

The Effect of Teacher Demographic and Personal Characteristics on Perceptions of Diversity Inclusion in Agricultural Education Programs

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Agricultural education teachers' attitudes about the perceptions of diversity inclusion in their programs are variables that may have a strong influence on the number of students that enroll in agricultural education. This study examines the effect of teachers' demographic and personal characteristics on their perceptions of the benefits of diversity inclusion, perceived barriers to diversity inclusion, and proposed solutions to increase diversity inclusion in agricultural education programs. Using a web-based questionnaire, the researchers employed a nonproportional stratified random sampling technique and 232 agricultural education teachers participated in the study. Through comparative analysis, researchers found statistically significant differences existed in teachers' perceptions toward the benefits of diversity inclusion, the perceived barriers toward diversity inclusion, and the proposed solutions to increase diversity inclusion in agricultural education programs. Additional research should be conducted to understand better why these differences exist.

Keywords: diversity; agricultural education; students with disabilities; inclusion; multicultural

Introduction

Participation in agricultural education across the context of diversity and inclusion continues to remain stagnant. Race/ethnicity and gender data show that a majority (88%) of all agricultural educators are White with almost 64% being male (Kantrovich, 2007). The National FFA Organization (2010) reported FFA membership was 79% White, 15% Hispanic, 4% African-American, and 2% Native American. In contrast, public school enrollment numbers indicate that the diversity of students in public schools will be broader than ever. Planty et al. (2009) reported that between 1972 and 2007, the percentage of White public school students decreased from 78% to 56% while the percentage from other racial/ethnic groups increased from 32% to 44%. The researchers

also indicated that the number of children and youth receiving special education services increased nearly every year with the percentage of students with specific learning disabilities being the highest category of new special education cases.

To ensure agricultural education programs continue to produce skilled students for the 21st century, increasing the diversity of the profession is paramount. With the changing public school demographics, teachers no longer can afford to isolate and overlook the diversity within their classrooms. For teachers to recruit and retain students of color and students with disabilities successfully, the trials, concerns, and opportunities related to these groups must be assessed.

Students with Disabilities in Agricultural Education

Since the inception of P.L. 94–142 and the reauthorization of the No Child Left Behind Act of 2002, including students with disabilities in regular education settings has become an important topic. Not only are regular education teachers responsible for the needs of children who vary considerably in their cultural, and ethnic backgrounds, but they are responsible for providing services for children with a range of behavioral and developmental differences. In a study involving the preparation of preservice teachers on working with students with disabilities, Faulkner and Baggett (2010) reported that proper teaching techniques, accommodations, and the understanding of relevant legislation that governs the education of students with disabilities would enhance pre-service teachers' careers. Stair, Moore, Wilson, Croom, and Jayaratne (2010) declared for teacher education programs to include activities or experiences that would permit teachers to work with students with disabilities to gain a better understanding of how to teach students from this population. Other studies involving agricultural teachers and students with disabilities have focused on the need for additional training in evaluating special need learners (Giffing, Warnick, Tarpley, & Williams, 2010), curriculum redesign (Pense, Watson, & Wakefield, 2010), confidence levels (Kessell, Wingenbach, & Lawver, 2009), and their ability to incorporate students with disabilities in agricultural education programs (Dormody, Seevers, Andreasen, & VanLeeuwen, 2006; Warren & Alston, 2007). Elbert and Baggett (2003) concluded that "because programs have evolved toward mainstreaming due to legislation and various beliefs held by educators, most agricultural educators continue to feel less than competent while working with disabled students" (p. 113). In sum, the perceptions of diversity inclusion must be examined as one of the first steps in ensuring that educators are prepared in terms of philosophy and pedagogy to address the trials of an increasingly diverse population.

