

Describing the Differences in the Professional Development needs of Traditionally and Alternatively Certified Agriculture Teachers in Louisiana

Dr. Kristin Stair¹, Whitney Figland², Dr. Joey Blackburn³, and Dr. Eric Smith⁴

Abstract

For decades, teacher education programs have suffered from teacher shortages in many content areas. Due to high teacher turnover rate there has been an increase in the number of teachers who are entering the field through alternative certification programs. It has been noted that the professional development needs of traditionally and alternatively certified teachers may differ drastically. The purpose of this study was to identify the professional development needs of agriculture teachers in Louisiana based on certification type. Data were collected at each of the three Louisiana FFA Leadership Camp sessions during the Louisiana Agriculture Teacher's Association meeting held on the first day of camp. In all, 190 agriculture teachers registered for camp and 164 completed the instrument, representing an 86.0% response rate of camp attendees and 62.8% of the total agriculture teacher population. The results from this study indicated that professional development related to Program Management was the only statistically significant difference between the two groups. Specifically, the traditionally certified teachers felt a greater need for professional development in this area. Based on this research, there may be less difference in the professional development needs of teachers based on certification type in Louisiana than expected compared to previous research.

Keywords: alternative certification; traditional certification; in-service; professional development

Introduction

Teacher shortages have been an ongoing and long-standing problem in public education (Boe, Cook, & Sutherland, 2008). High turnover has often been cited as a contributor to low student performance (Ingersoll, 2002; Kersaint, Lewis, Potter, & Meisels, 2007) and increased educational costs (National Commission on Teaching and America's Future [NCTAF], 1997; Borman & Dowling, 2008). High teacher turnover requires schools to continuously hire new teachers who are often young, inexperienced, and more likely to leave the profession (Ingersoll, 2004; Rockoff, 2004). This ongoing crisis has required many school systems to adjust their hiring standards related to teacher licensure in an effort to fill vacant positions (Ingersoll & Smith, 2003; NCTAF, 1997).

In the United States, high teacher turnover has existed for some time. In fact, between the 1999-2000 and 2000-2001 academic years there was an overall 16% rate of turnover among teachers

¹ Kristin S. Stair is an Associate Professor of Agricultural Education in the Department of Agricultural and Extension Education and Evaluation at Louisiana State University, 135 J.C. Miller Hall, 110 LSU Union Square, Baton Rouge, LA 70803, kstair@lsu.edu

² Whitney L. Figland is a Graduate Teaching Assistant in the Department of Agricultural and Extension Education and Evaluation at Louisiana State University, 225A J.C. Miller Hall, 110 LSU Union Square, Baton Rouge, LA 70803

³ J. Joey Blackburn is an Associate Professor of Agricultural Education in the Department of Agricultural and Extension Education and Evaluation at Louisiana State University, 129 J.C. Miller Hall, 110 LSU Union Square, Baton Rouge, LA 70803, jjblackburn@lsu.edu

⁴ H. Eric Smith is the Executive Director of the Louisiana FFA Association. 244 John M. Parker Coliseum, Baton Rouge, LA 70803, hsmith@agcenter.lsu.edu

(National Center for Educational Statistics [NCES], 2005). Over half of the turnover was attributed to teachers desiring to leave the profession (NCES, 2005). That attrition rate is almost twice as high as in other top-performing nations like Singapore and Finland (Sutcher, Darling-Hammond, & Carver-Thomas, 2016). This number is even higher for teachers in school districts with high poverty, with approximately 21% of teachers leaving those schools each year (Donaldson & Johnson, 2011). Agricultural education has also suffered from a lack of qualified teachers. Specifically, Kantrovich (2007) reported shortages of agriculture teachers as far back as 1965. Unfortunately, this trend is still occurring. Most recently, the *Agricultural Education Supply and Demand Study* conducted by Smith, Lawver, and Foster (2017) reported a shortfall of agriculture teachers still existed as of September 2016. Further, research has indicated over 40% of agriculture teachers leave the profession by their sixth year (Walker, 2002).

Further compounding the issue is the fact that between 2009 and 2014 enrollment in teacher preparation programs decreased by almost 35% (Berry & Shields, 2017; Kearney, 2017). This decrease could be attributed to shifts in the profession caused by decreased pay, increased rigor in teacher education program standards, and a decrease in the perceived quality of working conditions of teachers (Guarino, Santibanez, & Daley, 2006). Another factor that may contribute to teacher attrition is the absence of meaningful in-service training and support of teachers. This lack of support may be a factor in a teacher's decision to leave the profession (Marinell & Coca, 2013).

Traditionally, most teachers are trained through a teacher preparation program housed within a college or university. However, with schools struggling to fill positions, teachers who enter the profession through alternative certification routes are becoming more common. Since the development of the No Child Left Behind Act in 2001, states have been encouraged to pursue educational programs that provide alternative paths to licensure (Bell, Cihak, & Judge, 2010). These alternative paths differ greatly across programs and across states, but they all generally provide access to educational careers outside of the traditional university preparation process (Hawley, 1992). These programs are often designed to allow teachers to begin teaching immediately on a temporary license while pursuing additional training to meet their state's standards (Kersaint, Lewis, Potter, & Meisels, 2007). Ruhland and Bremer (2003) found that alternative routes to certification include a wide variety of experiences including (a) testing of occupational competency, (b) professional experience, or (c) the successful completion of a baccalaureate degree in a specified content area.

