

Describing the Demand: A Content Analysis of Secondary Agricultural Education Job Openings in Texas

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Abstract

The ongoing teacher shortage in the United States has significantly impacted secondary agricultural education, making recruitment and retention of qualified educators a critical issue. This study conducted a content analysis of secondary agricultural education job postings in Texas to identify key qualifications, expectations, and trends in the hiring process. Findings revealed that high school agricultural education positions are the most frequently advertised, with a strong emphasis on expertise in animal science and applied agricultural engineering. Additionally, a majority of job postings lacked clarity regarding contract length, potentially deterring prospective candidates. The study also highlighted the importance of pedagogical knowledge, content expertise, and classroom management skills in job descriptions, aligning with the Person-Organizational Fit Model and Holland's Vocational Personalities and Work Environments Theory. These findings have implications for both school districts and teacher preparation programs. Districts should improve transparency in job postings by clearly outlining contract terms, job expectations, and professional development opportunities to attract well-suited candidates. Teacher preparation programs should tailor their curriculum to ensure preservice teachers develop competencies in high-demand content areas, industry certifications, and effective classroom management techniques. Furthermore, a national expansion of this content analysis could contribute to a standardized qualification guide for agricultural education job postings. Future research should explore administrators' perceptions of essential teaching qualifications and examine how job postings align with teachers' expectations and career decisions. By addressing these recruitment and preparation challenges, stakeholders can work toward reducing turnover and strengthening the pipeline of agricultural educators.

Introduction

The United States has been experiencing a teacher shortage since the mid-1930s (Behrstock-Sherratt, 2016). Although this is not a new problem, it is a continuous difficulty declared an area of concern by the Department of Education (U.S. Department of Education, n.d.). Nine out of 10 schools indicated in

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a national survey they had trouble hiring teachers to fill vacancies for the 2023-2024 school year (National Center for Education Statistics, n.d.). According to the Texas Education Agency (2023), career and technology education at the secondary level has been listed as a critical shortage area. Agricultural education is among these areas of concern, and it has experienced significant turnover rates over the past 15 years (Smith et al., 2022). Traini et al. (2021) identified job demands as the leading cause of leaving the profession. Sorensen et al. (2016) attributed the lack of work-life/family balance as a significant contributor to teacher turnover.

School-based agricultural educators are accustomed to the three-circle model as the foundation of agricultural education (Shoulders & Toland, 2017). The three-circle model indicates that agricultural education must encompass the classroom, FFA, and Supervised Agricultural Experience (National FFA Association, 2019). Classroom instruction is the core role of an agricultural science teacher (Best et al., 2024; Terry & Briers, 2010). Through this role, educators are able to lay the conceptual foundation for students to apply further throughout of the remaining components of the model. Agricultural educators not only provide classroom instruction but also take on the multifaceted responsibilities of serving as FFA advisors and managing Supervised Agricultural Experience (SAE) programs (Smalley & Rank, 2019). These roles require educators to facilitate leadership development, oversee student projects, and engage with community stakeholders, often extending their influence beyond the classroom to support students' personal and professional growth (Croom, 2008). School districts may not see the importance of all elements of the model or may place emphasis on different program components (Solomonson & Retallick, 2018).

When school districts start the search for an agricultural science teacher, the qualifications for a classroom teacher become evident. Classroom instruction quality plays a pivotal role in the educational outcomes of students, making the recruitment of skilled teachers a critical task for school districts (Hightower et al., 2011). As educational demands evolve, so do the qualifications and skills required of teachers (Darling-Hammond & Bransford, 2007). Job postings for these positions offer a valuable glimpse into the priorities and expectations of specific school districts and positions.

Teacher shortages have led to school districts employing various strategies to develop a competitive edge when attracting and hiring teacher candidates (Lee, 2005). Previous literature posits clearly identifying employer expectations and values and highlighting job incentives can lead to hiring success (Donaldson, 2013). Ulferts (2016) found appealing to the family/personal culture and whole school impact levels were particularly important when recruiting educators to rural school districts. Research has yet to explore the strategies used by secondary schools to recruit agricultural science teachers in their job postings. Analyzing current job postings will allow for a snapshot of job openings within Texas and will allow for an understanding of career expectations from a school district point of view. This analysis could also influence the preparation of preservice teachers to meet these expectations.