Demographic and Personal Characteristics among Diversity Inclusion

Demographic and personal characteristics in agricultural education research traditionally have

been employed as descriptive mechanisms highlighting the selected variables that were deemed most important by the study's researchers. In the context of diversity and inclusion research in agricultural education, very few authors have examined the extent in which teacher (inservice or preservice) demographic and personal characteristics impacted their ability to deal with diverse populations. In one of the few studies that examined teacher demographic variables and diverse populations, Kessell et al. (2009) discovered statistically significant relationships between student teachers' confidence scores (i.e., their ability to meet the needs of special education students) and selected demographics. The researchers discovered that female student teachers had more knowledge about disabilities and special education laws than their male counterparts. Researchers reported also that as participants' age and time spent with a special needs person increased, knowledge of disabilities and knowledge of laws pertaining to students with disabilities increased. The demographic and personal characteristics chosen for this study accurately represent the heterogeneous composition of agricultural educators in Texas. Whereas much of the demographic and personal characteristics data collected in previous studies have focused on highlighting informational content, this study aims to determine if these individual factors affect the belief of diversity inclusion in agricultural education teachers.

Conceptual Framework

The framework guiding this study is based upon the concept of diversity inclusion. Through a methodical review of literature, a model was developed (LaVergne, 2008) that postulates variables associated with culturally responsive teaching (Gay, 2000), multicultural education (Banks, 2008), and inclusion (Salend, 2008). Conjointly, diversity inclusion is an educational philosophy that welcomes all learners by actively engaging them in educational programs regardless of their race, ethnicity, or exceptionality. To develop the conceptual framework, the authors conducted a review of the literature to identify themes that could clarify promoting and implementing a more inclusive atmosphere in agricultural education. The authors examined the histories of inclusion,

multicultural education, and the ideology of culturally responsive teaching.

Inclusion

Federal and state initiatives to ensure public educational opportunities to students with disabilities have resulted in the inclusion of these students in typical educational settings. Mainstreaming students with disabilities became more structured during the civil rights movement in the 1950s that arose from the struggle for freedom and equality for people of color in the late 1800s (Salend, 2008). The passage of the Individuals with Disabilities Act (IDEA) played an important role in the education of students with disabilities. The IDEA of 2004 ensures all children (ages 3 to 21 years) with disabilities a free, appropriate public education that emphasizes special education and related services designed to meet their unique educational needs and prepares them for employment and independent living. Although IDEA does not require schools to employ inclusive practices, the law does require that students with disabilities be educated in the “least restrictive environment.”

Multicultural Education

Multicultural education can be traced to three prominent phases. The first phase can be linked to latter 19th century ethnic scholars such as George Washington Williams, W. E. B. DuBois, Carter G. Woodson, and Horace Mann Bond (Banks, 1993). The second phase began when educators interested in ethnic studies began to realize that, by adding ethnic content into the school and teacher education curriculum, multicultural education would be critical in developing attitudes and perceptions of all people toward racial and ethnic studies (Banks, 1993). The third phase arose when women and people with disabilities demanded that their stories and struggles be included (Banks, 1993). Today, multicultural education is a movement designed to “restructure curriculum and educational institutions so that students from diverse social, racial, and ethnic groups—as well as both gender groups—experience equal educational opportunities” (Banks, 2008, p. 135). Although the history of multicultural education has its roots as an ethnic and gender specific movement, the goal has evolved so that all students, “including White, male, and middle

class students” (p. 8), acquire the knowledge, skills, and mind-set needed to function successfully in a diverse country (Banks, 2008).

Culturally Responsive Teaching

Culturally responsive teaching is a process wherein educators use cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to foster more relevant and effective learning encounters (Gay, 2000). Villegas and Lucas (2002) asserted that to move successfully beyond the existing disjointed and superficial treatment of diversity, a systematically guided “infusion of multicultural issues” (p. 21) must happen. Culturally responsive teachers have a big sociocultural awareness, hold affirming views of students of diverse backgrounds, see themselves as change agents, understand and embrace constructivist views of learning and teaching, and know the students in their classes. Culturally responsive teaching is critical for the success of students of color and the teachers responsible for their education. The need for proficient skill building in this area is critical given that teacher expectations influence the quality of learning opportunities provided to students (Gay, 2000).