While the development of alternative certification programs has helped to ensure that there are teachers in the classrooms, it is unclear if hiring these individuals is a viable solution to the problem of teacher shortages and teacher retention. Alternatively-certified teachers experience unique challenges when they enter the classroom and these challenges have often led to a much lower retention rate than their traditionally certified counterparts (Robinson & Edwards, 2012). Alternatively-certified teachers may begin teaching with less experience and may require higher levels of support in order to be successful (Ruhland & Bremer, 2003). In contrast, traditionally certified teachers are often considered to be well rounded in almost every dimension of teaching, including (a) curriculum and instruction development, (b) classroom management, (c) awareness of learning styles, and (d) overall knowledge of students (Darling-Hammond, Chung, & Frelow, 2002).

There are, however, several benefits of alternative certification. First, these alternative programs often provide a path to teaching for individuals who may have a high level of content knowledge but are unable to enter the classroom through traditional college programs (Kearns, 1990). These individuals may be older and more committed to teaching as a second career choice after a career in industry or have experiences that traditional teachers may not (Darling-Hammond & Hudson, 1990). Teachers coming from a non-traditional background may also be more diverse than those who come from a traditional teacher preparation background. This can be especially important for urban programs

that have a more diverse student population (Kane, Rockoff, & Staiger, 2007). In terms of effectiveness, several studies have indicated there may not be a significant difference between alternatively certified teachers and their traditional counterparts (Rockoff, 2004; Kane, et al., 2007) or in some cases, that teachers who come from alternative programs may be even more effective than traditional teachers (Decker, Mayer, & Glazerman, 2004).

In agricultural education, Rocca and Washburn (2006) identified a primary distinction between traditional and alternatively certified teachers as the number of years of experience alternatively licensed teachers may have upon entering the teaching field in a specific sector of the agriculture industry. However, experience is not the only difference between certification types. Graham and Garton (2003) suggested that certification type actually had little impact on teaching performance. However, other studies have described traditionally certified teachers as being more successful overall and having higher ratings than those teachers who entered the profession through an alternative certification route (Darling-Hammond et al., 2002). Knobloch and Whittington (2002) reported that new agricultural education teachers who completed traditional teacher preparation programs, which included a student teaching experience, were more confident than alternatively certified teachers that had never completed a traditional teacher preparation program. Alternatively-certified teachers in agricultural education have also been identified as being less effective in fostering student achievement (Robinson & Edwards, 2012) and less efficacious in technical knowledge (Duncan & Ricketts, 2008). Other studies have indicated that one of the greatest differences between traditionally and alternatively certified teachers is the lack of pedagogical skills provided to alternatively licensed teachers during training (Wayman, Foster, Mantle-Bromley, & Wilson, 2003).

However, training prior to teaching is not the only resource for teachers. Teaching professionals have varying backgrounds and experiences which drives the need for continuous professional development. In agricultural education, ongoing professional development seminars over diverse technical agriculture and pedagogical topics are needed for teachers to stay relevant. Research comparing the professional development needs of traditionally and alternatively certified agriculture teachers has indicated alternatively certified teachers have in-service needs that differ from their traditionally certified counterparts (Roberts & Dyer, 2004; Swafford & Friedel, 2010). Alternatively-licensed agriculture teachers often experience greater needs in areas related to (a) instruction, (b) curriculum, (c) program planning, and (d) technical agriculture (Roberts & Dyer, 2004; Swafford & Friedel, 2010). Several studies have also reported that agriculture teachers desire training in FFA proficiencies and degree applications (Duncan, Ricketts, Peake, & Uessler, 2006; Garton & Chung, 1996; Joerger, 2002; Layfield & Dobbins, 2002; Peiter, Terry, & Cartmell, 2003). The third component of the total program model, Supervised Agricultural Experiences (SAEs), are often considered difficult for teachers to put into practice, even those from traditional teacher preparation programs, (Barrick & Estep, 2011). This may be even more of a challenge for alternatively certified teachers.

This study was designed to understand the needs of both alternatively certified and traditionally certified teachers better and determine what differences may exist in order to provide support that retains teachers of all backgrounds into the profession. Therefore, the conceptual framework of this study is based on the economic principle of supply and demand within labor markets (Ehrenberg & Smith, 1997). This framework has been employed in educational research to better describe the factors that contribute to the demand of available teaching positions being unable to be filled with the current supply of teachers (Boardman, Darling-Hammond, & Mullin, 1982; Guarino et al., 2006; Haggstrom, Darling-Hammond, & Grissmer, 1988). As described by Guarino et al. (2006), teacher shortages occur in the educational system when teaching is no longer the most attractive activity for teachers. This measure of attractiveness can be made up of a variety of factors but is primarily made up of (a) ease of entry, (b) compensation, and (c) personal satisfaction (Guarino et al., 2006).

In order to adequately balance supply and demand, teaching has to be seen as an attractive option. This can be addressed at multiple levels, but includes both entry into the profession (e.g., recruitment) and keeping individuals in the profession (e.g., retention). Professional development training is one method of addressing teacher needs in an effort to retain those teachers within their current educational field.

