# TRAINING NEEDS OF NEW MEXICO AGRICULTURAL EDUCATION TEACHERS RELATED TO INCLUSION OF STUDENTS WITH SPECIAL NEEDS

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## Abstract

*The purpose of this study was to describe New Mexico secondary agricultural education teachers' perceptions of the importance and their level of competence on state special needs inclusion competencies and skills for teaching students with special needs. Additionally, this study sought to determine pre-service and in-service training needs for working with students with special needs. A census of New Mexico agricultural education teachers received a mail questionnaire during spring and summer 2003. The inclusion competencies most in need of strengthening among the teachers were: understanding special education regulations, understanding different levels of special education services, understanding different levels of disabilities, and understanding the social needs of special education students. The special education teaching skills most in need of strengthening were: dealing with uncooperative special education students, working with more than one type of disability, keeping special education students on task, and adapting facilities for special education students.*

## Introduction and Conceptual Framework

According to Hughes and Barrick (1993), changing student demographics in high school agriculture programs across the nation have increased the number of limited opportunity and special needs students enrolled in these programs. A recent study in New Mexico determined that approximately 19% of the students enrolled in agricultural education in the state are classified as special education students (Dormody, Seevers, Andreason, & VanLeeuwen, 2006).

In a 2002 follow-up study of New Mexico State University, Department of Agricultural and Extension Education graduates from 1990-2001 who were currently teaching secondary agriculture, respondents were asked to describe their perceptions regarding selected teacher competencies (Dormody & Torres, 2002). The researchers found that at graduation subject's current ability scores regarding the inclusion of exceptional students in the instructional process to be relatively low among the teachers. This suggested a need for follow-up research with New Mexico agricultural education teachers on specific inclusion competencies and skills for teaching special needs students. Such research could lead to appropriate modifications in the pre-service and in-service training of these teachers. The New Mexico Board of Education's (2000) competencies for entry-level secondary teachers related to the inclusion of special needs learners provided the researchers with the foundation for studying specific inclusion competencies among New Mexico agricultural education teachers. Another New Mexico State University study provided the foundation for studying the teachers' skills for teaching students with special needs (Cummings, 2003).

Similar findings to the Dormody and Torres (2002) study were identified in a study of the in-service needs of Utah

agricultural education teachers (Sorenson, Tarpley, & Warnick, 2005). This study found that the teachers rated their ability to "teach learning disabled students" (p. 8) the lowest among 31 core competencies while also rating it as an important core competency. These ratings led to teaching learning disabled students receiving the fifth highest weighted discrepancy score from among the 31 core competencies and hence, a high priority designation from the authors for in-service of Utah agricultural education teachers. A Delphi study of beginning Florida agriculture teachers by Myers, Dyer, and Washburn (2005) determined that "making ESE/special education accommodations" (p. 53) ranked sixth among 11 major problems facing beginning agriculture teachers.

In a study by Elbert and Baggett (2003), Pennsylvania secondary agricultural education teachers rated specific competencies for working with disabled students. Nearly 95% of the respondents had experience teaching special needs students. The five competencies the teachers rated themselves most often as not or slightly competent were 1) completing individual vocational plans, 2) being familiar with the laws that apply to special needs students, 3) completing individual education plans, 4) assisting students in viewing his/her assets and limitations realistically, and 5) integrating and actively involving special needs students into vocational organizations (p. 110). Current ability was rated significantly lower than desired ability on all 17 competencies for working with disabled students. The authors noted that, "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" (p. 114). They recommended more effort on developing competency in working with disabled students among the state's agricultural education teachers through pre-service and in-service education programs.

A recent study of New Mexico secondary agricultural education teachers' perceptions of the challenges experienced in including special needs students concluded that among students with special needs, those with mental retardation and limited English proficiency were the most challenging to include in courses with a classroom-only format. Students with mental retardation, physical disabilities, and emotional/behavioral disorders were the most challenging to include in a laboratory/shop-only format. Mentally retarded students were most challenging to include in a combination format. Younger teachers and teachers on a block schedule had perceptions of a higher degree of challenge in including students with special needs than older teachers and teachers not on a block schedule (Dormody, et al, 2006).

