Student Teachers' Knowledge of the Individuals with Disabilities Education Act

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Abstract

Are student teachers in the southern region knowledgeable about teaching students with special needs? The purpose of this study was to describe agricultural education student teachers' knowledge of the Individuals with Disabilities Education Act, disabling conditions, and special education laws. The population was student teachers (N = 335) from the American Association of Agricultural Education southern region. Respondents participated in a student teaching experience during the 2005 spring semester. Overall, 74.5% felt prepared to teach special needs students in agricultural education classrooms and laboratories. However, this feeling of preparedness was primarily centered on developing an individual education plan. Mean scores for the total correct response to the knowledge assessment was 57%. Respondents were marginally knowledgeable about five special education criterion (providing least restrictive environment; providing appropriate and challenging curriculum for all; understanding special education laws; deaf- or hearing-impaired; and emotional/behavior disorder). Student teachers may be ill-prepared to meet the challenges of accommodating special needs students in agricultural education classrooms and laboratories. Agriculture teachers who are unaware of special education laws and/or issues that may impact their local programs should request in-service workshops, materials, and/or network with teachers who have experience in teaching special needs populations.

Keywords: Individuals with Disabilities Education Act, Student Teachers

Introduction

Education law regarding individual rights has existed since Brown v. Board of Education (1954). Brown v. Board of Education set forth the case for civil rights and expanded the rights of all. Huefner (2000) stated "in the aftermath of the desegregated decision in Brown, the individual rights guaranteed under the Bill of Rights and the Fourteenth Amendment to the U.S. Constitution were held to apply to students and teachers in school situations" (p. 4). However, it took almost two decades before laws were passed that provided assistance in meeting the needs of handicapped and special needs students in schools.

Over 100 years of research has shown that teachers are ill-prepared to meet the needs of special education students in general education classrooms (Daane, Beire-Smith & Latham, 2000; Kleinhammer-Tramill, 2003; Lombard, Miller, & Hazelkorn, 1998; Lombardi & Hunka, 2001; Rojewski & Pallard, 1993; Schumm & Vaughn, 1995; Scruggs & Mastropieri, 1996; Sindelar, 1995; Singh, 2001; Trump & Hange, 1996; Welch, 1996; Wishart & Manning, 1996).

A longitudinal study conducted by Scruggs and Mastropieri (1996) reported that after 28 trials of investigating general educators' perceptions of inclusion between 1958 and 1995, only 29.2% of the general educators felt that they had adequate knowledge and skill to implement inclusive services in the general education classroom. Schumm and Vaughn (1995) studied 775 general educators' perceptions, knowledge, and skills in meeting the needs of disabled students in general education classrooms. They found that "many teachers were not prepared to plan and make adaptations for students with disabilities. Many acknowledged that their teacher preparation programs did not include intensive instruction on how to teach students with disabilities" (p. 172).

Thirteen disabling conditions are recognized by the Individuals with Disabilities Education Act (IDEA). They include: autism, deaf-blindness, deafness, emotional disturbance, hearing impairments, mental retardation, multiple disabilities, orthopedic impairments, other health impairment, specific learning disabilities, speech or language impairments, traumatic brain injuries, visual impairments, and other health impairments. The following brief descriptions of each disabling condition provide better understanding of each condition.

- Autism is "a developmental disability significantly affecting verbal and nonverbal communication and social interaction" [Code of Federal Regulations, Title 34, Section 300.7(c)(1)(i)]. Students with autism may show characteristics of repetitive procedural tasks, erratic movements, resistance to environmental change or changes in daily routines.
- Deaf-Blindness includes "concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational needs that they cannot be accommodated in special education programs solely for children with deafness or children with blindness" [Code of Federal Regulations, Title 34, Section 300.7(c)(2)].
- Deafness is referred to as "a hearing impairment that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification that adversely affects a child's educational performance" [Code of Federal Regulations, Title 34, Section 300.7(c)(3)].
- Emotional Disturbance can be explained as: (1) "an inability to learn that cannot be explained by intellectual, sensory, or health factors; (2) an inability to build or maintain satisfactory interpersonal relationships with peers and teachers; (3) Inappropriate types of

behavior or feelings under normal circumstances; (4) a general pervasive mood of anxiety or unhappiness or depression; and (5) a tendency to develop physical symptoms or fears associated with personal or school problems" [Code of Federal Regulations, Title 34, Section 300.7(c)(4)].

