

Agricultural Education for All: Importance and Ability of Agricultural Educators to Integrate Special Education Competencies into Professional Practice

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Abstract

School-Based Agricultural Education (SBAE) has served students with special needs for decades. The impact of Career and Technical Education (CTE), such as SBAE, can lead to higher earning potential, increased employment rates, and career exploration opportunities for students with special needs. However, many agricultural educators feel unprepared to differentiate instruction for students with special needs. This study examined SBAE teachers' professional development needs related to special education integration. In addition, the study evaluated statistical differences in how male and female agricultural educators value the importance of special education integration and their ability to implement it into professional practice. The instrument utilized fourteen competencies needed for educators to effectively teach students with special needs. A census of (N = 204) educators in three states- New Mexico, Utah, and Montana- was conducted with a response rate of 36.27% (n = 74). The findings indicated that while SBAE teachers recognize the importance of special education, they feel unprepared to implement it effectively. Furthermore, research objective two found that male agricultural educators value the importance of special education significantly less than female educators. Based on these findings, the researchers suggest offering professional development that emphasizes the importance of special education integration into SBAE. Furthermore, research exploring SBAE's impact on the career trajectory of students with special needs and specific strategies to maximize its effect is needed to ensure effective and efficient instruction for diverse learners.

Review of Literature

Over the past century, School-Based Agricultural Education (SBAE) has positively impacted millions of students by fostering leadership development (McKim et al., 2017), career exploration (Thieman et al., 2016), and essential employability skills (Haddad & Marx, 2018). While agricultural education has served students with special needs for decades (Teixeira & Edwards, 2020), the diversity in the classroom has increased as students with special needs have gained a higher level of acceptance in traditional classroom settings (Aschenbrener et al., 2010; Easterly & Myers, 2011; Johnson et al., 2012; Ramage et al., 2021; Ramage et al., 2022; Wilkins-Brittain et al., 2022).

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Special education is designed to assist students who qualify for modifications and accommodations to the traditional curriculum due to their unique circumstances (Stair et al., 2016). This is documented through an Individualized Education Plan (IEP) or a 504 plan that details the necessary changes to accommodate the student's needs (Ramage et al., 2021). The details of an IEP are essential to agricultural educators because they are bound by federal law to ensure that the accommodations and modifications to the curriculum detailed in the IEP are met (Needham & Houck, 2019). Currently, there are over 3,000,000 students with special needs nationwide (Office of Special Education and Rehabilitative Services, 2019), with approximately 180,000 of these students served through agricultural education (Teixeira & Edwards, 2020). The acceptance of students with special needs in agricultural education has risen, but 25% of teacher preparation programs lack coursework in special education integration (Faulkner & Baggett, 2010), contributing to educators' reported lack of confidence in effectively educating these students (Andreasen et al., 2007; Johnson et al., 2012; Kessell et al., 2009; Ramage et al., 2021; Ramage et al., 2022; Wilkins-Brittain et al., 2022).

In 1975, Gerald Ford signed the 'Education for All Handicapped Children Act', which introduced federal protections for the educational rights of students with special needs (Needham & Houck, 2019). This legislation required that students with special needs be placed in the Least Restrictive Environment (LRE), which is often the traditional classroom setting (Treder et al., 2000). The differentiation and modification of instruction needed to meet the needs of exceptional students can be difficult for educators of all experience levels (Giffing et al., 2010; Wilkins-Brittain et al., 2022). As the prevalence of students with disabilities increases in the agricultural education classroom, educators' competence in special education implementation will become increasingly critical to success in the profession (Aschenbrener et al., 2010; Easterly & Myers, 2011; Johnson et al., 2012; Ramage et al., 2022; Wilkins-Brittain et al., 2022). Differentiating and modifying instruction with compliance to students' 504 plans and IEPs is critical for student success and providing access to agricultural education for all (Ramage et al., 2022; Wilkins-Brittain et al., 2022).