Cotton (2000) determined the professional development needs related to students with special needs of Indiana vocational technical education teachers. The greatest needs that emerged from the study were assisting in IEP writing and identifying resources (materials, equipment, or services) that outside agencies could fund. In their book, Sarkees-Wircenski and Scott (2003) state,

> One of the most important processes in which career and technical education personnel should be involved is the preparation, implementation, and evaluation of the individual education programs (IEPs) for learners from special populations…it is important that the instructor and other school and community-based personnel engage in a team effort to develop individual plans that will enable learners to succeed in meeting their career goals (p. 327).

Cumming's (2003) study of New Mexico Family and Consumer Sciences (FCS) teachers' preparation regarding special education found that 65% of respondents perceived themselves to be "not at all prepared" or "somewhat prepared" to work with special education students (p. 55). They perceived teaching students with many ability levels in the same class, keeping the attention of all class members, and keeping class members together on topics to be the biggest challenges they face related to special education. Top special education in-

service topics identified by the teachers were: 1) making modifications to reach Individualized Educational Plans (IEPs), 2) evaluating learning, and 3) making classroom modifications.

Several legislative efforts such as Public Law (P.L.) 94-142, the Education for All Handicapped Children Act (EACHA); its subsequent amendment, P.L. 101-476; and P.L. 105-17, the Individuals with Disabilities Education Act (IDEA), emphasize special education and related services designed to meet the unique needs and protect the rights of children with disabilities. The laws mandate that states and localities assist in providing for the education of all children with disabilities, and assess and assure the effectiveness of efforts to educate children with disabilities (Heward, 2003; Kessell, Lawver, Davis, & Fraze, 2005). P.L. 105-332, the Carl D. Perkins Vocational and Technical Education Act of 1998 (New Mexico Board of Education, 1998) requires public secondary schools receiving federal dollars for their career and technical education programs to ensure access, success, and absence of discrimination for special population students.

Never before has there been more accountability in American public schools for the academic performance of students with special needs. The No Child Left Behind (NCLB) Act of 2001 (Bush, 2001) and House Bill 212 as Amended (Legislature of the State of New Mexico, 2003) the New Mexico education law based on NCLB, make it clear that New Mexico public schools will be held accountable for the academic performance of students with disabilities, limited English proficiency students, and other subgroups of the student population. Under performance by any subgroup of students ensures that a school fails to achieve adequate yearly progress. Schools that fail to achieve adequate yearly progress over an extended period of years face a number of improvement and possibly corrective or restructuring actions. Secondary agricultural education teachers are expected to contribute to the academic performance of their students, including special needs students, and hence, to the success of their school in achieving adequate yearly progress.

In their review of special education law, Kessell et al. (2005) warned the agricultural education profession,

> If the educator is incapable in meeting the needs of the special needs student, then the next course of action by a parent or guardian is to remedy these inequities in a court of law. Judicial proceedings lead to massive expense suffered by school districts and state educational agencies (pp. 9-10).

In summary, the literature reviewed here indicate a paucity of research in secondary agricultural education related to teaching special needs students; that past research generally indicates agricultural education teachers perceive low ability, but high importance of competencies in teaching special needs students; unprecedented accountability for American schools and school personnel for the inclusion and performance of special needs students; and the possibility of tort action for failing to meet the educational needs of special needs students. Agricultural education teachers can expect students with special needs to represent a sizable proportion of the total population of students in their program. Therefore, further research on the training needs of secondary agricultural education teachers related to the inclusion and teaching of special needs students is both timely and needed.