- Hearing impairments are "an impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance but that is not included under the definition of deafness" [Code of Federal Regulations, Title 34, Section 300.7(c)(5)].
- Mental Retardation characteristics are described as "significantly sub average general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period that adversely affects a child's educational performance" [Code of Federal Regulations, Title 34, Section 300.7(c)(6)].
- Multiple disabilities are a combination of "concomitant impairments (such as mental retardation—blindness, mental retardation—orthopedic impairment, etc.), the combination of which causes such severe educational needs that they cannot be accommodated in special education programs solely for one of the impairments. The term does not include deaf-blindness" [Code of Federal Regulations, Title 34, Section 300.7(c)(7)].
- Orthopedic impairments include "severe orthopedic impairment that adversely affects a child's educational performance. The term includes impairments caused by congenital anomaly (e.g., clubfoot, absence of some member, etc.), impairments caused by disease (e.g., poliomyelitis, bone tuberculosis, etc.), and impairments from other causes (e.g., cerebral palsy, amputations, and fractures or burns that cause contractures)" [Code of Federal Regulations, Title 34, Section 300.7(c)(8)].
- Other health impairments can be classified by "limited strength, vitality or alertness, including a heightened sensitivity to environmental stimuli, that results in limited alertness with respect to the educational environment that is due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, or sickle cell anemia, and adversely affects a child's educational performance" [Code of Federal Regulations, Title 34, Section 300.7(c)(9)].
- A specific learning disability will contain "a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations, including such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include learning problems that are primarily the result of visual, hearing or more disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage" [Code of Federal Regulations, Title 34, Section 300.7(c)(10)].
- Speech or language impairments are classified as "a communication disorder, such as stuttering, impaired articulation, language impairment, or a voice impairment, that adversely affects a child's educational performance" [Code of Federal Regulations, Title 34, Section 300.7(c)(11)].
- Traumatic brain injury is "an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. The term applies to open

or closed head injuries resulting in impairments in one or more areas, such as cognition, language, memory, attention, reasoning, abstract thinking, judgment, problem solving, sensory, perceptual, and motor abilities, psychosocial behavior, psychosocial functions, information processing, and speech. The term does not apply to brain injuries that are congenital or degenerative or to brain injuries induced by birth trauma" [Code of Federal Regulations, Title 34, Section 300.7(c)(12)].

- Visual impairment is defined as "impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness" [Code of Federal Regulations, Title 34, Section 300.7(c)(13)].

As a leading organization for educators, Interstate New Teacher Assessment and Support Consortium ([INTASC], 2000), has provided educational standards for all beginning classroom teachers about the knowledge, skills, and dispositions needed to effectively teach students with special needs in general education classrooms. INTASC believes that "model core standards for licensing teachers represent those principles which should be present in all teaching, regardless of the preparation and professional development" (p. 2). INTASC created five competencies for all beginning teachers working with disabled students, regardless of subject taught.

The INTASC task force standards for a common core of teaching knowledge and skills should be acquired by all new teachers. The standards were developed in response to five major propositions that guide the National Board's standard-setting and assessment work, including:

(1) Teachers are committed to students and their learning;
(2) Teachers know the subjects they teach and how to teach those subjects to diverse learners;
(3) Teachers are responsible for managing and monitoring student learning;
(4) Teachers think systematically about their practice and learn from experience; and
(5) Teachers are members of learning communities. The teacher knows about areas of exceptionality in learning, including learning disabilities, visual and perceptual difficulties, and special physical or mental challenges. (p. 2)

The National Council for Accreditation of Teacher Education (NCATE) provides standards for all teacher certification programs (NCATE, 2002). NCATE-accredited universities experience programmatic reviews every five years. The standard (NCATE) for teaching students with special needs states:

> The unit designs, implements, and evaluates curriculum and experiences for candidates to acquire and apply the knowledge, skills, and dispositions necessary to help all students learn. These experiences include working with diverse higher education and school faculty, diverse candidates, and diverse students in P-12 schools. (p. 2)

NCATE standards emphasize the word *all* in every standard, indicating that each standard requires the teacher certification program to meet the needs of the general education students and special education students in every classroom.

The American Association for Agricultural Education (AAAE) National Standards for Teacher Education in Agriculture states that all agricultural education programs should provide for teacher candidates to acquire and develop the pedagogical and professional understandings and skills needed to work with all students (AAAE, 2001). A pedagogical and professional understanding of teaching and serving students with exceptionalities is included in these standards. Given the prevalence of standards throughout the education profession, what do

current student teachers in the AAAE southern region know about the Individuals with Disabilities Education Act, disabling conditions, and special education laws?

The purpose of this study was to evaluate agricultural education student teachers' knowledge of the Individuals with Disabilities Education Act, disabling conditions, and special education laws. The objectives of this study were to:

1. Describe pre-service agricultural education teachers in the AAAE southern region during the 2005 spring semester.
2. Describe agricultural education student teachers' knowledge of disabling conditions and special education laws for meeting the needs of special education students in agricultural education classrooms and laboratories.

