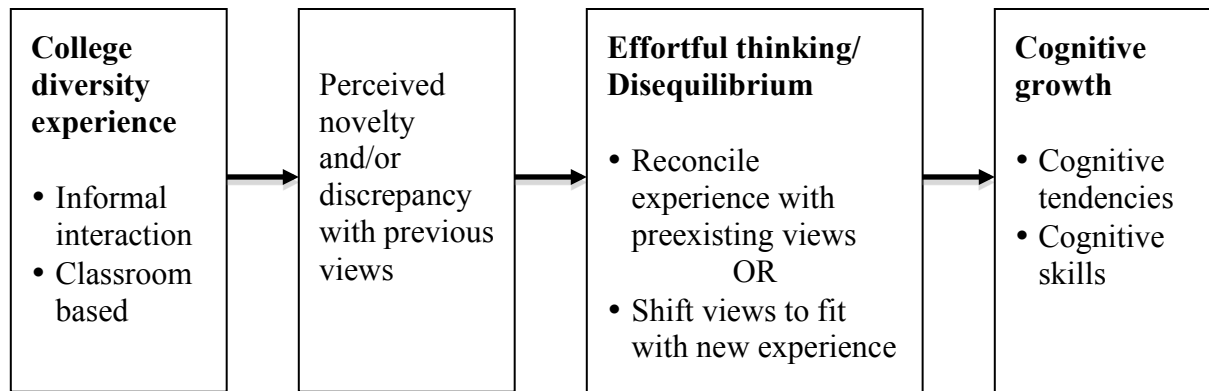


FIGURE 2. *Conceptual Overview of College Diversity Experiences and Cognitive Development* (Bowman, 2010).

Chapter Summary

In this chapter, the value of understanding diversity in higher education, dimensions of multicultural education, why multicultural education is important, student resistance to multicultural education, shaping multicultural education courses to reduce student resistance, types of student diversity experiences, and the importance of multicultural education in the College of Agriculture and Life Sciences at Texas A&M University were discussed. Each section reviewed how important diversity and multicultural education are in today's society. This chapter also examined different areas educators can utilize work with students to strengthen their cultural awareness and teach them how to be culturally sensitive.

The conceptual framework was identified as Erik Erickson's concept of ego identity (1946, 1956). The concept of ego identity occurs in late adolescence and early adulthood when young people are gaining a sense of personal identity. It is also a time

when experimenting with different social roles, ideas, relationships, and philosophies on life occur. Because this is a crucial time in students' lives, educators have an excellent opportunity to make positive impressions on them in the area of cultural sensitivity and awareness.

Based upon the literature reviewed, the variables of interest were identified to be the student perceptions of diversity enrolled in a diversity course within the College of Agriculture and Life Sciences. In order to assess these perceptions formally, student beliefs must be assessed.

CHAPTER III

METHODS AND PROCEDURES

Purpose and Objectives of Study

Having an appreciation for diversity and being able to work with others who are different from them is important as students enter the workforce and society. The opportunities for students to participate in multicultural education courses in the College of Agriculture and Life Sciences at Texas A&M University are available. The purpose of this study was to determine overall student perceptions of diversity in a Multicultural Education course within the College of Agriculture and Life Sciences.

The researcher also sought to find what diversity means to students and why it is important to have a good understanding of diversity. Next, examined the environment of a multicultural education classroom and the reactions students have when discussing different issues related to diversity. Lastly, the researcher determined whether the instructor was creating an environment conducive to openness and acceptance as it relates to diversity. Demographic information also was collected to determine if there are any patterns associated with data collected from participants. As a result the following research objectives were established:

- a) Identify personal characteristics of the selected students participating in Agricultural Leadership and Development 422;
- b) Assess student perceptions of contributions in agriculture before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University;

- c) Assess student perceptions of diversity before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University;
- d) Determine if relationships exist between College of Agriculture and Life Sciences students' selected demographic and personal characteristics as they relate to student perceptions of diversity in a multicultural education course;
- e) Examine the difference in student pre perceptions of diversity and post then pre perceptions of diversity before and after engaging in a multicultural education course.

Hypotheses

The following null and alternative hypotheses were developed to guide this study.

Null Hypotheses

- H₀₁: No statistically significant difference exists in student change in perceptions of contributions in agriculture after being enrolled in a multicultural education course.
- H₀₂: No statistically significant difference exists in student change in perceptions of diversity after being enrolled in a multicultural education course.
- H₀₃: No statistically significant difference exists in student perceptions of diversity in a multicultural education course in the presence of student age, permanent residence, and size of graduating course.

H_{O4}: No statistically significant difference exists in student responses to a pre test administered at the beginning of a multicultural education course versus student responses to a retrospective pretest administered at the conclusion of a multicultural education course.

Alternative Hypotheses

H_{a1}: A statistically significant difference will exist in student change in perceptions of contributions in agriculture after being enrolled in a multicultural education course.

H_{a2}: A statistically significant difference will exist in student change in perceptions of diversity after being enrolled in a multicultural education course.

H_{a3}: A statistically significant difference will exist in student perceptions of diversity in a multicultural education course in the presence of student age, permanent residence, and size of graduating course.

H_{a4}: A statistically significant difference will exist in student responses to a pre test administered at the beginning of a multicultural education course versus student responses to a retrospective pretest administered at the conclusion of a multicultural education course.

Research Design

The research design used in this study was a one-group pretest-posttest design with a follow-up retrospective post evaluation at the conclusion of the study. According to Fraenkel and Wallen (2009), experimental research is defined as “research in which at

least one independent variable is manipulated, other relevant variables are controlled, and the effect on one or more dependent variables is observed” (p. G-3).

The purpose of this study was to explore and analyze student perceptions of diversity in a multicultural education course in the College of Agriculture and Life Sciences at Texas A&M University. The conceptual framework for this study was based upon Erikson’s studies (1946 and 1956) on ego identity, which were discussed in chapter II. The Texas A&M University Institutional Review Board (IRB) determined that the research protocol (2011-0646) used for this study met the criteria for expedited, and no further review was required to start the questionnaire implementation process (Appendix A). An amendment to the original protocol was submitted to the Texas A&M University Institutional Review Board (IRB) to allow the researcher to administer a retrospective post evaluation (Appendix B). This was approved by IRB on November 11, 2011.

Pilot Test

On June 27, 2011, the researcher conducted a pilot study involving 28 junior and senior undergraduate students enrolled in the summer 2011 section of Agricultural Leadership and Development (ALED) 481, Seminar course. Participants were asked to complete all sections of the survey to the best of their ability. Students also were asked to make notes on the survey to assist the researcher in readability of the survey, grammatical or punctuation errors, and other formatting issues. Participants engaged in the pilot study took approximately 15 minutes to complete the questionnaire. Once completed, the researcher solicited suggestions and recommendations for the questionnaire from the group. After the pilot test was conducted, data were entered from

the questionnaire into SPSS® 19 for Macintosh statistical package. Reliability was calculated by generating a Cronbach's alpha coefficient. The reliability analysis coefficient for the student perceptions of diversity was .865. As suggested by Gall et al. (1996), a panel of experts with expertise in diversity and agriculture established content and face validity. As a result of the pilot test, final corrections were made and the instrument was ready to be administered.

Population and Sample

The target population consisted of all junior and senior classified students enrolled in ALED 422: Cultural Pluralism in Agriculture for the 2011 fall semester in the Department of Agricultural Leadership, Education, and Communications at Texas A&M University ($N= 49$). Frankel and Wallen (2009) state “for experimental or causal-comparative studies, we recommend a “minimum of 30 individuals per group, although sometimes experimental studies with only 15 individuals in each group can be defended if tightly controlled” (p. 102). Thus, the total number of participants within the sample was deemed appropriate.

Due to the prior involvement of the piloting of this instrument for this study, two students were unable to participate in the study. The accessible population consisted of all students who signed a consent form to participate in the study. Because enrollment in the course required junior or senior level status, all students in the population were deemed appropriate for the study.

A purposive convenience sample was taken for the study. Fraenkel and Wallen (2009) wrote that purposive sampling is a “nonrandom sample selected because prior

knowledge suggests it is representative, or because those selected have the needed information” (p. G-7). According to Fraenkel and Wallen (2009), one disadvantage to this method of sampling is how the researcher’s judgment in selecting the population “may be in error - he or she may not be correct in estimating the representativeness of a sample or their expertise regarding the information needed” (p. 99). This type of sample was selected because of its ability to gain insights on students enrolled in a multicultural education course within a department of the College of Agriculture and Life Sciences College. Within the college, ALED 422 is the only undergraduate course that primarily focuses on multicultural education. For this reason, students from this course were identified as the best representatives for the study. One of the limitations of the study was that the sampling of students was based solely on the population being enrolled in ALED 422. Because the population consisted only of 48 students, results could be generalized only to individuals in ALED 422.

Instrumentation

Participants in the study completed a paper-based pretest then posttest questionnaire (Appendix C and D) developed by the researcher. In an attempt to validate pretest and posttest responses, a retrospective post (post then pre) (Appendix E) was administered to ascertain differences in responses comparing both survey administrative types. Rockwell and Kohen (1989) discussed the effectiveness and reliability of using a retrospective post evaluation rather than a pretest then posttest.

The questionnaire had five major components. The first component was entitled, “Perception Statements Related to Contributions in Agriculture.” Within this section

were 14 statements. Students were asked to respond to a five point Likert scale, 1 = *Unimportant*, 2 = *Of Little Importance*, 3 = *Moderately Important*, 4 = *Important*, and 5 = *Very Important*, which mirrors Garland (1991). These statements included: (a) Women's contributions to agriculture have been; (b) Native Americans' contributions to agriculture have been; (c) African Americans' contributions to agriculture have been; (d) Hispanic cultures' contributions to agriculture have been; (e) European Americans' contributions to agriculture have been; (f) Asian Americans' contributions to agriculture have been, (g) Arab Americans' contributions to agriculture have been; (h) Stereotyping of people in agriculture has been; (i) Knowing the importance of agriculture – past, present, and future has been; (j) Non-traditional agriculture has been; (k) The evolution of the United States as it relates to agriculture has been; (l) Exploring rural America as it relates to agriculture has been; and (m) Gaining perspectives on international agriculture has been.

The second component was entitled, "Perception Statements Related to Diversity." Within this section were four statements. Students were asked to respond to a five point Likert scale, 1 = *Unimportant*, 2 = *Of Little Importance*, 3 = *Moderately Important*, 4 = *Important*, and 5 = *Very Important*, which mirrors Garland (1991). These statements included: (a) Understanding religious diversity has been; (b) understanding political diversity has been; (c) understanding sexual orientation has been; and (d) understanding cultural values has been.

The third component comprised three questions. These questions included: (a) Which reaction describes you when diversity issues arise in discussions that make you

uncomfortable; and (b) Which of the following describes the environment your instructor creates in regards to diversity.

The fourth section had nine questions that focused on the students' background. These questions examined the (a) number of diversity courses taken, (b) college classification, (c) major, (d) gender, (e) age, (f) racial/ethnic background, (g) socioeconomic status growing up, (h) permanent residence, (i) majority of the population where they grew up, and (j) size of graduating high school class.

The fifth component included four open-ended questions. These questions included: (a) What do you expect to learn from this course; (b) What does diversity mean to you; (c) When diversity issues arise in discussions, does it make you uncomfortable? If so, please explain the reactions you have; and (d) Why is understanding diversity as it relates to the workplace important?

Overview of Agricultural Leadership and Development 422

According to the creator and instructor for Agricultural Leadership and Development 422 was established to provide students with a wide range of topics that focus on the diversity of

people and their culture as it relates to American agriculture. Importance is placed on living and working in a global society, and developing a more communicative approach to solving the technical, social, and political problems facing our world. This course is intended for those who desire to broaden their knowledge of our pluralistic society” (Instructor, 2010).

For students to enroll in Agricultural Leadership and Development 422 there is a prerequisite to be classified as a junior or senior. Students were not limited to being enrolled in the Department of Agricultural Leadership, Education, and Communications or the College of Agriculture and Life Sciences. This course also served as an elective course within the college.

There were four course objectives that served as the foundation for the students learning experience throughout the semester. The course objectives indicated students would be able to: (a) Gain a recognition and understanding of the cultural heritage present in American agriculture; (b) Differentiate between and develop an appreciation for the many contributions of various ethnic groups to American agriculture; (c) Compile and become acquainted with some of the literature in the area of American social diversity; and (d) Apply the academic principles of sound research and analysis as well as personal reflection in the development of an original paper. For the purpose of this study, only the first two objectives were used (Instructor, 2010).

As mentioned before, the course packet was made up of sixteen research articles that focused on different areas of diversity in the U.S. and in the world. Some of these included: contributions of women, contributions of Native Americans, identifying stereotypes, religious diversity, and political diversity. Students were asked to read a specified article each week that dealt with an area of diversity within the course packet. One observation made from the assigned readings was that many students did not take the time to read the articles before coming to class. This made discussion difficult to initiate on the day of class. As a result, discussion would halt until someone could find

the answer to a question within the article, or someone who had read the article spoke up.