## Purpose and Objectives

The purpose of this study was to describe New Mexico secondary agricultural education teachers' perceptions of the importance and their level of competence on state special needs inclusion competencies and skills for teaching students with special needs. Additionally, this study sought to determine pre-service and in-service training needs for working with students with special needs. The following objectives were used to guide the study:

1. Describe New Mexico agricultural education teachers on selected

personal and professional characteristics.
2. Describe the level of importance teachers place on New Mexico Board of Education (2000) competencies related to inclusion of special needs students and how competent teachers perceive themselves to be in performing them.
3. Describe the level of importance teachers place on skills for teaching special needs students and how competent teachers perceive themselves to be in performing them.
4. Determine pre-service and in-service training needs of New Mexico agricultural education teachers related to the inclusion of and skills for teaching special needs students.

## Methods/Procedures

The study used a census of all secondary agricultural education instructors (excluding those teaching only at the middle school level who were part of the pilot study) in New Mexico during Spring 2003 ($n$ = 93). Data were collected in spring and summer 2003 using a modified Dillman approach (1978). A mail questionnaire constructed by the researchers was used. The instrument contained seven sections. Objectives of this study were addressed in sections three and four of the final instrument. Section three utilized two four- point Likert-type scales to measure perceived importance of and competence with New Mexico State Board of Education (2000) competencies related to inclusion. The section was comprised of 19 competency statements. Teachers were asked to rate their perception of the importance of each competency on a four-point scale where 1 = not important and 4 = very important. For the same 19 competency statements, teachers rated their own perceived level of competence on a four-point scale where 1 = not competent and 4 = very competent. Section four assessed perceptions of teaching skills necessary for working with special needs students (adapted from Cummings, 2003). As with the inclusion competencies, this section measured perceived importance and perceived personal level of competence with each skill. The same two Likert-type four-point scales were used to measure perceived importance and competence for the teaching skills which comprised of 15 teaching skill statements. Seven teaching skills were represented by one statement. One teaching skill, involving the supervision of special education students in different teaching situations, was represented by eight statements.

Face and content validity of the instrument were assessed by a panel of seven experts representing the areas of agricultural education, teaching, research and special education. Reliability of sections three and four were assessed using a pilot group of New Mexico middle school agriscience teachers and former agricultural education teachers now employed with the New Mexico Cooperative Extension Service ($n$ = 12). Cronbach's alpha coefficients were calculated to determine internal consistency. Both the importance and competence scales for the New Mexico State Board of Education competencies related to inclusion had Cronbach's alpha coefficients of .95. The importance scale for teaching skills had a coefficient of .94, while the competence scale had a coefficient of .93. To collect the data, two complete mailings of the instrument and a cover letter plus email and postcard reminders were sent. A final follow-up was conducted with non-responding teachers in July 2003 at the state agricultural education conference. A final usable response rate of 74% ($n$ = 69) was achieved.

Descriptive statistics were used to describe the data. Discrepancy scores were calculated for each inclusion competency and teaching skill by subtracting the importance mean from the self-reported competency mean. Discrepancy scores were then analyzed using a hierarchical linear model (Raudenbush & Bryk, 2002) with item, scale (importance or competence) and item-scale interaction as fixed model effects. The model also incorporated random effects for the respondent, the respondent by scale interaction and the usual error term. These terms appropriately model correlations between responses from the same individual and within the same scale and individual.

The model and analysis were implemented using SAS Proc Mixed software version 9.1. The Kenward-Rogers degree of freedom option (SAS Institute, 2004) was specified to adjust both error degrees of freedom and standard error estimates.

For objectives 2 and 3, the standard error of the difference between two item means within the same scale is about .10, and the standard error of the difference comparing the two scale means for the same item is about .13. As a rule of thumb cutoff, for relatively large sample sizes such as these, differences that exceed 2 times the standard error correspond roughly to differences that would be deemed significant at $p < 0.05$ using a t-test (see any t-table in a basic statistic text). Using this cutoff, items within the same scale that differ by more than .20 (2 x the standard error = 2 x .10) can be considered significantly different while within an item, the scale means would be considered significantly different if they differ by more than .26. Additionally, within a scale, for purposes of discussion, item means differing by less than .10 may be referred to as similar.