Historically, agriculture teachers have had a continuing desire for professional development to ensure that their skills are current and up to date (Barrick, Ladewig, & Hedges, 1983). Teachers' professional development needs are further complicated because they will change over time (Roberts & Dyers, 2004; Birkenholz & Harbstriet, 1987; Layfield & Dobbins, 2002; Washburn, King, Garton, & Harbstriet, 2001). In Louisiana, very little research has been conducted on the unique needs of alternatively certified teachers versus those of traditionally certified teachers. In an effort to focus on the supply of teachers in agricultural education in Louisiana, the principle question that arose from the review of literature was: how do the professional development needs of traditionally and alternatively certified teachers differ?

Purpose and Objectives

The purpose of the study was to identify the professional development needs of agriculture teachers in Louisiana based on certification type. This research supports the American Association for Agricultural Education's National Research Agenda Research Priority 3: Sufficient Scientific and Professional Workforce that addresses the challenges of the 21st Century (Stripling & Ricketts, 2016). Specifically, this research helps to address Research Priority Question Two, "What methods, models, and practices are effective in recruiting agricultural leadership, education, and communication practitioners (teachers, extension agents, etc.) and supporting their success at all stages of their careers?" (p. 31). The following objectives guided this study:

1. Identify the instruction and curriculum professional development needs of Louisiana agriculture teachers by type of certification
2. Identify the technical agriculture professional development needs of Louisiana agriculture teachers by type of certification
3. Identify the FFA (e.g., CDE, LDE, and Program Management) and SAE professional development needs of Louisiana agriculture teachers by type of certification
4. Describe differences in the instruction and curriculum professional development needs of Louisiana agriculture teachers by type of certification
5. Describe differences in technical agriculture professional development needs of Louisiana agriculture teachers by type of certification
6. Describe differences in FFA (e.g., CDE, LDE, and Program Management) and SAE professional development needs by type of certification

Methodology

Population and Sample

The target population of this study was all Louisiana agriculture teachers employed during the 2017–2018 academic year ($N = 261$). Data were collected at each of the three Louisiana FFA Leadership Camp sessions during the Louisiana Agriculture Teacher's Association meeting held on the first day of camp. Per Louisiana Department of Education policy, all agriculture teachers in Louisiana are required to attend the camp with FFA members. In all, 190 agriculture teachers registered for camp and 164 completed the instrument, representing an 86.0% response rate of camp attendees and 62.8% of the total agriculture teacher population. No attempt was made to collect responses from those who did not

attend camp because an accurate and current directory was not available at that time to contact non-attendees. As such, results from this study should not be generalized past those who responded.

In all, years of teaching agriculture ranged from one to 38 years, with 13.67 being the average number of years taught (see Table 1). The average teaching experience for traditionally certified teachers was 15.50 ($SD = 10.21$) years. The mean number of years alternatively certified teachers had taught was 10.14 years ($SD = 9.43$).

Table 1

Louisiana Agriculture Teachers Years of Teaching Experience (n = 168)

Years of Teaching Experience	Minimum	Maximum	M	SD
Traditionally Certified	1	38	15.50	10.21
Alternatively Certified	1	26	10.14	6.55
Overall	1	38	13.67	9.43

Table 2 describes the personal and professional characteristics of Louisiana agriculture teachers. Overall, 64.3% of agriculture teachers were traditionally certified, and 33.3% were alternatively certified. Regarding gender, there were 109 male teachers and 54 female teachers. Of the traditionally certified teachers, 70 (64.8%) were male and 37 (34.3%) were female. There were 39 (69.6%) alternatively certified male teachers and 17 (30.4%) alternatively certified female teachers.

Table 2

Personal and Professional Characteristics of Louisiana Agriculture Teachers (n = 168)

Variable	f	%
Certification type		
Traditional	108	64.3
Alternative	56	33.3
No Response	4	2.4
Gender		
Male – Traditionally Certified	70	64.8
Female – Traditionally Certified	37	34.3
Male – Alternatively Certified	39	69.6
Female – Alternatively Certified	17	30.4

Note. Percentages may not equal 100 due to missing data.

For the purposes of this study, traditional certification was defined as teacher licensure obtained along with a bachelor's degree from an accredited post-secondary institution. As defined by the Louisiana Department of Education, alternative certification is licensure through any other means. Common paths to alternative certification in Louisiana are graduate programs offered at post-secondary institutions, post-baccalaureate certification only programs at post-secondary institutions, and private teacher certification entities. No attempt to discern paths to alternative certification was made in this research.

Instrumentation

A modified version of an instrument developed by Roberts and Dyer (2004) was utilized to collect data for this study. Items irrelevant to Louisiana were deleted and additional items were added to reflect current practices in agricultural education. The instrument was comprised of sections that measured needs in the areas of (a) instruction/curriculum (12 items), (b) technical agriculture [i.e, agribusiness (four items), animal science (10 items), Environmental/Natural Resources (six items), plant/soil science (13 items), and agricultural mechanics (12 items)], (c) Career/Leadership Development Events (29 items), (d) SAE (five items), (e) program management (13 items), and (f) teacher demographics.

Cronbach’s alpha was calculated post hoc to determine internal consistency of the instruction/curriculum ($\alpha = .91$), technical agriculture ($\alpha = .97$), CDE ($\alpha = .93$), LDE ($\alpha = .88$), Program Management ($\alpha = .94$), and SAE ($\alpha = .90$) sections. Face and content validity were determined by a panel of experts including two agricultural education faculty members, a doctoral student who had taught for 14 years in Louisiana, and three current agriculture teachers. After expert review, two items were deleted, and several items were reworded to provide clarity.

