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Identifying Educational Needs of Learning Disabled Students in Illinois Agricultural Education Programs

Final Report

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Specific Learning Disabled (SLD) students make up 23 % of the students enrolled in Illinois agricultural education. The purpose of this descriptive census survey of agricultural education teachers was to describe the curricular needs of SLD students in these programs. Through a spring 2006 mail survey, teachers perceived overall resources for SLD students as inadequate. Although noting problems with SLD students falling behind in class and causing delays for other students, the importance of SLD students to the workforce was undisputed.

Keywords: learning disabled, agricultural education, Illinois agricultural education, workforce

Introduction

Students with learning disabilities in the United States have increased dramatically in recent years, from 0.75 million in 1976 to 2.41 million in 2002 (Biddle, 2006; Swanson, 1999; U.S. Department of Education, 2004). Overall, the learning disabled currently encompass almost half of the special education population in schools, 2.9 million in 2003 (National Center for Learning Disabilities, 2003). This trend indicates a growing need for innovative approaches to improving teaching and learning for secondary learning disabled students. Given the high percentage of the learning disabled students aspiring to post-secondary vocational training and/or a college education (USED, 2004), it is also imperative that curricular needs of the learning disabled student in career and technical education (CTE) be identified, and the types of curriculum or curriculum redesign for the learning disabled student in CTE be determined. A subset of CTE, agricultural education classrooms may serve as an indicator for the training and learning needs of the learning disabled student.

It is thought that serious socioeconomic problems in rural areas (Bajema, 2002) have translated to greater percentages of learning disabled students in these regions. Informal

interviews with rural agriculture educators in Illinois have indicated anywhere from 15 to 50% of the rural agricultural education classroom are classified as learning disabled. It is uncertain whether or not rural areas do have greater numbers of learning disabled students overall; and if so, what new techniques or directives may be implemented to address such issues.

Student learning disabilities are varied, manifesting in behavioral characteristics that hinder academic progress (University of Illinois Extension, 2003). Overall, the types of students falling into the category of learning disabled, and the complexities affecting them, are copious. To assist in defining the needs of these students, the acronym SLD was created to indicate students with Specific Learning Disabilities (Students with Learning Disabilities, 2002). These students are not mentally retarded and not normally low in their Intelligence Quotient (IQ). For students with SLDs, messages to the brain often become jumbled and they may have difficulty with one or more academic areas. SLD students may be classified as having the following disorders: dyslexia, dysgraphia, dyscalculia, dyspraxia, attention deficit, visual perception problems, and auditory discrimination problems (U.I.E., 2003). Regardless of classification, the identifiers and educational behavior patterns include some of the following characteristics: short attention span/easily distracted, poor memory/forgetful, difficulty following directions, poor reasoning ability, difficulty writing, impulsive behavior, inability to set realistic goals, and needing constant recognition (U.I.E., 2003).

Dormody and Torres (2002) found special needs students, of which SLD is a subset, were low in both at-graduation and current ability scores. Thus, a need existed for follow-up research to determine the challenges teachers experience with special needs students in the instructional process. In another study (Sorenson, Tarpley & Warnick, 2005) cited by Dormody et al. (2006), Utah teachers rated their ability to teach SLD students as lowest among 31 core competencies.

And yet, those same teachers indicated a high priority be placed on teacher in-service for instructing the special needs student.

Elbert and Baggett (2003) established five competencies for teachers working with SLD students; including the completion of individual vocational plans, understanding laws that apply to special needs students, completing individual education plans (IEP), helping students to recognize their assets and limitations, and actively involving special needs students in vocational organization.

It is still unclear exactly which teaching strategies may best help students with learning disabilities to improve academically (Swanson, 1999); but given the dramatic increases of SLD students in the classroom, and given the conclusions reached in the above studies for other states, as well as the potential contribution SLD students can make to the workforce, a needs assessment needed to be conducted to determine the number of SLD students in Illinois agricultural education programs, topics and areas of need for SLD students, resources currently available, and curricular methodology most suited to each SLD student. This can then assist in effecting improvement of education for the student with learning disabilities through the development of curricular materials in agricultural education. And in turn, this can help train an overlooked segment of the future agricultural workforce in Illinois.

Theoretical Framework

Borrowing from Elbert and Baggett (2003), the theoretical framework for this study was based on the concept of "inclusion." According to Bloom, Perlmutter and Burrell (1999), inclusion is a philosophy that draws students, families, educators and schools together to foster an environment that incorporates acceptance, belonging and community. Elbert and Baggett (2003) quote Salend (2001, p. 5) in describing inclusion as seeking to "establish collaborative,

supportive and nurturing communities of learners that are based on giving all students the services and accommodations they need to learn, as well as respecting and learning from each other's individual differences."