## Findings

*Objective 1: Describe New Mexico agricultural education teachers on selected personal and professional characteristics*

The majority of respondents were male ($n$ = 54, 78.2%), ranging in age from 23-67 years with a mean of 38.5 and had been teaching for an average of 11.3 years. All teachers had a bachelor's degree and 47.8% ($n$ = 34) had earned a master's degree. An overwhelming majority ($n$ = 67, 97.1%) held a secondary teaching license with an endorsement in agriculture. The most common second teaching field listed on a license was science ($n$ = 33, 47.8%). Only 21.7% ($n$ = 15) reported teaching in a block schedule. A large majority of teachers taught students in grades 9-12, while 50.7% ($n$ = 35) also taught students in grade 8 and 34.8% ($n$ = 27) taught students in grade 7. Only four (5.8%) teachers taught agricultural education students in grade 6.

*Objective 2: Describe the level of importance teachers place on New Mexico Board of Education (2000) competencies related to inclusion of special needs students and how competent teachers perceive themselves to be in performing them*

New Mexico Board of Education (2000) competencies related to inclusion were ranked by importance and competence in Table 1 based on mean scores. Comparisons were made between the rankings of the competencies by importance mean score and self-rating of competence mean score. Discrepancy scores were calculated by subtracting the competence mean score from the importance mean score for each competency.

The hierarchical model for data presented in Table 1 reveals that all three fixed effects were significant (item p-value $< 0.001$, scale p-value $< 0.001$, and item scale interaction p-value = 0.006). Importance means for individual items ranges from 3.14 to 3.58. Overall the importance mean rating across items was 3.39, while the competence mean rating averaged across items was 2.71 with individual means ranging from 2.29 to 3.03. However, the significant interaction indicates that this difference was not consistent across all items and the importance rankings differ substantially from the competence ratings.

Nonetheless, for all the competencies listed in Table 1, the mean importance rating was more than .26 higher, and therefore significantly higher than the mean competence rating. The smallest difference (.45) was for "collaborating with special education teachers for IEP implementation" and the largest difference (.97) was for "understanding special education regulations."

Table 1
*Teachers' Perceived Level of Importance and Competence on New Mexico Board of Education Competencies Related to Inclusion*

| Importance Ranked by Mean Score | Importance Mean | Competence Mean & Rank | Discrepancy Scores |
|---|---|---|---|
| 1. Assisting students in understanding social responsibilities | 3.58 | 2.77 (8) | .81 |
| 2. Understanding individualized education plans (IEPs) | 3.55 | 2.97 (2) | .58 |
| 3. Assisting students with special needs to have positive experiences in the regular classroom | 3.55 | 2.95 (4) | .60 |
| 4. Understanding the physical needs of special needs students | 3.55 | 2.92 (3) | .63 |
| 5. Modifying lessons/strategies for students with physical disabilities | 3.52 | 2.82 (6) | .70 |
| 6. Collaborating with special education teachers for IEP implementation | 3.48 | 3.03 (1) | .45 |
| 7. Understanding the academic needs of special education students | 3.44 | 2.74 (10) | .70 |
| 8. Understanding special education regulations | 3.44 | 2.47 (18) | .97 |
| 9. Understanding responsibilities in implementing objectives set in an IEP | 3.42 | 2.73 (11) | .70 |
| 10. Modifying lessons/strategies for students with varying academic levels | 3.41 | 2.76 (9) | .65 |
| 11. Recommending changes in IEPs when necessary | 3.39 | 2.85 (5) | .55 |
| 12. Understanding different levels of disabilities | 3.36 | 2.53 (15) | .83 |
| 13. Modifying lessons/strategies for students with special needs | 3.34 | 2.81 (7) | .53 |
| 14. Understanding the emotional needs of special needs students | 3.33 | 2.59 (14) | .74 |
| 15. Modifying lessons/strategies for students with emotional disabilities | 3.26 | 2.53 (16) | .73 |
| 16. Monitoring achievement as set by an IEP | 3.24 | 2.52 (17) | .73 |
| 17. Developing lessons according to IEPs | 3.22 | 2.68 (12) | .55 |
| 18. Understanding different levels of special education services | 3.21 | 2.29 (19) | .92 |
| 19. Understanding social needs of special education students | 3.14 | 2.62 (12) | .52 |