There were seven assignments for the course. Each assignment was clearly outlined in the course syllabus, along with the total point value for each and due dates for the assignments. Most of the assignments in the class tested students' knowledge of diversity or placed them in an application setting that required them to work on group projects and write application papers focusing on different areas of diversity.

Data Collection

A pretest was administered on September 1, 2011, the second class of the fall semester for students in ALED 422. Before administering the pre-questionnaire, a consent form was read by the researcher to the participants. The purpose of reading the consent form was to provide an overview of the study and allow them to ask any questions before deciding to agree/disagree to participate in the study. Consent was obtained from 47 of 49 (95.92%) participants. Two of the students did not participate due to prior involvement in the initial pilot study of the instrument.

The posttest was administered on December 13, 2011, the last class of the fall semester. Before administering the posttest, a review was given to participants in order to refresh their memory on the objectives of the study. Forty-five (95.74%) of the original 47 students completed the posttest. Two students were not in attendance to participate in the posttest due to dropping of the class and personal absence.

After participants completed the posttest, a retrospective post was administered. Before administering the retrospective posttest, the researcher asked students to think

back to how they perceived diversity before they were enrolled in ALED 422 and respond to the questions accordingly. The purpose of having participants complete a retrospective posttest was to compare results of the pretest and posttest to the retrospective posttest to see if there were any statistical by significant differences in survey administration approaches.

Analysis of Data

SPSS 19.0 for Macintosh OS was used for data analysis. The analysis of data was divided into two sections. An alpha level of $p < .05$ was set *a priori* to determine statistical significance for all analyses. The first section evaluated student perceptions of diversity as it relates to agriculture. The second section measured student perceptions of general diversity.

Objective 1

The first objective was to identify personal characteristics of the selected students participating in ALED 422. Descriptive statistics (frequencies and percentages by levels of response) were used for reporting the demographic and personal characteristics of respondents.

Objective 2

The second objective was to assess student perceptions of contributions in agriculture before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University. To satisfy this objective, overall sample frequencies, counts and percentages were generated first, and then the data were split according to selected groupings by the researcher. Mean scores

and standard deviations were used to quantify statements of participants' perceptions of diversity.

Objective 3

The third objective was to assess student perceptions of diversity before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University. To satisfy this objective, overall sample frequencies, counts and percentages were generated first, and then the data were split according to selected groupings by the researcher. Mean scores and standard deviations were used to quantify statements of participants' perceptions of diversity.

Objective 4

The fourth objective was to determine if relationships existed between College of Agriculture and Life Sciences students' selected demographic and personal characteristics, as they related to student perceptions of diversity in a multicultural education course. Independent t-tests were run to examine relationships among the variables. Statistical significance was determined at the $p < .05$ value. Comparisons were made based on pretest responses in the study.

Objective 5

The fifth objective was to examine the difference in student pre perceptions of diversity and post then pre perceptions of diversity before and after engaging in a multicultural education course. To satisfy this objective, overall sample frequencies, counts and percentages were generated first, and then the data were split according to

selected groupings by the researcher. Mean scores and standard deviations were used to quantify statements of participants' perceptions of diversity enrolled.

CHAPTER IV

RESULTS AND DISCUSSION

Purpose and Objectives of Study

Having an appreciation for diversity and being able to work with others who are different from them is important as students enter the workforce and society. The opportunities for students to participate in multicultural education courses in the College of Agriculture and Life Sciences at Texas A&M University are available. The purpose of this study was to determine overall student perceptions of diversity in a Multicultural Education course within the College of Agriculture and Life Sciences.

The researcher also sought to find what diversity means to students and why it is important to have a good understanding of diversity. Next, the study evaluated the environment of a multicultural education classroom and the reactions students had when discussing different issues related to diversity. Lastly, the researcher determined whether the instructor was creating an environment conducive to openness and acceptance as it related to diversity. Demographic information was collected to determine if there were any patterns associated with data collected from participants. As a result the following research objectives were established:

- a) Identify personal characteristics of the selected students participating in Agricultural Leadership and Development 422;
- b) Assess student perceptions of contributions in agriculture before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University;

- c) Assess student perceptions of diversity before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University;
- d) Determine if relationships exist between College of Agriculture and Life Sciences students' selected demographic and personal characteristics, as they related to student perceptions of diversity in a multicultural education course;
- e) Examine the difference in student pre perceptions of diversity and post then pre perceptions of diversity before and after engaging in a multicultural education course.

Hypotheses

The following null and alternative hypotheses were developed to guide this study.

Null Hypotheses

- H₀₁: No statistically significant difference exists in student change in perceptions of contributions in agriculture after being enrolled in a multicultural education course.
- H₀₂: No statistically significant difference exists in student change in perceptions of diversity after being enrolled in a multicultural education course.
- H₀₃: No statistically significant difference exists in student perceptions of diversity in a multicultural education course in the presence of student age, permanent residence and size of graduating course.

H_{O4}: No statistically significant difference exists in student responses to a pre test administered at the beginning of a multicultural education course versus student responses to a retrospective posttest administered at the conclusion of a multicultural education course.

Alternative Hypotheses

H_{a1}: A statistically significant difference will exist in student change in perceptions of contributions in agriculture after being enrolled in a multicultural education course.

H_{a2}: A statistically significant difference will exist in student change in perceptions of diversity after being enrolled in a multicultural education course.

H_{a3}: A statistically significant difference will exist in student perceptions of diversity in a multicultural education course in the presence of student age, permanent residence, and size of graduating course.

H_{a4}: A statistically significant difference will exist in student responses to a pre test administered at the beginning of a multicultural education course versus student responses to a retrospective pretest administered at the conclusion of a multicultural education course.

Population Response

The accessible population of this study consisted of all junior and senior classified students enrolled in ALED 422: Cultural Pluralism in Agriculture for the 2011 fall semester in the Department of Agricultural Leadership, Education, and Communications at Texas A&M University ($N= 47$). A purposive convenience sample was taken for the study. A pretest was administered on September 1, 2011, and a posttest was administered on December 13, 2011, the last class of the fall semester. After participants completed the posttest, a retrospective post was administered. Forty-seven (95.92%) of 49 participants completed the survey. Two of the students did not participate due to prior involvement in the initial pilot study of the evaluation. Forty-five of the original 47 (95.74%) students completed the posttest. Four students were not in attendance to participate in the posttest due to dropping of the class and personal absence.

Findings Related to Objective One

The first objective was to identify personal characteristics of the selected students participating in ALED 422. Data were reported in nine subcategories. These subcategories included: (a) number of diversity courses taken, (b) college classification, (c) major, (d) gender, (e) age, (f) racial/ethnic background, (g) socioeconomic status growing up, (h) permanent residence, (i) majority of the population where they grew up, and (j) size of graduating high school class.

Number of Diversity Courses Taken

Table 4 illustrates participants' ($N=47$) responses by number of diversity courses taken. Seven participants (14.89%) stated they took no diversity classes; seventeen participants (36.17%) stated they had taken one diversity course; seventeen participants (36.17%) stated they had taken two diversity courses; five participants (10.64%) stated they had taken three diversity courses; and one participant (2.13%) stated he/she had taken four diversity courses.

Table 4
Number of Diversity Courses taken by Students (N= 47)

Diversity Courses	<i>f</i>	%
0	7	14.89
1	17	36.17
2	17	36.17
3	5	10.64
4	1	2.13
Total	47	100.00

College Classification

Table 5 illustrates participants' ($N=47$) responses by college classification. One participant (2.17%) was a sophomore, eight (17.39%) were juniors, and thirty-seven (80.44%) were seniors. One participant chose not to participate in responding to this question.

Table 5
College Classification of Students (N= 47)

College Classification	<i>f</i>	%
Sophomore	1	2.17
Junior	8	17.39
Senior	37	80.44
Total	46	100.00

Note. One participant chose not to respond to this question.

Major

Table 6 illustrates participants' ($N=47$) responses by major. Thirty participants (68.18%) were Agriculture Leadership majors. Six participants (13.64%) were University Studies: Leadership majors. Six participants (13.64%) were Agriculture Science majors. Two participants (4.54%) selected "other" as their major.

Table 6
Students' Major (N= 47)

Major	<i>f</i>	%
Agriculture Science	6	13.64
Agriculture Leadership	30	68.18
University Studies: Leadership	6	13.64
Other	2	4.54
Total	44	100.00

Note. Three participants chose not to respond to this question.

Gender

Table 7 provides participants' ($N=47$) responses by gender. Thirty-three participants (70.21%) were male. Fourteen participants (29.79%) were female.

Table 7
Students' Gender (N= 47)

Gender	<i>f</i>	%
Female	14	29.79
Male	33	70.21
Total	47	100.00

Age

Table 8 reveals participants' ($N=47$) responses by age. Twenty-two participants (46.80%) were 21 years old. Fourteen participants (29.79%) were 22 years old. Five participants (10.64%) were 23 years old. Four participants (8.51%) were 25 or older. One participant (2.13%) was 24 years old. One participant (2.13%) was 20 years old.

Table 8
Students' Age (N= 47)

<i>Age</i>	<i>f</i>	<i>%</i>
20	1	2.13
21	22	46.80
22	14	29.79
23	5	10.64
24	1	2.13
25 or older	4	8.51
Total	47	100.00

Racial/Ethnic Background

Table 9 illustrates participants' ($N=47$) responses by racial/ethnic background. Thirty-five participants (74.47%) were White (non-Hispanic). Five participants (10.64%) were Hispanics. Four participants (8.51%) were African American (non-Hispanic). Two participants (4.25%) selected other as their racial/ethnic background. One participant (2.13%) was Native American.

Table 9
Students' Racial/Ethnic Background (N= 47)

Racial/Ethnic Background	<i>f</i>	%
African American (non-Hispanic)	4	8.51
Hispanic	5	10.64
Native American	1	2.13
White (non-Hispanic)	35	74.47
Other	2	4.25
Total	47	100.00

Perceived Socioeconomic Status

Table 10 is included to reveal participants' ($N=47$) responses by perceived socioeconomic status. Thirty-seven participants (78.72%) perceived themselves as middle socioeconomic status. Five participants (10.64%) perceived themselves as low socioeconomic status. Five participants (10.64%) perceived themselves as high socioeconomic status.

Table 10
Students' Perceived Socioeconomic Status (N= 47)

Socioeconomic Status	<i>f</i>	%
Low Socioeconomic Status	5	10.64
Middle Socioeconomic Status	37	78.72
High Socioeconomic Status	5	10.64
Total	47	100.00

Permanent Residence

Table 11 illustrates participants' ($N=47$) responses by permanent residence. Eleven participants (24.45%) stated they lived in a city between 50,001 and 250,000 persons. Ten participants (22.22%) stated they lived in a city over 250,000. Nine participants (20.00%) stated they lived on a farm or ranch. Five participants (11.11%) stated they lived in a rural area, not a farm/ranch. Five participants (11.11%) stated they lived in a town under 10,000. Five participants (11.11%) stated they lived in a town or city between 10,000 and 50,000 persons. Two people did not respond to this question.

Table 11
Students' Permanent Residence (N= 47)

Permanent Residence	<i>f</i>	%
Farm or Ranch	9	20.00
Rural Area, not a farm/ranch	5	11.11
Town under 10,000	5	11.11
Town or city between 10,000 and 50,000 persons	5	11.11
City between 50,001 and 250,000 persons	11	24.45
City over 250,000	10	22.22
Total	45	100.00

Note. Two participants chose not to respond to this question.

Majority of the Population Where They Grew Up

Table 12 illustrates participants' ($N=47$) responses by majority of the population where they grew up. Twenty-seven participants (64.29%) stated the majority of the population in their hometown is White (non-Hispanic). Nine participants (21.43%) stated the majority of the population in their hometown is Hispanic. Three participants (7.14%) stated the majority of the population in their hometown is of other race. Two participants (4.76%) stated the majority of the population in their hometown is African American (non-Hispanic). One participant (2.38%) stated the majority of the population in their hometown is Native American. Five people did not respond to this question.

Table 12
Makeup of Population Where Students Grew Up ($N= 47$)

Population Where Students Grew Up	<i>f</i>	%
African American (non-Hispanic)	2	4.76
Hispanic	9	21.43
Native American	1	2.38
White (non-Hispanic)	27	64.29
Other	3	7.14
Total	42	100.00

Note. Five participants chose not to respond to this question.

Size of Graduating Class

Table 13 illustrates participants' ($N=47$) responses by size of graduating class. Twenty participants (43.48%) stated they had a graduating class of 351 students or more. Six participants (13.04%) stated they had a graduating class of 201 to 250 students. Another six participants (13.04%) stated they had a graduating class of 101 to 150 students. This was followed by four participants (8.70%) who stated they had a graduating class of 51 to 100 students. Three participants (6.52%) stated they had a graduating class of 151 to 200 students. Two participants (4.35%) stated they had a graduating class of 301 to 350 students. Two participants (4.35%) stated they had a graduating class of 26 to 50 students. Two participants (4.35%) stated they had a graduating class of 25 or less students. One person did not respond to this question.