Literature Review

Educators must be experts in content knowledge and pedagogical practices (Grossman, 2021). Teachers need to have a deep and comprehensive understanding of their subject matter (Darling-Hammond & Oakes, 2021). Due to the vastness of courses offered at the secondary level, this can require expertise in multiple facets of their discipline (Tonnetti & Lentillon-Kaestner, 2023). The requirement for expansive knowledge can lead to a lack of self-efficacy, especially in early career or novice educators (Catalano et al., 2019). Content knowledge expertise can be developed through post-secondary education, work experience, and professional development (Omare et al., 2020). Rice and Kitchel (2016) found beginning agricultural science teachers self-identified as deficient in their content knowledge and needed to employ several coping mechanisms such as researching on their own, seeking help from other teachers or students, and avoiding content they were not confident instructing.

Not only should educators have a grasp on foundational theories, principles, and concepts in their discipline, but they also need the ability to explain these complex ideas in an accessible way to students with varying skills and backgrounds (Alvunger, 2021). This ability is deeply tied to the educator's pedagogical knowledge, which encompasses the understanding of how students learn, the design of instructional strategies, and the capacity to adapt teaching methods to support various learning contexts (Leijen et al., 2022). Pedagogical knowledge acts as the bridge between theoretical understanding and practical application (Wahlgren & Aarkrog, 2021). It should serve as the cornerstone for effective teaching and learning. Pedagogical knowledge requires pointed development and practices to manage (Patfield et al., 2022). A teacher's pedagogical knowledge base is not static and should continue to be accessed and transformed into knowledge for practice (Guerriero, 2017). This enables educators to meet the shifting demands of their discipline, the fluctuating needs of their students, and new methodologies (Kilag et al., 2023). Effective delivery of content relies on the educator's ability to blend content expertise with pedagogical approaches to create an environment where all students can engage meaningfully with the course material (Andrews et al., 2023).

Classroom management is a fundamental component of effective teaching. This management ensures that students remain engaged and learning occurs in a structured environment (Marzano & Marzano, 2003). Without strong classroom management, even the most well-prepared lesson can be ineffective due to disruptions and lack of student focus (Bozkus, 2001). Effective classroom management strategies involve establishing clear expectations, fostering positive relationships with students, and implementing consistent procedures that promote a productive learning atmosphere (Burden, 2020). Teachers with strong classroom management skills create a supportive environment where students feel safe and motivated to participate in learning activities (Vitto, 2003). Additionally, classroom management plays a critical role in reducing teacher stress and burnout. Educators who struggle with discipline issues often report higher levels of frustration and job dissatisfaction (Wang & Klassen, 2023). Developing classroom management skills is essential for both beginner and experienced educators to maintain an effective learning environment.

Agricultural education requires a unique blend of content expertise and practical skills due to the diverse subject areas, which range from animal science to agricultural mechanics (Roberts & Ball, 2009). Teachers must possess not only theoretical knowledge but also the ability to provide hands-on instruction that aligns with industry standards and real-world applications (Talbert et al., 2020). This presents a challenge for agricultural educators to continuously update their knowledge and technical competencies to match advancements in the agricultural workforce (Wells & Hainline, 2021). Additionally, agricultural education programs include experiential learning components such as supervised agricultural experiences (SAE) and participation in the National FFA Organization, which require teachers to mentor students in leadership, problem-solving, and career development (Lundry et al., 2015). The demand for expertise in both academic and applied agricultural concepts stresses the need for comprehensive teacher preparation programs and ongoing professional development opportunities to ensure educators can effectively equip students with the skills needed for success in the agricultural industry (Robinson & Edwards, 2012).