Findings

Objective one sought to identify the instruction-related professional development needs of Louisiana agriculture teachers by type of certification (see Table 3). Overall, both groups of teachers perceived all items as being areas of some need for professional development. *Developing Online Teaching Resources* was the highest rated item for both the traditionally ($M = 2.56$; $SD = 1.07$) and alternatively certified ($M = 2.38$; $SD = 1.21$) teachers. Similarly, the *Using Instructional Technologies* was the next highest rated item for both the traditionally ($M = 2.36$; $SD = 1.09$) and alternatively certified ($M = 2.29$; $SD = 1.13$) teachers. Traditionally certified teachers felt the lowest need for *Teaching in a Classroom* ($M = 1.59$; $SD = 1.02$). Similarly, the alternatively certified teachers felt the least need for professional development for *Teaching in a Classroom* ($M = 1.65$; $SD = 1.08$) and *Integrating Science into the agriculture curriculum* ($M = 1.65$; $SD = 0.99$).

Table 3

Perceived Instruction Related Professional Development Needs of Louisiana Agriculture Teachers by Type of Certification

Instructional Item	Certification Type			
	Traditional		Alternative	
	M	SD	M	SD
Teaching in a Classroom	1.59	1.02	1.65	1.08
Teaching in a Laboratory	2.16	1.18	1.93	1.18
Using Instructional Technologies	2.36	1.09	2.29	1.13
Integrating science into the agriculture curriculum	2.03	0.95	1.65	0.99
Integrating math into the agriculture curriculum	2.14	1.05	1.87	1.00
Managing instructional facilities	2.15	1.18	2.04	1.17
Managing student behavior	1.93	1.25	1.84	1.09
Motivating student learning	2.31	1.26	2.07	1.14
Developing online teaching resources	2.56	1.07	2.38	1.21
Teaching decision-making skills	1.95	1.11	1.89	1.03
Teaching personal finance	2.05	1.10	1.91	1.21

Table 3

Perceived Instruction Related Professional Development Needs of Louisiana Agriculture Teachers by Type of Certification Continued...

Teaching problem solving skills	2.24	1.08	2.02	1.24
Instruction Grand Mean	2.13	0.78	1.96	0.79

Note. Real limits: No Need = 0–0.49; Little Need = 0.50–1.49; Some Need = 1.50–2.49; Much Need = 2.50–3.49; Highest Need = 3.50–4.00

Objective two was to identify the perceived technical agriculture-related in-service needs of Louisiana agriculture teachers (see Table 4). Overall, both groups of teachers felt at least some need for professional development for each technical agriculture area. Traditionally certified teachers reported the greatest need for professional development in *Environmental/Natural Resources* ($M = 2.43$; $SD = 1.14$) and *Animal Science* ($M = 2.16$; $SD = 0.92$). Alternately certified teachers reported the greatest need in *Environmental/Natural Resources* ($M = 2.23$; $SD = 1.16$) and *Agribusiness* ($M = 2.04$; $SD = 1.01$). Traditionally certified teachers perceived the least need for professional development in *Agribusiness* ($M = 2.05$; $SD = 0.90$) and the alternatively certified rated *Agricultural Mechanics* ($M = 1.91$; $SD = 0.96$) as the area they least needed professional development.

Table 4

Perceived Technical Agriculture Related Professional Development Needs of Louisiana Agriculture Teachers by Type of Certification

Instructional Item	Certification Type			
	Traditional		Alternative	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Agribusiness	2.05	0.90	2.04	1.01
Animal Science	2.16	0.92	2.01	0.90
Environmental/Natural Resources	2.43	1.14	2.23	1.16
Plant/Soil Science	2.07	0.94	1.99	0.97
Agricultural Mechanics	2.09	0.91	1.91	0.96
Technical Agriculture Grand Mean	2.19	0.80	2.02	0.89

Note. Real limits: No Need = 0–0.49; Little Need = 0.50–1.49; Some Need = 1.50–2.49; Much Need = 2.50–3.49; Highest Need = 3.50–4.00

Objective three sought to identify the FFA (e.g., CDE, LDE, and Program Management) and SAE professional development needs of Louisiana agriculture teachers by certification type (see Table 5). Overall, both groups perceived at least some need for each category. Traditionally certified teachers perceived the most need for professional development related to program management ($M = 2.40$; $SD = 0.95$) and the least amount of need in SAE ($M = 1.99$; $SD = 0.86$). CDEs ($M = 2.19$; $SD = 0.95$) and LDEs ($M = 2.19$; $SD = 0.99$) were the highest rated items by alternatively certified teachers, while SAE ($M = 1.81$; $SD = 0.90$) was the lowest rated item by this group of teachers.