Table 13
Students' Size of Graduating Class (N= 47)

Size of Graduating Class	<i>f</i>	%
25 or less	2	4.35
26 to 50	2	4.35
51 to 100	4	8.70
101 to 150	6	13.04
151 to 200	3	6.52
201 to 250	6	13.04
251 to 300	1	2.17
301 to 350	2	4.35
351 or more	20	43.48
Total	46	100.00

Note. One participant chose not to respond to this question.

Findings Related to Objective Two

The second objective was to assess student perceptions of contributions in agriculture before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University. Reliability was estimated by calculating a Cronbach's alpha coefficient was .865. To assist in reporting of results, the researcher established a scale to guide the interpretation of the responses of the individual items. This scale was developed to coincide with response categories provided to the participants and included the following categories: 1.00 to 1.49 =

Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important. To satisfy this objective, participants responded to a pretest and posttest containing 18 items that were broken up into two groups. These items focused on “Perception Statements Related to Contributions in Agriculture.”

Table 14 illustrates participants’ mean scores and standard deviations from both the pretest and posttest measurements as they relate to participants’ perception of contributions in agriculture. In addition to running individual mean values for the statements, grand means were established for all 14 statements for the pretest ($M = 3.82$, $SD = 0.56$) and posttest ($M=4.29$, $SD =0.55$). The evolution of the United States as it relates to agriculture ($M= 4.49$, $SD= 0.75$), knowing the importance of agriculture – past, present, and future ($M= 4.32$, $SD= 0.86$), and knowing the importance of agriculture in Texas– past, present, and future ($M= 4.32$, $SD= 0.91$) received the highest mean values for participants’ perception statements related to contributions in agriculture on the pretest. The evolution of the United States as it relates to agriculture ($M= 4.60$, $SD= 0.73$), Native Americans’ contributions to agriculture ($M= 4.56$, $SD= 0.67$), and African Americans’ contributions to agriculture ($M= 4.56$, $SD= 0.67$) received the highest mean values for perception statements related to contributions in agriculture on the posttest.

In addition to reporting mean values and standard deviations for each of the 14 statements related to contributions in agriculture, independent t-tests were run for pre and post test responses to determine the statistical significance ($p < .05$) for each variable. Results indicated the relationship between pre and posttest responses all were

statistically significant ($p < .05$) except knowing the importance of agriculture – past, present, and future, the evolution of the United States as it relates to agriculture, exploring rural America as it relates to agriculture, and gaining perspectives on international agriculture (Table 14).

Table 14
Perception Statements Related to Contributions in Agriculture (Pretest N= 47, Posttest N= 43)

	<i>Pretest</i>		<i>Posttest</i>		<i>p^b</i>
	<i>M^a</i>	<i>SD</i>	<i>M^a</i>	<i>SD</i>	
Contributions to Agriculture					
Women's contributions to agriculture	3.79	1.02	4.44	0.88	*
Native Americans' contributions to agriculture	3.98	1.05	4.56	0.67	*
African Americans' contributions to agriculture	4.02	0.87	4.56	0.67	*
Hispanic cultures' contributions to agriculture	3.96	0.83	4.49	0.63	*
European Americans' contributions to agriculture	3.89	0.89	4.42	0.82	*
Asian Americans' contributions to agriculture	3.39	1.00	3.88	1.03	*
Arab Americans' contributions to agriculture	2.87	1.06	3.80	1.23	*
Stereotyping of people in agriculture	3.02	1.11	3.56	1.22	*
Knowing the importance of agriculture – past, present, and future	4.32	0.86	4.44	0.77	–
Knowing the importance of agriculture in Texas – past, present, and future	4.32	0.91	4.47	0.74	*
Non-traditional agriculture	3.38	0.92	4.16	0.81	*

Table 14 continued

Perception Statements Related to Contributions in Agriculture (Pretest $N= 47$, Posttest $N= 43$)

	<i>Pretest</i>		<i>Posttest</i>		p^b
	M^a	SD	M^a	SD	
Contributions to Agriculture					
Exploring rural America as it relates to agriculture	4.06	0.85	4.30	0.83	–
Gaining perspectives on international agriculture	3.91	1.16	4.30	0.91	–

Note^a: Scale: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important, ^b* indicates statistical significance at the $< .05$ level and – indicates no statistical significance at $\leq .05$ level

Lastly, grand means (Pretest - $M = 3.82$, $SD = 1.05$; Posttest - $M=4.29$, $SD =0.91$) were determined from all 14 statements for pretest and posttest responses. After grand means were established, paired t-tests were run to test statistical significance ($p < .05$) for all 14 statements. Results indicated the overall relationship between pretest and posttest responses for the combined statements were statistically significantly different ($p < .05$).

Table 15
Comparison of Pretest Versus Posttest Perceptions Related to Contributions in Agriculture (Pretest N=657, Posttest=600)

Test Administration	N	M	SD	t	p
Pretest	657	3.82	1.05	-8.42	$p < .01$
Posttest	600	4.29	0.91		

Note. Scale: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Pretest Frequencies and Percentages Related to Contributions in Agriculture

In addition to revealing mean values, the 14 perception statements related to contributions in agriculture were analyzed to reveal frequencies and percentages on a pretest (Table 16). Results showed 61.7% of respondents stated the evolution of the United States as it relates to agriculture were very important. Also, 57.4% of respondents stated knowing the importance of agriculture in Texas – past, present, and future - was very important. Additionally, 55.3% of respondents stated knowing the importance of agriculture – past, present, and future - was very important.

Table 16
Pretest Frequencies and Percentages of Contributions in Agriculture (N= 47)

Frequencies and Percentages for Selected Items					
Contributions to Agriculture	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Women's contributions to agriculture	1 (2.1)	4 (8.5)	12 (25.5)	17 (36.2)	13 (27.7)
Native Americans' contributions to agriculture	0 (0.0)	6 (6.7)	8 (17.0)	14 (29.8)	19 (40.4)
African Americans' contributions to agriculture	0 (0.0)	3 (6.4)	8 (17.0)	21 (44.7)	15 (31.9)
Hispanic cultures' contributions to agriculture	0 (0.0)	2 (4.3)	11 (23.4)	21 (44.7)	13 (27.7)
European Americans' contributions to agriculture	0 (0.0)	4 (8.5)	9 (19.1)	22 (46.8)	12 (25.5)
Asian Americans' contributions to agriculture	1 (2.2)	7 (15.2)	18 (39.1)	13 (28.3)	7 (15.2)
Arab Americans contributions to agriculture	2 (4.3)	19 (40.4)	13 (27.7)	9 (19.1)	4 (8.5)
Stereotyping of people in agriculture	4 (8.5)	11 (23.4)	17 (36.2)	10 (21.3)	5 (10.6)

Table 16 continued
Pretest Frequencies and Percentages of Contributions in Agriculture (N= 47)

Frequencies and Percentages for Selected Items					
Contributions to Agriculture	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Knowing the importance of agriculture in Texas – past, present, and future	0 (0.0)	2 (4.3)	8 (17.0)	10 (21.3)	27 (57.4)
Non-traditional agriculture	0 (0.0)	8 (17.0)	19 (40.4)	14 (29.8)	6 (12.8)
The evolution of the United States as it relates to agriculture	0 (0.0)	1 (2.1)	4 (8.5)	13 (27.7)	29 (61.7)
Exploring rural America as it relates to agriculture	0 (0.0)	2 (4.3)	9 (19.1)	20 (42.6)	16 (34.0)
Gaining perspectives on international agriculture	2 (4.3)	5 (10.6)	6 (12.8)	16 (34.0)	18 (38.3)

Note: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Posttest Frequencies and Percentages Related to Contributions in Agriculture

In addition to revealing mean values, the 14 perception statements related to contributions in agriculture were analyzed to reveal frequencies and percentages on a posttest (Table 17). Results showed 67.4% of respondents stated the evolution of the United States as it relates to agriculture was very important. This statement also was ranked the highest in the pretest. Also, 65.1% of respondents stated Native Americans' contributions to agriculture were very important. Additionally, 62.8% of respondents stated African Americans' contributions to agriculture were very important.

Table 17
Posttest Frequencies and Percentages of Contributions in Agriculture (N= 43)

Frequencies and Percentages for Selected Items					
Contributions to Agriculture	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Women's contributions to agriculture	1 (2.3)	1 (2.3)	2 (4.7)	13 (30.2)	26 (60.5)
Native Americans' contributions to agriculture	0 (0.0)	0 (0.0)	4 (9.3)	11 (25.6)	28 (65.1)
African Americans' contributions to agriculture	0 (0.0)	1 (2.3)	1 (2.3)	14 (32.6)	27 (62.8)
Hispanic cultures' contributions to agriculture	0 (0.0)	0 (0.0)	3 (7.0)	15 (34.9)	24 (55.8)

Table 17 continued
Posttest Frequencies and Percentages of Contributions in Agriculture (N= 43)

Frequencies and Percentages for Selected Items					
Contributions to Agriculture	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
European Americans' contributions to agriculture	1 (2.3)	0 (0.0)	3 (7.0)	15 (34.9)	24 (55.8)
Arab Americans contributions to agriculture	4 (9.8)	1 (2.4)	8 (19.5)	14 (34.1)	14 (34.1)
Stereotyping of people in agriculture	4 (9.3)	3 (7.0)	12 (27.9)	13 (30.2)	11 (25.6)
Knowing the importance of agriculture – past, present, and future	1 (2.3)	0 (0.0)	1 (2.3)	18 (41.9)	23 (53.5)
Knowing the importance of agriculture in Texas – past, present, and future	0 (0.0)	1 (2.3)	3 (7.0)	14 (32.6)	25 (58.1)
Non-traditional agriculture	1 (2.3)	0 (0.0)	5 (11.6)	22 (51.2)	15 (34.9)
The evolution of the United States as it relates to agriculture	1 (2.3)	0 (0.0)	0 (0.0)	13 (30.2)	29 (67.4)

Table 17 continued
Posttest Frequencies and Percentages Contributions in Agriculture (N= 43)

Frequencies and Percentages for Selected Items					
Contributions to Agriculture	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Exploring rural America as it relates to agriculture	1 (2.3)	0 (0.0)	4 (9.3)	18 (41.9)	20 (46.5)
Gaining perspectives on international agriculture	1 (2.3)	1 (2.3)	4 (9.3)	15 (34.9)	22 (51.2)

¹Note: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Findings Related to Objective Three

The third objective was to assess student perceptions of diversity before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University. Reliability was estimated by calculating a Cronbach's alpha coefficient which was .865. To assist in reporting of results, the researcher established a scale to guide the interpretation of the responses of the individual items. This scale was developed to coincide with response categories provided to the participants and included the following categories: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important. To satisfy this objective, participants responded to a pretest and posttest containing 18 items that were broken up into two groups. These items focused on "Perception Statements Related to Diversity."

Table 18 illustrates participants' mean scores and standard deviations from both pre and posttest measurements as they relate to participants' perceptions of diversity. In addition to determining individual mean values for the statements, a grand mean was established for all four statements of the pretest ($M = 3.84$, $SD = 1.04$) and posttest ($M = 4.29$, $SD = 1.15$). Understanding of cultural values ($M = 4.34$, $SD = 0.76$), understanding religious diversity ($M = 4.04$, $SD = 0.93$), and understanding political diversity ($M = 3.70$, $SD = .95$) received the highest mean values for perception statements related to diversity on the pretest. Understanding religious diversity ($M = 4.42$, $SD = 1.10$), understanding of cultural values ($M = 4.35$, $SD = 1.13$), and understanding political

diversity ($M = 4.28$, $SD = 1.14$) received the highest mean values for perception statements related to diversity on the posttest.

In addition to reporting mean values and standard deviations for each of the four statements related to diversity perceptions, independent t-tests were run for pre and post test responses to determine the statistical significance ($p < .05$) for each variable. Results indicate the relationship between pre and posttest responses were statistically significant ($p < .05$) for understanding political diversity and understanding sexual orientation (Table 18).

Table 18
Perception Statements Related to Diversity (Pretest N= 47, Posttest N= 43)

	<i>Pretest</i>		<i>Posttest</i>		p^b
	M^a	SD	M^a	SD	
Diversity Perceptions					
Understanding religious diversity	4.04	0.93	4.42	1.10	–
Understanding political diversity	3.70	0.95	4.28	1.14	*
Understanding sexual orientation	3.26	1.19	4.12	1.26	*
Understanding of cultural values	4.34	0.76	4.35	1.13	–

Note^a: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important, ^b * indicates significance at the $< .05$ level and – indicates no significance at $\leq .05$ level

Lastly, grand means (Pretest - $M = 3.84$, $SD = 1.04$; Posttest - $M = 4.29$, $SD = 1.15$) were established from all 14 statements for pretest and posttest responses. After grand means were established paired, t-tests were run to test statistical significance ($p < .05$) for all four statements. Results indicated the overall relationship between pretest and posttest responses for the combined statements were statistically significant. See Table 19 for more information.

