



Comparison of Teacher Competence in Agricultural Mechanics among Traditionally and Alternatively Certified Agricultural Education Teachers

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Introduction

- Due to the teacher shortage, school administrators have looked at new ways to bring in teachers (Roberts & Dyer, 2004).
- Alternatively certified teachers have been a popular avenue for schools to fill the vacant positions.
- There is a strong need to keep both traditionally and alternatively certified teachers current with the changing world (Robert & Dyer, 2004)



Introduction

- Prior research has shown a difference in competency levels between traditionally and alternatively certified teachers (Roberts & Dyer, 2004; Rocca & Washburn, 2006).
- Both traditionally and alternatively certified teachers lack technical competency. (Duncan & Ricketts, 2008).



Theoretical Framework

- Bandura's (1977) theory of teacher efficacy guided this study.
- Teacher efficacy is described as the self-perceived belief of one's capability to bring out desired teaching outcome (Bandura, 1977).
- Teacher efficacy has been shown to positively increase motivation and levels of achievement in students when the teacher exudes a high level of efficacy (Ashton & Webb, 1986; Guskey & Passaro, 1994).



Purpose

- The purpose of this study was to identify traditionally and alternatively certified secondary agricultural education teachers' perceived self-competency pertaining to the five agricultural mechanics constructs.



Objectives

- Describe selected characteristics of traditionally and alternatively certified teachers and their agricultural education programs; and
- Compare traditionally and alternatively certified teachers' perceived competency levels received at the postsecondary level related to the five agricultural mechanic constructs.



Methods

- This descriptive study used survey research methods to summarize characteristics, attitudes, and opinions to accurately describe a norm (Ary, Jacobs, Razavieh, & Sorensen, 2006).
- Data were collected through a census study conducted during the Iowa agricultural education teachers' conference.
- Data were analyzed using an independent samples t test to determine if there was significant differences between the means.

Demographics

	<u>Traditionally Certified</u>		<u>Alternatively Certified</u>	
	<i>f</i>	%	<i>f</i>	%
Campus Location Designation				
Rural (Population less than 5,000)	53	79.1	25	78.1
Small Urban (Population between 5,000 and 20,000)	13	19.4	6	18.8
Urban (Population greater than 20,000)	1	1.5	1	3.1
Number of Agricultural Science Teachers				
1 Teacher	61	89.7	27	90.0
2 Teacher	4	5.9	3	10
3 Teacher	2	2.9	0	0
4 Teacher	1	1.5	0	0
Number of Ag Mechanics Courses Completed				
0	61	91.0	29	90.6
1-2	3	4.5	2	6.3
More than 3	3	4.5	1	3.1
Number of 4 Year Ag Mechanics Courses Completed				
0	21	31.3	16	51.6
1-2	27	40.3	9	29.1
More than 3	19	28.4	6	19.3

Results

[STATE] Secondary Agricultural Teachers Perceived Level of Competence by Agricultural Mechanics Construct and Certification Type

Construct	Skill	Traditionally Certified			Alternatively Certified			MD
		N	M	SD	N	M	SD	
Structure/Construction	9	61	3.46	1.08	31	3.42	0.94	0.04
Power & Machinery	15	56	3.10	1.03	33	3.02	1.17	0.08
Mechanic Skills	19	64	2.78	0.79	33	2.64	0.84	0.14
Electricity	6	59	2.62	1.00	31	2.70	1.17	-0.08
Soil and Water	5	60	2.61	0.77	32	2.63	0.92	-0.02

Note: The competence scale, 1 = not competent, 5 = very competent.

not competent = 1.00 – 1.80, somewhat competent = 1.81 – 2.60,
moderately competent = 2.61 – 3.40, strongly competent = 3.41 – 4.20,
and very competent = 4.21 – 5.00



Results

- Both traditionally and alternatively certified teachers felt most competent in safety except for the soil and water construct.
- Both traditionally and alternatively certified teachers found themselves less competent to teach oxy-propylene cutting compared to oxy-acetylene cutting.



Conclusion

- Similar to Graham and Garton (2003) found no difference in teaching competency between the two groups.
- Both groups found themselves to be moderately to strongly competent in structures and construction construct.
- Both groups were considered moderately competent in power and machinery, mechanic skills, electricity, and soil and water.



Implications and Recommendations

- Both groups of teachers are in need of additional training to become competent to teach other areas of agricultural mechanics.
- Professional development workshops and additional agricultural mechanic courses are recommended.
- Increase the number of agricultural mechanic courses offered at the postsecondary level.



Future Research

- Identify if there is a correlation between the number of agricultural mechanics courses completed and competency level of the teachers.
- Is there a relationship between teachers competence level and the the Dunning Kruger Effect.