Table 5

Perceived FFA and SAE Related Professional Development Needs of Louisiana Agriculture Teachers by Type of Certification

Item	Certification Type			
	Traditional		Alternative	
	M	SD	M	SD
Career Development Events	2.17	0.89	2.19	0.95
Leadership Development Events	2.20	0.97	2.19	0.99
Program Management	2.40	0.95	2.02	1.01
Supervised Agricultural Experience	1.99	0.86	1.81	0.90

Note. Real limits: No Need = 0–0.49; Little Need = 0.50–1.49; Some Need = 1.50–2.49; Much Need = 2.50–3.49; Highest Need = 3.50–4.00

Objective four sought to determine the differences in instruction related to professional development needs by certification type (see Table 6). Overall, there was no statistically significant difference between traditionally ($M = 2.13$) and alternatively ($M = 1.96$) certified teachers in relation to instruction related professional development needs, $t(157) = 1.27, p = .21$.

Table 6

Independent Samples t-test Differences in Instruction Related Professional Development Needs by Type of Certification

Group	M	SD	df	t	p
Traditional Certification	2.13	.78	157	1.27	.21
Alternative Certification	1.96	.79			

Objective five sought to determine the differences in technical agriculture-related professional development needs by certification type (see Table 7). Overall, there was no statistically significant difference between alternatively ($M = 2.02$) and traditionally ($M = 2.19$) certified teachers when determining the differences between technical agriculture professional development, $t(150) = 1.13, p = .26$.

Table 7

Independent Samples t-test Differences in Technical Agriculture Related Professional Development Needs by Type of Certification

Group	M	SD	df	t	p
Traditional Certification	2.19	.80	150	1.13	.26
Alternative Certification	2.02	.89			

The goal of objective six was to determine if differences existed in the FFA (e.g., CDE, LDE, and Program Management) and SAE professional development needs of Louisiana agriculture teachers by certification type (see Table 8). There were no statistically significant differences in the perceived professional development needs of traditionally and alternatively certified teachers in the areas of CDEs, LDEs, and SAE. A statistically significant difference was detected in the area of Program Management, $t(154) = 2.35, p = .02$.

Table 8

Independent Samples t-test Differences in FFA and SAE Related Professional Development Needs by Type of Certification

Group	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>
Career Development Events					
Traditional Certification	2.17	0.89	155	-0.12	0.91
Alternative Certification	2.19	0.95			
Leadership Development Events					
Traditional Certification	2.20	0.97	157	0.07	0.94
Alternative Certification	2.19	0.99			
Program Management					
Traditional Certification	2.40	0.96	154	2.35	0.02
Alternative Certification	2.02	1.01			
SAE					
Traditional Certification	1.99	0.86	161	1.26	0.21
Alternative Certification	1.81	0.89			

Conclusions, Discussion, and Recommendations

The purpose of this study was to identify the professional development needs of agriculture teachers in Louisiana based on certification type. Teachers come from very diverse backgrounds and these differences can impact the needs of teachers regarding professional development. In an effort to help decrease teacher attrition, and increase the supply of teachers in the field, a better understanding of the needs of both traditionally and alternatively certified teachers is critically important. Demographically, a majority of agriculture teachers in Louisiana had taught for about 14 years and a majority of the teachers were traditionally certified and male. However, over one-third of teachers in Louisiana identified themselves as being alternatively certified. This number is similar to the 2011 national teaching demographics, which identified 65% of teachers in the U.S come from a traditional undergraduate certification program (Feistritzer, 2011). Because this is a large proportion of teachers, they are an important segment to consider when developing materials, professional development opportunities, and resources. Because alternative certification programs differ greatly, teachers may have very different backgrounds in what components of the total program in which they have received training.

Objective one sought to identify the instruction and curriculum needs of Louisiana agriculture teachers by type of certification. Overall, both traditionally and alternatively, certified teachers reported the highest need for professional development in *Using Instructional Technologies* and *Developing Online Teaching Resources*. Alternatively-certified teachers also reported *Motivating Student Learning* and *Managing Instructional Facilities* as having some need for professional development. Further, traditionally certified teachers reported *Teaching Problem Solving Skills*, *Motivating Student Learning*, and *Teaching in a Laboratory* as areas for some need for professional development. This is similar to previous research in agricultural education in which teachers identified needing professional development in curriculum development, teaching methods/techniques, learning styles, and motivating students to learn. These trends are common for both traditionally and alternatively certified teachers (Dobbins & Camp, 2000; Garton & Chung, 1996). However, Roberts and Dyers (2004) and Swafford and Friedel (2010) indicated that alternatively certified teachers had greater needs in instruction/curriculum, program planning, and technical agriculture than their traditionally certified counterparts. Both groups of teachers expressed a desire to learn more about managing facilities

effectively. Based on this research, there are several common areas in which both traditional and alternatively certified teachers could be provided with professional development.

Objective two highlighted the perceived technical agriculture-related in-service needs of Louisiana agriculture teachers. Traditionally certified teachers reported some need in *Environmental/Natural Resources* and *Animal Science*. However, alternatively certified teachers reported some need in *Agribusiness* and *Environmental/Natural Resources*. Further exploration of objective three showed all of the technical agriculture categories were rated in need of some professional development by both traditional and alternatively certified teachers. This is contrary to previous research conducted by Rocca and Washburn (2006), which indicated that alternatively certified teachers might have more content expertise than traditionally certified teachers. It is somewhat surprising that teachers in this study expressed a need for training in all content areas, this may be a result however of little technical agriculture professional development being conducted in recent years for agriculture teachers at the state level in Louisiana. According to Barrick, et al. (1983), teachers in agriculture often express a desire for new content knowledge so that they can be up to date in content knowledge across various content areas.