The Concept of Diversity Inclusion

The *Diversity Inclusive Program Model* (Figure 1) illustrates the concept of diversity inclusion, which encompasses multicultural education, inclusion, and culturally responsive teaching in a three-part model that highlights the critical infusion in which a diversity inclusive program should exist. Teachers and programs within this area believe in the benefits of diversity inclusion, understand that, because of past perceptions, whether it be from students, teachers, or external factors (i.e., friends, coworkers, parents, etc.) pre-existing barriers may explain why these particular students are underrepresented in agricultural education, and have an awareness of possible solutions to increase underrepresented group participation in agricultural education (LaVergne, 2008). Teachers receptive to a diversity inclusive program have become allies to those who understand that the success of agricultural education will be determined by how prepared educators are in teaching students of color and students with disabilities. The over arching goal

of the program model is to formulate an educational and classroom culture that all

students will experience social equity and equitable education.

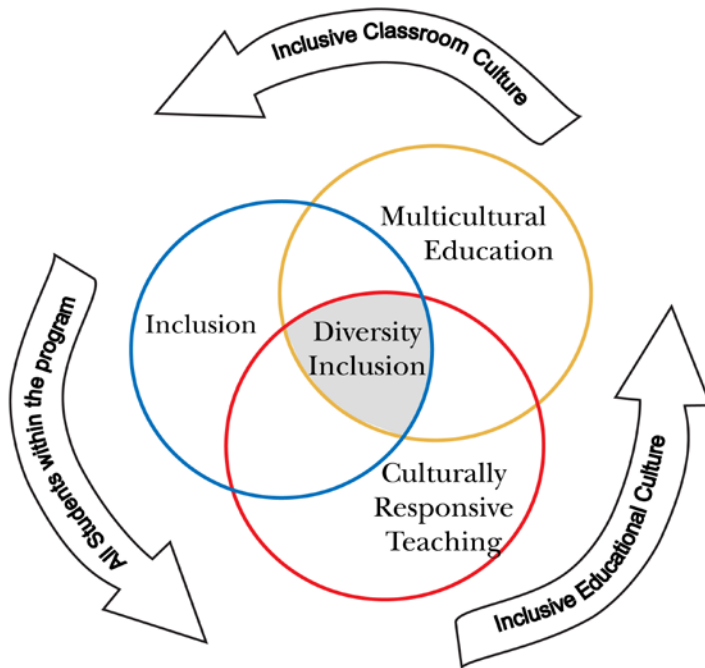


Figure 1. The Diversity Inclusive Program Model (LaVergne, 2008).

Purpose

This study sought to determine the effect of teachers' demographic and personal characteristics on their perceptions of the benefits of diversity inclusion, perceived barriers to diversity inclusion, and proposed solutions to increase diversity inclusion in agricultural education programs. Based on consulted literature, the following hypotheses were developed to be tested *a priori* at the .05 level.

Null Hypotheses

Ho₁: No difference existed in agricultural education teachers' perceptions of the benefits of diversity inclusion in the presence of any of the following demographic and personal characteristics: teaching area, age, gender, preservice diversity/multicultural training, inservice diversity/multicultural training, ethnicity, or school setting.

Ho₂: No difference existed in agricultural education teachers' perceptions of the barriers of diversity inclusion in the presence of any of the following demographic and personal characteristics: teaching area, age, gender, preservice diversity/multicultural training, inservice diversity/multicultural training, ethnicity, or school setting.

Ho₃: No difference existed in agricultural education teachers' perceptions of proposed solutions to increase diversity inclusion in the presence of any of the following demographic and personal characteristics: teaching area, age, gender, preservice diversity/multicultural training, inservice diversity/multicultural training, ethnicity, or school setting.