Elbert and Baggett (2003) indicated that inclusion is built upon four major principles: diversity, individual needs, reflective practice and collaboration. Diversity is reflected when students are mainstreamed into the traditional agricultural education classroom, and benefits may then result from the interactions between the SLD student and the traditional student. Individual needs are stressed in an agriculture classroom depending on various career pathways selected by the traditional students, and also by adaptation to the special needs of the SLD student. According to Dormody et al. (2006) reflective practice would be critical for the teacher who must develop "competency in working with disabled students" (p. 94). And finally, collaboration would be addressed both when the teacher works with parents, specialists, and community, and when interaction takes place between the SLD student and his/her non-disabled peers.

Purposes/Objectives

The specific purpose of this project was three-fold: first, to develop baseline data that may be used in future curriculum redesign of agricultural education programs for students with Specific Learning Disabilities; second, to ascertain the curricular needs of students with Specific Learning Disabilities in Illinois agricultural education programs; and third, to determine which curriculum designs would meet the needs of students with Specific Learning Disabilities in Illinois agricultural education programs. The specific objectives were:

1. Develop a demographic profile of the schools and students where learning disabled students are enrolled in Illinois agricultural education programs.

2. Determine the percentage of students with Specific Learning Disabilities in Illinois agricultural education programs.
3. Understand the needs of students with Specific Learning Disabilities in Illinois agricultural education programs.
4. Determine types of curriculum or curriculum redesign which would meet the needs of students with Specific Learning Disabilities in Illinois agricultural education programs.

Methods/Procedures

This study was a descriptive census of all secondary school agricultural education teachers in Illinois during spring 2006 (N=372). A mail questionnaire, based on the Tailored Design Method advocated by Dillman (2000), was developed by a panel of experts in agricultural education during fall, 2005. The instrument contained five parts: questions 1-3 requested demographic information on the schools and students, questions 4-8 asked about information provided them regarding SLD students in their classes, questions 9-14 inquired of resources available for SLD students, questions 15-21 sought teacher perceptions of problems/solutions with SLD student learning, and questions 22-24 asked about the perceived benefit of the state core curriculum in agriculture.

The survey instrument was pilot tested in December, 2005, utilizing agricultural education teachers in the state of Missouri (N=12). Teachers were randomly selected for the pilot test from a comprehensive list of agricultural education teachers provided by the Agricultural Education Division of the Missouri Department of Elementary and Secondary Education. They were then contacted by telephone and sent the questionnaire by email. Completed questionnaires were returned via email and an item analysis was performed. Questions were then revised or

eliminated according to a panel review of each item. The finalized instrument contained 32 items, ranging from three to seven items per section. 27 items were formatted with either multiple choice answers, or 5-point Likert Scale responses with the following descriptors: 1 = disagree, 2 = somewhat disagree, 3 = neither agree or disagree, 4 = somewhat agree, 5 = agree. Five items of the survey were open ended questions. Face and content validity were assessed using a panel of experts.

The survey instrument was mailed on April 21, 2006 to all agricultural education teachers listed in the 2005-2006 Illinois Association of Vocational Agriculture Teachers (IAVAT) Membership Directory. A cover letter detailing a short overview of the project and a stamped, self addressed return envelope were enclosed. Prior to initiating the study, both the instrument and the cover letter were approved by the Southern Illinois University Institutional Review Board (IRB) for research with human subjects.

115 completed surveys were initially received, providing a 30% response rate. Two follow-up listserv messages were sent to all Illinois agricultural education teachers on April 28 and May 15 to encourage non-respondents to complete the survey. An additional 28 late respondents returned surveys, bringing the total response rate to 38% (143). To account for non-response error, a t-test was conducted between early and late respondents showing no statistical difference existed. As cited by Miller and Smith (1983) Clausen and Ford (1947) reported research showing that late respondents are often similar to non-respondents; it was therefore concluded that no difference existed between respondents and non-respondents in the study.

Results/Findings

Objective 1: Develop a demographic profile of the schools and students where learning disabled students are enrolled in Illinois agricultural education programs.