Methods

Selected methods used in reporting the results in this paper were part of a larger project entitled, "Agricultural education student teachers' confidence and knowledge: Teaching special needs students." Similarities in research design and demographics reported in this paper exist in another publication (Author, 2005), but are described fully in the following.

The population ($N = 335$) for this descriptive census study was student teachers in the southern region of the American Association of Agricultural Education. Student teachers were participating in their teaching experiences for teacher certification during the 2005 spring semester during this study. 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.

Of the 40 agricultural education programs in the AAAE southern region, 32 had one or more student teachers enrolled during the 2005 spring semester. Twenty-six universities chose to participate in this study. Each student teacher coordinator was contacted by telephone to explain the project. Student teacher coordinators provided student teachers' e-mail addresses for the study. Three agricultural education program directors stated they were not allowed to release students' e-mail addresses, but agreed to send the survey e-mail notice so their student teachers could access the online instrument. Valid student teachers' e-mail addresses for 70% ($n = 235$) of the population of interest were received, however all ($N = 335$) student teachers were contacted in this study (three agricultural education program directors forwarded the survey notice from their own e-mail accounts).

The knowledge portion of the research instrument sought to determine respondents' understanding of teaching special needs students in agricultural education classrooms and laboratories. Knowledge questions (multiple choice, four responses; and/or Likert-type, True/False) referred to the following recognized disabilities from the Individuals with Disabilities Act: learning disabled; mildly mentally handicapped; attention deficit disorder; deaf- or hearing-impaired; blind- or visually-impaired; emotional/behavior disorder; and physically impaired. Additional questions focused on participants' knowledge about special education law, providing the least restrictive environment, participating in Individual Education Program (IEP) development, and providing an appropriate and challenging curriculum for all students.

The knowledge portion was adapted 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 for the IDEA recognized

disabilities and special education laws. The knowledge portion contained 33 questions; three questions for each disabling condition and/or special education law. The Kuder-Richardson Formula 20 (Ary, Jacobs, & Razavieh, 1996) was calculated for the knowledge portion, resulting in an overall reliability of .62. Overall knowledge scores for each special needs condition and/or law were interpreted using total mean values as: Unknowledgeable = 0.00-1.50; Marginally Knowledgeable = 1.51-2.50; Very Knowledgeable = 2.51-3.00.

Survey instrumentation and online design were created with Hypertext Markup Language. 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 based on 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 non-respondents for six weeks. After six attempts, instruments were mailed to each university for non-responders 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 using the Statistical Package for the Social Sciences (SPSS) Version 12. Descriptive statistics were used to report the results.

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 more than 23 years old. Most student teachers had or were receiving their Bachelors degree ($n = 247$); 14 students had their Masters degree. The majority ($n = 159$) had taken courses in special education issues. Over one-half (55.8%) had spent time with a special needs person outside an academic setting. Twenty-six (9.5%) student teachers had an Individual Education Program 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
Have you 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

Note. [a]Frequenices may not equal 274 because of missing data.

Student teachers were given a knowledge test containing 33 questions (three questions for each disabling condition and/or each special education criteria). Overall, student teachers answered slightly more than one-half (M = 18.64, SD = 3.95) of all questions correctly, for a total correct response rate of 56.49% (Table 2). Given a standard grading rubric of 60% or better to pass an exam, student teachers would have had to correctly answer 20 of the 33 knowledge questions. Less than one-half (43.1%) of all respondents correctly answered 20 or more questions in the knowledge portion of this study. An additional 36.9% (n = 101) of the respondents scored less than 50% correct.

Analyses of student teachers' knowledge scores by specific criterion for special education disability or law revealed the respondent group was very knowledgeable about IEP development

Table 2
Descriptive Statistics for Knowledge of Special Education Disabilities and Special Education Law (N = 274)

Criteria	M^a	*SD*	f^b	% of Total
Individual education program development	2.53	.73	179	65.3
Providing least restrictive environment	2.42	.74	153	55.8
Providing appropriate and challenging curriculum for all	2.32	.84	145	52.9
Understanding special education laws	1.97	.80	73	26.6
Deaf- or hearing-impaired	1.61	.79	31	11.3
Emotional/behavior disorder	1.58	.83	36	13.1
Blind- or visually-impaired	1.45	.88	28	10.2
Learning disabled	1.29	.83	21	7.7
Attention deficit disorder	1.24	.80	14	5.1
Physically impaired	1.20	.76	9	3.3
Mildly mentally handicapped	1.03	.75	9	3.3
Total Knowledge[c]	18.64	3.95		

Note. [a]Summed criterion scores could range from 0-3; interpretations were based on the ranges: *very knowledgeable* = 2.51-3.00; *marginally knowledgeable* = 1.51-2.50; *unknowledgeable* = 0.00-1.50. [b]Frequencies of those who scored 100% correct for the criterion. [c]Total knowledge scores ranged from 5-29 correct for 33 questions.