Procedures

Researchers employed a descriptive design. Gall, Gall, and Borg (2007) wrote “descriptive research, in quantitative research, is a type of investigation that measures the characteristics of a sample or population on prespecified variables” (p. 638). The target population consisted of all agricultural education teachers listed by the Texas educational agency during the 2006–2007 school year. Because of the lack of personal information listed by the educational agency, access to all 1,732 teachers was not feasible. Therefore, the actual population consisted of all of the Texas agricultural education teachers that had email addresses listed on a state and teacher supported website ($N = 1,500$). At the time of selection, 1,500 of the state’s agricultural education teachers were listed. To promote external validity and to ensure that all 1,500 teachers listed on the website were Texas agricultural education teachers, the researchers cross referenced the information with the Texas agriculture teachers association’s membership roster. Of the 1,500 members with email addresses on the website, all were members of the agriculture teachers association during the 2007–2008 membership year. Due to population size and the inaccessibility of email addresses to all agricultural education teachers in the state, the researchers used a nonproportional stratified random sampling approach (Gall et al., 2007). As such, judgments based upon the findings of this study should be made with caution when generalizing to other groups of agricultural educators.

The researchers determined that all 10 administrative areas as defined by the Texas FFA Association would be represented equally in the study. Within each administrative area, 32 teachers were selected randomly among each Area ($n = 320$). The sample size was determined using a sampling formula from Bartlett, Kotrlík and Higgins (2001). This formula allowed the researchers to attain a practical sample size based upon a set alpha level *a priori* (.05), a set margin of error (5%) and a set estimate of standard deviation (1.17). The researchers sought equal representation of participants across the 10 administrative areas to assure a good representation of the smaller populated groups (areas). Participants completed a web-

based, questionnaire developed by the researchers and hosted on SurveyMonkey.com. The questionnaire was based on research by Warren and Alston (2007) concerning diversity and inclusion perceptions of North Carolina agricultural education teachers. Part one (*Benefits*) consisted of 12 statements designed to measure participants’ perceptions toward diversity inclusion in agricultural education programs. Part two (*Barriers*) contained 12 statements designed to assess participants’ perceptions on the perceived barriers to diversity inclusion in agricultural education programs. Part three (*Solutions*) consisted of 12 statements designed to gauge participants’ perceptions on possible strategies or solutions that would promote diversity inclusion in agricultural education programs. Part four consisted of seven statements designed to collect demographic information on agricultural education teachers. Teachers responded to each question using a four-point, summated or Likert-type scale: 1 = strongly disagree (SD), 2 = disagree (D), 3 = agree (A), and 4 = strongly agree (SA). The researchers used a four-point scale to encourage participants to respond to the statements favorably or unfavorably. Face and content validity were established through an expert panel with expertise in diversity and inclusion. Construct validity was measured from a pilot test of 15 agricultural teachers not included in the final survey population. Both groups provided input regarding the content and direction of the statements, which added to the precision and correct construction of the questionnaire. A statistical factor analysis was not conducted; however, the factors were determined conceptually by the research team, based on the instrument used by Warren and Alston (2007). Individual questions and statements were identified conceptually as contributing to/ indicative of the construct/factor. Cronbach’s alpha coefficient was calculated and reported to describe the internal consistency (reliability) of the f summated scale. The reliability analysis coefficients (pretest) for the constructs were *Benefits* = .75, *Barriers* = .73, and *Solutions* = .90.

During the 2008–2009 school year, a pre-notice/introductory letter was mailed to 320 agricultural education teachers explaining the purpose of the study and to notify the

participants that they would receive an e-mail with instructions on completing the questionnaire. Two weeks later, a notification e-mail was sent introducing the study and providing the Internet link to the questionnaire. For the remaining six weeks of the data collection phase, weekly e-mail reminders were sent. Demographic characteristics were assessed using means, frequencies, and standard deviations. Hypothesis testing was conducted using independent samples t-test and Analysis of Variance (ANOVA). Analysis of Variance was used to compare various subjects (independent variables) on scaled variables (dependent variables). If ANOVA was statistically significant, Tukey-Kramer post-hoc means test was used to determine which of the group means were different. Additionally, effect sizes were calculated, interpreted, and reported (Cohen, 1988).