Objective three sought to identify the FFA (e.g., CDE, LDE, and Program Management) and SAE professional development needs of Louisiana agriculture teachers by certification type. Traditionally certified teachers reported the most need for professional development in program management. Alternatively-certified teachers reported CDE's and LDE's as their highest need for professional development. However, SAE was the lowest rated item by both groups of teachers. Overall, both traditionally and alternatively certified teachers reported some need for professional development in each category. However, previous research found that professional development in FFA proficiency awards and degree award application is often desired by all teachers, regardless of their entry into the profession (Duncan et al., 2006; Garton & Chung, 1996; Joerger, 2002; Layfield & Dobbins, 2002; Peiter et al., 2003). It is not surprising that alternatively certified teachers may express a greater desire for CDE and LDE training, as they have likely received less preparation in these areas. SAEs continue to be an area that many teachers indicate a need for training. Previous research has shown SAEs to be a part of the total agricultural program that is often least understood and the most difficult to develop by teachers (Barrick & Estep, 2011).

Independent samples t-tests were calculated for objectives four and five to determine if differences existed between the professional development needs related to instruction and those related to technical agriculture between alternatively certified teachers and traditionally certified teachers. No statistically significant differences existed between either group of teachers in these areas. This is contrary to previous studies which indicate that alternatively certified teachers have significantly different content needs when compared to traditionally certified teachers (Roberts & Dyer, 2004; Swafford & Friedel, 2010). However, these results do more closely mirror other areas of educational research, which have found that alternatively certified teachers are similar in both needs and abilities as traditionally prepared teachers (Rockoff, 2004; Kane, Rockoff, & Staiger, 2007).

Finally, independent samples t-tests were employed to describe the differences in FFA and SAE professional development needs by certification type. Overall, there were no statistically significant differences in the perceived professional development needs of traditionally and alternatively certified teachers in CDE's, LDE's, and SAE. However, there was a statistically significant difference in Program Management, specifically, the traditionally certified teachers felt greater need for professional development than the alternatively certified teachers. It has been understood that alternative licensure programs vary greatly. Some teachers in Louisiana may have had an FFA background themselves and therefore been more prepared to provide a total program. There is also the possibility that several of these alternatively certified teachers may have been mentored as part

of their licensing process by more experienced agriculture teachers that were able to help assist them in FFA and SAE program components. It could also be that more of the alternatively certified teachers who were not previously given more information about FFA and SAE were not aware that attending camp was a requirement and therefore were excluded from this population.

Across various studies on alternative licensure versus traditional licensure, the specific route of licensure is not always known. Alternative certification programs vary greatly in the amount of preservice preparation provided (Feistritzer & Haar 2008; Darling-Hammond, 2000). This makes it particularly difficult to determine which teachers may have a thorough understanding of the total agricultural program. Therefore, it is recommended for future research that full census of agriculture teachers in Louisiana be taken and determine which programs alternatively licensed teachers are becoming certified through and what pre-service experiences these programs provide. It is also recommended that research be conducted regularly to identify trends in teacher needs over time.

As this research relates to recommendations for practice, few significant differences were identified between teachers who were traditionally certified versus those who were alternatively certified. This may indicate that structured professional development for alternatively certified teachers does not need to be a priority area. Instead, other areas may be more critical to teacher success across the state. After future research, there may be trends related to other areas such as support for early career teachers depending on their level of experience, or professional development related to teacher backgrounds and experience with FFA and SAE programs.

Limitations

The results of this study are useful for Louisiana agricultural education state staff for planning professional development opportunities for teachers, however, several limitations do exist that must be addressed. First, the utilization of a convenience sample limits the generalizability of the research past the study participants. Further, the inability to contact teachers who did not attend the leadership camp further limits external validity. At the time of the study, a new state agricultural executive director had been hired and the development of a new directory was prioritized, along with ensuring that all teachers were in attendance to the mandatory FFA Leadership Camp. Because both of these pieces were lacking, follow-up with teachers was not as complete as the researchers had hoped and should be considered a limitation of this study.

Further, this research employed a Likert-type scale that asked teachers self-report their perceived professional development needs. There is evidence that self-reported needs may not fully capture the real needs of teacher populations. Further, it is not known if all alternatively certified agriculture teachers fully understand the requirements and demands of implementing a total agricultural education program, therefore, these teachers may have limited view of what they may actually need versus what they perceive as needed.

References

- Boe, E., Cook, L., & Sutherland (2008). Teacher turnover: Examining exit attrition, teaching area transfer, and school migration. *Exceptional Children*, 75(1), 7–31. doi: 10.1177/001440290807500101
- Barrick, R. K., & Estep, C. M. (2011). Experience programs in agriscience education: From projects to SAEPs and beyond. *The Agricultural Education Magazine*, 83(4), 26–27. Retrieved from www.naae.org/profdevelopment/magazine/

