

TEACHER COMPETENCE FOR WORKING WITH DISABLED STUDENTS AS PERCEIVED BY SECONDARY LEVEL AGRICULTURAL INSTRUCTORS IN PENNSYLVANIA

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Abstract

The purpose of this study was to identify competencies perceived as needed by secondary level agricultural teachers in Pennsylvania to help them become more effective while working with disabled students. The authors used a random sample (153) of 60% of the secondary agricultural teachers from a 1999-2000 state directory for this descriptive study. The instrument used was divided into five competency areas: personal characteristics, professional role and development, instructional role, knowledge statements, and student leadership and organization. Subjects rated their perceived present and desired levels of competency by responding to a five-point Likert-type scale on 17 items. Frequencies and distributions were used to describe demographic variables. A paired t-test was used to analyze each competency area. The five currently held competency levels rated lowest were 1) completing individual vocational education plans, 2) being familiar with laws that apply to special needs students, 3) completing individual education plans, 4) assisting the student in viewing his/her assets or limitations realistically, and 5) utilizing a variety of teaching methods and techniques to provide instruction for disabled students. All teachers rated their desired competency levels higher than their current competency levels. The authors recommend that inservice programs be planned so that teachers may increase their knowledge base while working with disabled students.

Introduction and Theoretical Framework

In the past decade, various changes have impacted agricultural, career, and technical education. The field of agricultural education incorporates multiple tasks when defining the curriculum. This curriculum has evolved from being agricultural production-based to one that is more applied science and technology-centered. These changes can be attributed to the changing needs of society. Originally, agricultural education courses were intended for non-college bound students, thus, preparing them to become employed shortly after attaining their high school diploma. With this type of task-oriented curriculum, many special needs students enrolled in technical education programs. According to the U.S. Department of Education (1994), special needs students were found in an increasingly

higher proportion in agricultural education courses.

Baggett, Scanlon, and Curtis (1985) reported that many agricultural and other career and technical education teachers in Pennsylvania did not have appropriate training to teach effectively the special needs students enrolled in mainstreamed courses. These researchers also found that teachers did not have access to in-service programs to secure the additional skills and competencies needed. In a study conducted by Baggett and Chinoda (1994), the in-service needs of Pennsylvania secondary educators working with special needs learners included the following areas: evaluation of special needs learners, individual education program, inclusion, and teaching strategies. Of the 70 teachers surveyed, 48.6% indicated a need for in-service programs in evaluation of special needs learners, 22.9% indicated a need for

information about legislation of special populations, 31.4% indicated a need for inclusion of special needs students, and 35.7% indicated a need for teaching strategies to work with special needs learners.

How May Disabled Students be Mainstreamed Into Courses?

Sarkees and West (1990) wrote that regular vocational courses were not always accessible to special needs students. As legislation and philosophies changed, special needs students were mainstreamed into vocational education courses. According to Falvey, Blair, Dingle, and Franklin (2000), the public education system in the United States is relying less on sorting students by specific labels and abilities. Instead, educators are grouping students intentionally to create heterogeneous learning experiences. In an effort to bridge the gap, students with special needs have been mainstreamed into regular classrooms.

The theoretical framework for this study was built upon the concept of "inclusion." Inclusion is a philosophy that brings students, families, educators, and community members together to create schools and other social institutions based on acceptance, belonging, and community (Bloom, Perlmutter, & Burrell, 1999). The concept of inclusion seeks 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" (Salend, 2001, p. 5). Inclusion is built upon four major principles: diversity, individual needs, reflective practice, and collaboration. Diversity improves the educational systems for all students by placing them in general education environments regardless of race, ability, gender, economic status, learning styles, ethnicity, cultural background, religion, family structure, linguistic ability, and sexual orientation. Individual needs involves sensitivity to and acceptance of individual needs and differences. Reflective practice insists that educators reflect upon their attitudes, teaching and classroom management practices, and curricula to

accommodate individual needs. Collaboration involves groups of professional educators, parents, students, families, and community agencies working together to build effective learning environments (Salend, 2001).