Findings

During the study, 232 (72.5%) teachers responded. The researchers analyzed data for normalcy and determined that all data were usable. The reliability analysis coefficients (posttest) for the constructs were *Benefits* = .96, *Barriers* = .75, and *Solutions* = .93. Non-response error was addressed by comparing participants who completed the questionnaire before the deadline (*n* =195) to those who completed the questionnaire after the closing date (*n* = 37) (Lindner, Murphy, & Briers, 2001). Using the cutoff date as the independent variable and mean scores as the dependent variable, independent sample t-tests revealed no statistically significant difference (*p* < .05) existed between respondents' mean scores on the three scales (Table 1).

Table 1
Individual Statements for the Benefits, Barriers, and Solutions Scales (n = 232)

Scale	Item
Benefits	There are benefits for the inclusion of students of color in agricultural education.
	Providing students of color with leadership development opportunities will have a positive effect on agricultural education programs.
	Providing students of color with career success opportunities will have a positive effect on agricultural education programs.
	Diversity inclusion can improve social relationships between White students and students of color in agricultural education.
	I believe diversity inclusion helps students of color improve academically.
	There are benefits for the inclusion of students with disabilities in agricultural education.
	Providing students with disabilities with leadership development opportunities will have a positive effect on agricultural education programs.
	Providing students with disabilities with career success opportunities will have a positive effect on agricultural education programs.
	Diversity inclusion can improve social relationships between students with and without disabilities in agricultural education.
	I believe diversity inclusion helps students with disabilities improve academically.
	Diversity inclusion in my agricultural education program can have a positive effect on other programs across the state.
	The inclusion of diverse populations in agricultural education is a benefit for the entire school community.

Table 1 (Continued)

Barriers
A lack of role models hinders the participation of students of color in agricultural education.
Negative stereotypes are a primary reason why students of color do not enroll in agricultural classes.
The perception of agriculture itself influences the participation of students of color in agricultural education.
Acceptance by peers is a barrier to diversity inclusion by students of color in agricultural education.
The lack of information about agricultural education has an effect on students' of color perceptions of agricultural education.
Parental attitudes about agricultural education play an important role in students' of color decisions to enroll in agricultural education.
A lack of role models hinders the participation of students with disabilities in agricultural education.
Negative stereotypes are a primary reason why students with disabilities do not enroll in agricultural classes.
The perception of agriculture itself influences the participation of students with disabilities in agricultural education.
Improper classroom modifications are a barrier to diversity inclusion for students with disabilities in agricultural education.
The student demographics of my program reflect the demographics of my school.
The student demographics of my FFA organization reflect the demographics of my school.
Solutions
Teaching materials should reflect a diverse society in agricultural education.
Multicultural education can be used to increase the awareness of students of color in relation to diversity.
Multicultural education can be used to increase the awareness of students with disabilities in relation to diversity.
Multicultural education is a strategy that can be utilized to promote an attitudinal change toward diversity inclusion in agricultural education.
It is important for colleges and universities to incorporate more multicultural education classes in their preservice teacher preparation curricula.
Agricultural education teachers need training in multicultural education.
Agricultural education teachers should become familiar with students of color represented in their classrooms in order to promote an atmosphere of acceptance.
For all students to achieve in school, educators, parents, and policymakers must develop strategies to address the different learning styles of all students.
Teachers should inspire and strive to increase students' of color membership in FFA.
An increase in recruitment efforts by teachers would enhance diversity inclusion.
Mentoring is a strategy that could be utilized to increase diversity inclusion.
A state-wide support network for teachers would encourage diversity inclusion.

Note. Scale: 1.00 to 1.49 = SD, 1.50 to 2.49 = D, 2.50 to 3.49 = A, 3.50 to 4.00 = SA.