Conceptual Framework

This study combined the model of person-organizational fit (Kristof, 1996) and the vocational personalities and work environments theory (Holland, 1966, 1997) to form its conceptual framework. This model emphasizes the compatibility between employees and their organizations, focusing on values, goals, and cultural congruence. There are five core components of the person-organization fit model. The first component is the *value congruence*. Value congruence encompasses the alignment between an individual's values and the organization's values. When values are shared, employees are more likely to experience job satisfaction, commitment, and overall well-being. The second component is *goal alignment*, which looks

at the degree to which an individual's personal and professional goals align with the organization's goals. Employees who see their ambitions reflected in the organizational objectives are more motivated and engaged. The third component, *cultural compatibility*, examines the coherence between an individual's preferences for organizational culture and the organization's culture. A strong alignment in cultural compatibility can improve job satisfaction and reduce turnover. *Needs-supplies fit* is the fourth component of the model. It considers whether the organization meets the needs and desires of the employee, including financial rewards, professional development opportunities, and work-life balance. When organizational provisions align with employee needs, it can result in higher job satisfaction and loyalty. The final component of the models is the *demands-abilities fit*, which assesses whether an individual's skills, knowledge, and abilities meet the demands of the job and the organization. A match ensures employees can effectively perform their roles, leading to better performance and job satisfaction. Previous literature has demonstrated the use of this model in recruitment and selection, training and development, and promoting organizational change (Khan et al., 2020; Menter et al., 2024; Veltkamp, 2023).

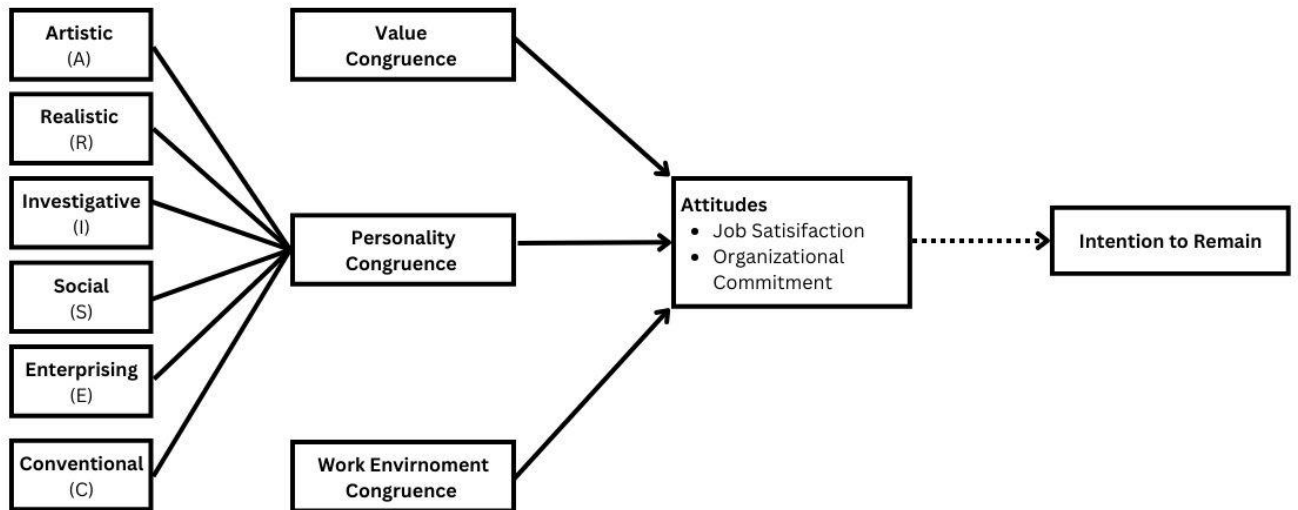
The vocational personalities and work environment theory by John Holland (1966, 1997) suggests that people are more likely to be happy and successful in their careers if it aligns with their personality type. The personality categories are divided into six types, *realistic* (R), *investigative* (I), *artistic* (A), *social* (S), *enterprising* (E), and *conventional* (C) also known as RIASEC. These personality categories are as follows: The realistic category encompasses very solid tasks that are more skilled and mechanical in nature. The investigative category emphasizes more analytical and intellectual work. Artistic is based on self-expression and creative work. Social pours into interpersonal skills and relationships. The enterprising category is an ambitious one with leadership being the focus. The conventional category is structured and controlled.