Today, federal law protects the educational rights of exceptional students through the passage of the 'Individuals with Disabilities Education Act' (IDEA; Katsiyannis et al., 2001). This federal legislation advanced the requirement that students with special needs should be placed in the LRE, often with students who do not have disabilities (Treder et al., 2000). Numerous lawsuits have successfully challenged this assertion of the LRE placement, such as *MR v. Lincolnwood Board of Education* in 1994 (Boyle & Weishaar, 2001; Murdick et al., 2002). This ambiguity in the proper placement of students with special needs can create difficulty for educators.

Agricultural education and other forms of Career and Technical Education (CTE) provide these unique students with exposure to experiential instruction and the application of employability skills in an academic setting (Theobald et al., 2019). Furthermore, students with special needs enrolled in CTE benefit from higher earning potential, preparation for the workforce, and higher employment rates (Theobald et al., 2019; Wagner et al., 2016). For example, Johnson et al. (2012) found that 87% of North Carolina agricultural educators believed Supervised Agricultural Experiences (SAEs) helped students with special needs set career goals and enhanced their social skills. In addition, Giffing et al. (2010) found that 76.9% of agricultural educators agreed that their courses are a suitable placement for students with special needs. With approximately 96% of students with learning disabilities enrolling in at least one secondary CTE course in their academic career (Wagner et al., 2016), educator competence in special education implementation is becoming increasingly critical for success in the classroom (Levesque, 2003).

While competence in special education integration is an essential function of agricultural educators, many claim that they are not confident in appropriately educating students with special needs (Andreasen et al., 2007; Johnson et al., 2012; Kessell et al., 2009; Ramage et al., 2021; Ramage et al., 2022; Wilkins-Brittain et al., 2022). Ramage et al. (2021) determined that preservice agricultural educators completing

their student teaching did not feel confident in appropriately educating students with special needs. While Thoron et al. (2014) found no statistically significant differences in how male and female agricultural educators value the importance and ability to serve students with special needs appropriately, Ramage et al. (2022) suggested that female agricultural educators need more professional development in special education, which indicates a possible divergence in how male and female educators perceive special education integration. This divergence could lead to gender-based disparities in instructional practices. Understanding these differences is crucial for designing professional development that addresses the unique needs of male and female educators, ensuring equitable support for all students.

This overall lack of confidence in meeting the needs of these students is concerning, considering the litigious nature of not following the procedures set forth by the IEP (Hainline et al., 2019; Hainline et al., 2021). If an agricultural educator does not follow these procedures, it could cause negative professional and financial ramifications from legal action (Hainline et al., 2019; Hainline et al., 2021).

The negative repercussions of not following special education mandates can be damaging to educators personally and professionally (Hainline et al., 2019; Hainline et al., 2021). Ensuring that agricultural educators feel confident in meeting the instructional requirements of students with special needs is critical to agricultural education's continued success in the future (Ramage et al., 2021; Ramage et al., 2022; Wilkins-Brittain et al., 2022). While many educators report being unconfident in this area (Andreasen et al., 2007; Ramage et al., 2021; Ramage et al., 2022; Wilkins-Brittain et al., 2022), understanding which specific areas of professional development are essential will help inform agricultural education stakeholders on the needs of educators.

Purpose and Objectives

Agricultural educators meeting the needs of exceptional students is essential to success in the profession (Ramage et al., 2021; Ramage et al., 2022; Wilkins-Brittain et al., 2022). With agricultural educators reporting a lack of confidence in effectively educating students with special needs (Johnson et al., 2012; Ramage et al., 2021; Ramage et al., 2022; Wilkins-Brittain et al., 2022), recognizing specific deficiencies among SBAE teachers is crucial for providing targeted professional development.

Furthermore, Ramage et al., 2022 suggested that past research "...on the professional development needs of SBAE teachers concerning teaching students with special needs has overwhelming featured data from the male perspective" (p. 106). To address this concern, this study assessed the statistical differences in the perceived importance of special education integration among male and female agricultural educators. In addition, this study evaluated the statistical differences in male and female agricultural educators' self-reported ability to appropriately educate SBAE students with special needs.