Null hypothesis one was tested using a combination of independent samples t-test and the ANOVA procedure. Only those

characteristics in which a statistically significant difference existed ($p < .05$) are reported.

Teaching Area

A one-way ANOVA was used to compare participants' perceptions of the benefits of diversity inclusion in agricultural education programs by teaching areas of the state. Table 2 indicates that a statistically significant difference existed among participants, $F(9, 206) = 2.31, p < .05, r = .92$. A Tukey-Kramer post-hoc

analysis showed that Area 7 teachers ($M = 3.53, SD = .42$) had statistically significant higher mean *Benefits* scores than Area 9 teachers ($M = 3.04, SD = .64$). Because of statistically significant differences found between the personal variable (Teaching Area), H_{o1} was rejected.

Table 2
ANOVA Table of Overall Benefits Scores by Teaching Area ($n = 232$)

Teaching Area	n^a	M	SD	F	p	Cohen's d
1	13	3.49	.45	2.310	.017*	.92
2	19	3.11	.35			
3	21	3.35	.42			
4	22	3.34	.49			
5	27	3.32	.50			
6	25	3.33	.41			
7	25	3.53	.42			
8	25	3.40	.52			
9	19	3.04	.64			
10	20	3.50	.43			

Note. * $p < .05$. Scale: 1.00 to 1.49 = SD, 1.50 to 2.49 = D, 2.50 to 3.49 = A, 3.50 to 4.00 = SA.

^aSixteen participants chose not to respond to this question.

Null hypothesis two was tested using a combination of independent samples t-test and the ANOVA procedure. Only personal characteristics in which a statistically significant difference existed are reported.

Race/Ethnicity

The researchers used the t-test procedure to determine if differences existed in the perceptions of the barriers to diversity inclusion based on race/ethnicity. For this analysis, participants who identified their race/ethnicity as Asian American, Black/African-American,

Hispanic/Latino American, or Native American were coded as "yes"; participants who identified their race as White were coded as "no." A statistically significant difference, $t(209) = 3.01, p < .01, r = .04$, existed between mean scores of teachers of color ($M = 3.07, SD = .53$) and White/European American teachers ($M = 2.81, SD = .35$) on the perceptions of the barriers to diversity inclusion in agricultural education programs. Because of statistically significant differences found between the personal variable (Teacher of Color), H_{o2} was rejected (Table 3).

Table 3
Comparison of Barriers Scale by Teacher of Color Status ($n = 232$)

Teacher of Color	n^a	M	SD	t	p	Cohen's d
Yes	20	3.07	.53	3.010	.003**	.04
No	191	2.81	.35			

Note. ** $p < .01$. Scale: 1.00 to 1.49 = SD, 1.50 to 2.49 = D, 2.50 to 3.49 = A, 3.50 to 4.00 = SA.

^aTwenty one participants chose not to respond to this question.

Null hypothesis three was tested using a combination of independent samples t-test and the ANOVA procedure. Only those personal

characteristics in which a statistically significant difference existed ($p < .05$) are reported.

Gender

Researchers used the t-test procedure to determine if differences existed in the perceptions of proposed solutions to increase

diversity inclusion by gender of participants. Results show a statistically significant difference among gender, $t(213) = 2.050, p < .05, r = .02$ (Table 4).

Table 4
Comparison of Solutions Scale by Gender (n = 232)

Gender	<i>n</i> ^a	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
Female	45	3.04	.54	2.050	.042*	.02
Male	170	2.87	.46			

Note. * $p < .05$. Scale: 1.00 to 1.49 = SD, 1.50 to 2.49 = D, 2.50 to 3.49 = A, 3.50 to 4.00 = SA.

^a Seventeen participants chose not to respond to this question.