Hillison (1980) stated that many agricultural education teachers have become frustrated in their attempts to reach and teach special needs students in regular classrooms. However, Phelps (1985) stated that the challenge of educating special needs students differs very little from providing quality career and technical education to all students.

In the past, agricultural education courses were not accessible to special needs students. Legislation has created inclusion and mainstreaming of special needs students into regular classrooms. This type of heterogeneous education has led to the agriculture teacher having to implement various techniques while teaching both types of students simultaneously. In this regard, it can be theorized that agricultural education teachers should be provided educational training opportunities to learn and implement various teaching strategies and competencies for different types of students.

What Are Some of the Competencies Needed by Teachers?

The U.S. Department of Education (1994) reported that agricultural, career, and technical education schools largely had become institutions for special needs students. This report concluded that teachers and administrators were worried about this trend and about the status of agricultural education programs in the larger education system. Agricultural education teachers are faced with various challenges due to the mainstreaming of disabled students into regular classrooms. Thus, it is imperative that the teachers acquire the skills needed and increase competency levels to teach special needs populations.

Sarkees and Scott (1985) stated that competent teachers were a key factor in providing a quality education for special needs students. Crunkilton (1985) suggested that agricultural and career and technical education teachers should be required to teach disabled students, work as a teacher's

aide to disabled students, and observe teachers of disabled students.

Curtis and Howell (1980) stated that it was imperative that agricultural education teachers know individual and group techniques to help the special needs students develop to their full potential. Melton (1997) suggested that in developing competencies, it was hoped that individuals should not only develop competencies within specific contexts, but also should be able to transfer the competencies acquired to other contexts within the same occupational area.

Curtis and Howell (1980) found that the demand for teachers with competency for teaching special needs students became more apparent each year. Sarkees and Scott (1985) identified some competencies that agricultural education teachers should demonstrate while working with learners with special needs. Among their findings were the following:

1. Educators generally have developed a high level of knowledge and skill in their particular area. Due to this expertise, they are able to identify components that make up each work task.
2. The ability to provide ongoing reinforcement of student performance.
3. The ability to design, develop, and utilize individualized instruction.
4. Career and technical education and agricultural education teachers also must stay up-to-date with technology and changes in the field.
5. The ability to plan and work cooperatively with other school personnel.

In reviewing the research, studies have indicated an increasing concentration of special needs students enrolled in agricultural education courses than in other non-career and technical education courses. Due to this trend, the question of competence has arisen. The agricultural education program has been in a transitional

phase throughout the years. The program is in the process of accommodating today's needs. In addition, agricultural and career and technical educators have watched total enrollment numbers decline in these courses. Due to recent legislation and a collaborative effort, educators, industry and government officials have implemented various programs based on needs to assist with revitalization.

In general, research is available that addresses the needs of disabled students mainstreamed into general courses. However, none of the research reviewed dealt specifically with the development of specific competencies that assists with the development of training programs in agricultural and career and technical education while working with disabled students. Also, there is limited research that addresses the specific competencies needed by agricultural educators who work with disabled students.

The US Department of Education (1994) found an increasingly higher proportion of disabled students enrolled in agricultural education courses. Baggett, Scanlon, and Curtis (1985) found that appropriate training was needed to secure additional competencies required to work with disabled students in Pennsylvania. Because the level of education received by all agricultural and career and technical educators is similar across universities in the United States, it was theorized that teachers in Pennsylvania were not different from the teachers across the nation with respect to competency levels both held and needed while working with disabled students.

Purpose and Objectives

The purpose of this study was to identify the current and desired competency levels to work with disabled students as perceived by secondary level agricultural education teachers in Pennsylvania.

The objectives were to: 1) describe and determine differences in teacher-perceived current competency levels when considering demographic variables of gender, age, highest degree earned, number of years teaching secondary agricultural/career and

technical education courses, area reared and experience working with disabled students; 2) identify competencies needed by secondary teachers of agriculture to work with disabled students enrolled in programs of agricultural education; and 3) compare the currently held and desired competency levels of secondary agricultural education teachers.