The purpose of this study was to examine the perceptions of agricultural educators on the importance of various competencies of special education implementation and their ability to integrate those competencies into their professional practice to determine professional development needs. The following objectives guided this study:

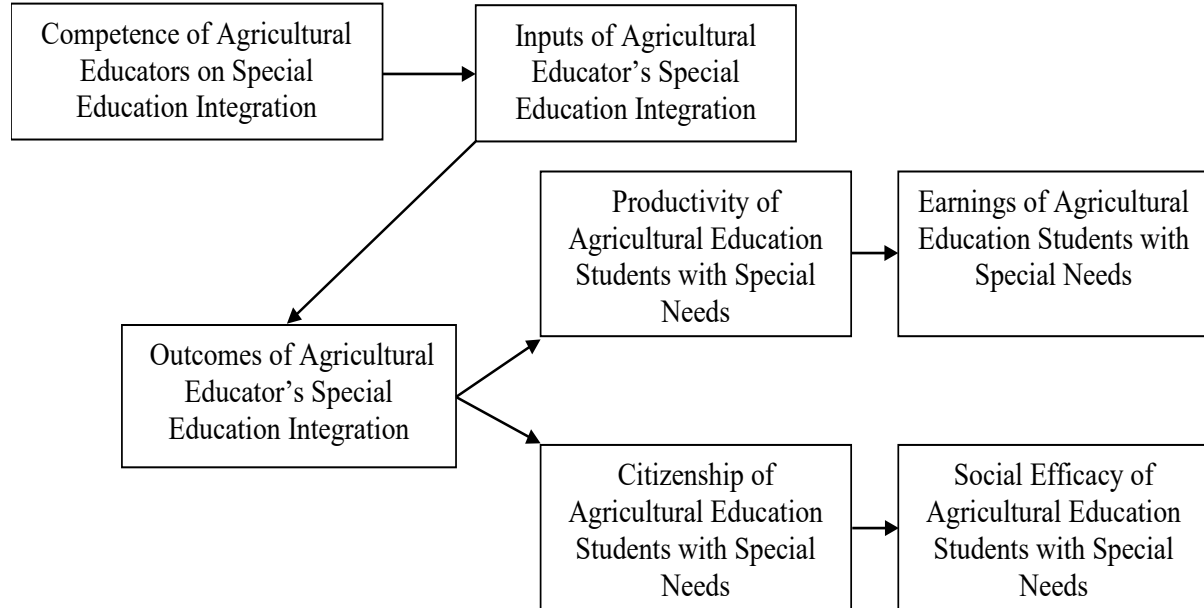
- 1.) Describe differences in the perceptions of agricultural educators on the importance of various special education competencies and their ability to implement those competencies into practice to determine professional development needs.
- 2.) Assess statistical differences in the perceptions of male and female agricultural educators on the importance of special education integration into SBAE and their confidence in integrating special education into professional practice.

Theoretical Framework

The theoretical framework used to guide this study was the Human Capital Theory (HCT). Developed by Becker (1993), the HCT asserts that inputs such as experience, education, and specialized training can increase an individual’s competence in various areas of their career. To increase human capital among agricultural educators, specialized training is offered through professional development to ensure effectiveness in the classroom (Easterly & Myers, 2019; Figland et al., 2019; Norris et al., 2023; Yopp et al., 2020). Additionally, one of the leading indicators of academic achievement is an effective educator (Eck et al., 2019; Eck et al., 2020; Eck et al., 2021; Rosenshine & Furst, 1971). As agricultural educators increase their human capital through specialized training, they are better equipped to meet the diverse needs of students with special needs, ultimately leading to improved student outcomes in both academic achievement and career preparation (Andreasen et al., 2007; Ramage et al., 2021; Ramage et al., 2022; Wilkins-Brittain et al., 2022). If agricultural educators are not effective in providing special education students with the proper instructional modifications and accommodations, this ineffectiveness can directly influence the outcomes of agricultural education students with special needs (Andreasen et al., 2007; Wilkins-Brittain et al., 2022). This study sought to ascertain which areas of special education agricultural educators need professional development to ensure effectiveness. In addition, this study evaluated the perceptions of male and female agricultural educators on their ability to integrate special education and the importance of integrating special education into SBAE. This interaction between the human capital inputs on agricultural educators’ competence in special education integration and the improved outcomes of agricultural education students with special needs is depicted in Figure 1.