Race/Ethnicity

Researchers used the t-test procedure to determine if differences existed in participants' perceptions of proposed solutions to increase diversity inclusion in agricultural education programs based on race/ethnicity. For this analysis, participants who identified their race/ethnicity as Asian American, Black/African-American, Hispanic/Latino

American, or Native American were coded as "yes"; participants who identified their race as White were coded as "no." Results indicate that a statistically significant difference, $t(208) = 3.739, p < .01, r = .06$, existed between mean scores of teachers of color ($M = 3.28, SD = .56$) and White/European American teachers ($M = 2.87, SD = .46$) on the proposed solutions to increase diversity inclusion (Table 5).

Table 5
Comparison of Solutions Scale by Teacher of Color Status (n = 232)

Teacher of Color	<i>n</i> ^a	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
Yes	20	3.28	.56	3.739	.001**	.06
No	191	2.87	.46			

Note. ** $p < .01$. Scale: 1.00 to 1.49 = SD, 1.50 to 2.49 = D, 2.50 to 3.49 = A, 3.50 to 4.00 = SA.

^a Twenty one participants chose not to respond to this question.

School Setting

A one-way ANOVA was conducted to compare participants' perceptions of proposed solutions to increase diversity inclusion in agricultural education programs by school setting. As noted in Table 6, the researchers concluded that a statistically significant difference existed in mean scores between the perceptions based on school settings, $F(2, 211) = .045, p < .05, r = .03$. A Tukey-Kramer post-

hoc analysis revealed a statistically significant difference between rural school settings and both urban and suburban school settings regarding participants' mean scores of the *Solutions* scale. Because of statistically significant ($p < .05$) differences between the personal and demographic characteristics (Gender, Race/Ethnicity, and School Setting), H_0_3 was rejected.

Table 6
ANOVA Table of Overall Solutions Scores by School Setting (n = 232)

School setting	<i>n</i> ^a	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	Cohen's <i>d</i>
Rural	135	2.84	.42	3.147*	.045	.03
Suburban	47	3.02	.55			
Urban	32	2.98	.57			

Note. * $p < .05$. Scale: 1.00 to 1.49 = SD, 1.50 to 2.49 = D, 2.50 to 3.49 = A, 3.50 to 4.00 = SA.

^a Eighteen participants chose not to respond to this question.

Conclusions

Although teachers not participating in this study may share similar perceptions, caution must be exercised when generalizing the results of this study. The teaching area reported by respondents had a statistically significant difference on the *Benefits* scale score. This finding indicated that Area 7 teachers agreed more with the perceptions of the benefits of diversity inclusion than did Area 9 teachers. Given the demographical and geographical make-up of the teaching areas as defined in this study, the statistically significant difference may be attributed partially to the fact that Area 7 teachers are exposed to a greater heterogeneous student population than Area 9 teachers (Texas Education Agency, 2008) thereby, either consciously or unconsciously, developing the disposition to see the benefits that students of color and students with disabilities bring into agricultural education. However, one should note that all respondents, regardless of their demographic choices, held positive beliefs about the benefits of diversity inclusion in agricultural education programs. This finding is important considering the fact that the student demographic make-up of Texas high school students has changed considerably over the past decade with an increase of students of color and students with disabilities in agricultural education (Texas Education Agency, 2008).

Results of the study reveal that race/ethnicity was a statistically significant demographic variable for the *Barriers* and *Solutions* scales. This finding suggests that respondents' perceptions regarding what keeps students of color and students with disabilities out of agricultural education and what strategies that foster the recruitment and retention of these individuals are mixed at best. As such, the researchers conclude that additional exploration as to why these differences exist should be examined specifically at the preservice level. According to Weisman and Garza (2002), many teachers enter teacher education programs with limited experience in multicultural education and begin teacher preparation with attitudes that are not conducive to working with a diversified classroom. Hence, these individuals establish themselves comfortably within their own views of what agricultural education should look like

and then become resistant to change. Yet, all too often, these same teachers do not typically develop the culturally responsive teaching that is needed to (a) understand why there are perceived barriers to students of color and students with disabilities not enrolling in agricultural education classes and (b) how can they, as teachers, implement strategies for the recruitment and retention of these students. Furthermore, research concerning the differences among dominant and subordinate group perceptions has not been examined extensively in agricultural education. Although, many explanations to this may exist, the fact that (a) the agricultural education teaching force is predominately White (Kantrovich, 2007), and (b) the feelings and expectations of the teacher have an effect on student performance (McLeskey & Waldron, 2007), should be the primary causes for future action. The profession would be well served to support this endeavor.