Methods and Procedures

The accessible population for the study consisted of 253 secondary agricultural education teachers employed during the 1999-2000 academic year in Pennsylvania. The teachers were selected from the *Directory for Agricultural Education 1999-2000* (2000). The authors used a random sample of 60% of teachers listed. This yielded a 5% sampling error. A random number generator was used to select sample subjects. This procedure yielded a sample of 153 agricultural education teachers (Krejcie & Morgan, 1970). The randomly selected subjects provided responses on a voluntary basis. Teachers were asked to rate themselves relative to specific competencies perceived as current and desired regarding teaching disabled students. A self-reporting survey instrument was adapted and modified to measure background and demographic information. The questionnaire was reorganized to include two categories of current and desired competency ratings. The questionnaire was divided into five areas: personal characteristics, professional role and development competencies, instructional role competencies, knowledge-related competencies, student leadership and organization competencies. The statements were selected to represent the competency areas and measure the participants' perceptions of their current and desired competencies.

Teachers were asked to rate their perceived current level of competency and their desired level of competency for each of 17 competencies on a five-point Likert-type scale as follows: 1 = Not Competent; 2 = Slightly Competent; 3 = Competent; 4 = Very Competent; 5 = Extremely Competent. Data were collected regarding the teachers' perceived current competency level and their desired competency level. Many of the

competency statements were obtained from Personnel Training Requirements to Serve Handicapped Populations: Needs Assessment Survey of Vocational Teachers (Kienast & Lovelace, 1981), an instrument with a Cronbach's alpha of .95. Using pre-test data, the split-half reliability was estimated to be .94. Additional recalculations using pre-test data were conducted to reverse score items to control for pattern responses by participants.

The questionnaire was reviewed by a panel of experts consisting of four senior faculty members and four graduate students in the Department of Agricultural and Extension Education at The Pennsylvania State University and a secondary school agricultural education teacher. Two members of the panel had extensive experience working with special needs students in an administrative capacity as well as in the classroom. The panel of experts reviewed the questionnaire to establish content and face validity. The questionnaire was revised based on the comments and suggestions from the panel members.

Data were collected in three stages from the secondary school agricultural education teachers. A cover letter, a number-coded instrument, and a postage-paid, return-addressed envelope were mailed to the 153 secondary school agricultural education teachers on April 21, 2000. A follow-up cover letter and the same materials listed above were mailed to the subjects, requesting completion of instruments not yet returned. A reminder postcard was mailed on May 5, 2000 to nonrespondents.

Of the 153 questionnaires mailed to the secondary school agricultural education teachers, 96 were returned (63% response rate). The return rate of the initial mailing was 48%. Of the non-respondents, 10% were contacted by telephone to determine if there was a difference in their responses when compared to those who did respond. Because there were no significant differences between respondents and the nonrespondents contacted, the researchers concluded that it was not necessary to attempt further follow-up. This technique is in agreement with Borg and Gall (1989).

Findings

Objective one of the study was to describe and determine differences in teacher-perceived competency levels when considering the demographic profile of Pennsylvania agriculture teachers on the characteristics such as gender, age, highest degree earned, and number of years teaching secondary agricultural/career and technical education courses. A substantial number of the 96 respondents were male (77.7%). The age of the teachers ranged from 21-60 years. Nearly one-third of the teachers (32.6%) were between the ages of 41-50 years. Overall, the majority (58.9%) of the teachers had obtained a bachelor's degree. Many of the teachers (37.9%) had taught for nine years or less. More than three-fourths (77.7%) of the teachers were reared on a farm or in a rural area. Additionally, 94.7% had taught special needs students during their teaching career. A large percentage of teachers (82.8%) reported having worked with disabled students.

Gender

A *t-test* was conducted to compare the difference between the mean of the current perceived level of competence of female and male teachers. Female teachers had a mean competency level of 3.58 as compared to 3.40 for male teachers; however, the difference was not statistically significant. Means for the two groups indicated that both males and females perceived themselves as being competent, overall, in addressing issues pertaining to disabled students.