Based on these categories, one can determine what fits one personality best and, therefore, make the best career and position choice for them. For this content analysis, the researchers coded each qualification based on vocational personalities and work environments theory. The theory has been used in career counseling and vocational guidance to help individuals identify suitable career paths based on their interests and personality traits (Spokane & Cruza-Guet, 2005). Understanding job qualifications in the classroom and matching them with appropriate personality traits can significantly enhance a teacher's effectiveness and job satisfaction, thereby mitigating teacher attrition and shortage issues (Hughes, 2012). By ensuring a match between job requirements and personal attributes, teachers can capitalize on their strengths, navigate challenges more effectively, and experience a greater sense of fulfillment in their roles. This alignment not only fosters professional growth and job satisfaction but also contributes to higher levels of commitment and retention within the teaching profession (Holland, 1997).

These two models were integrated, as seen in figure 1, and were used to create a holistic framework that aligns personality traits with organizational components. Holland's (1997) RIASEC categories provide a nuanced understanding of individual personality traits, while the Person-Organization Fit model (Kristof, 1996) examines how these traits align with organizational characteristics. When teachers' personality traits align with organizational values, goals, culture, and job demands, they experience greater satisfaction and performance. By ensuring alignment between personal attributes and organizational needs, this model mitigates attrition and fosters long-term commitment.

Figure 1

Conceptual model combining the model of person-organizational fit (Kristof, 1996) and the vocational personalities and work environmental theory (Holland, 1966).



Note. This figure illustrates the integration of person-organization fit and vocational personality theory. Adapted from Kristof (1996) and Holland (1966).

Purpose/Research Objectives

The purpose of this study was to analyze the components of job descriptions for agricultural education job postings in Texas. This purpose aligned with the “advancing public knowledge of AFNR systems” national research value of the American Association of Agricultural Educators (2023). The findings of this study will provide insight into career expectations from the school district’s perspective. This understanding could influence how preservice teachers are prepared to meet these expectations. Four research objectives guided this study:

RO1: Describe the components of position summaries provided for agricultural education job postings in Texas.

RO2: Describe the frequency of agricultural pathways/course teaching expectations outlined in job postings in Texas.

RO3: Describe the frequency of classroom-specific qualifications on Texas job postings on the association website.

RO4: Categorize the classroom-specific qualifications into a personality characteristic category as outlined by Holland (1966).

Methods/Procedures

A text-based conceptual content analysis methodology was utilized to analyze agricultural education job postings on the Agriculture Teachers Association of Texas website. This website serves as the primary location for publicizing job openings and searching for potential jobs in the state. A content analysis

approach allowed the researchers to search for apparent patterns within a text-based medium (Krippendorff, 2018). This methodology is often employed in education to determine trends and use data to support decisions (Egmir et al., 2017). Job postings were analyzed from January 17th, 2024, to April 30th, 2024. This period was chosen as most education jobs are posted during the spring semester to prepare for the upcoming school year. The association posts general information about each job opening, including the job title, location, position type, courses/pathways to be taught, and contact information. They also provide a link to the school's website to which the job descriptions and applications are located.

The researchers used a coding process to analyze the data found on the association's website. A codebook was created with potential codes using a numerical assignment system and then was enhanced as new codes were utilized in postings. Coders were trained to use the codebook to ensure consistency. A Microsoft Excel sheet was used to record data on a daily basis. A total of 206 job postings were analyzed. At the conclusion of the data collection period, the researchers negotiated codes and categorized textual material (Krippendorff, 2018). Classroom qualifications were also coded into one of the six characteristic categories outlined in the vocational personalities and work environment theory by John Holland (1966, 1997). A panel of experts verified consulted codes for validity (Roller, 2019). Reducing data helps analysts create efficient representations, particularly when dealing with large volumes of data (Lewis et al., 2013). IBM SPSS statistical software was used to run frequencies and percentages. A potential limitation of this study is the subjective interpretation of the coding categories. Despite efforts to standardize coding, interpretation biases may have influenced how certain job qualifications were categorized. Additionally, findings may not be generalizable to all school districts.

Results/Findings

Table 1 outlines the frequencies of locations by area of agricultural education job openings in Texas. The most common areas to have a job opening were area VI ($f = 28$, 13.6%), area VIII ($f = 26$, 12.6%), area V ($f = 24$, 11.7%), and area XII ($f = 24$, 11.7%). The areas that saw the least amount of job openings during the data collection period were area XI ($f = 9$, 4.4%), area II ($f = 10$, 4.9%), area I ($f = 11$, 5.3%), and area X ($f = 11$, 5.3%).