Gender was found to show a statistically significant difference in mean scores on the *Solutions* scale. Concerning the inclusion of students with disabilities, this study adds support to the research by Pearman, Huang, Barnhart, and Mellblom (1992) which reported male teachers having a significantly greater amount of negative opinions about inclusion than female teachers. Additional research should be conducted with male and female teachers to determine if personal or situational characteristics caused this difference to exist between the groups.

A statistically significant difference existed between teachers who taught in a suburban or urban setting and teachers who taught in a rural setting on proposed solutions to increase diversity inclusion in agricultural education programs. Perhaps this difference can be attributed to the demographic make-up of the school's population regarding what strategies are effective based upon the school's location. For example, would teachers in a majority Hispanic populated rural schools have the same solutions for diversity inclusion as their colleagues (with the same demographic population) in urban settings? Understanding and fostering creative solutions towards diversity inclusion will require program leaders and teacher educators to continue to research the process of recruitment and retention and disseminate this information to

others so that the profession can transform into an era where all agricultural education programs can serve as model programs of diversity inclusive settings. Additionally, one should note that the *Solutions* scale had three statistically significant variables among the respondents. One interpretation of this is the possibility that the statements listed did not adequately reflect the techniques and strategies that educators use to foster diversity inclusion in their programs. If this is the case, teacher educators and other members of the profession must seek out and identify those programs that have successfully met this challenge. These programs hold valuable information regarding concrete evidence in the push for inclusive programs. This recommendation is consistent with previous research that highlights strategies of successful inclusive agricultural education programs (LaVergne, Larke, Jones, & Elbert, 2008).

Recommendations

To ensure that diversity inclusion is instilled into all agricultural education programs, continued efforts must be made to reach out to all teachers and teacher educators while building upon the preexisting knowledge and experience of the pioneers for the cause. Agricultural education teachers serve as important change agents as they exhibit the critical need for embracing the increasing influx of students of color and students with disabilities in agricultural education programs. To those teachers who have navigated the waters of program change, we must make conscious efforts to examine what strategies and/or solutions have been implemented to nurture diversity inclusive environments. This effort could be done as a requirement for teacher prep programs or as continuous learning credits for

in-service teachers. Either way, these integrated learning experiences would help facilitate stronger communications between all teachers and possibly serve as enlightened opportunities that challenge long held misconceptions and biases (Gay, 2000). A second recommendation for practice is for teacher educator programs to address the need of culturally responsive teaching at both preservice and inservice levels. Perhaps culturally responsive mentoring (Zozakiewicz, 2010), e.g., local workshops, would benefit the profession. Activities would include discussing articles on diversity and developing program initiatives for multicultural education in agricultural related concepts. Additionally, workshops would include discussions of how to identify and address diversity related issues that are prominent in local programs. If program leaders lack expertise in diversity or multicultural education related issues, then efforts should be made to bring someone in who could serve in this critical role.

Finally, the effect sizes in many of the statistically significant results have been interpreted as having small relationships (strength) between the magnitudes of the observed effects. Whereas the purpose for reporting the effect sizes is to provide readers with a systematic gauge of the strengths of associations (Cohen, 1988), it is important to note that the small effect sizes should not be discounted. Trusty, Thompson, and Petrocelli (2004) noted that small effect sizes for critical outcomes can be very important, as long as they are replicable. Additionally, because of the unavailability of previous research data concerning demographical effects on diversity inclusion, the researchers recommend that this study be replicated so that a comparative analysis can be made to determine effectively the study's practical context.

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