Three geographic locations were identified for schools included in this study; 71.4 percent of the respondents were from rural schools, 28.6 percent of the respondents taught in suburban settings, and only 4.8 percent of the respondents were from urban schools (Table 1). Of the 143 respondents, 114 reported 5% or more of their students were economically depressed (measured by those qualifying for free lunches). More than half of those respondents (58) reported 30% or more of the student in their programs were economically depressed. Twenty respondents indicated that more than 40% of their students were economically depressed.

Table 1. Summary of School and Student Demographics

Characteristic	*f*	%
School Location (n=126)		
Urban	6	4.8
Suburban	30	28.6
Rural	90	71.4
Students Economically Depressed (n=114)		
5%	13	11.4
10%	26	22.8
20%	17	14.9
30%	28	24.6
40%	10	8.8
More than 40%	20	17.5

Sixty percent of the five urban schools indicated more than 40% of their students were economically depressed (Table 2). While 14 percent of the 92 respondents from rural school settings reported over 40% of their students as being economically depressed, more than 54% reported that more than 30% of their students were economically depressed.

Table 2. Percent of Economically Depressed Students by School Location

	Economically Depressed					
Location	5%	10%	20%	30%	40%	>40%
Urban (n=5)	40.0	0	0	0	0	60.0
Suburban (n=30)	20.0	30.0	13.3	13.3	3.3	20.0
Rural (n=92)	6.5	21.7	17.4	29.3	10.9	14.1

Objective 2: Determine the percentage of students with Learning Disabilities in Illinois Agricultural Education program.

Aproximately 23% of the students enrolled in agricultural education classes in Illinois were classified by their teachers as learning disabled. The percent of learning disabled students in each class period during the school day did not greatly vary, with the lowest percent (19.86%) attending seventh period and the highest percent (24.38%) attending third period (Table 3).

Table 3. Number of Learning Disabled Students in class and percent of total by class period

Class Period	*f* LD Students	*f* Total Students	%
1st Period	381	1659	22.96
2nd Period	391	1555	22.14
3rd Period	400	1641	24.38
4th Period	376	1598	23.53
5th Period	356	1592	22.36
6th Period	328	1509	21.74
7th Period	58	292	19.86
8th Period	21	87	24.14
9th Period	0	22	0.00
Overall Total	2311	9955	23.21

Objective 3: Understand the needs of students with Specific Learning Disabilities in Illinois Agricultural Education programs.

Ninety four percent (131) of the agricultural education teachers surveyed indicated that they are typically notified of the academic needs of their learning disabled students. Approximately 43% (61 and 60) indicated they are informed of the social and behavioral needs of their learning disabled students. Six (4.32%) said they are not informed of any learning disabled student needs (Table 4). The vast majority of agricultural education teachers (113) indicated their source of information on learning disabled students in their classes was the Special Education Department.

Table 4. Teacher Notification of Each Type of Learning Disabled Student Needs (n = 139)

	f	%
Type LD Student Needs Teacher Notified		
Academic Needs[a]	131	94.0
Social Needs[a]	61	43.9
Behavioral Needs[a]	60	43.17
Not Informed of Any LD Student Needs	6	4.32
Notifying Individual or Office		
Administration Office	1	0.7
School Counselor	5	3.5
Special Education Department	113	79.0
Students' Parents	1	0.7

[a]Respondents could select multiple responses

Table 5. Other Methods Used to Identify Specific Learning Disabled Student Needs (n = 143)

	Response %						
Method	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	M	SD
Informal Sources	22.0	13.5	18.4	29.1	17.0	3.06	1.41
IEPs	4.2	2.8	5.6	24.6	62.7	4.39	1.02
Student Behaviors	0.7	3.5	10.6	45.1	40.1	4.20	0.82

Likert Scale: 1 = disagree, 2 = somewhat disagree, 3 = neither agree or disagree, 4 = somewhat agree, 5 = agree

Using a Likert Scale of 1-5 (1 = I disagree, 2 = I somewhat disagree, 3= Neither agree or disagree, 4 = I somewhat agree, 5 = I agree), teachers were asked to cite the degree to which other methods were used to identify Learning Disabled student needs (Table 5). Of those obtaining their information from informal sources, 29.1 percent "somewhat agreed" to this source of information, while 17 percent "agreed" that they relied on informal sources. The largest percent of teachers (62.7%) agreed that their information came from Individualized Education Plans (IEPs). More than 40 percent of teachers indicated that observing student behavior provided them with information on LDS student needs.

Objective 4: Determine types of curriculum or curriculum redesign which would meet the needs of students with Specific Learning Disabilities in Illinois agricultural education programs.