Figure 1

Impact of Agricultural Educator’s Competence on Special Education Integration



Note. Developed based on Human Capital Theory (Becker, 1993).

Methods

Population

This study utilized a descriptive correlational research design in three states- New Mexico, Utah, and Montana- to evaluate SBAE teachers' perceptions of the importance of special education integration into SBAE and their ability to implement special education. These states were selected due to their close geographical proximity to each other, and the research instrument was distributed to ($N = 204$) agricultural educators in these states. The noteworthy demographics of the participating agricultural educators (see Table 1) show that 51.9% were male, 82.7% were white, and 60.8% held a graduate degree. Moreover, 61.5% taught in rural schools, and 82.7% were in the early or middle stages of their teaching careers.

Table 1

Demographic Data of Participating Agricultural Educators

Demographic Area	Demographic Sub-Area	Participants	
		<i>f</i>	%
Gender	Female	25	48.1
	Male	27	51.9
Race	White/Caucasian	43	82.7
	Hispanic	7	1.9
	Native American	1	13.5
	Other	1	1.9
Highest Degree Earned	No Degree	0	0.0
	Associates	1	1.9
	Bachelor's Degree	20	39.2
	Master's Degree	29	56.9
	Specialist	0	0.0
	Doctoral	2	3.9
School System Type	Rural	32	61.5
	Suburban	6	11.5
	Urban	13	25.0
	Other	1	2.0
Years of Teaching Experience	Early Career (1-7 Years)	21	40.4
	Middle Career (8-23 Years)	22	42.3
	Late Career (24+ Years)	9	17.3

Note. $n = 52$. The retention of partial responses causes the n to vary within the demographics.

Instrumentation

The instrument used in this study was a modification of the instrument developed from Dingle et al. (2004). The original instrument developed fourteen competencies on special education that educators need for effective implementation in their professional practice (Dingle et al., 2004). The instrument developed for this study utilized a modified Borich needs assessment to evaluate the perceptions of agricultural educators on the importance of special education integration into SBAE and their ability to integrate special education into professional practice. The modified Borich needs assessment utilized a Likert scale that ranged from 1 = *Not Important/Competent at All*; 2 = *Somewhat Important/Competent*; 3 = *Moderately Important/Competent*; 4 = *Very Important/Competent*; 5 = *Extremely Important/Competent*. The fourteen special education competencies from Dingle et al. (2004) are listed in Table 2.

Table 2*Special Education Competencies Utilized in the Instrument*

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1. Knowledge of specialized instructional styles and non-traditional teaching practices and procedures.
 2. Facilitates the physical classroom environment that allows for flexible scheduling and transition times.
 3. Knowledge of instructional adaptations including alternative assignments, supplemental instruction, differential standards, and shortened assignments.
 4. Implements lesson plans that are appropriate for diverse learners.
 5. Increases participation of students with special needs in general education settings or community settings.
 6. Promotes high level integrity, competence, ethics, and professional judgment.
 7. Selects, adapts, or modifies core curriculum to make it accessible for all students.
 8. Facilitates positive self-image of students
 9. Facilitates active participation in a fair and respectful environment that reflects cultural diversity.
 10. Knowledge of procedures and regulations for reporting child abuse and the legal rights and responsibilities of teachers and students.
 11. Knowledge of general education assessment procedures.
 12. Knowledge of interpersonal skills that work effectively with adults who have different
 13. Demonstrates strong interpersonal skills that are considerate, sensitive, non-judgmental, supportive, adaptive, and flexible.
 14. Demonstrates positive regard for all students, families, and professionals.
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Note. Modified from Dingle et al. (2004).