Table 19
Comparison of Pretest Versus Posttest Perceptions Related to Diversity (Pretest N=188, Posttest N=172)

Test Administration	N	M	SD	t	p
Pretest	188	3.84	1.04	-3.93	$p < .01$
Posttest	172	4.29	1.15		

Note. Scale: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Pretest Frequencies and Percentages Related to Diversity Perceptions

Four perception statements related to diversity perceptions were analyzed to reveal frequencies and percentages on a pretest (Table 20). Results showed 48.9% of respondents stated understanding cultural values were very important. Also, 31.9% of respondents stated understanding religious diversity was very important. Additionally, 23.4% of respondents stated understanding political diversity was very important. See results in Table 20.

Table 20

Pretest Frequencies and Percentages Related to Diversity (N= 47)

Frequencies and Percentages for Selected Items					
Diversity Perceptions	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Understanding religious diversity	2 (4.3)	0 (0.0)	7 (14.9)	23 (48.9)	15 (31.9)
Understanding political diversity	0 (0.0)	5 (10.6)	15 (31.9)	16 (34.0)	11 (23.4)
Understanding sexual orientation	4 (8.5)	9 (19.1)	12 (25.5)	15 (31.9)	7 (14.9)
Understanding of cultural values	0 (0.0)	1 (2.1)	5 (10.6)	18 (38.3)	23 (48.9)

¹Note: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Posttest Frequencies and Percentages Related to Diversity Perceptions

In addition to revealing mean values, the four perception statements related to diversity perceptions were analyzed to reveal frequencies and percentages on a posttest (Table 21). Posttest results showed 69.8% of respondents stated understanding religious diversity were very important. Also, 67.4% of respondents stated understanding of

cultural values was very important. Additionally, 60.5% of respondents stated understanding political diversity was very important.

Table 21
Posttest Frequencies and Percentages Related to Diversity (N= 43)

Frequencies and Percentages for Selected Items					
Diversity Perceptions	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Understanding religious diversity	2 (4.7)	2 (4.7)	2 (4.7)	7 (16.3)	30 (69.8)
Understanding political diversity	2 (4.7)	3 (7.0)	2 (4.7)	10 (23.3)	26 (60.5)
Understanding sexual orientation	3 (7.0)	3 (7.0)	4 (9.3)	9 (20.9)	24 (55.8)
Understanding of cultural values	2 (4.7)	2 (4.7)	4 (9.3)	6 (14.0)	29 (67.4)

¹Note: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Findings Related to Objective Four

The fourth objective was to determine if relationships exist between College of Agriculture and Life Sciences students' selected demographic and personal characteristics, as they related to student perceptions of diversity in a multicultural education course. Three variables (age, permanent residence and size of graduating class) were selected to determine the relationships between student perceptions of diversity on the pretest. According to Gall, Borg, & Gall (1996) experimental research samples should consist of a minimum of 15 subjects. As a result, participants' responses to age were combined and divided into two groups (21 and younger; 22 and older). Next, student responses to permanent residence were combined and divided into two groups (city of 50,000 or less, including farm and ranch; city with more than 50,000) Also, participants' responses to size of graduating class were combined and divided into two groups (200 or less; 201 or more). Once divided into groups, independent t-tests were run to examine relationships among the variables. Comparisons were made based on pretest responses in the study.

Results indicated that participants 21 and younger exhibited higher mean scores ($M = 4.09$) related to understanding religious diversity than 22 and younger participants. However, those participants 22 and younger exhibited higher mean scores on understanding political diversity ($M= 3.83$), understanding sexual orientation ($M= 3.33$), and understanding of cultural values ($M= 4.42$) than did those participants 21 and younger. T-tests were run to determine statistical significance for each of the diversity

perceptions as they related to age. Results indicated there was no statistical significance present among the variables. See results in Table 22.

Table 22
Independent t-tests for Perceptions of Diversity by Categories of Age for Participants

Diversity Perceptions	Mean Scores by Age Category		F	p
	21 and younger	22 and older		
Understanding religious diversity	4.09	4.00	1.56	.75*
Understanding political diversity	3.55	3.83	5.32	.32*
Understanding sexual orientation	3.14	3.33	0.63	.58*
Understanding of cultural values	4.23	4.42	0.00	.41*

¹Note: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important, ²* indicates variables not statistically significant at the .05 level.

Results indicated that participants having a permanent residence of 50,000 or less, including farm and ranches exhibited higher mean scores ($M = 3.79$) related to understanding political diversity than participants residing in cities with more than 50,000 people. However, those participants residing in cities with more than 50,000 people exhibited higher mean scores on understanding religious diversity ($M = 4.29$), understanding sexual orientation ($M = 3.48$), and understanding of cultural values ($M = 4.43$) than did those participants residing in cities less than 50,000 people.

T-tests were run to determine statistical significance for each of the diversity perceptions as they related to permanent residence. Those results indicated there was no statistical significance present among the variables. See results in Table 23.

Table 23
Independent t-tests for Perceptions of Diversity by Categories of Permanent Residence for Participants

Diversity Perceptions	Mean Scores by Age Category		F	p
	City of 50,000 or less	City with more than 50,000		
		4.29	1.36	.25*
Understanding religious diversity	4.00	3.62	.27	.54*
Understanding political diversity	3.79	3.48	1.55	.44*
Understanding sexual orientation	3.21	4.43	.06	.81*
Understanding of cultural values	4.38			

¹Note: * indicates variables not statistically significant at the .05 level.

Results indicated that participants who graduated with 200 or less students in their graduating class exhibited higher mean scores ($M = 4.35$) related to understanding cultural values than participants who graduated with 201 or more students. However, those participants who graduated with 201 or more students in their graduating class exhibited higher mean scores on understanding religious diversity ($M = 4.13$), understanding political diversity ($M = 3.70$), and understanding sexual orientation ($M = 3.26$) than did those participants who had 200 or less students in their graduating class. T-tests were run to determine statistical significance for each of the diversity perceptions as they related to age. Those results indicated there was no statistical significance present among the variables. See results in Table 24.

Table 24
Independent t-tests for Perceptions of Diversity by Categories of Size of Graduating Class for Participants

Diversity Perceptions	Mean Scores by Age Category		<i>F</i>	<i>p</i>
	200 or less	201 or more		
Understanding religious diversity	3.96	4.13	0.11	.54*
Understanding political diversity	3.65	3.70	0.58	.88*
Understanding sexual orientation	3.22	3.26	0.28	.90*
Understanding of cultural values	4.35	4.30	0.41	.85*

¹Note: * indicates variables not statistically significant at the .05 level.

Overall, no diversity perceptions were statistically significant as they related to age, permanent residence, or size of graduating class in the study.

Findings Related to Objective Five

The fifth objective was to examine the difference in student pre perceptions of diversity and post then pre perceptions of diversity before and after engaging in a multicultural education course. Reliability was estimated by calculating a Cronbach's alpha coefficient of .865. To assist in reporting of results, the researcher established a scale to guide the interpretation of the responses of the individual items. This scale was developed to coincide with response categories provided to the participants and included the following categories: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important. To satisfy this objective, participants responded to a pretest and posttest containing 18 items that were broken up into two groups. These items focused on "Perception Statements Related to Contributions in Agriculture."

Retrospective Post Means and Standard Deviations Related to Perceptions of Contributions in Agriculture

Table 25 illustrates participants' mean scores and standard deviations from both the retrospective pretest and retrospective posttest measurements as they relate to participants' perception of contributions in agriculture. In addition to running individual mean values for the statements, grand means were established for all 14 statements for the retrospective pretest ($M = 3.70$, $SD = 1.15$) and retrospective posttest ($M = 4.28$, $SD = 0.91$). European Americans' contributions to agriculture ($M = 4.02$, $SD = 0.96$),

African Americans' contributions to agriculture ($M = 3.98, SD = 0.94$), knowing the importance of agriculture in Texas – past, present, and future ($M = 3.98, SD = 1.05$), and Exploring rural America as it relates to agriculture ($M = 3.98, SD = 1.04$) received the highest mean values for participants' perception statements related to contributions in agriculture on the pretest. The evolution of the United States as it relates to agriculture ($M = 4.60, SD = 0.73$), Native Americans' contributions to agriculture ($M = 4.56, SD = .67$), and African Americans' contributions to agriculture ($M = 4.56, SD = 0.67$) received the highest mean values for perception statements related to contributions in agriculture on the retrospective posttest.

In addition to reporting mean values and standard deviations for each of the 14 statements related to contributions in agriculture, independent t-tests were run for retrospective pre and post test responses to determine the statistical significance ($p < .05$) for each variable. Results indicated the relationship between retrospective pre and posttest responses were statistically significant for all statements ($p < .05$) (Table 25).

Table 25
Perception Statements Related to Contributions in Agriculture (Retrospective Pretest – N = 43, Retrospective Posttest – N = 43)

Contributions to Agriculture	Retrospective Pretest		Retrospective Posttest		<i>p</i> ^b
	<i>M</i> ^a	<i>SD</i>	<i>M</i> ^a	<i>SD</i>	
Women's contributions to agriculture	3.51	1.18	4.44	0.88	*
Native Americans' contributions to agriculture	3.95	1.05	4.56	0.67	*
African Americans' contributions to agriculture	3.98	0.94	4.56	0.67	*
Hispanic cultures' contributions to agriculture	3.72	0.96	4.49	0.63	*
European Americans' contributions to agriculture	4.02	0.96	4.42	0.82	*
Asian Americans' contributions to agriculture	3.21	1.17	3.88	1.03	*
Arab Americans' contributions to agriculture	2.95	1.28	3.80	1.23	*
Stereotyping of people in agriculture	3.26	1.24	3.56	1.22	*
Knowing the importance of agriculture – past, present, and future	3.91	1.15	4.44	0.77	*
Knowing the importance of agriculture in Texas – past, present, and future	3.98	1.05	4.47	0.74	*
Non-traditional agriculture	3.51	1.20	4.16	0.81	*
The evolution of the United States as it relates to agriculture	3.93	1.14	4.60	0.73	*
Exploring rural America as it relates to agriculture	3.98	1.04	4.30	0.83	*
Gaining perspectives on international agriculture	3.86	1.13	4.30	0.91	*

Note^a: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important, ^b * indicates statistically significance at the < .05 level and – indicates no statistically significance at ≤.05 level

Lastly, grand means (Pretest - $M = 3.70$, $SD = 1.15$; Posttest - $M = 4.28$, $SD = 0.91$) were established from all four statements for retrospective pretest and posttest responses. After grand means were established, paired t-tests were run to test statistical significance ($p < .05$) for all four statements. Results indicated the overall relationship between retrospective pretest and posttest responses for the combined statements were statistically significant. Results are shown in Table 26.

Table 26
Comparison of Retrospective Pretest Versus Retrospective Posttest Perceptions Related to Contributions in Agriculture (N=600)

Test Administration	N	M	SD	t	p
Retrospective Pretest	600	3.70	1.15	-9.72	$p < .01$
Retrospective Posttest	600	4.28	0.91		

Note. Scale: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Retrospective Post Means and Standard Deviations Related to Diversity Perceptions

Reliability was estimated by calculating a Cronbach's alpha coefficient of .865. To assist in reporting of results, the researcher established a scale to guide the interpretation of the responses of the individual items. This scale was developed to coincide with response categories provided to the participants and included the following categories: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important.

To satisfy this objective, participants responded to a retrospective posttest containing 18 items that were broken up into two groups. These items focused on “Perception Statements Related to Diversity.”

Table 27 illustrates participants’ mean scores and standard deviations from the retrospective posttest measurements as they related to participants’ perception of diversity. In addition to running individual mean values for the statements, a grand mean was established for all four statements of the retrospective pretest ($M = 3.82$, $SD = 1.28$) and retrospective posttest ($M = 4.30$, $SD = 1.14$). Understanding religious diversity ($M = 4.00$, $SD = 1.23$), understanding of cultural values ($M = 3.91$, $SD = 1.27$), and understanding political diversity ($M = 3.86$, $SD = 1.21$) received the highest mean values for perception statements related to diversity on the pretest. Understanding religious diversity ($M = 4.42$, $SD = 1.10$), understanding of cultural values ($M = 4.35$, $SD = 1.13$), and understanding political diversity ($M = 4.28$, $SD = 1.14$) received the highest mean values for perception statements related to diversity on the posttest.

In addition to reporting mean values and standard deviations for each of the four statements related to diversity perceptions, independent t-tests were run for retrospective pre and post test responses to determine the statistical significance ($p < .05$) for each variable. Results indicated the relationship between retrospective pre and posttest responses all were statistically significant ($p < .05$) (Table 27).

