Relationships Between Special Education Confidence, Knowledge, and Selected Demographics for Agricultural Education Student Teachers

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Abstract

The purpose of this study was to describe the relationship between special education confidence, knowledge, and selected demographics of agricultural education student teachers in the American Association of Agricultural Education southern region. A significant, low, positive association existed between total confidence and knowledge of providing a least restrictive environment. Statistically significant relationships occurred between student teachers' confidence scores and selected demographics. If a student teacher felt prepared to teach special needs students in agricultural classrooms and laboratories and had spent time with a special needs person outside an academic setting, they were statistically more confident in teaching special needs students. A statistically significant relationship occurred between student teachers' special education knowledge scores and selected demographics. Gender, age, and spending time with a special needs person outside an academic setting were associated with knowledge scores. As age and spending time with a special needs person increased, knowledge of disabilities and special education laws increased. Female student teachers had more knowledge about disabilities and special education laws than males. Additional research on the dynamic effects of time spent with special needs populations, in and outside academia, and feelings of preparedness for teaching special needs students is needed.

Conceptual Framework

> Agriculture classes are noted for being heterogeneous, i.e., made up of students with different characteristics. Oftentimes ages, interests, ability levels, maturity and home backgrounds of students in a single class differ remarkably. Especially challenging to the teacher are students who are working far above or below grade level and those who are physically or academically handicapped. Accommodating diverse needs requires extra effort. Ideally, every student should receive instruction tailored to his or her needs, abilities and learning styles. (Lawrence, 2001, p. 35)

Researchers have emphasized that the student teaching experience is the core of effective teacher preparation because it provides meaningful learning opportunities (Cook, 2002). During the student teaching experience, student teachers receive hands-on experience with special needs students in general education classrooms. General education teachers often report that they do not feel confident enough in their knowledge and skills to effectively teach students with disabilities (Hyunsoo, 2004). Many teacher education program alumni have expressed anxiety about their skills for teaching special education students in the general education classroom (Daane, Beire-Smith, & Latham, 2000; Kleinhammer-Tramill, 2003). Previous research has suggested that teacher education programs embrace a knowledge base of disabilities, as well as

research-based instructional strategies for teaching students with disabilities in the general education classroom (Reiff, Evans, & Cass 1991).

Lombardi and Hunka (2001) found that 25% of students felt neither competent nor confident in teaching special needs students in the general education classroom after nearly completing their fourth year in a 5-year B.A./M.A. program at West Virginia University. Almost one half of second year students reported a lack of both competence and confidence in teaching students with disabling conditions. Lombardi and Hunka found that the fifth year, which includes a student teaching experience, would be essential in providing the suitable point of preparedness for working with special needs students in the general education classroom. Students who minored in special education did not differ significantly from their peers with other minors. Lombardi and Hunka recommended more hands-on experience with special education students for general education teachers and suggested that the student teaching experience may meet those needs. They recommended that coursework be designed for general educators rather than use of current special education courses designed for students in special education.

Hinders (1995) suggested "universities must take an active role in preparing teachers to be competent in meeting the needs of special education students in the general education setting" (p. 206). Research has shown that teacher education programs are the most important determining factor for ensuring teacher quality (Cochran-Smith, 2002; Wilson, Floden, & Ferrini-Mundy, 2002). Brownell and Pajares (1996) found that the quality of preservice preparation had the most effect on teacher beliefs. Teachers who gained knowledge that is more general and practical strategies for teaching and managing students with disabilities in the general education classrooms were more likely to achieve success in teaching students with disabilities. In most areas of education, including special and general education, researchers agree that the single most important influence in the education of an adolescent is a well-prepared, considerate, and qualified teacher (O'Shea, Stoddard, & O'Shea, 2000).

Purpose and Objectives

The purpose of this study was to describe relationships between special education confidence, knowledge, and selected demographics of agricultural education student teachers in the American Association of Agricultural Education (AAAE) southern region. The following research objectives guided this study.

1. Describe relationships between student teachers' confidence levels and knowledge scores for meeting the needs of special education students in agricultural education classrooms and laboratories.
2. Determine if a linear relationship exists between student teachers' confidence levels and selected demographic variables.
3. Determine if a linear relationship exists between student teachers' knowledge levels and selected demographic variables.

Methods

Selected methods in this paper were part of a larger project titled, "Agricultural education student teachers' confidence and knowledge: Teaching special needs students." Research design and demographics similar to those reported in this paper exist in another publication (Kessell, 2005), but are described fully herein.

The population for this study was a census of student teachers (N = 335) in the southern region of the American Association for Agricultural Education (AAAE). At the time of the study, respondents were participating in a student teaching experience for teacher certification during the 2005 spring semester. The AAAE southern region includes 13 states and 40 academic

institutions offering teacher certification in agricultural education. Eleven states were represented in this study: Arkansas, Florida, Georgia, Kentucky, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia.