*Note.* Standard deviations ranged from .61-.90 for importance items and .52-.90 for competence items; Scale: 4 = Very Important, Very Competent; 3 = Moderately Important, Moderately Competent; 2 = Slightly Important, Slightly Competent; 1 = Not important, Not Competent

Using the decision rule, the first 6 competencies in Table 1 have very similar importance means and the first 11 items do not differ significantly. Consequently, while, "assisting students in understanding social responsibilities" had the highest mean rating, its rating was similar to the rating for the means of several other items.

*Objective 3: Describe the level of importance teachers place on skills for teaching special needs students and how competent teachers perceive themselves to be in performing them*

Given a list of skills a teacher might need while teaching special education students, teachers were asked to rate how important each skill was to them in their role as a teacher and describe their perceived level of competence with each skill. Comparisons were made between teachers' ranking of the skills by importance mean score and their self-rating of competence mean score (Table 2). Discrepancy scores were calculated by subtracting the competence mean score from importance mean score for each teaching skill.

The hierarchical model analysis for data presented in Table 2 reveals that all three fixed effects were significant (item p-value $< 0.001$, scale p-value$< 0.001$, and item scale interaction p-value $< 0.001$). Importance means for individual items range from 3.09 to 3.79. Overall the importance mean rating across items was 3.40, while the competence mean rating averaged across items was 2.93 with individual means ranging from 2.47 to 3.50. However, the significant interaction indicates that this difference was not consistent across all items and the importance rankings differ substantially from the competence ratings.

The mean importance rating was higher than .26 and therefore significantly higher than the mean competence rating for all but "supervising special education students in Career Development Events (CDE's)" (discrepancy score = .22). The largest difference (.91) was for, "dealing with uncooperative special education students."

Table 2
*Teachers' Perceived Levels of Importance and Competence Toward Special Education Teaching Skills*

| Importance Ranked by Mean Score | Importance Mean | Competence Mean & Rank | Discrepancy Scores |
|---|---|---|---|
| 1. Providing a safe learning environment for all students | 3.79 | 3.50 (1) | .29 |
| 2. Keeping special education students on task | 3.65 | 2.94 (10) | .71 |
| 3. Supervising special education students in agricultural mechanics laboratory | 3.55 | 3.08 (3) | .47 |
| 4. Dealing with uncooperative special education students | 3.50 | 2.59 (14) | .91 |
| 5. Supervising special education students in SAE | 3.47 | 3.04 (4) | .43 |
| 6. Supervising special education students in small group instruction | 3.43 | 3.10 (2) | .33 |
| 7. Teaching students of differing academic levels in the same class | 3.41 | 2.95 (9) | .46 |
| 8. Supervising special education students in other laboratory situations | 3.38 | 3.01 (8) | .37 |
| 9. Supervising special education students small group instruction | 3.38 | 2.91 (11) | .47 |
| 10. Supervising special education students in individual classroom instruction | 3.37 | 3.03 (6) | .34 |
| 11. Supervising special education students in large group instruction | 3.28 | 3.01 (7) | .27 |
| 12. Adapting facilities for special education students | 3.28 | 2.63 (13) | .65 |
| 13. Supervising special education students in CDE's | 3.25 | 3.01 (7) | .22 |
| 14. Working with more than one type of disability | 3.22 | 2.47 (15) | .75 |
| 15. Accommodating a number of special education students in a class | 3.09 | 2.68 (12) | .41 |