- Barrick, R. K., Ladewig, H. W., & Hedges, L. E. (1983). Development of a systemic approach to identifying technical inservice needs of teachers. *The Journal of the American Association of Teacher Educators in Agriculture*, 24(1), 13–19. doi: 10.5032/jaatea.1983.01013
- Bell, S. M., Cihak, D. F., & Judge, S. (2010). A preliminary study: Do alternative certification route programs develop the necessary skills and knowledge in assistive technology? *International Journal of Special Education*, 25(3), 110–118. Retrieved from <http://eric.ed.gov/?id=EJ909041>
- Berry, B. & Shields, B. (2017). Solving the teacher shortage: Revisiting the lessons we've learned. *Phi Delta Kappan*, 98(2), 8–18. doi: 10.1177/0031721717708289
- Birkenholz, R. J., & Harbseit, S. R. (1987). Analysis of the inservice needs of beginning vocational agriculture teachers. *Journal of the American Association of Teacher Educators in Agriculture*, 28(1), 41–49. doi: 10.5032/jaatea.1987.01041
- Boardman, A. E., Darling-Hammond, L., & Mullin, S. P. (1982). A framework for the analysis of teachers' demand and supply. *Economics of Education Review*, 2(2), 127–155. doi: 10.1016/0272-7757(82)90038-3
- Borman, G. D., & Dowling, N. M. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of Educational Research*, 78(3), 367–409. doi: 10.3102/003465408321455
- Darling-Hammond, L. (2000). Teacher quality and student achievement. *Education policy analysis archives*, 8(1). doi: 10.14507/epaa.v8n1.2000
- Darling-Hammond, L., Chung, R., & Frelow, F. (2002). Variation in teacher preparation: How well do different pathways prepare teachers to teach? *Journal of Teacher Education*, 53(4), 286–303. doi: 10.1177/0022487102053004002
- Darling-Hammond, L., & Hudson, L. (1990). Chapter 4: Precollege science and mathematics teachers: Supply, demand, and quality. *Review of Research in Education*, 16(1), 223-264. doi: 10.3102/0091732X016001003
- Decker, P. T., Mayer, D. P., & Glazerman, S. (2004). The effects of Teach for America on students: Findings from a national evaluation. *University of Wisconsin--Madison, Institute for Research on Poverty*. Retrieved from <http://www.ssc.wisc.edu/irpweb/publications/dps/pdfs/dp128504.pdf>
- Dobbins, T. R., & Camp, W. G. (2000). Clinical experiences for agricultural teacher education programs in North Carolina, South Carolina, and Virginia. *Proceedings of the 27th Annual National Agricultural Education Research Conference*. 543–555.
- Donaldson, M. L., & Johnson, S. M. (2011). Teach For America teachers: How long do they teach? Why do they leave? *Phi Delta Kappan*, 93(2), 47–51. doi: 10.1177/003172171109300211
- Duncan, D. W., & Ricketts, J. C. (2008). Total program efficacy: A comparison of traditionally and alternatively certified agriculture teachers. *Journal of Agricultural Education*, 49(4), 38–46. doi: 10.5032/jae.2008.04038

- Duncan, D. W., Ricketts, J. C., Peake, J. B., & Uessler, J. (2006). Teacher preparation and in-service needs of Georgia agriculture teachers. *Journal of Agricultural Education, 47*(2), 24–35. doi: 10.5032/jae.2006.02024
- Ehrenberg, R., & Smith, R. (1997). *Modern labor economics: Theory and public policy* (6th ed.). Reading, MA: Addison-Wesley.
- Feistritz, C. E. (2011). Profile of teachers in the United States. *National Center for Education Information*.
- Feistritz, C. E., & Haar, C. K. (2008). *Alternate routes to teaching*. Upper Saddle River, NJ: Prentice Hall.
- Garton, B. L., & Chung, N. (1996). The inservice needs of beginning teachers of agriculture as perceived by beginning teachers, teacher educators, and state supervisors. *Journal of Agricultural Education, 37*(3), 52–58. doi: 10.5032/jae.1996.03052
- Graham, J., & Garton, B. (2003). Certification measures: are they predictive of secondary agriculture teacher performance? *Journal of Agricultural Education, 44*(3), 54–65. doi: 10.5032/jae.2003.03054
- Guarino, C. M., Santibanez, L., & Daley, G. A. (2006). Teacher recruitment and retention: A review of the recent empirical literature. *Review of Educational Research, 76*(2), 173–208. doi: 10.3102/00346543076002173
- Haggstrom, G.W., Darling-Hammond, L., & Grissmer, D.W. (1988). *Assessing teacher supply and demand*. Santa Monica, CA: The RAND Corp.
- Hawley, W. D. (1992). The alternative certification of teachers. *Teacher Education Monograph No. 14*. ERIC Clearinghouse on Teacher Education, One Dupont Circle, NW, Suite 610, Washington, DC 20036-1186.
- Ingersoll, R. M. (2002). The teacher shortage: A case of wrong diagnosis and wrong prescription. *NASSP bulletin, 86*(631), 16–31. doi: 10.1177/019263650208663103
- Ingersoll, R. M. (2004). *Why do high-poverty schools have difficulty staffing their classrooms with qualified teachers?* Center for American Progress, Institute for America's Future.
- Ingersoll, R., & Smith, T. (2003). The wrong solution to the teacher shortage. *Educational Leadership, 60*(8), 30–33. Retrieved from <http://ascd.org/publications/educationalleadership/>
- Joerger, R. M. (2002). A comparison of the inservice education needs of two cohorts of beginning Minnesota agricultural education teachers. *Journal of Agricultural Education, 43*(3), 11–24. doi: 10.5032/jae.2002.03011
- Kane, T. J., Rockoff, J. E., & Staiger, D. O. (2007). Teacher certification. *Education Next, 7*(2), 6–9. Retrieved from http://educationnext.org/files/ednext_20072_06.pdf
- Kantrovich, A. J. (2007). *A national study of the supply and demand for teachers of agricultural education from 2004-2006*. Morehead, KY: Morehead State University.