Thirty-two of the 40 universities in the AAAE southern region had one or more student teachers enrolled in the agricultural teacher program during the 2005 spring semester. Twenty-six universities chose to participate in this study. Student teacher program coordinators were contacted by telephone to explain the project. Program coordinators provided student teachers' valid e-mail addresses. Three student teacher program coordinators stated they were not allowed to release students' e-mail addresses but agreed to forward the e-mail notice to access the instrument. Valid e-mail addresses for 70% (n = 235) of the population of interest were received; however, all (N = 335) student teachers were contacted (three program directors forwarded the survey notice from their own e-mail accounts).

Section one of the instrument used a 5-point Likert-type scale (not confident = 1, marginally confident = 2, adequately confident = 3, fairly confident = 4, and very confident = 5) to gather student teachers' confidence levels for meeting the needs of special education students in agricultural education classrooms and laboratories. The Likert-type instrument was adapted from the work by Cotton (2000). Student teachers rated (11 items) their confidence levels for teaching students who had one or more of the recognized disabilities from the Individuals with Disabilities Act (IDEA), which includes: learning disabled, mildly mentally handicapped, attention deficit disorder, deaf or hearing-impaired, blind or visually impaired, emotional/behavior disorder, and physically impaired. Other questions focused on participants' confidence level of special education law, providing the least restrictive environment, participation in developing an individual education program (IEP), and how to provide an appropriate and challenging curriculum for all students.

Section two, the knowledge portion of the instrument, contained 33 questions (multiple choice, four responses and/or Likert-type, True/False) for the achievement test. Knowledge questions were acquired from a test bank accompanying *Exceptional lives: Special education in today's schools* (Turnbull, Turnbull, Shank, & Smith, 2004). An expert panel of 12 special education teachers selected appropriate questions from the test bank. Two questions were altered (grammatical changes only) to fit this study. Questions referred to the following recognized disabilities from the IDEA: learning disabled, mildly mentally handicapped, attention deficit disorder, deaf or hearing-impaired, blind or visually impaired, emotional/behavior disorder, and physically impaired. Sample questions included: *What is the most common childhood disorder? a) Depression, b) Anxiety disorder, c) Eating disorder,* or *d) Mood disorder*; and *What percent of all students with physical disabilities attend regular schools? a) 60-65%, b) 70-75%, c) 80-85%,* or *d) 90-95%*.

Demographic data were gathered in the third section (n = 11). Questions related to age, gender, experience with a person of special needs outside of an academic setting, college courses taken with topics on teaching special needs students in the general education classroom, if the student teacher had an IEP during their enrollment in high school, and their overall perception about whether they felt prepared to teach special needs students in agricultural education classrooms and laboratories.

The research instrument was pilot tested in January 2005 with a group of agricultural education students from two AAAE southern region universities. Students in the pilot test were in their junior year of their university education. Students who participated in the pilot test were not participants in final data collection. Pilot test data were analyzed with SPSS. A Cronbach's alpha coefficient (Cronbach, 1951) was calculated on the total instrument (44 questions), resulting in an overall reliability of .80. A Cronbach's alpha coefficient was calculated for the 11 questions measuring student teachers' confidence levels for meeting the needs of special education

students; a reliability coefficient of .92 was generated from the analyses. The Kuder-Richardson Formula 20 (Ary, Jacobs, & Razavieh, 1996) was calculated for the knowledge scale, resulting in an overall reliability of .62.

Survey instrumentation and online design were created with HTML. Data were collected in a secured Microsoft Access database and later transferred to SPSS for data analysis. The online method was chosen for questionnaire delivery because of its ability to achieve fast response rates at minimal expense (Ladner, Wingenbach, & Raven, 2002) and for its suitability with college-level students (Kypri, Gallagher, & Cashell-Smith, 2004).

To encourage favorable response rates, respondents were offered a lottery incentive ($100 gift certificate from Amazon.com). Student teachers who completed the survey and who consented (voluntarily provided valid e-mail addresses in the survey) to the incentive were entered into the lottery drawing. Dillman (2000) questioned the value of an economic exchange incentive "in which money serves as a precise measure of the worth of one's actions" (p. 14); however, Singer (2000) and Porter and Whitcomb (2003) found lottery-type incentives increased response rates.

Data were collected during the 2005 spring semester. The online survey was activated February 1, 2005. Weekly e-mail reminders were sent to nonrespondents for 6 weeks. After six attempts, instruments were mailed to each university for nonresponders to complete during their end-of-semester meetings. The total response rate was 83.28%. Five instruments were deemed unusable, reducing the total response rate to 81.79%.

Data were analyzed with SPSS Version 12. Descriptive statistics and multivariate analyses were used to report the results. A significance level of .05 was set *a priori*. Correlations were interpreted with the conventions developed by Davis (1971).