Table 27
Perception Statements Related to Diversity (Retrospective Pretest – $N = 43$,
 Retrospective - Posttest $N = 43$)

Diversity Perceptions	Retrospective Pretest		Retrospective Posttest		p^b
	M^a	SD	M^a	SD	
Understanding religious diversity	4.00	1.23	4.42	1.10	*
Understanding political diversity	3.86	1.21	4.28	1.14	*
Understanding sexual orientation	3.51	1.39	4.12	1.26	*
Understanding of cultural values	3.91	1.27	4.35	1.13	*

Note^a: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important, ^b * indicates statistical significance at the $< .05$ level and – indicates no statistical significance at $\leq .05$ level

Lastly, grand means (Pretest - $M = 3.82$, $SD = 1.28$; Posttest - $M=4.30$, $SD = 1.14$) were established from all four statements for retrospective pretest and posttest responses. After grand means were established, paired t-tests were run to test statistical significance ($p < .05$) for all four statements. Results indicated the overall relationship between retrospective pretest and posttest responses for the combined statements were statistically significant. Results are shown in Table 28.

Table 28
Comparison of Retrospective Pretest Versus Retrospective Posttest Perceptions Related to Diversity (N=172)

Test Administration	N	M	SD	t	p
Retrospective Pretest	172	3.82	1.28	-3.65	$p < .01$
Retrospective Posttest	172	4.30	1.14		

Note. Scale: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Test of Statistical Significance for Pretest Versus Retrospective Pretest Related to Diversity Perceptions

After running grand means and standard deviations for pretests and retrospective pretests, independent t-tests were completed to determine the statistical significance between the two methods of evaluation. Results indicated grand means for contributions in agriculture were not statistically significant. In addition, results indicated grand means for diversity perceptions were not statistically significant ($p > .05$). This supports research by Rockwell and Kohen (1989) when they discussed there being no statistically difference in conducting research with a pretest versus retrospective pretest. Results are shown in Table 29.

Table 29
Comparison of Pretest Versus Retrospective Pretest Perceptions Related to Diversity
(Pretest N=188, Retrospective Pretest N=172)

Test Administration	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Pretest	188	3.84	1.04	.125	.90
Retrospective Pretest	172	3.82	1.29		

Note. Scale: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Test of Hypotheses

In order to effectively test the hypotheses in this study, a series of independent samples t-tests and paired samples t-tests were conducted. An alpha level of .05 was set *a priori* to determine statistical significance.

Null Hypothesis One

Null hypothesis one stated no statistically significant difference exists in student change in perceptions of contributions in agriculture after being enrolled in a multicultural education course. To test this hypothesis, grand means were established for all participant responses to 14 statements related to contributions in agriculture. The t-test procedure was then used to determine if statistically significant differences existed in the administration of the pretest versus the posttest related to contributions in agriculture. Results of the comparison show that a statistically significant difference between the administration of the pretest versus the posttest as related to contributions in agriculture, $t(1255) = -8.42, p < .05$ (see Table 30). The grand pretest mean score for

contributions in agriculture was 3.82 ($SD = 1.05$) while the grand posttest mean score for contributions in agriculture were 4.29 ($SD = 0.91$). Results are shown in Table 30.

Table 30
Comparison of Pretest Versus Posttest Perceptions Related to Contributions in Agriculture (Pretest N=657, Posttest N=600)

Test Administration	N	M	SD	t	p
Pretest	657	3.82	1.05	-8.42	$p < .01$
Posttest	600	4.29	.91		

Note. Scale: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Because of statistically significant ($p < .05$) differences found between the pretest and posttest administrations as they related to contributions in agriculture, the null hypothesis was rejected and can be concluded that there was a statistically significant difference in the student change in perceptions of contributions in agriculture after being enrolled in a multicultural education course.

Null Hypothesis Two

Null hypothesis two stated no statistically significant difference exists in student change in perceptions of diversity after being enrolled in a multicultural education course. To test this hypothesis, grand means were established for all participant responses to four statements related to diversity perceptions. The t-test procedure was then used to determine if differences existed in the administration of the pretest versus

the posttest related to diversity perceptions. Results of the comparison show that a statistical significance existed between the administration of the pretest versus the posttest as it related to diversity perceptions, $t(358) = -3.65, p < .05$ (see Table 30). The pretest mean score for diversity perceptions was 3.84 ($SD = 1.04$) while the posttest mean score for diversity perceptions was 4.29 ($SD = 1.15$). Results are shown in Table 31.

Table 31
Comparison of Pretest Versus Posttest Perceptions Related to Diversity (Pretest N=188, Posttest N=172)

Test Administration	N	M	SD	t	p
Pretest	188	3.84	1.04	-3.93	$p < .01$
Posttest	172	4.29	1.15		

Note. Scale: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Because of statistically significant ($p < .05$) differences found between the pretest and posttest administrations as related to diversity perceptions, the null hypothesis was rejected and can be concluded that a statistically significant difference existed in the student change in perceptions of diversity after being enrolled in a multicultural education course.

Null Hypothesis Three

Null hypothesis three stated no statistically significant difference existed in student perceptions of diversity in a multicultural education course in the presence of student age, permanent residence, and size of graduating class. Once data were collected, selected variables (age, permanent residency, and size of graduating class) were divided into two groups. Participants' responses to age were combined (21 and younger; 22 and older), participants' responses to permanent residence were combined (City of 50,000 or less, including farm and ranch; City with more than 50,000) and participants' responses to size of graduating class (200 or less; 201 or more) were combined and divided into two groups. Once divided into groups, independent t-tests were run to examine relationships among the variables. Comparisons were made based on pretest responses in the study.

Age of Participants

The t-test procedure was then used to determine if statistically significant differences existed in the students' perceptions of diversity based on age of participants. On average, participants' perceptions of diversity were higher ($M = 3.86, SE = 0.25$) being 21 and younger than those participants who were 22 and older ($M = 3.25, SE = 0.27$). This difference was not statistically significant, $t(24) = 1.66, p < .05$ (see Table 32).

Table 32
Independent t-tests for Perceptions of Diversity by Categories of Age for Participants

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
21 and younger	22	3.86	1.17	1.66	.104
22 and older	24	3.25	1.33		

¹*Note:* 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Permanent Residence of Participants

The t-test procedure was then used to determine if differences existed in the students' perceptions of diversity based on permanent residence of participants. On average, participants' perceptions of diversity were higher ($M = 3.92$, $SE = 0.24$) living in a city with a population of 50,000 or less, than those participants who lived in cities with more than 50,000 people ($M = 3.33$, $SE = 0.26$). This difference was not statistically significant, $t(24) = 1.65$, $p < .05$ (see Table 33).

Table 33
Independent t-tests for Perceptions of Diversity by Categories of Permanent Residence for Participants

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
City of 50,000 or less, including farm and ranch	24	3.92	1.18	1.65	.107
City with more than 50,000	21	3.33	1.20		

¹*Note:* 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Size of Graduating Class of Participants

The t-test procedure was then used to determine if statistically significant differences existed in the students' perceptions of diversity based on size of graduating class of participants. On average, participants' perceptions of diversity were higher ($M = 3.70$, $SE = 0.28$) graduating with 250 or less people than those participants who graduated with 251 or more people in their graduating class ($M = 3.39$, $SE = 0.26$). This difference was not significant, $t(24) = .81$, $p < .05$ (see Table 34).

Table 34
Independent t-tests for Perceptions of Diversity by Categories of Size of Graduating Class for Participants

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
250 or less	23	3.70	1.33	.805	.425
251 and up	23	3.39	1.23		

¹Note: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Because no statistically significant ($p < .05$) differences were found between the participants' age, permanent residency, and size of graduating class as they related to diversity, the researcher failed to reject the null hypothesis. It can be concluded from this that there is no statistically significant difference in student responses to age, permanent residency, and size of graduating class as it related to diversity.

Null Hypothesis Four

No statistically significant difference exists in student responses to a pre test administered at the beginning of a multicultural education course versus student responses to a retrospective pretest administered at the conclusion of a multicultural education course related to diversity. To test this hypothesis, grand means were established for all participant responses to four statements related to diversity perceptions. The t-test procedure was then used to determine if differences existed in the administration of the pretest versus the retrospective pretest related to diversity perceptions. Results of the comparison show that a statistically significance did not exist between the administration of the pretest versus the retrospective pretest as it related to diversity perceptions, $t(358) = .125, p < .05$ (see Table 30). The pretest mean score for diversity perceptions was 3.84 ($SD = 1.04$) while the retrospective pretest mean score for diversity perceptions was 3.82 ($SD = 1.28$). See Table 35 for results.

Table 35

Comparison of Retrospective Pretest Versus Retrospective Posttest Perceptions Related to Diversity (Pretest N=188, Retrospective Pretest N=172)

Test Administration	N	M	SD	t	p
Pretest	188	3.84	1.04	.125	.90
Retrospective Pretest	172	3.82	1.28		

Note. Scale: 1.00 to 1.49 = Unimportant, 1.50 to 2.49 = Of Little Importance, 2.50 to 3.49 = Moderately Important, 3.50 to 4.49 = Important, and 4.50 to 5.00 = Very Important

Because no statistically significant ($p < .05$) differences were found between the pretest and retrospective pretest administrations as they related to diversity perceptions the researcher failed to reject the null hypothesis. It can be concluded from this that is no statistically significant difference existed in student responses to a pre test administered at the beginning of a multicultural education course versus student responses to a retrospective pretest administered at the conclusion of a multicultural education course related to diversity.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Purpose and Objectives of Study

Having an appreciation for diversity and being able to work with others who are different from them is important as students enter the workforce and society. The opportunities for students to participate in multicultural education courses in the College of Agriculture and Life Sciences at Texas A&M University are available. The purpose of this study was to determine overall student perceptions of diversity in a Multicultural Education course within the College of Agriculture and Life Sciences. The researcher also sought to find what diversity means to students and why it is important to have a good understanding of diversity. Next, the study evaluated the environment of a multicultural education classroom and the reactions students have when discussing different issues related to diversity. Lastly, the researcher determined whether the instructor was creating an environment conducive to openness and acceptance as it related to diversity. Demographic information was collected to determine if there were any patterns associated with data collected from participants. As a result, the following research objectives were established:

- a) Identify personal characteristics of the selected students participating in Agricultural Leadership and Development 422;
- b) Assess student perceptions of contributions in agriculture before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University;

- c) Assess student perceptions of diversity before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University;
- d) Determine if relationships existed between College of Agriculture and Life Sciences students' selected demographic and personal characteristics, as they related to student perceptions of diversity in a multicultural education course;
- e) Examine the difference in student pre perceptions of diversity and post then pre perceptions of diversity before and after engaging in a multicultural education course.

Hypotheses

The following null and alternative hypotheses were developed to guide this study.

Null Hypotheses

- H₀₁: No statistically significant difference exists in student change in perceptions of contributions in agriculture after being enrolled in a multicultural education course.
- H₀₂: No statistically significant difference exists in student change in perceptions of diversity after being enrolled in a multicultural education course.
- H₀₃: No statistically significant difference exists in student perceptions of diversity in a multicultural education course in the presence of student age and size of graduating course.

H_{O4}: No statistically significant difference exists in student responses to a pre test administered at the beginning of a multicultural education course versus student responses to a retrospective pretest administered at the conclusion of a multicultural education course.

Alternative Hypotheses

H_{a1}: A statistically significant difference will exist in student change in perceptions of contributions in agriculture after being enrolled in a multicultural education course.

H_{a2}: A statistically significant difference will exist in student change in perceptions of diversity after being enrolled in a multicultural education course.

H_{a3}: A statistically significant difference will exist in student perceptions of diversity in a multicultural education course in the presence of student age and size of graduating course.

H_{a4}: A statistically significant difference will exist in student responses to a pre test administered at the beginning of a multicultural education course versus student responses to a retrospective pretest administered at the conclusion of a multicultural education course.

A pretest was administered on September 1, 2011, the second class of the fall semester for students in ALED 422. Before administering the pre-questionnaire, a consent form was read by the researcher to the participants. The purpose of reading the consent form was to provide an overview of the study and allow participants to ask any

questions before deciding to agree/disagree to participate in the study. Consent was obtained from 47 of 49 (95.92%) participants. Two of the students did not participate due to prior involvement in the initial pilot study of the instrument.

The posttest was administered on December 13, 2011, the last class of the fall semester. Before administering the posttest, a review was given to participants in order to refresh their memory on the objectives of the study. Forty-five of the original 47 (95.74%) students completed the posttest. Two students were not in attendance to participate in the posttest due to dropping of the class and personal absence.

After participants completed the posttest, a retrospective post was administered. Before administering the retrospective posttest, the researcher asked students to think back to how they perceived diversity before they were enrolled in ALED 422 and respond to the questions accordingly. The purpose of having participants complete a retrospective posttest was to compare results of the pretest and posttest to the retrospective posttest to see if there were any statistical significant differences in survey administration approaches.