(*M* = 2.53, *SD* = .73). They were marginally knowledgeable (*M* = 1.51-2.50) about five criterion (providing least restrictive environment; providing appropriate and challenging curriculum for all; understanding special education laws; deaf- or hearing-impaired; and emotional/behavior disorder). However, they were unknowledgeable (*M* = 0.00-1.50) in five other areas (blind- or visually-impaired; learning disabled, attention deficit disorder, physically impaired, and mildly mentally handicapped) (Table 2).

Conclusions

The laws and amendments discussed in this paper provide the basis for a much needed, and required by law, addition to agricultural teacher education programs. The results show ample evidence that future agricultural science teachers have "limited" or no knowledge of the disabling conditions impacting special needs students. If the educator is unprepared to teach the special needs student, then the next course of action by a parent or guardian may be to remedy these inequities through legal methods. Judicial proceedings cost school districts and state educational agencies both in money and time.

Today's emphasis on inclusion signifies the importance for agricultural educators to be aware of special education issues. Furthermore, teachers must recognize the expectations placed on them in order to accommodate special needs students. Information about special education law and strategies to meet the needs of special education students should be included in all teacher certification curricula. For teachers who are unaware of special education laws and/or issues that may impact their local programs, specific requests should be made for in-service workshops, materials, or networking possibilities with teacher education programs and/or those

who are experienced in teaching special needs students. A "good faith" effort is akin to the ounce of prevention; neither pound of cure, nor "ignorance of the law" is a justifiable defense.

The average mean score for the knowledge assessment was 57%. The knowledge exam was graded as a regular classroom exam would be graded with equal weights for each question. A mean score of 57% would be a failing average. Only 45 student teachers (16.4%) would have earned a "C" or better, while only four students would have achieved a "B" grade; no student teachers would have earned an "A" on the knowledge portion. Granted, this topic is highly specialized and does not impact all agricultural teachers equally, however that does prohibit future agriculture teachers from learning more about special education issues.

Additional study into the specific special needs courses that 159 respondents indicated taking as part of their teacher education curricula may shed light on the necessity of truly understanding this important topic. The results indicated that topics in IEP development, providing a least restrictive environment, appropriate and challenging curriculum for all, or understanding special education laws were the basis of respondents' knowledge. It is not apparent that, although 75% of the student teachers felt prepared to teach special needs students, they had any idea about the disabling conditions facing special needs students. Did their special needs courses provide in-depth understanding of the disabling conditions facing some students? If so, how much attention was devoted to the study of those conditions?

Data showed that student teachers had marginal knowledge about special education laws. Elbert and Baggett (2003) suggested that agricultural education teachers in Pennsylvania needed more knowledge of special education law, such as providing the least restrictive environment and in designing individual education programs. It is important though to remember that Ebert and Baggett surveyed veteran teachers, while this study focused on student teachers. Other studies involving veteran teachers have shown similar results (Schumm & Vaughn, 1995). Student teachers have not experienced extended time in teaching special needs students. Cotton (2000) found that veteran vocational teachers wanted additional training regarding least restrictive environment and providing an appropriate curriculum for all students in their classrooms. The findings in this paper concur with Cotton's.

A knowledge assessment for special education issues is needed in all areas of education, regardless of teacher certification title. Questions for this study were generated from a test bank accompanying *Exceptional lives: Special education in today's schools* by Turnbull, Turnbull, Shank, and Smith (2004). Reliability of .62 for the knowledge portion can be improved in future studies. Future instrumentation should be created through factor analysis to identify appropriate questions for creating a truly reliable instrument to assess teachers' knowledge of disabling conditions and special education laws.

Based on the findings, the authors recommend replicating this study with populations outside the AAAE southern region. Additionally, an instructional unit about disabling conditions and special education laws for use in agricultural teacher preparation courses should be created. Pre- and post-test analyses could determine changes in knowledge after teachers complete the instructional unit. It is recommended that continued testing occur for student teachers' knowledge of special education issues to determine if understanding of disabling conditions and special education laws increases with time. Teacher educators must update their knowledge bases of special needs students so they can provide in-service training for current teachers at state agricultural education teacher conferences. Finally, leadership within the AAAE is needed to design an educational law workshop on special education, including liabilities in areas of negligence, which may affect all agricultural educators, classrooms, and laboratory activities.

Such a workshop could be offered at regional and/or national conferences, or in conjunction with the National FFA Convention.

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