Results

Valid responses (N = 274) were received from student teachers at 26 universities, with the majority (90.1%) responding from Texas (n = 138), Oklahoma (n = 29), Kentucky (n = 28), Georgia (n = 22), North Carolina (n = 20), and Florida (n = 10) (Table 1). Respondents were described as female (53%), Caucasian (93%), and slightly older than 23. Most student teachers had or were receiving their bachelor's degrees (n = 247); 14 students had their master's degrees. The majority (n = 159) had taken courses involving special education issues. More than one-half (55.8%) had spent time with a special needs person outside an academic setting. Twenty-six (9.5%) had an IEP while enrolled in high school. Overall, 74.5% of the student teachers felt prepared to teach special needs students in agricultural education classrooms and laboratories.

Table 1
Demographics of Respondents (N = 274)

Variable	Category	*f* [a]	%
States	Texas	138	50.4
	Oklahoma	29	10.6
	Kentucky	28	10.2
	Georgia	22	8.0
	North Carolina	20	7.3
	Florida	10	3.6
	Tennessee	8	2.9
	Virginia	8	2.9
	Arkansas	7	2.6
	South Carolina	2	.7
	Mississippi	2	.7
Gender	Female	144	52.6
	Male	128	46.7
Race	Caucasian	256	93.4
	Hispanic	12	4.4
	African American	2	.7
	Multi-racial	1	.4
Education	BS	217	79.2
	BS + 10 hours	30	10.9
	MS	14	5.1
	MS + 10 hours	3	1.1
If a special needs course was taken in college, was it:	Required	154	56.2
	None taken	93	33.9
	An elective	5	1.8
Spent time with a special needs' person outside an academic setting?	Yes	153	55.8
	No	113	41.2
Did you have an IEP in secondary education?	No	231	84.3
	Yes	26	9.5
Do you feel prepared to teach special needs students?	Yes	204	74.5
	No	61	22.3

[a]Frequenices may not equal 274 (100%) because of missing data.

Student teachers' scores for confidence levels in teaching students with varying disabilities (*M* =

35.12, *SD* = 7.54), special education knowledge criteria (*M* = 1.03-2.53), Check the mean score and overall knowledge (*M* = 18.64, *SD* = 3.95) were summed for bivariate analyses. Pearson's product moment correlation analyses were used to determine if relationships existed between preservice agricultural education teachers' total confidence, total knowledge criteria, and total knowledge for meeting the needs of special education students in agricultural education classrooms and laboratories. Significance levels were set *a priori* at α = 0.05.

A low, (Davis, 1971) positive, significant association (*r* = .12) existed between total confidence and the knowledge criteria, providing a least restrictive environment (Table 2). Additional analyses revealed no significant associations between total confidence and all other variables under consideration.

Table 2
Relationships Between Total Confidence, Total Knowledge Criteria, and Total Knowledge

	Total confidence[a]	
Special education knowledge criterion and total knowledge	*r*	Sig.
Learning disabilities[b]	-.01	.86
Mildly mentally handicapped[b]	-.03	.63
Attention deficit disorder[b]	.01	.82
Deaf or hearing-impaired[b]	-.01	.87
Blind or visually impaired[b]	-.05	.44
Emotional behavior disorder[b]	.05	.44
Physically impaired[b]	.04	.56
Special education law[b]	-.01	.82
Least restrictive environment[b]	.12*	.04
Individual education programs[b]	.07	.25
Providing an appropriate and challenging education for all[b]	.00	.98
Total knowledge[c]	.03	.59

[a]Total confidence scores ranged from 11 to 55 (*M* = 35.12, *SD* = 7.54).
[b]Summed criterion scores could range from 0 to 3.
[c]Total knowledge scores ranged from 5 to 29 (*M* = 18.64, *SD* = 3.95).
*$p < .05$.

Objective 2 was to determine if a linear relationship existed between confidence levels and selected demographic variables. Multiple regression analysis, using the forced entry procedure, was conducted on how well selected student teacher demographics explained their total confidence for meeting the needs of special education students in agricultural education classrooms and laboratories. This method was chosen because it allows all independent variables to be entered into and remain in the multiple linear regression equation. Independent variables contributing to the explanation of variance in total confidence would have a significant *t*-value, using the forced entry procedure. Such was a necessary condition when determining "the proportion of the variation in the criterion [dependent] variable that can be attributed to the variation of the combined predictor [explanatory] variables" (Hinkle, Wiersma, & Jurs, 1994, p. 460). Selected demographics included gender, age, education, felt prepared, spent time with a

special needs person, course(s) taken, and if the student teacher had an IEP in high school. The criterion variable was total confidence.