Validity and Reliability

The reliability of the instrument was assessed *post hoc* using Cronbach's Alpha reliability coefficients to measure the scales assessing the importance of special education integration and the ability of agricultural educators to implement the assessed competencies. The reliability coefficient for the section of the instrument assessing competence was .93, and the section assessing importance was .96. According to Ary et al. (2010), these coefficients meet the necessary threshold for a reliable instrument. The validity of the original instrument was assessed by Dingle et al. (2004) and deemed appropriate. To ensure the validity of the instrument for this audience, two New Mexico State University faculty evaluated the face, content, and construct validity of the instrument and deemed it valid for the purposes of the study. The researchers chose not to conduct a pilot study because Dingle et al. (2004) had previously assessed the instrument for reliability and validity and deemed it acceptable.

Data Collection

The study frame was compiled using agricultural educator directories in each state. Approximately 4.2% of the emails were invalid and considered frame error during survey distribution. Systematic sampling was used to reduce sampling bias, and every second agricultural educator in the directory was selected for the study. The frame consisted of 62 viable emails in New Mexico, 80 in Utah, and 62 in Montana ($N = 204$). Ramsey and Schafer (2012) recommend a minimum of 30 responses for high-quality descriptive research; this study achieved a total response rate of 36.27% ($n = 74$), surpassing the required threshold. Within the ($n = 74$) responses, there were ($n = 20$) partial responses and ($n = 54$) full responses. Partial

responses were excluded from the analysis in Objective One and Objective Two due to incomplete data collection or missing critical demographic data.

To assess non-response bias, an independent samples *t*-test was used to assess any differences between early responders and late responders (Lindner et al., 2001). Four emails were sent to each agricultural educator to stimulate responses (Dillman et al., 2014). To evaluate non-response bias, participants who responded to the first email ($n = 22$) were considered early respondents, and participants who responded to the last three emails ($n = 32$) were considered late respondents. The independent samples *t*-test suggested that there are no statistical differences between early ($M = 4.13$, $SD = .67$) and late responders ($M = 4.41$, $SD = .51$) in the special education importance construct $t(52) = -1.74$, $p = .09$. The analysis also suggested that there were no statistical differences between early ($M = 3.76$, $SD = .66$) and late responders ($M = 3.98$, $SD = .54$) in the special education ability construct $t(52) = -1.36$, $p = .18$. These results suggest the absence of non-response bias issues (see Table 3).

Table 3

Independent Samples t-test Assessing Non-Response Bias

Constructs	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
Early Responders	22	3.76	.66				
Special Education Ability				-1.36	52	.18	-.38
Late Responders	32	3.98	.54				
Early Responders	22	4.13	.67				
Special Education Importance				-1.74	52	.09	-.48
Late Responders	32	4.41	.51				

Note. $\alpha = .05$

Data Analysis

For research objective one, a modification of the Borich needs assessment model was used to evaluate the perceived importance of each special education competency and assess agricultural educators' ability within each competency to ascertain the professional development needs of the educator (Borich, 1980). Ranked Discrepancy Scores (RDS), recommended by Narine and Harder (2022), were used to measure differences between agricultural educators' perceived importance and ability within each special education competency. Narine and Harder (2022) recommended this method as an alternative to using Mean Weighted Discrepancy Scores (MWDS), recommended by Borich (1980). The Ranked Discrepancy Scores (RDS) method measures the gap between an educator's perceived importance of a competency and their self-reported ability to implement it. By ranking these discrepancies, RDS provides a clearer picture of where professional development is most needed.

Research objective two was assessed using an independent samples *t*-test. To effectively assess Likert scale data with parametric statistics, groups of five or more items were combined to form constructs (Johnson & Creech, 1983; Norman, 2010; Sullivan & Artino, 2013; Zumbo & Zimmerman, 1993). This study formed two constructs - special education importance and special education ability - using Likert data from the fourteen competencies.

Limitations

While this study highlights critical areas for professional development, it is important to consider the limitations, such as the relatively small sample size and the self-reported nature of the data, which may influence the generalizability of the findings. The generalizability of this study is limited to the participating agricultural educators due to the small sample size ($N = 204$) and the response rate of 36.27% ($n = 74$).

Moreover, the study only assessed the fourteen competencies from Dingle et al. (2004). These competencies are unlikely to evaluate all the knowledge and skills agricultural educators need to effectively engage students with special needs.