The target population consisted of all junior and senior classified students enrolled in ALED 422: Cultural Pluralism in Agriculture for the 2011 fall semester in the Department of Agricultural Leadership, Education, and Communications at Texas A&M University ($N= 49$). Frankel and Wallen (2009) state, “for experimental or causal-comparative studies we recommend a “minimum of 30 individuals per group, although sometimes experimental studies with only 15 individuals in each group can be defended

if tightly controlled” (p. 102). Thus, the total number of participants within the sample was deemed appropriate.

Due to the prior involvement of the piloting of this instrument for this study, two students were unable to participate in the study. The accessible population consisted of all students that signed a consent form to participate in the study. Because enrollment in the course required junior or senior level status, all students in the population were deemed appropriate for the study.

A purposive convenience sample was taken for the study. Fraenkel and Wallen (2009) wrote that purposive sampling is a “nonrandom sample selected because prior knowledge suggests it is representative, or because those selected have the needed information” (p. G-7). According to Fraenkel and Wallen (2009), one disadvantage to this method of sampling is how the researcher’s judgment in selecting the population “may be in error - he or she may not be correct in estimating the representativeness of a sample or their expertise regarding the information needed” (p. 99). This type of sample was selected because of its ability to gain insights on students enrolled in a multicultural education course within a department of the College of Agriculture and Life Sciences College. Within the college, ALED 422 is the only undergraduate course that primarily focuses on multicultural education. For this reason, students from this course were identified as the best representatives for the study. One of the limitations of the study was the sampling of students was based solely on the population being enrolled in ALED 422. Because the population consisted of only 48 students, results could be generalized only to individuals in ALED 422.

SPSS 19.0 for Macintosh OS was used for data analysis. The analysis of data was divided into two sections. An alpha level of $p < .05$ was set *a priori* to determine statistical significance for all analyses. The first section evaluated student perceptions of diversity as it related to agriculture. The second section measured student perceptions of general diversity.

The first objective was to identify personal characteristics of the selected students participating in ALED 422. Descriptive statistics (frequencies and percentages by levels of response) were used for reporting the demographic and personal characteristics of respondents.

The second objective was to assess student perceptions of contributions in agriculture before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University. To satisfy this objective, overall sample frequencies, counts and percentages were generated first, and then the data were split according to selected groupings by the researcher. Mean scores and standard deviations were used to quantify statements of participants' perceptions of diversity enrolled in ALED 422.

The third objective was to assess student perceptions of diversity before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University. To satisfy this objective, overall sample frequencies, counts and percentages were generated first, and then the data were split according to selected groupings by the researcher. Mean scores and standard deviations

were used to quantify statements of participants' perceptions of diversity enrolled in ALED 422.

The fourth objective was to determine if relationships existed between College of Agriculture and Life Sciences students' selected demographic and personal characteristics, as they related to student perceptions of diversity in a multicultural education course. Independent t-tests were run to examine relationships among the variables. Statistical significance was determined at the $p < .05$ value. Comparisons were made based on pretest responses in the study.

The fifth objective was to examine the difference in student pre perceptions of diversity and post then pre perceptions of diversity before and after engaging in a multicultural education course. To satisfy this objective, overall sample frequencies, counts and percentages were generated first, and then the data were split according to selected groupings by the researcher. Grand mean scores and standard deviations were used to quantify statements of participants' perceptions of diversity enrolled in ALED 422.

Summary of Findings

Objective One

Objective one was to identify personal characteristics of the selected students participating in ALED 422. The findings were as follows:

1. Majority of participants in the study indicated they had enrolled in one or two (72%) diversity course before taking ALED 422.
2. The majority (80%) of the sample consisted of senior level students.

3. The majority (64%) of participants were Agriculture Leadership majors.
4. There were 33 (70.20%) males and 14 (29.80%) females in the sample.
5. Nearly half (47%) the sample consisted of twenty-one year olds.
6. The sample had an ethnic distribution of 74.50% White (non-Hispanic), 10.60% Hispanic, 8.50% African American (non-Hispanic), and 2.10% Native American. Two (4.30%) students selected other as their race.
7. The majority (79%) of participants indicated they were from the middle class.
8. Nearly half the participants in the sample resided in cities of 50,000 or more people.
9. The majority (64%) of participants grew up where the majority of population was White (non-Hispanic).
10. Not quite half (44%) of all participants graduated with 351 or more people in their graduating class.

Objective Two

Objective two was to assess student perceptions of contributions in agriculture before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University. Participants in the study responded to 14 items regarding their perceptions to contributions in agriculture. A summary of the top five pretest findings were as follows:

1. About 89% of respondents stated on the pretest that the evolution of the United States as it relates to agriculture was important or very important.

2. Nearly 79% of respondents stated on the pretest that knowing the importance of agriculture – past, present, and future - was important or very important.
3. Seventy-nine percent of respondents stated on the pretest that knowing the importance of agriculture in Texas – past, present, and future - was important or very important.
4. About 77% of respondents stated on the pretest that African Americans' contributions to agriculture was important or very important
5. Approximately 77% of respondents stated on the pretest that exploring rural America as it relates to agriculture was important or very important.

The top eight posttest findings were as follows:

1. About 98% of respondents stated on the posttest the evolution of the United States as it relates to agriculture was important or very important.
2. About 95% of respondents stated on the posttest African Americans' contributions to agriculture were important or very important.

3. Nearly 95% of respondents stated on the posttest knowing the importance of agriculture – past, present, and future was important or very important.
4. Approximately 91% of respondents stated on the posttest women’s contributions to agriculture were important or very important.
5. Approximately 91% of respondents stated on the posttest Native Americans’ contributions to agriculture were important or very important.
6. Nearly 91% of respondents stated on the posttest Hispanic cultures’ contributions to agriculture were important or very important.
7. Approximately 91% of respondents stated on the posttest European Americans’ contributions to agriculture were important or very important.
8. Ninety-one percent of respondents stated on the posttest knowing the importance of agriculture in Texas – past, present, and future was important or very important.

Test of Significance for Contributions in Agriculture

1. Grand means (Pretest - $M = 3.82$, $SD = 1.05$; Posttest - $M=4.29$, $SD = .91$) were established from all fourteen statements for pretest and posttest responses.
2. Paired t-tests indicated the overall relationship between pretest and posttest responses for the combined statements were statistically significant contributions to agriculture.

Objective Three

Objective three was to assess student perceptions of diversity before and after being enrolled in a multicultural education course within the College of Agriculture and Life Sciences at Texas A&M University. The findings were as follows:

The top two pretest findings were as follows:

1. Nearly 87% of respondents stated on the pretest that understanding of contributions of cultural values was important or very important.

1. Approximately 81% of respondents stated on the pretest that understanding religious diversity was important or very important.

The top two posttest findings were as follows:

1. Approximately 86% of respondents stated on the posttest that understanding religious diversity was important or very important.
2. Approximately 84% of respondents stated on the posttest that understanding political diversity was important or very important.

Test of Significance for Diversity Perceptions

1. Grand means (Pretest - $M = 3.84$, $SD = 1.04$; Posttest - $M=4.29$, $SD =1.15$) were established from all four statements for pretest and posttest responses.
2. Paired t-tests indicated the overall relationship between pretest and posttest responses for the combined statements was statistically significant related to diversity perceptions.

Objective Four

Objective four was to determine if relationships existed between College of Agriculture and Life Sciences students' selected demographic and personal characteristics as they related to student perceptions of diversity in a multicultural education course. The findings were as follows:

1. A statistically significant difference did not exist by age and mean scores based on diversity perception scores, $t(24) = 1.66, p < .05$.
2. A statistically significant difference did not exist by permanent residency and mean scores based on diversity perception scores, $t(24) = 1.65, p < .05$.
3. A statistically significant difference did not exist by size of graduating class and mean scores based on diversity perception scores, $t(24) = .81, p < .05$.
4. Overall, there was no statistically significant difference found among any of the three selected variables (age, permanent residence, and size of graduating class) as it related to diversity perceptions.

Objective Five

Objective five was to examine the difference in student pretest perceptions of diversity and retrospective pretest perceptions of diversity before and after engaging in a multicultural education course. The findings were as follows:

The highest two pretest means were as follows:

1. Understanding of cultural values ($M = 4.34, SD = 0.76$) received the highest mean score by participants on the pretest.

2. Understanding religious diversity ($M= 4.04$, $SD= .93$) received the next highest mean score by participants on the pretest.

The highest two retrospective pretest means were as follows:

1. Understanding religious diversity ($M= 4.00$, $SD= 1.23$) received the highest mean score by participants on the retrospective pretest.
2. Understanding of cultural values ($M= 3.91$, $SD= 1.27$) received the next highest mean score by participants on the retrospective pretest.

Test of Significance for Diversity Perceptions

1. Grand means (Pretest - $M = 3.82$, $SD = 1.05$; Retrospective Pretest - $M=3.70$, $SD =1.15$) were established from all four statements for pretest and retrospective pretest responses related to diversity.
2. Paired t-tests indicated the overall relationship between pretest and retrospective pretest responses for the combined statements were not statistically significant related to diversity perceptions.

Null Hypothesis One

The null hypothesis stated no statistically significant difference existed in student change in perceptions of contributions in agriculture after being enrolled in a multicultural education course. To test this hypothesis, grand means were established for all participant responses to fourteen statements related to contributions in agriculture.

The t-test procedure was then used to determine if differences existed in the administration of the pretest versus the posttest related to contributions in agriculture.

The pretest and posttest measurements were the independent variables and the students'

perceptions of contributions in agriculture were the dependent variables for the study. The overall findings stated a statistically significant difference was found between the administration of the pretest versus the posttest as it relates to contributions in agriculture, $t(1255) = 1.87, p < .05$.

Because of statistically significant ($p < .05$) differences found between the pretest and posttest administrations as they related to contributions in agriculture, the null hypothesis was rejected and can be concluded that there was a statistically significant difference in the student change in perceptions of contributions in agriculture after being enrolled in a multicultural education course.

Null Hypothesis Two

The null hypothesis stated no statistically significant difference exists in student change in perceptions of diversity after being enrolled in a multicultural education course. To test this hypothesis, grand means were established for all participant responses to four statements related to diversity perceptions. The t-test procedure was then used to determine if differences existed in the administration of the pretest versus the posttest related to diversity perceptions. The results indicated a statistically significant difference was found between the administration of the pretest versus the posttest as it relates to diversity perceptions, $t(358) = -3.65, p < .05$.

Because of statistically significant ($p < .05$) differences found between the pretest and posttest administrations as they related to diversity perceptions, the null hypothesis was rejected and can be concluded that there was a statistically significant difference in the

student change in perceptions of diversity after being enrolled in a multicultural education course.

Null Hypothesis Three

The null hypothesis stated no difference exists in student perceptions of diversity in a multicultural education course in the presence of student age, permanent residency, and size of graduating class. Once data was collected selected variables (age, permanent residency, and size of graduating class) was divided into two groups. Participants' responses to age were combined (21 and younger; 22 and older), participants' responses to permanent residence were combined (City of 50,000 or less, including farm and ranch; City with more than 50,000) and participants' responses to size of graduating class (200 or less; 201 or more) were combined and divided into two groups. Once divided into groups, independent t-tests were run to examine relationships among the variables. Comparisons were made based on pretest responses in the study. The results illustrated that overall, no statistically significant difference found among any of the three selected variables (age, permanent residence, and size of graduating class) as it relates to diversity perceptions.

Null Hypothesis Four

The null hypothesis stated no difference exists in student responses to a pre test administered at the beginning of a multicultural education course versus student responses to a retrospective posttest administered at the conclusion of a multicultural education course. To test this hypothesis, grand means were established for all participant responses to four statements related to diversity perceptions. The t-test

procedure was then used to determine if differences existed in the administration of the pretest versus the retrospective pretest related to diversity perceptions. The results indicated no statistically significant difference was found between the administration of the pretest versus the retrospective pretest as it relates to diversity, $t(358) = .125, p < .05$.

Because no statistically significant ($p < .05$) differences were found between the pretest and retrospective pretest administrations as they related to diversity, the researcher failed to reject the null hypothesis and can be concluded that there is not a statistically significant difference in the student change in perceptions of diversity when comparing pretest administrations versus retrospective pretest administrations.

Conclusions

Based on the findings from this study, data collected and analyzed, conclusions can be made both to support and refute evidence provided by past and present studies in the field of student perceptions of diversity and contributions in agriculture.

Objective One

1. Students that participated in the study mostly indicated they had taken either one or two courses (72.34%) on diversity.
2. Over 80% of participants in the study were of senior classification.
3. Agriculture Leadership students made up the majority of the population of the study.