Age of Teacher

A one-way analysis of variance (ANOVA) was conducted to examine the overall mean ratings of the perceived competency level by teacher age group. A one-way ANOVA was used because the dependent variable indicated interval data; the independent variable had four age groups (21-30, 31-40, 41-50, and 51-60 years). The self-reported competency rating is ordinal data, but was analyzed as interval data because they were separated by intervals and assumed to be of equal distance (Tuckman, 1999). Agricultural

education teachers' perceived competency mean values when compared by age group did not differ significantly. The overall differences were statistically not significant ($F = 1.79, p = .156$). Across the four age groups, teachers tended to rate themselves as competent.

Highest Educational Level

A *t-test* was conducted to compare differences between the overall mean ratings for perceived competency by an associate/bachelor degree holding teacher and a master's/ doctoral degree-holding teacher. Teachers who had attained a master's or doctorate had a mean level of 3.53 as compared to a mean of 3.34 for those who had associate or bachelors' degrees. The differences were not statistically significant. The means for both groups indicated that teachers perceived themselves as competent overall.

Residential Area

A *t-test* was conducted to compare differences between the current perceived competency mean ratings relative to residential area. Teachers who grew up in an urban or suburban area had a mean rating of 3.46, whereas teachers who grew up in a rural/ farm, or rural-nonfarm area had a mean rating of 3.40, differences that were not significant statistically. Both groups rated themselves as competent, overall.

Objective two of the study was to identify self-perceived competencies needed by secondary teachers of agriculture to work with disabled students enrolled in agricultural, career, and technical education programs. The findings are shown in Table 1.

The five competencies rated most frequently in the combined categories of "not competent" and "slightly competent" by the agricultural teachers while working with disabled students were: Completing individual vocational education plan (IVEP) (68.9%); being familiar with laws that apply to special needs students (46.8%); completing individual education plan (IEP) (42.3%); assisting the student in viewing his/her assets and limitations realistically (25.3%); and utilizing a variety of teaching

Table 1
Teacher-Perceived Competency Level While Working With Disabled Students by Percentage of Agriculture Teachers

Competency	<i>n</i>	NC %	SC %	C %	VC %	EC ¹ %
Completing Individual Vocational Education Plan (IVEP)	87	37.9	31.0	19.5	10.3	1.1
Familiar with laws that apply to special needs students	92	10.9	35.9	31.5	16.3	5.4
Completing Individual Education Plan (IEP)	90	16.7	25.6	27.8	18.9	11.1
Assist the student in viewing his/her assets and limitations realistically	91	4.4	20.9	46.2	27.5	1.1
Integrate and actively involve special needs students into vocational organizations	89	4.5	14.6	24.7	40.4	15.7
Provide leadership role and opportunities	90	4.4	14.4	28.9	33.3	18.9
Supplement strategies that produce cognitive skills	89	5.6	12.4	41.6	34.8	5.6
Utilize a variety of teaching methods and techniques to provide instruction	92	6.5	10.9	33.7	38.0	10.9
Format instructional materials into shorter units of work	90	3.3	13.3	36.7	35.6	11.1
Assist students in developing good study habits related to agricultural/vocational training	92	5.4	10.9	41.3	35.9	6.5
Provide methods of inclusion with other students with daily activities	92	5.4	9.8	28.3	44.6	12.0
Challenge the learner's skills and abilities	91	3.3	11.0	30.8	40.7	30.3
Use concrete, tangible demonstrations rather than verbal and abstract	91	4.4	8.8	23.1	45.1	18.7
Use objectives and orderly procedures on a daily basis	91	2.2	11.0	31.9	44.0	11.0
Influence attitudes of regular school personnel and other students toward acceptance	92	2.2	14.1	37.0	37.0	9.8
Use illustrations, audiovisual aids, field trips and direct experiences whenever possible	92	2.2	6.5	23.9	47.8	9.6
Demonstrate objectivity and sensitivity to cultural differences of special needs students	92	1.1	7.6	37.0	41.3	13.0

¹Note. NC=Not Competent, SC=Slightly Competent, C=Competent, VC=Very Competent, EC=Extremely Competent

methods and techniques to provide instruction for disabled students (17.4%).