*Note.* Scale: 4 = Very Important, Very Competent; 3 = Moderately Important, Moderately Competent; 2 = Slightly Important, Slightly Competent; 1 = Not important, Not Competent

*Objective 4: Determine pre-service and in-service training needs of New Mexico agricultural education teachers related to the inclusion of and skills for teaching special needs students*

Training needs related to inclusion and special education teaching skills were based on differences reported between self-reported importance and competence mean scores. Higher levels of discrepancies indicated a higher training need (Table 3). For interpretation of results, inclusion competencies with discrepancy scores of .90 or higher were rated a high training need, scores ranging from .70 to .89 indicated a moderate training need, and items with a discrepancy score between .60 and .69 indicated a slight training need. Prioritization of training needs related to the teaching skills was based on the following criteria: items with discrepancy scores of .90 or higher were rated as high training needs, scores ranging from .60 to .75 indicated a moderate training need, and items between .41 and .47 indicated a slight training need.

Using these criteria, 12 training needs were identified related to the state competencies on inclusion. The highest needs identified were understanding special education regulations and understanding different levels of special education services with discrepancy scores of .97 and .92, respectively. Seven moderate training needs were identified including understanding different levels of disabilities and assisting students in understanding social responsibilities. Five additional state level competencies were identified as having a slight training need. Nine training needs associated with special education teaching skills were identified. The highest need related to handling uncooperative special education students had a discrepancy score of .91. Three moderate training needs were identified related to working with more than one disability, keeping special education students on task and adapting facilities for special education students. Five additional training needs related to teaching skills were identified as slight needs.

Table 3
*Training Needs Related to Inclusion and Special Education Teaching Skills*

| State Inclusion Competencies | |
|---|---|
| High | Understanding special education regulations (.97) |
| | Understanding different levels of special education services (.92) |
| Moderate | Understanding different levels of disabilities (.83) |
| | Assisting students in understanding social responsibilities (.81) |
| | Understanding the emotional needs of special education students (.74) |
| | Modifying lessons/strategies for students with emotional disabilities (.73) |
| | Understanding the academic needs of special education students (.72) |
| | Monitoring achievement as set by an IEP (.72) |
| | Modifying lessons for students with physical disabilities (.70) |
| Slight | Modifying lessons/strategies for students with varying academics levels (.65) |
| | Understanding individualized education plans (IEP's) (.63) |
| | Understanding the physical needs of special needs students (.63) |
| | Assisting students with special needs to have positive experiences in the regular classroom (.60) |
| **Special Education Teaching Skills** | |
| High | Dealing with uncooperative special education students (.91) |
| Moderate | Working with more than one type of disability (.75) |
| | Keeping special education students on task (.71) |
| | Adapting facilities for special education students (.65) |
| Slight | Supervising special education students in other laboratory situations (.47) |
| | Supervising special education students in ag mechanics laboratories (.47) |
| | Teaching students of differing academic levels in the same class (.45) |
| | Supervising special education students in SAE (.43) |
| | Accommodating a number of special education students in a class (.41) |

## Conclusions, Recommendations, and Implications

The competencies most in need of strengthening among New Mexico agricultural education teachers relative to inclusion were understanding special education regulations (similar to the second lowest-ranked special needs competency identified in Elbert and Baggett, 2003), understanding different levels of special education services (similar to the second greatest special needs professional development need identified in Cotton, 2000), understanding different levels of disabilities (similar to the biggest challenge teachers face related to special education students identified in Cummings, (2003), and understanding the social needs of special education students. The special education teaching skills most in need of strengthening among the teachers were dealing with uncooperative special education students, working with more than one type of disability (similar to the biggest challenge teachers face related to special education students identified in Cummings), keeping special education students on task, and adapting facilities for special education students (similar to the third most important special education in-service topic identified in Cummings). Other needs rated as

"moderate" and needs rated as "slight" by the teachers should be addressed after these first eight are addressed.