4. The gender breakdown (70% male and 30% female) of the population did not represent the overall gender breakdown of the university (53% male and 47% female).
5. Over 75% of participants in the study were less than 22 years old.
6. The race/ethnicity composition of the sample was proportional to that of the College of Agriculture and Life Sciences as well as the entire University.
7. Nearly 80% of the population indicated they were raised in a middle class family.
8. An equal distribution for place of residence was shown through participants' responses. However, combined results showed 46% of respondents lived in cities with 50,000 persons or more.
9. Like the race/ethnicity of the population participating, White (non-Hispanic) populations made up the majority of the population where participants grew up.
10. The majority (63%) of participants attended high schools with more than 200 people graduating each year.

Objective Two

1. Grand means for the pretest ($M = 3.82$, $SD = .56$) and posttest ($M=4.29$, $SD = .55$) were run as they related to student perceptions' of contributions in agriculture. Results confirm the implementation of a multicultural education course to discuss contributions in agriculture were effective in changing students' perceptions about contributions in agriculture.
2. Ten of the fourteen (71.43%) statements were found to have statistically significant differences between pretest and posttest measurements. The four

statements that did not show a statistically significant difference between the pretest and posttest were: Knowing the importance of agriculture – past, present, and future, The evolution of the United States as it relates to agriculture, Exploring rural America as it relates to agriculture, and Gaining perspectives on international agriculture.

3. The statement, “The evolution of the United States as it relates to agriculture” was ranked in the top three in mean values for both the pretest ($M = 4.49$, $SD = .75$) and posttest ($M = 4.60$, $SD = .73$). From these findings, it is possible for the researcher to conclude that high mean values on both pretest and posttest measurements led to no statistically significant differences that were found.

Objective Three

1. Grand means for the pretest ($M = 3.84$, $SD = 1.04$) and posttest ($M = 4.29$, $SD = 1.15$) were run as they related to student perceptions’ of diversity. Results confirm the implementation of a multicultural education course to discuss the importance of diversity were effective in changing students’ perceptions about diversity perceptions.
2. Two of the four (50.00%) statements were found to have statistically significant differences between pretest and posttest measurements. The two statements that did not show a statistically significant difference between the pretest and posttest were: Understanding religious diversity and Understanding of cultural values.
3. The statement, “Understanding cultural values” received the lowest mean values for both the pretest ($M = 3.26$, $SD = 1.19$) and posttest ($M = 4.12$, $SD = 1.26$).

However, despite receiving the lowest mean values on both the pretest and posttest, the statement showed a statistically significant difference between the pretest and posttest measurements.

Objective Four

1. Results from the study indicated that youth 22 and younger participants exhibited higher mean scores on all statements related to perceptions of diversity except understanding religious diversity.
2. There was not a statistically significant difference found in age and participants' perceptions of diversity found in the study.
3. Participants residing in cities with more than 50,000 people exhibited higher mean scores on all statements related to diversity perceptions except understanding political diversity.
4. There was not a statistically significant difference found in permanent residence of participants and perceptions' of diversity.
5. Results indicated that participants who graduated with 201 or more students in their graduating class exhibited higher mean scores on all statements except understanding of cultural values.
6. There was not a statistically significant difference found in size of graduating class and participants' perceptions of diversity found in the study.

Objective Five

1. Grand means for the pretest ($M = 3.84$, $SD = 1.04$) and retrospective pretest ($M=3.82$, $SD =1.29$) were run as they related to student perceptions' of diversity.

Results confirm the work of Rockwell and Kohen (1989) as it relates to the statistical significance of administering a pretest versus administering a retrospective pretest method of collecting data.

Null Hypothesis One

Researchers (Artiles & McClafferty, 1998; Bennett, Niggle, & Stage, 1990; Bondy, Schmitz, & Johnson, 1993) have found an overall positive attitude and belief change as a result of multicultural education. Results, $t(1255) = 1.87, p < .05$, from the study support this research by finding the implementation of a multicultural education course changes student perceptions of contributions in agriculture by different subgroups. These results contradict other studies (Barry & Lechner, 1995; Causey, Thomas, & Armento, 2000; Cockrell, Placier, Cockrell, & Middleton, 1999) that indicate multicultural education courses do not produce significant attitudinal or belief changes related to diversity in agriculture.

Null Hypothesis Two

In Banks' (1993) five dimensions of multicultural education, he discusses prejudice reduction. Prejudice reduction focuses on reducing students' racial attitudes and beliefs to assist with the development of more democratic attitudes and values. The goal of implementing ALED 422 was to change attitudes and beliefs toward understanding religious diversity, understanding political diversity, understanding sexual orientation, and understanding cultural values. Results, $t(358) = -3.65, p < .05$, indicate the influence of a multicultural education course did have a significant difference on students' attitudes and beliefs about diversity.

Null Hypothesis Three

When determining whether age played a significant role in students' perceptions of diversity, results, $t(24) = 1.66$, $p < .05$, indicated there was not a significant difference. However, results indicated participants' perceptions of diversity were higher ($M = 3.86$, $SE = .25$) being 21 and younger than those participants who were 22 and older ($M = 3.25$, $SE = .27$).

Permanent residence of participants was also examined to determine whether a significant difference existed in students' perceptions of diversity. Results, $t(24) = 1.65$, $p < .05$, indicated there was not a significant difference in students' perceptions of diversity related to permanent residence of participants. In spite of these results, participants' perceptions of diversity were higher ($M = 3.92$, $SE = .24$) living in a city with a population of 50,000 or less, than those participants who lived in cities with more than 50,000 people ($M = 3.33$, $SE = .26$).

Size of graduating class of participants was the last variable explored to determine whether a significant difference existed in students' perceptions of diversity. Results, $t(24) = .81$, $p < .05$, indicated there was not a significant difference in students' perceptions of diversity related to size of graduating class of participants. In spite of these results, participants' perceptions of diversity were higher ($M = 3.70$, $SE = .28$) when graduating with 250 or less people than those participants who graduated with 251 or more people in their graduating class ($M = 3.39$, $SE = .26$). Overall, none of the selected variables had a statistically significant effect on students' perceptions of diversity.

Null Hypothesis Four

In an attempt to validate pretest and posttest responses, a retrospective post (post then pre) was administered to ascertain differences in responses comparing both survey administrative types. Rockwell and Kohen (1989) discussed the effectiveness and reliability of using a retrospective post evaluation rather than a pretest then posttest. Results of the comparison confirmed Rockwell and Kohen's (1989) research and showed there was not a statistically significant difference between the administration of the pretest versus retrospective pretest as it related to diversity perceptions, $t(358) = .125, p < .05$. Knowing that there is not a statistically significant difference in the types of evaluation measurements used, researchers can conclude that using a retrospective pre then posttest can be used effectively to achieve accurate results.

Recommendations

Recommendations for Practice

After completion of the study, the researcher has made recommendations to assist in providing students in the College of Agriculture and Life Sciences the opportunity to learn more about diversity. As mentioned by Phillips, Kim-Jun, & Shim (2011), students will continue to be faced with a workforce that has ever-changing demographics. These individuals will be forced to be culturally sensitive to those who are different from them. In addition, many of these individuals will be in leadership and management roles. Therefore, it will be their responsibility to ensure all employees are provided a favorable work environment, treated equally and fairly.

This study showed the implementation of a multicultural education course does have a positive effect on changing students' perceptions of diversity as it relates to agriculture. It is through courses like these that students learn how to be culturally sensitive and understand differences among people. Because there are very few courses taught in the College of Agriculture and Life Sciences, it is recommended that administration and faculty consider adding additional courses that teach students the importance of cultural sensitivity. This may be achieved by implementing a mandatory course for all students within their degree plan. This fundamental also may be expanded upon when looking at courses already in place in the College of Agriculture and Life Sciences. Thus, curriculum that focuses on diversity and cultural issues may be implemented into current courses in order to give students added perspectives in terms of diversity in classes that pertain to their major. This recommendation is in line with Banks' (1993) five dimensions of multicultural education. Incorporating multicultural education throughout College of Agriculture and Life Sciences courses has the potential to provide benefits to students that inevitably will face diversity issues, no matter their career choice. The aforementioned research explains that students will need to utilize skills such as these on a frequent basis. Therefore, relating diversity topics back to students' respective majors and career choices will better equip them for career success.

Also, a variety of diversity courses that allow students more options to choose a best fit for their career path also may be offered. If students were offered more variety in terms of courses, Texas A&M may produce students who not only are more culturally

aware but have a greater potential to succeed in future endeavors in terms of relating agriculture to diverse, outside audiences.

Recommendations for Additional Research

The research design used in this study was a one-group pretest-posttest design with a follow-up retrospective post evaluation at the conclusion of the study. In future research, adding a control group to the study that is not engaged in a multicultural education course would allow the researcher to determine the effectiveness of the multicultural education course implemented. Maintaining a control group also would allow the researcher to determine the true statistical significance that the multicultural education course has on student perceptions of diversity.

As a result of this study, future research studies can be modified to use a retrospective post evaluation to measure the difference in perceptions. This change will save researchers time and money from the standpoint of creating and implementing multiple evaluations at different times of the year. Also, this research study supports Rockwell and Kohen's (1989) findings that state there is no statistical difference in using a pre then post method versus a retrospective post evaluation method of evaluation.

According to Fraenkel and Wallen (2009), in longitudinal studies "information is collected at different points in time in order to study changes over time" (p. 391). Therefore, in order to determine effectively whether multicultural education courses have a long-term effect on individuals, longitudinal studies should be conducted. More specifically, a cohort study is recommended to track a group of individuals over a set time. During this time, researchers should study how experiential learning experiences

that take place in the workforce affect their perceptions of diversity. Utilizing a cohort study to analyze long-term effects will allow researchers to determine what experiences affect individuals' perceptions of diversity the most.

Lastly, the use of mixed method research in future studies may provide valuable information for researchers. Establishing focus groups and providing individuals the opportunity to offer input through open-ended questions allow researchers to garner important information not received through quantitative research. Qualitative research also provides researchers the opportunity to revisit individuals to clarify any information that is obtained from the individuals. This method also may give further insight to issues researchers may not know to ask during quantitative research surveys. In addition to obtaining results through qualitative data, researchers also should use quantitative methods similar to those used in this study to collect data from individuals to generalize to larger populations. Quantitative data also can be collected in a numeric form that can be used to represent the social environment in which it takes place.

All in all, the research presented gives valuable insight to cultural issues facing college students today. Further research will allow for an expansion of the topic in this field as well as others, thus, allowing for a greater understanding of cultural issues in and outside academia.

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APPENDIX A
INSTITUTIONAL REVIEW BOARD-HUMAN SUBJECTS RESEARCH
APPROVAL LETTER

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Human Subjects Protection Program

Institutional Review Board

APPROVAL DATE:

31-Aug-2011

MEMORANDUM

TO: MERTEN, KYLE JASON
 77843-2116

FROM: Office of Research Compliance
 Institutional Review Board

SUBJECT: Initial Review

Protocol Number: 2011-0646

Title: Student Perceptions of Diversity in a Multicultural Education Course in the College of Agricultural and Life Sciences at Texas A&M University

Review Category: Expedited

Approval Period: 31-Aug-2011 To 30-Aug-2012

Approval determination was based on the following Code of Federal Regulations:

45 CFR 46.110(b)(1) - Some or all of the research appearing on the list and found by the reviewer(s) to involve no more than minimal risk.

 Criteria for Approval has been met (45 CFR 46.111) - The criteria for approval listed in 45 CFR 46.111 have been met (or if previously met, have not changed).

 (7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation or quality assurance methodologies.

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(Note: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b) (3). This listing refers only to research that is not exempt.)

Provisions:

Comments:

This research project has been approved. As principal investigator, you assume the following responsibilities

1. **Continuing Review:** The protocol must be renewed each year in order to continue with the research project. A Continuing Review along with required documents must be submitted 30 days before the end of the approval period. Failure to do so may result in processing delays and/or non-renewal.
2. **Completion Report:** Upon completion of the research project (including data analysis and final written papers), a Completion Report must be submitted to the IRB Office.
3. **Adverse Events:** Adverse events must be reported to the IRB Office immediately.
4. **Amendments:** Changes to the protocol must be requested by submitting an Amendment to the IRB Office for review. The Amendment must be approved by the IRB before being implemented.
5. **Informed Consent:** Information must be presented to enable persons to voluntarily decide whether or not to participate in the research project.

This electronic document provides notification of the review results by the Institutional Review Board.