The two competencies rated least frequently as needed by teachers in the combined categories of “not competent” and “slightly competent” were: Demonstrate objectivity and sensitivity to cultural differences of special needs (disabled) students (8.9%); and use illustrations, audiovisual aids, field trips, and direct experiences whenever possible (8.7%).

Objective three of the study was to compare the self-perceived competency ratings of secondary agricultural education teachers with their desired competency levels. A paired *t-test* was used to determine if statistically significant differences occurred between teachers’ current and desired competency ratings of all competency statements. Findings in Table 2 indicate that the teachers’ highest current

competency level ($M=3.88$) was in the use of illustrations, audiovisual aids, field trips, and direct experiences. The highest desired competency mean rating ($M = 4.51$) was in the same area. On the other hand, the lowest current competency mean level ($M = 2.15$) was for the item on completing individual career and technical education plans (IVEP). Evidently, the teachers recognized the importance of this competency by their desired mean score of 3.95. The lowest competency desired mean rating was 3.54, for utilizing a variety of teaching methods and techniques to provide instruction. The self-reported desired competency ratings for all competency statements were significantly higher than the self-reported current competence for these same statements. The differences between the mean ratings for all competency statements were statistically significant.

Table 2

Means, Standard Deviations, and Dependent t-test Results for Agriculture Teacher-Perceived Competency Level for Working With Disabled Students

Competency	n	Current and (Desired)		t	p
		M	S.D.		
Use illustrations, audiovisual aids, field trips and direct experiences whenever possible	86	3.88 (4.51)	0.80 (0.66)	7.69	<.001
Use concrete, tangible demonstrations rather than verbal and abstract	86	3.77 (4.43)	0.87 (0.66)	8.13	<.001
Challenge the learner's skills and abilities	86	3.63 (4.45)	0.85 (0.68)	9.17	<.001
Integrate and actively involve special needs students into vocational organizations	83	3.59 (4.33)	0.93 (0.79)	7.92	<.001
Demonstrate objectivity and sensitivity to cultural differences of special needs students	87	3.59 (4.27)	0.83 (0.72)	8.51	<.001
Use objectives and orderly procedures on a daily basis	86	3.58 (4.36)	0.80 (0.74)	8.83	<.001
Provide leadership role and opportunities	83	3.55 (4.38)	0.99 (0.74)	7.76	<.001
Utilize a variety of teaching methods and techniques to provide instruction	85	3.51 (4.38)	0.78 (0.68)	10.67	<.001
Format instructional materials into shorter units of work	85	3.50 (4.32)	0.85 (0.71)	9.23	<.001
Assist students in developing good study habits related to agricultural/vocational training	86	3.38 (4.31)	0.76 (0.65)	11.20	<.001
Influence attitudes of regular school personnel and other students toward acceptance	86	3.42 (4.18)	0.85 (0.76)	8.47	<.001
Provide methods of inclusion with other students with daily activities	86	3.38 (4.31)	0.76 (0.65)	11.20	<.001
Assist the student in viewing his/her assets and limitations realistically	87	3.36 (4.31)	0.81 (0.73)	11.20	<.001
Supplement strategies that produce cognitive skills	84	3.36 (4.31)	0.81 (0.73)	10.10	<.001
Completing Individual Education Plan (IEP)	83	2.88 (4.06)	1.15 (1.07)	9.57	<.001
Familiar with laws that apply to special needs students	86	2.69 (4.35)	1.04 (0.73)	13.80	<.001
Completing Individual Vocational Education Plan (IVEP)	79	2.15 (3.95)	1.04 (1.14)	12.77	<.001

Note. 1= Not Competent; 2=Slightly Competent; 3=Competent; 4=Very Competent; 5=Extremely Competent

* $p < .001$.