As seen in Table 6, the two resources currently available and used most frequently in teaching SLD students were peer mentoring (somewhat agree – 35 %, agree – 17.9 %) and learning inventories (somewhat agree – 30.2 %, agree – 10.8 %). The least available or used resource was daily assessment (somewhat agree – 12.1 %, agree – 2.1 %). Overall, resources to the agricultural education instructor for teaching SLD students were viewed as in short supply, with less than 1/3 even somewhat agreeing to their availability.

Table 6. Resources Currently Available for LD Students (n = 143)

	Response %						
Resource	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	M	SD
Specialized Books	37.6	21.3	17.0	20.6	3.5	2.31	1.27
Donations/Grants	22.5	13.0	36.2	21.7	6.5	2.77	1.21
Learning Inventory	23.0	7.2	28.8	30.2	10.8	2.99	1.32
Indiv. Instruction	27.3	19.4	17.3	28.1	7.9	2.70	1.34
Peer Mentoring	10.7	19.3	17.1	35.0	17.9	3.30	1.27
Daily Assessment	41.4	22.1	22.1	12.1	2.1	2.11	1.15

Likert Scale: 1 = disagree, 2 = somewhat disagree, 3 = neither agree or disagree, 4 = somewhat agree, 5 = agree

While acknowledging the difficulty an SLD student had in keeping up with daily instruction (Table 7), a large percent of the teachers (somewhat agree – 41.8 %, agree – 17 %) felt that agricultural education was suitable for learning disabled students. Over 50 % either somewhat agreed or agreed that they liked having SLD students in class. The two resources which had the lowest endorsement by teachers were the state curriculum in agriculture (somewhat agree – 21.3 %, agree – 5.0 %) and block scheduling (somewhat agree – 21.7 %, agree – 14.7 %). However, the general concensus regarding the state curriculum providing “special help” to the LD student in agricultural education classes was neutral; with nearly the same percent agreeing and disagreeing as to its benefit and 45% of the teachers responding with 3 = neutral on the Likert scale (Table 7).

When asked what type of modifications teachers would like to see done to the Illinois Core Curriculum, it was acknowledged that the Core Curriculum was very good in presenting information in an understandable way. Some modifications which were suggested include:

- modified worksheets
- hands-on activities utilizing multiple intelligences
- more transparencies and visuals
- guided notes and worksheets
- suggestions for modifying lessons to accommodate the SLD student
- lessons modified for inclusive classrooms
- skeleton notes/outline of units
- better power point alignment to sample tests
- study guides
- pictorial diagrams which are printable

Table 7. Problems/Solutions for the Learning Disabled student in the Agricultural Education Classroom. (n = 143)

	Response %						
Resource	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	M	SD
Ag Ed Suit. for SLD	10.6	12.1	18.4	41.8	17.0	3.43	1.21
Likes SLD in Class	7.7	9.9	30.3	31.0	21.1	3.48	1.16
Can't Keep Up	6.4	17.0	18.4	37.6	20.6	3.49	1.81
SLD Cause Delays	9.9	24.8	17.7	30.5	17.0	3.20	1.27
State Curric. Helps	7.8	21.3	44.7	21.3	5.0	2.94	0.97
Modify State Curric.	6.3	15.4	33.6	28.0	16.8	3.34	1.12
Block Sched. Helps	23.1	11.2	29.4	21.7	14.7	2.94	1.36

Likert Scale: 1 = disagree, 2 = somewhat disagree, 3 = neither agree or disagree, 4 = somewhat agree, 5 = agree

More than 72% of the teachers surveyed said their learning disabled students were engaged in Supervised Agricultural Experience (SAE) programs (Table 8); and of the eight types of CDEs, placement (75.4%) was clearly identified over all others as being most suitable for LD students. When asked about competing in Career Development Events (CDEs), teachers indicated nearly 80% of their LD students competed in CDEs (Table 8). However, a majority (65%) said special accommodations would not benefit their LD students in CDE competitions. When asked what accommodations should be made for the SLD student at Career Development Events, a majority of teachers said none should be made as it would change the competition level or would require two simultaneous contests. One respondent indicated that with the many types of learning disabilities requiring special accommodation, the result would be a "contest nightmare." Other respondents included the following recommended accommodations for SLD participants in CDEs:

- easy to follow and easy to carry out experiments
- help with reading
- aids
- extra time
- visual aids
- separate competitions which are simplified
- different format for responses (especially with identification)
- use of calculators

Table 8. Learning Disabled Students in Supervised Agricultural Experience (SAE) Programs and Career Development Events (CDEs).