APPENDIX B
INSTITUTIONAL REVIEW BOARD-HUMAN SUBJECTS RESEARCH
AMENDMENT LETTER

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TEXAS A&M UNIVERSITY
DIVISION OF RESEARCH AND GRADUATE STUDIES - OFFICE OF RESEARCH COMPLIANCE

1186 TAMU, General Services Complex
 College Station, TX 77843-1186
 750 Agronomy Road, #3500

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Human Subjects Protection Program

Institutional Review Board

APPROVAL DATE:

11-Nov-2011

MEMORANDUM

TO: MERTEN, KYLE JASON
 77843-2116

FROM: Office of Research Compliance
 Institutional Review Board

SUBJECT: Amendment

Protocol Number: 2011-0646

Title: Student Perceptions of Diversity in a Multicultural Education Course in the College of Agricultural and Life Sciences at Texas A&M University

Review Category: Expedited

Approval Period: 11-Nov-2011 To 30-Aug-2012

Approval determination was based on the following Code of Federal Regulations:

Eligible for Expedite Approval (45 CFR 46.110): Identification of the subjects or their responses (or the remaining procedures involving identification of subjects or their responses) will NOT reasonably place them at risk of criminal or civil liability or be damaging to their financial standing, employability, insurability, reputation, or be stigmatizing, unless reasonable and appropriate protections will be implemented so that risks related to invasion of privacy and breach of confidentiality are no greater than minimal.

 Modification Eligible for Expedite Review (45 CFR 46.110): The modification(s) do not affect the design of the research AND the modification(s) add no more than minimal risk to subjects.

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Criteria for Approval has been met (45 CFR 46.111) - The criteria for approval listed in 45 CFR 46.111 have been met (or if previously met, have not changed).

 (7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation or quality assurance methodologies.

(Note: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b) (3). This listing refers only to research that is not exempt.)

Provisions:

Comments:

Amendment to repeat the pre-test at the end of the semester.

This research project has been approved. As principal investigator, you assume the following responsibilities

1. **Continuing Review:** The protocol must be renewed each year in order to continue with the research project. A Continuing Review along with required documents must be submitted 30 days before the end of the approval period. Failure to do so may result in processing delays and/or non-renewal.
2. **Completion Report:** Upon completion of the research project (including data analysis and final written papers), a Completion Report must be submitted to the IRB Office.
3. **Adverse Events:** Adverse events must be reported to the IRB Office immediately.
4. **Amendments:** Changes to the protocol must be requested by submitting an Amendment to the IRB Office for review. The Amendment must be approved by the IRB before being implemented.
5. **Informed Consent:** Information must be presented to enable persons to voluntarily decide whether or not to participate in the research project.

This electronic document provides notification of the review results by the Institutional Review Board.

APPENDIX C

INSTITUTIONAL REVIEW BOARD-HUMAN SUBJECTS RESEARCH

APPROVED CONSENT FORM FOR PARTICIPANTS OF STUDY

Version: 08/12/2011

CONSENT FORM
Student Perceptions of Diversity in a Multicultural Education Course in the College of Agriculture and Life Sciences at Texas A&M University

Introduction

The purpose of this form is to provide you information that may affect your decision as to whether or not to participate in this research study. If you decide to participate in this study, this form will also be used to record your consent.

You have been asked to participate in a research project studying college student perceptions of diversity before attending a multicultural education course and at the conclusion of the course. The purpose of this study is to determine whether or not student perceptions of diversity enrolled in a multicultural education course in the College Agriculture and Life Sciences(COALS) change over the course of a year. There are limited multicultural education courses in COALS, and many students do not have the opportunity to learn about diversity, especially as it relates to Agriculture. The study will look at how students react to uncomfortable situations when diversity is discussed. The PI will also examine any correlations that may be present between student demographics and their perceptions related to diversity and agriculture. You were selected to be a possible participant because you are of Junior or Senior classification and enrolled in the course.

What will I be asked to do?

If you agree to participate in this study, you will be asked to fill out a pre and post test evaluation. The pre test will be administered on the second class-day of the Fall 2011 semester. Individuals will be asked a series of question pertaining to diversity and how they perceive general diversity as well as diversity as it relates to agriculture. Participants will also be asked a series of demographic questions that will provide the investigator background information on the individuals. This background information will be used to see if there are any correlations between certain demographics and answers to responses related to diversity.

The posttest will be administered on the last class day. The purpose of the posttest is to determine if the students' perceptions have changed over the course of the semester. The evaluation given will be the exact same instrument as was given on the second class day.

What are the risks involved in this study?

The risks associated in this study are minimal, and are not greater than risks ordinarily encountered in daily life.

What are the possible benefits of this study?

You will receive no direct benefit from participating in this study; however, information will be beneficial for professors when improving classroom environment. Also, information provided will help professors better understand how demographics affect student perception of diversity. In doing so, professors can create learning environments that are conducive to all individuals in a classroom.

Do I have to participate?

No. Your participation is voluntary. You may decide not to participate or to withdraw at any time without your current or future relations with Texas A&M University being affected.

Who will know about my participation in this research study?

Version: 08/12/2011

This study is confidential. The records of this study will be kept private under lock and key. No identifiers linking you to this study will be included on the evaluation. Research records will be stored securely and only Dr. Alvin Larke Jr., Dr. Chris Boleman, Dr. Landry Lockett, and Dr. Patricia Larke will have access to the records.

Whom do I contact with questions about the research?

If you have questions regarding this study, you may contact Kyle Merten at 979-277-2803 or kjmerten@ag.tamu.edu or Dr. Alvin Larke Jr. at 979-862-3008 or a-larke@tamu.edu

Whom do I contact about my rights as a research participant?

This research study has been reviewed by the Human Subjects' Protection Program and/or the Institutional Review Board at Texas A&M University. For research-related problems or questions regarding your rights as a research participant, you can contact these offices at (979)458-4067 or irb@tamu.edu.

Signature

Please be sure you have read the above information, asked questions and received answers to your satisfaction. You will be given a copy of the consent form for your records. By signing this document, you consent to participate in this study.

Signature of Participant: _____ **Date:** _____

Printed Name: _____

Signature of Person Obtaining Consent: _____ **Date:** _____

Printed Name: _____

APPENDIX D
PRETEST EVALUATION INSTRUMENT

Pre Evaluation Instrument

Thank you for taking the time to fill out the following survey. The information you provide will be beneficial in improving the content and instruction of this course. All responses will remain anonymous. Thank you again for your time.

For each of the statements listed below, circle **ONE** number that best describes your perceptions related to contributions in the field of agriculture and diversity.

Perception Statements Related to Contributions in AGRICULTURE	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Women's contributions to agriculture have been...	1	2	3	4	5
Native Americans' contributions to agriculture have been...	1	2	3	4	5
African Americans' contributions to agriculture have been...	1	2	3	4	5
Hispanic cultures' contributions to agriculture have been...	1	2	3	4	5
European Americans' contributions to agriculture have been...	1	2	3	4	5
Asian Americans' contributions to agriculture have been...	1	2	3	4	5
Arab Americans' contributions to agriculture have been...	1	2	3	4	5
Stereotyping of people in agriculture have been...	1	2	3	4	5
Knowing the importance of agriculture – past, present, and future has been...	1	2	3	4	5
Knowing the importance of agriculture in Texas – past, present, and future has been...	1	2	3	4	5
Non-traditional agriculture has been...	1	2	3	4	5
The evolution of the United States as it relates to agriculture has been...	1	2	3	4	5
Exploring rural America as it relates to agriculture has been...	1	2	3	4	5
Gaining perspectives on international agriculture has been...	1	2	3	4	5
Perception Statements Related to DIVERSITY	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Understanding religious diversity has been...	1	2	3	4	5
Understanding political diversity has been...	1	2	3	4	5
Understanding sexual orientation has been...	1	2	3	4	5
Understanding of cultural values has been ...	1	2	3	4	5

Which reaction describes you when diversity issues arise in discussions that make you uncomfortable?

- A. Quiet
- B. Defensive
- C. Do not get uncomfortable
- D. Confront issue respectfully

Which of the following describes the environment your instructor creates in regards to diversity?

- A. Comfortable
- B. Uncomfortable

How many courses in cultural diversity have you taken in college? _____

For the following questions please provide open-ended responses you feel are most applicable to your expectations as they relate to this course.

1. What do you expect to learn from this course?
2. What does diversity mean to you?
3. When diversity issues arise in discussions, does it make you uncomfortable? If so, please explain the reactions you have.
4. Why is understanding diversity as it relates to the workplace important?

APPENDIX E
POSTTEST EVALUATION INSTRUMENT

Post Evaluation Instrument

Thank you for taking the time to fill out the following survey. The information you provide will be beneficial in improving the content and instruction of this course. All responses will remain anonymous. Thank you again for your time.

For each of the statements listed below, circle **ONE** number that best describes your perceptions related to contributions in the field of agriculture and diversity.

Perception Statements Related to Contributions in AGRICULTURE	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Women's contributions to agriculture have been...	1	2	3	4	5
Native Americans' contributions to agriculture have been...	1	2	3	4	5
African Americans' contributions to agriculture have been...	1	2	3	4	5
Hispanic cultures' contributions to agriculture have been...	1	2	3	4	5
European Americans' contributions to agriculture have been...	1	2	3	4	5
Asian Americans' contributions to agriculture have been...	1	2	3	4	5
Arab Americans' contributions to agriculture have been...	1	2	3	4	5
Stereotyping of people in agriculture has been...	1	2	3	4	5
Knowing the importance of agriculture – past, present, and future has been...	1	2	3	4	5
Knowing the importance of agriculture in Texas – past, present, and future has been...	1	2	3	4	5
Non-traditional agriculture has been...	1	2	3	4	5
The evolution of the United States as it relates to agriculture has been...	1	2	3	4	5
Exploring rural America as it relates to agriculture has been...	1	2	3	4	5
Gaining perspectives on international agriculture has been...	1	2	3	4	5
Perception Statements Related to DIVERSITY	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Understanding religious diversity has been...	1	2	3	4	5
Understanding political diversity has been...	1	2	3	4	5
Understanding sexual orientation has been...	1	2	3	4	5
Understanding of cultural values has been ...	1	2	3	4	5

Which reaction describes you when diversity issues arise in discussions that make you uncomfortable?

- A. Quiet
- B. Defensive
- C. Do not get uncomfortable
- D. Confront issue respectfully

Which of the following describes the environment your instructor creates in regards to diversity?

- A. Comfortable
- B. Uncomfortable

How many courses in cultural diversity have you taken in college? _____

APPENDIX F
RETROSPECTIVE POST EVALUATION INSTRUMENT

Retrospective Post Evaluation Instrument

Thank you for taking the time to fill out the following survey. The information you provide will be beneficial in improving the content and instruction of this course. All responses will remain anonymous. Thanks again.

For each of the statements listed below, circle **ONE** number in the left column that best describes your perceptions related to contributions in the field of agriculture and diversity before you took this course; and circle **ONE** number in the right column that describes your perceptions related to contributions in the field of agriculture and diversity after you took this course.

Perception Statements Related to Contributions in AGRICULTURE	Before the Course					After the Course				
	Unimportant	Of Little Importance	Moderately Important	Important	Very Important	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Women's contributions to agriculture have been...	1	2	3	4	5	1	2	3	4	5
Native Americans' contributions to agriculture have been...	1	2	3	4	5	1	2	3	4	5
African Americans' contributions to agriculture have been...	1	2	3	4	5	1	2	3	4	5
Hispanic cultures' contributions to agriculture have been...	1	2	3	4	5	1	2	3	4	5
European Americans' contributions to agriculture have been...	1	2	3	4	5	1	2	3	4	5
Asian Americans' contributions to agriculture have been...	1	2	3	4	5	1	2	3	4	5
Arab Americans' contributions to agriculture have been...	1	2	3	4	5	1	2	3	4	5
Stereotyping of people in agriculture has been...	1	2	3	4	5	1	2	3	4	5
Knowing the importance of agriculture – past, present, and future has been...	1	2	3	4	5	1	2	3	4	5
Knowing the importance of agriculture in Texas – past, present, and future has been...	1	2	3	4	5	1	2	3	4	5
Non-traditional agriculture has been...	1	2	3	4	5	1	2	3	4	5
The evolution of the United States as it relates to Agriculture has been...	1	2	3	4	5	1	2	3	4	5
Exploring rural America as it relates to agriculture has been...	1	2	3	4	5	1	2	3	4	5
Gaining perspectives on international agriculture has been...	1	2	3	4	5	1	2	3	4	5
Perception Statements Related to DIVERSITY	Unimportant	Of Little Importance	Moderately Important	Important	Very Important	Unimportant	Of Little Importance	Moderately Important	Important	Very Important
Understanding religious diversity has been...	1	2	3	4	5	1	2	3	4	5
Understanding political diversity has been...	1	2	3	4	5	1	2	3	4	5
Understanding sexual orientation has been...	1	2	3	4	5	1	2	3	4	5
Understanding of cultural values has been ...	1	2	3	4	5	1	2	3	4	5

Which reaction describes you when diversity issues arise in discussions that make you uncomfortable?

- A. Quiet
- B. Defensive
- C. Do not get uncomfortable
- D. Confront issue respectfully

Which of the following describes the environment your instructor creates in regards to diversity?

- A. Comfortable
- B. Uncomfortable

How many courses in cultural diversity have you taken in college? _____

VITA

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Ph.d, Agricultural Education, 2012, Texas A&M University,
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Professional: Extension Program Specialist, Texas 4-H and Youth
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