Knowing what inclusion competencies and special education teaching skills to strengthen among New Mexico agricultural education teachers coupled with what is currently known about the professional development activities that influence these teachers' development of essential teaching competencies provides a basis for making recommendations for the pre-service and in-service professional development of the teachers. Dormody & Torres (2002) found that New Mexico agricultural education teachers found a variety of professional development activities to be influential in developing essential teacher competencies while teaching. On-the-job experience was perceived as exerting a high influence on their professional development. Professional development activities that were perceived to have a moderate influence on their development of essential teacher competencies (from most to least influential) were: 1) having a student intern, 2) state agricultural education teachers association sponsored in-service, 3) assistance from the state FFA Executive Secretary, 4) information from other agricultural education teachers, 5) New Mexico State University sponsored in-service, 6) informal mentoring by local school teachers outside of agricultural education, 7) formal university courses taken in a graduate or non-degree program, 8) self-directed study in special interest areas, 9) a local school mentoring program, 10) the New Mexico State University teacher induction program, 11) material acquired on the Internet, 12) formal local school performance evaluation program, and 13) regional or national professional organization in-service.

Based on the conclusions from this study and Dormody and Torres (2002) study, the following recommendations are made for pre-service and in-service programs for New Mexico agricultural education teachers regarding inclusion competencies and skills for teaching special education students. As recommended in Dormody et al. (2006), classroom format (i.e., classroom-only, shop/laboratory-only, and combination) and the three aspects of the program (i.e., classroom and shop/laboratory, FFA and SAEP) should be overlays in any professional development programming addressing these inclusion and teaching skills needs.

*Pre-Service*

Based on the Dormody and Torres (2002) study, the Agricultural and Extension Education Department at New Mexico State University recently added an undergraduate and graduate degree requirement for a course in the Special Education and Communication Disorders Department on teaching students with special needs. The researchers should ascertain from the faculty teaching the undergraduate and graduate courses how the needs determined in this study are being addressed. For the needs that are not being addressed adequately, modifications in the courses may be possible for the agricultural education students enrolled. If these modifications cannot be made in the special education courses, the needs should be targeted for strengthening through 1) early field-based experiences and/or student teaching, 2) by utilizing resource people in required pre-service teacher education courses, 3) by allowing students to attend targeted agricultural education teacher in-service programs, and 4) through independent studies.

*In-service*

New Mexico agricultural education teachers should be encouraged to include the inclusion competencies and skills for teaching special education students identified as professional development needs in this study in their required professional development plans. They should be assisted by the state agricultural education office in finding ways to strengthen these competencies and skills as they move from a beginning teacher license to the other two levels of professional teacher licensure in New Mexico. The teachers should be encouraged to contact their special education teachers as resource people to help them strengthen these needs. This approach fits within the on-the-job-experience area the teachers rated as strongly influential in developing essential teacher competencies (Dormody & Torres,

2002). This approach also matches a moderately-influential rated professional development activity of informal mentoring by local school teachers outside of agricultural education. Other recommended direct and moderately-influential rated routes for strengthening the competency of New Mexico agricultural education teachers on these needs are state agricultural education teachers association, New Mexico State University, regional and national in-service programs; and the New Mexico State University teacher induction program utilizing special education resource people. Agricultural education teachers in a graduate or non-degree program could take existing evening, weekend, or distance education courses in special education. Independent studies could be arranged for the teachers. Indirect avenues for professional development on the needs identified in this study are involvement with pre-service students during student teaching, state agricultural education staff, and other agricultural education teachers who are more current in their education on inclusion competencies and teaching skills for special needs students.

Further research is recommended to describe New Mexico agricultural education teachers' access to resources and professional development opportunities for working with special education students and to determine the predictors of agricultural education teachers' competence in the inclusion competencies and skills for teaching special education students. Such research would provide further insights into improving competence with special needs students. Another topic the researchers recommend for further study that has strong implications for strengthening practice is describing the methods of accommodation or modification utilized by agricultural education teachers with their special education students.

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