Results

Research Objective One

Overall, agricultural educators ranked the importance of each special education competency as *Very Important* to *Extremely Important* with means ranging from ($M = 4.39, SD = .66$) to ($M = 4.17, SD = .67$). They also ranked their ability within each competency from *Moderately Competent* to *Very Competent*, with means ranging from ($M = 4.21, SD = .59$) to ($M = 3.65, SD = .83$). The competencies with the lowest RDS were “Knowledge of specialized instructional styles and non-traditional teaching practices and procedures” and “Facilitates the physical classroom environment that allows for flexible scheduling and transition times.” These results suggest that agricultural educators perceived competence in these areas as lacking but essential for success. Conversely, competencies with the highest RDS were “Demonstrates strong interpersonal skills” and “Demonstrates positive regard for all students, families, and professionals,” indicating higher perceived competence in these areas. The results are listed in Table 4.

Table 4

Ranked Discrepancy Scores for Educator’s Perceived Ability and Importance of Special Education

Competency	NR	PR	TR	RDS
Knowledge of specialized instructional styles and non-traditional teaching practices and procedures.	26	3	25	-43
Facilitates the physical classroom environment that allows for flexible scheduling and transition times.	27	5	22	-41
Knowledge of instructional adaptations including alternative assignments, supplemental instruction, differential standards, and shortened assignments.	26	5	23	-39
Implements lesson plans that are appropriate for diverse learners.	25	4	25	-39
Increases participation of students with special needs in general education settings or community settings.	26	6	22	-37
Promotes high level integrity, competence, ethics, and professional judgment.	24	5	25	-35
Selects, adapts, or modifies core curriculum to make it accessible for all students.	22	4	28	-33
Facilitates positive self-image of students	22	6	26	-30
Facilitates active participation in a fair and respectful environment that reflects cultural diversity.	18	4	32	-26
Knowledge of procedures and regulations for reporting child abuse and the legal rights and responsibilities of teachers and students.	20	6	28	-26
Knowledge of general education assessment procedures.	18	6	30	-22
Knowledge of interpersonal skills that work effectively with adults who have different styles.	17	6	31	-20
Demonstrates strong interpersonal skills that are considerate, sensitive, non-judgmental, supportive, adaptive, and flexible.	14	4	36	-19
Demonstrates positive regard for all students, families, and professionals.	14	5	35	-17

Note. NR = Negative Ratings; PR = Positive Ratings; TR = Tied Ratings; RDS = Ranked Discrepancy Score.

Research Objective Two

The second research objective sought to assess any statistical differences in how male and female agricultural educators valued the importance of special education integration into SBAE and their ability to integrate special education into professional practice. The descriptive statistics for how male and female agricultural educators rated the importance of special education integration and their ability to implement it into professional practice is reported in Table 5.

Table 5

Descriptive Statistics for Importance and Ability of SBAE Teachers to Implement Special Education

Competency #	Importance				Ability			
	Male (n = 26)		Female (n = 28)		Male (n = 26)		Female (n = 28)	
	M	SD	M	SD	M	SD	M	SD
Competency 1	4.04	.92	4.46	.64	3.62	.80	3.68	.86
Competency 2	4.15	.73	4.46	.64	3.65	1.02	4.00	.61
Competency 3	3.96	.72	4.54	.58	3.50	1.03	3.79	.96
Competency 4	4.04	.82	4.54	.58	3.73	.87	3.89	.79
Competency 5	4.15	.93	4.46	.51	3.65	.98	3.89	.83
Competency 6	4.15	.73	4.46	.64	3.81	.94	4.07	.47
Competency 7	4.08	.69	4.50	.64	3.69	.93	3.96	.64
Competency 8	4.23	.91	4.57	.57	4.12	.71	4.07	.47
Competency 9	4.04	.72	4.32	.72	3.77	.91	3.96	.88
Competency 10	4.31	.74	4.57	.57	3.92	.98	4.11	.92
Competency 11	4.04	.87	4.39	.63	3.77	.95	4.00	.82
Competency 12	4.12	.71	4.21	.63	3.73	.83	4.00	.77
Competency 13	4.19	.85	4.43	.57	3.85	.68	4.21	.50
Competency 14	4.31	.74	4.46	.58	4.12	.65	4.29	.54

Note. Competency Numbers Correspond to Table 2.