	Response %						
Question	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	M	SD
LD now in SAEs (n=138)	10.6	5.0	12.1	35.5	36.9	3.83	1.62
Compete in CDEs (n=139)	6.5	7.2	6.5	28.1	51.8	4.12	1.20
Spec. Accomododations for CDEs (n=139)	44.6	20.9	23.7	6.5	4.3	2.05	1.16
Suitable SAEs (n=138)	Yes	No				M	SD
Entrepreneurial	38.4	61.6				1.62	0.49
Placement	75.4	24.6				1.25	0.43
Research	9.4	90.6				1.91	0.29
Exploratory	31.9	68.1				1.68	0.47
Service Learning	17.4	82.6				1.83	0.38
Improvement	18.8	81.2				1.81	0.39
Supplemental	10.1	89.9				1.90	0.30
Directed School Lab.	37.0	63.0				1.63	0.48

Likert Scale: 1 = disagree, 2 = somewhat disagree, 3 = neither agree or disagree, 4 = somewhat agree, 5 = agree
Suitable SAE Yes/No Scale: 1 = Yes, 2 = No

When asked about the Illinois Core Curriculum for Agriculture and whether it was “helpful” or not, the teachers responded more positively, 45% (Table 9), than in a previous question about the Core providing “special help” (Table 7). Illinois agricultural education teachers clearly felt that the Illinois Core Curriculum for Agriculture was helpful, but twice in the survey (Tables 7 & 9) they indicated a need for modification of the Illinois Core Curriculum to better serve learning disabled students in agriculture (45% and 51% respectively).

Table 9. The Illionois Core Curriculum in Agricultural Education and Learning Disabled Students (n = 141).

	Response %						
Question	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	M	SD
State Core Helpful to LD	3.5	14.2	36.9	34.8	10.6	3.35	0.97
Shld. Modify Core Curric.	6.4	6.4	36.2	34.8	16.3	3.48	1.05

Likert Scale: 1 = disagree, 2 = somewhat disagree, 3 = neither agree or disagree, 4 = somewhat agree, 5 = agree
Suitable SAE Yes/No Scale: 1 = Yes, 2 = No

Conclusions/Recommendations/Implications

According to Illinois agricultural education teachers, 23% of students enrolled in secondary agricultural education courses are learning disabled. The vast majority of these are in rural schools (71%). And of these, half of the teachers said more than 30% are economically depressed.

With a large majority of learning disabled students planning on vocational school or college after high school (USED, 2004), agricultural education teachers (59%) have identified their programs as suitable for SLD students. Acknowledging many problems (overall lack of resources, student inability to keep up, and a state curriculum which requires modifications for the LD Student), agricultural teachers (79%) also recognized their special education departments as having provided them with required information on SLD student needs.

With nearly one fourth of our agricultural education students possessing special needs, we not only risk losing that amount of our future workforce in the agriculture industry, but safety and political ramifications loom in the future as well. If classrooms are not set up properly with equipment and facilities for the learning disabled student, lawsuits may very well lie ahead for many of our institutions. With a renewed focus on our SLD student population, funding

opportunities may also exist through special grants and governmental programs. Facilities may be upgraded and equipment purchased which will aid all agricultural education programs.

In keeping with the concept of "inclusion," a synergy may exist through the interactions of our SLD students and non-disabled students. When the non-disabled serve as teacher aides, and as service learning projects become better developed, all students in the agricultural education classroom may find further benefit. Other aspects of peer interacting may include the development of leadership and citizenship skills. SLD students may also find academic and job skill benefits through full participation in Supervised Agricultural Experience Programs and Career Development Events.

Perhaps the greatest implication in this study for Illinois Agricultural Education is the opportunity to further develop the Illinois Core Curriculum. Modifications can be made to the Core which include those elements in needed to assist agricultural educators and their SLD students.

Further research is recommended to:

1. Identify specific ways to increase or improve current teaching/learning resources for learning disabled students in the various specializations of agricultural education.
2. Identify avenues for channeling additional funding to rural schools to meet special needs of learning disabled students.
3. Investigate ways to modify and further develop the state curriculum in agricultural education in order to better educate and train our learning disabled population.
4. Identify potential in-service training which will help agricultural education teachers understand the value of SLD students in their programs.

5. Describe the challenges agricultural education teachers may experience by including SLD students in their programs.

6. Explore curriculum redesign for the learning disabled in agricultural education.

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