- Kearney, P. J. (2017, July 16). Where are all the teachers going? *HuffPost*. Retrieved from https://www.huffingtonpost.com/entry/where-are-all-of-the-teachers-going_us_596b7e10e4b06a2c8edb474c
- Kearns, D. (1990, February 28). Do teachers really need licenses? *Wall Street Journal*, p. 14.
- Kersaint, G., Lewis, J., Potter, R., & Meisels, G. (2007). Why teachers leave: Factors that influence retention and resignation. *Teaching and Teacher Education*, 23(6), 775–794. doi: 10.1016/j.tate.2005.12.004
- Knobloch, N., & Whittington, M. S. (2002). Novice teachers' perceptions of support, teacher preparation quality, and student teaching experience related to teacher efficacy. *Journal of Vocational Education Research*, 27(3), 331-341. Retrieved from <http://scholar.lib.vt.edu/ejournals/JVER>
- Layfield, K. D., & Dobbins, T. R. (2002). Inservice needs and perceived competencies of South Carolina agricultural educators. *Journal of Agricultural Education*, 43(4), 46–55. doi: 10.5032/jae.2002.04046
- Marinell, W. H., & Coca, V. M. (2013). *Who stays and who leaves? Findings from a three-part study of teacher turnover in NYC middle schools*. The Research Alliance for New York City Schools. Retrieved from <http://eric.ed.gov/?id=ED540818>
- National Center for Educational Statistics (2005). The condition of education 2005. *Education Statistics Quarterly*, 7(1/2). Retrieved from https://nces.ed.gov/programs/quarterly/vol_7/1_2/9_1.asp
- National Commission on Teaching and America's Future. (1997). *Doing what matters most: Investing in quality teaching*. New York: Author.
- Peiter, R. L., Terry J., R., & Cartmell, D. D. (2003). Identification of mentors for first year agricultural education teachers. *Proceedings of the 30th National Agricultural Education Research Conference*. Retrieved from <http://aaaeonline.org/Resources/Documents/National/ResearchProceedings,%20National2003.pdf>
- Roberts, T. G., & Dyer, J. E. (2004). Inservice needs of traditionally and alternatively certified agriculture teachers. *Journal of Agricultural Education*, 45(4), 57–70. doi: 10.5032/jae.2004.04057
- Robinson, J. S., Edwards, C. M. (2012). Assessing the teacher self-efficacy of agriculture instructors and their early career employment status: A comparison of certification types. *Journal of Agricultural Education*, 53(1), 150–161. doi: 10.5032/jae.2012.01150
- Rocca, S., & Washburn, S. (2006). Comparison of teacher efficacy among traditionally and alternatively certified agriculture teachers. *Journal of Agricultural Education*, 47(3), 58–69. doi: 10.5032/jae.2006.03058
- Rockoff, J. E. (2004). The impact of individual teachers on student achievement: Evidence from panel data. *The American Economic Review*, 94(2), 247–252. doi: 10.1257/0002828041302244

- Ruhland, S., & Bremer, C. (2003). Perceptions of traditionally and alternatively certified career and technical education teachers. *Journal of Vocational Education Research*, 28(3), 285–302. doi: 10.5328/JVER28.3.285
- Smith, A. R., Lawver, R. G., & Foster, D. D. (2017). *National agricultural education supply and demand study, 2016 Executive Summary*. Retrieved from <http://aaaeonline.org/Resources/Documents/NSD2016Summary.pdf>
- Stripling, C. T., & Ricketts, J. C. (2016). Research priority 3: Sufficient scientific and professional workforce that addresses the challenges of the 21st century. In T. Roberts, A. Harder, & M. Brashears (Eds.), *American Association for Agricultural Education National Research Agenda 2016–2020*. (pp. 29–35). Gainesville, FL: Department of Agricultural Education and Communication.
- Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2016). A coming crisis in teaching. *Teacher supply, demand, and shortages in the US*. Retrieved from <http://learningpolicyinstitute.org>
- Swafford, M. R., & Friedel, C. R. (2010). A comparison on the inservice needs of traditionally and alternatively certified beginning agriculture teachers in Louisiana. *Journal of Southern Agricultural Education Research*, 60(1), 90–103. Retrieved from <http://www.jsaer.org/pdf/vol60Whole.pdf>
- Walker, W. D. (2002). *Retention and attrition of Missouri agriculture teachers*. Unpublished doctoral dissertation, University of Missouri, Columbia.
- Washburn, S. G., King, B. O., Garton, B. L., & Harbstreit, S. R. (2001). A comparison of the professional development needs of Kansas and Missouri teachers of agriculture. In *Proceedings of the 28th National Agricultural Education Research Conference* (Vol. 28, pp. 396–408).
- Wayman, J. C., Foster, A. M., Mantle-Bromley, C., & Wilson, C. A. (2003). A comparison of the professional concerns of traditionally prepared and alternatively licensed new teachers. *The University of North Carolina Press*, 86(3), 35–40. doi: 10.1353/hsj.2003.0005