This objective was assessed utilizing an independent samples *t*-test. The results from the *t*-test $t(52) = -2.09, p = .04$ suggested that males ($M = 4.12, SD = .65$) value the importance of special education integration significantly less than females ($M = 4.46, SD = .50$). The statistically significant results shown in Table 6, indicate a difference between male and female educators' valuation of special education integration. This finding suggests a gender-based divergence in perceived importance, which may have implications for future professional development programs.

Table 6

Independent Samples t-test on the Importance of Special Education by Gender

Constructs	n	M	SD	t	df	p	Cohen's d
Male	26	4.12	.65				
Special Education Importance				-2.09	52	.04	-.57
Female	28	4.46	.50				

Note. $\alpha = .05$

The second research objective also assessed statistical differences in agricultural educators' ability to implement special education into professional practice. The results from the *t*-test $t(52) = -1.34, p = .19$ suggest that there are no statistical differences in the self-reported abilities of male ($M = 3.78, SD = .66$)

and female ($M = 4.00$, $SD = .51$) agricultural educators to implement special education into professional practice. The results from the t -test are listed in Table 7.

Table 7

Independent Samples t -test on the Ability of Agricultural Educators to Implement Special Education by Gender

Constructs	n	M	SD	t	df	p	Cohen's d
Male	26	3.78	.66				
Special Education Ability				-1.34	52	.19	-.36
Female	28	4.00	.51				

Note. $\alpha = .05$

Conclusions and Discussions

Agricultural education and Career and Technical Education (CTE) have had a significant impact on students with special needs (Teixeira & Edwards, 2020), but many educators report lacking confidence in properly educating these exceptional students (Andreasen et al., 2007; Ramage et al., 2021; Ramage et al., 2022; Wilkins-Brittain et al., 2022). This study aimed to identify the professional development needs of agricultural educators and assess any differences in the importance they attribute to integrating special education and their ability to implement it into practice. In addition, the study evaluated any statistical differences in male and female educators' perceived importance of integrating special education into their instruction and their ability to implement special education into professional practice.

The first research objective assessed the professional development needs of agricultural educators using RDS. Of the fourteen special education competencies that teachers were asked to rank, there was little variation in the importance, with a mean variance of only .27 and a standard deviation of .61. In the analysis, only 3 to 6 teachers in any category had a positive rating of their ability to deliver the competencies as compared to their perceived importance of the competencies. In addition, between 40.7% and 66.7% of the teachers ranked the value of the skill as equal to their ability to apply it in their professional practice. Overall, all competencies had a negative RDS, indicating that the educators believed that their ability to deliver was not at a level needed for quality instruction of the competency. These results are consistent with other studies on special education integration into agricultural education (Ramage et al., 2021; Ramage et al., 2022; Wilkins-Brittain et al., 2022). Wilkins-Brittain et al. (2022) found that "...two teachers stated they were not given access to their students' IEPs, and other teachers mentioned they did not review the IEPs of their students" (p. 10). With 96% of special needs students taking at least one CTE course at the secondary level (Wagner et al., 2016), educators with a lack of knowledge and skill in special education integration could cause a decrease in achievement in agricultural education. Additionally, a lack of human capital development opportunities for special education in agricultural education, could lead to inadequate differentiation and accommodations for agricultural education students with special needs (Aschenbrener et al., 2010; Easterly & Myers, 2011; Johnson et al., 2012; Ramage et al., 2021; Ramage et al., 2022; Wilkins-Brittain et al., 2022). Furthermore, not following the guidelines set forth by federal law could cause negative professional ramifications from legal action (Hainline et al., 2019; Hainline et al., 2021).