Conclusions, Implications, and Recommendations

Based upon the findings of the study, the following conclusions were drawn and implications identified. This study compared the self-perceived current and desired competencies of secondary agricultural education teachers working with disabled students in the Pennsylvania. Because programs have evolved toward mainstreaming disabled students due to legislation and various philosophies held by educators, most agricultural educators continue to feel less than competent while working with disabled students. As the curriculum has changed, so have the needs of the teachers and students. As an increased number of disabled students enter into agricultural education courses, teachers will need additional training to teach these students.

The areas where teachers felt the least competent were completing Individual Vocational Education Plans (IVEP) and Individual Education Plans (IEP). Secondary agricultural education teachers need additional training to develop IVEP and IEP plans, and training to become more knowledgeable with laws that apply to special needs students. In analyzing the results and improving the competency level while working with IVEP and IEP plans, an individual student analysis will allow the instructor to help individualize a student's program. Phelps (1979) suggested that this analysis should consist of career and technical aptitudes (manual dexterity and work capacity), basic skills (reading, writing, numerical and communication skills), and occupational interests and aspirations. This analysis will give the instructor the opportunity to view the student's strengths and weaknesses. This assistance should come from administrators and an assessment team comprised of special education teachers, guidance counselors, career and technical educators, career and technical evaluators, rehabilitation professionals, career and technical support service personnel, school psychologists, and social workers who should be encouraged to work with the

instructors. Institutions that provide pre-service and in-service training to agricultural educators should consider seriously incorporating training to increase the competence level in these areas. Because teachers perceived themselves as less competent while working with plans (IVEP and IEP), it was concluded that their desires to increase their knowledge in these areas should be addressed by appropriate assistance from administrators and through training. This assistance may be conducted through in-service education or coursework in the universities preparing people to teach.

When comparing the means of the current level of competency held by the teachers to the means of the desired competency level, all desired mean scores were higher. The highest mean differences were in the areas of a) completing IVEP plans; b) being familiar with laws that apply to disabled students; and c) completing IEP plans. These competency statements are similar as they exhibit statutory and regulatory administrative needs of and demands made on teachers. Administrators should provide teachers with current information and allow in-service time so that teachers are able to become more familiar with these past and current legislative mandates that refer to disabled students.

On the other hand, the lowest mean differences were exhibited in the areas of a) using concrete, tangible demonstrations rather than verbal and abstract; b) using illustrations, audiovisual aids, field trips, and direct experiences whenever possible; and c) demonstrating objectivity and sensitivity to cultural differences of disabled students. The smaller mean differences in these areas may be attributed to the hands-on type of curriculum involved in agricultural and career and technical education courses. As evident by the findings, the researchers concluded that teachers in this study had the desire to increase their knowledge in these areas.

This study may have implications for other teachers employed in the agricultural sciences in the United States who work with disabled students. Agricultural educators, as a community, would benefit by training teachers to work with disabled students so

that these students will be able to make a positive contribution to society. This research should be replicated on both a regional and national level.

One implication arising from the findings of this study is that many students in Pennsylvania may not be adequately served because of the poor teaching, social, and professional skills of teachers as reflected by their perceived levels of competence. Although the teachers may have rated themselves lower than their actual competence level, the findings that they are competent but that they need additional training. To increase teacher skills, in-service programs must be developed, advertised, and marketed to secondary level agricultural education teachers. The content of these programs must include, as a minimum, the areas where significant differences exist between current and desired levels of competence. Prospective teachers in teacher preparation programs need to develop skills to work with disabled students; this should be an integral part of the baccalaureate degree program. The findings of this study may contribute to the body of literature related to mainstreaming and inclusion of disabled students as it relates to agricultural, career, and technical educators. It is recommended that:

1. Experimental research be conducted to determine the competency levels of teachers while working with disabled students.
2. In-service programs be planned so teachers may increase their knowledge base while working with disabled students.
3. Agricultural education programs continue training programs with new teachers to increase their levels of awareness and competence while working with disabled students.

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