The linear combination of demographics was significantly related to total confidence, $F(7, 222) = 10.55$, $p < .05$. The sample multiple correlation coefficient was .50, indicating that 25% of the variance in total confidence was accounted for by the linear combination of selected student teacher demographics (Table 3).

Table 3
Summary of Forced Entry Multiple Regression Analysis on Total Confidence and Selected Demographic Variables for Teaching Special Education Students in Agricultural Education Classrooms and Laboratories

Selected demographics	*B*	SE *B*	β
Gender	.87	.91	.06
Age	.22	.13	.10
Education	-.91	1.72	-.03
Felt prepared to teach special needs students	7.21	1.07	.41*
Spent time with a special needs' person outside an academic setting	2.11	.92	.14*
Special needs course taken in college	-.16	.91	-.01
Had an IEP in high school	2.60	1.39	.11

Note. * $p < .05$, $R^2 = .25$.

Objective 3 was to determine if a linear relationship existed between special education knowledge levels and selected demographic variables. Similar multiple regression analysis, using the forced entry procedure, was conducted to evaluate how well selected student teacher demographics explained their total knowledge about meeting the needs of special education students in agricultural education classrooms and laboratories. Student teacher demographics included gender, age, education, felt prepared, spent time with a special needs person, course(s) taken, and if the student teacher had an IEP in high school. The criterion variable was total knowledge.

The linear combination of demographics was significantly related to total knowledge, $F(7, 222) = 3.17$, $p < .05$. The sample multiple correlation coefficient was .30, indicating that approximately 9% of the variance in total knowledge was accounted for by the linear combination of selected student teacher demographics (Table 4).

Table 4

Summary of Forced Entry Multiple Regression Analysis on Total Knowledge and Selected Demographic Variables for Teaching Special Education Students in Agricultural Education Classrooms and Laboratories

Selected demographics	*B*	SE *B*	β
Gender	-1.10	.50	-.15*
Age	.14	.07	.13*
Education	.81	.94	.06
Felt prepared to teach special needs students	.97	.59	.11
Spent time with a special needs' person outside an academic setting	.98	.50	.13*
Special needs course taken in college	.78	.50	.10
Had an IEP in high school	-.02	.76	.00

Note. * $p < .05$, $R^2 = .09$.

Conclusions/Recommendations/ Implications

Agricultural education student teachers in the AAAE southern region had only one significant relationship between their total confidence and knowledge of one special education criteria: providing a least restrictive environment for special needs students in the agricultural classrooms and laboratories. If the student teaching experience is designed to enhance preservice teachers' skills and abilities for educating *all* students, greater emphasis must be placed on the knowledge of inclusion strategies such as those found in special education issues and laws.

Teacher educators can use the results presented in this paper to augment their teacher preparation programs. Additional coursework or, at the very least, more in-depth study of disabling conditions and special education laws would do much to adequately prepare our future agricultural teachers. If our agricultural education programs truly welcome all students, increased efforts are needed to at least understand all students. Additional research (nationwide) on the relationships between confidence levels and knowledge of special education issues may provide better understanding and lessen the anxiety (Lombardi & Hunka, 2001) teachers feel when confronted with teaching special needs students.

Statistically significant relationships occurred between student teachers' total confidence scores and selected demographics. If a student teacher felt prepared to teach special education students in agricultural classrooms and laboratories and had spent time with a special needs person outside an academic setting, that student teacher would experience statistically significant positive confidence in teaching special needs students. Related to Hinders's (1995) suggestions that universities take active roles in preparing teachers to meet the needs of special education students, the results in this study demonstrate that teacher education programs should, at a minimum, require student teachers to spend time with a special needs class before or during their student teaching experiences. Perhaps the amount of time spent with a special needs student would have positive effects on student teachers overall confidence levels and their feelings of preparedness for teaching those students. Research into the dynamic effects of time spent with special needs populations, in and outside of academic settings, and feelings of preparedness for teaching special needs students is needed on a larger scale.

Statistically significant relationships occurred between student teacher special education knowledge scores and selected demographics. Gender, age, and spending time with a special needs' person outside an academic setting explained some variance in total special education

knowledge scores. As age and spending time with a special needs person outside an academic setting increased, knowledge of disabilities and special education laws increased. Female student teachers had statistically significant more knowledge about these topics than males. Again, the evidence reported in this paper lends itself well to teacher educators who are seeking avenues for enhancing the student teaching experience. Lombardi and Hunka (2001) recommended more hands-on experience with special education students for general education teachers, and given our findings, the same can be recommended for agricultural education student teachers.

Well-prepared, considerate, qualified teachers (O'Shea et al., 2000) who meet the needs of all students, regardless of capability or capacity, are not a coincidence of high quality teacher education programs; they are the *results* of such programs. Agricultural teacher educators can move their programs forward by using the results of this study and by expanding this line of research. We should become better leaders and practitioners of inclusive strategies for meeting the needs of special education students.

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