Overall, teachers rated their interpersonal skills, such as inclusion of students in a positive atmosphere and working with adults effectively, higher than the other assessed skills. Even with the competencies that teachers were more confident in their ability, there was still a negative RDS. This suggests that teachers realize the value of working with special education students and value the competencies developed for working with this population, but overall believe that their skill set for success is lower than needed. What is most concerning is that the lowest RDS scores were in the areas of

instructional styles, non-traditional teaching methods, physical classroom environment, and instructional differentiation and modification. These are core competencies for success in educating students with special needs. This trend in self-reported ability is strengthened by Griffing et al. (2010), who found that 23.1% of educators disagreed that their courses are an appropriate placement for students with special needs. This lack of acceptance of special needs agricultural education students could stem from deficiencies in their ability to properly differentiate instruction and provide appropriate accommodations.

The second research objective assessed statistical differences in the perceptions of male and female agricultural educators on the importance of special education integration and their ability to implement it into professional practice. This was assessed by combining the Likert data from the fourteen competencies to form two constructs and evaluating differences between the means utilizing an independent samples *t*-test. Overall, the evaluation suggests $t(50) = -1.99, p = .05$ that male agricultural educators ($M = 4.12, SD = .66$) value the importance of special education integration significantly less than female agricultural educators ($M = 4.44, SD = .49$). This finding is significant because males are recommended for special education services twice as frequently as females (Piechura-Couture et al., 2013; Wehmeyer & Schwartz, 2001). According to Ramage et al. (2022), a great deal of the research on agricultural education students with special needs has been from the male perspective. The ability of male and female agricultural educators to implement special education into professional practice was also assessed. While no statistical differences were found, it suggests that male agricultural educator's self-reported abilities are similar to female agricultural educators.

These findings highlighted the need for targeted professional development that not only increases awareness of special education practices but also provides hands-on strategies for differentiating instruction. For example, male educators' lower valuation of special education competencies could be addressed through professional development that highlights the practical benefits of such integration in everyday teaching. While this study suggests that male SBAE teachers value the importance of special education significantly less than female agricultural educators, most see the value of SBAE to students with special needs and feel that it is an appropriate place for them (Griffing et al., 2010; Johnson et al., 2012). Johnson et al. (2012) determined that 97% of agricultural educators in North Carolina feel that students with special needs receive similar benefits from FFA than students without special needs, but 64.5% claim that FFA opportunities are limited for students with special needs. In addition, 94.2% of North Carolina agricultural educators reported that SAE is beneficial to students with special needs, but 58.6% claim that students with special needs have a more challenging time conducting a quality SAE project than other students (Johnson et al., 2012). Furthermore, the rankings of the importance of special education integration into SBAE for both male and female agricultural educators corresponded to the *Very Important* descriptor. This ambiguity in the results between male and female agricultural educators is an additional limitation of the study.

As agricultural education evolves, teacher educators and SBAE stakeholders must prioritize professional training to support exceptional students effectively. This training can increase the human capital of the educators and affect the outcomes of students with special needs. Agricultural educators' effectiveness in the classroom in this area could help students with special needs develop a passion for the agricultural industry, become informed agricultural consumers, and explore career options they may not have considered otherwise. This profound impact of agricultural education can benefit all students, and measures should be taken to ensure their success.

Recommendations for Future Practice and Research

To address deficiencies in special education implementation, stakeholders and teacher educators in agricultural education should evaluate in-service and pre-service education offerings. Ramage et al. (2022) suggested that agricultural educators feel that the professional development they have attended on special

education was not relevant to agricultural educators and that professional development targeted at agricultural educators would be beneficial to their ability to accommodate students with special needs. Additionally, Ramage et al. (2022) suggested that the professional development provided to agricultural educators should be specific by disability types including cognitive, physical, mental, etc. The results of this study would suggest that professional development based on the impact that agricultural education and CTE have on special needs students would be beneficial.

Based on the study's results, it is recommended that the benefits of SBAE on special needs populations be evaluated. Currently, there is a lack of literature on how agricultural education specifically influences the outcomes of students with special needs. In addition, research should be conducted to further explore the ambiguity of the results that males value special education significantly less than females but that both of their mean scores corresponded to the *Very Important* descriptor. Furthermore, as the profession moves forward, research is needed to determine the best strategies to deliver agricultural education instruction to special needs populations.

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