Table 1

Frequency of Job Location by FFA Area (N=206)

Area Number	<i>f</i>	%
I	11	5.3
II	10	4.9
III	20	9.7
IV	16	7.8
V	24	11.7
VI	28	13.6
VII	11	5.3
VIII	26	12.6
IX	16	7.8
X	11	5.3
XI	9	4.4
XII	24	11.7
Total	206	100.0

Table 2 describes the frequency of position types represented by each job posting. High school positions were the most common position type ($f = 162$, 78.6%). Fifteen middle school positions were

shared via the association website (7.3%). Twenty-nine job postings did not specify whether the position was high school or middle school (14.1%).

Table 2*Frequencies of Position Type (N=206)*

Position Type	<i>f</i>	%
High School	162	78.6
Middle School	15	7.3
Unspecified	29	14.1
Total	206	100.0

Table 3 depicts the frequencies of various lengths of benefits for analyzed job postings. Most position descriptions did not specify this information ($f = 117$, 56.8%). For those who did provide contract length, the most common length of benefits was 220-229 days ($f = 33$, 16.0%).

Table 3*Frequencies of Workdays/ Length of Benefit (N=206)*

Workdays/ Length of Benefits	<i>f</i>	%
10 months	3	1.5
11 months	2	0.9
12 months	16	7.8
11 or 12 months (negotiable)	2	0.9
160-169	1	0.5
170-179	0	0.0
180-189	10	4.9
190-199	5	2.4
200-209	8	3.9
215-219	9	4.4
220-229	33	16.0
Unspecified	117	56.8
Total	206	100.0

Table 4 describes the frequencies of course/pathway teaching expectations outlined in job postings. The most sought-after instructional pathways were animal science ($f = 128$, 62.1%) and applied agricultural engineering ($f = 116$, 56.3%). The least common was exploratory agriculture ($f = 1$, 0.5%). Some schools planned to cater potential coursework based on teacher expertise ($f = 6$, 2.9%), while others included additional courses that could be added later ($f = 5$, 2.4%).

Table 4*Frequencies of Course/Pathway Teaching Expectations (N=206)*

Course/Pathways	<i>f</i>	%
Animal Science Pathway	128	62.1
Applied Agricultural Engineering Pathway	116	56.3
Plant Science Pathway	84	40.8
Environmental Science Pathway	33	16.0
Agribusiness Pathway	23	11.2
Principles of AFNR	25	9.7
Food Science Pathway	20	12.1
Practicum in AFNR	9	4.4
Others based on expertise area	6	2.9
Possibly others	5	2.4
Exploratory Agriculture	1	0.5

Table 5 shows the classroom qualifications addressed within the 206 job postings that were posted by each school district on the association's website. The qualification that was the most desired for the classroom was a valid "Texas teacher certification in agriculture sciences" ($f=144$, 69.9%), followed by "knowledge of agricultural science and technology" ($f=135$, 65.5%) and "bachelor's degree from an accredited university" ($f=132$, 64.1%). Classroom qualifications with the lowest amount recorded were "alternative certifications will be considered" ($f=1$, 0.5%), "utilize schools outdoor learning area" ($f=1$, 0.5%), and "strong animal science background" ($f=1$, 0.5%). Within the organizational personality traits for each classroom qualification, eight qualifications fell into the "social" trait, followed by the six qualifications that fell into the "investigative" category. The category with the least amount was the "realistic" category with four qualifications being listed. The "artistic" and "enterprising" categories received zero qualifications that coincided with personality traits within the classroom portion.

Table 5*Classroom Qualifications on Job Posting (N=206)*

	<i>f</i>	<i>%</i>	<i>Characteristic Category</i>
Texas Teaching certificate in agriculture sciences	144	69.9	C
Knowledge of agricultural science and technology	135	65.5	I
Bachelor's degree from an accredited university	132	64.1	C
General knowledge of curriculum and instruction	104	50.5	I
Ability to instruct students and manage their behavior	103	50.5	S
Have student taught / approved internship/ related work experience	65	31.6	S
Ability to oversee student field experiences in career area assigned	58	28.2	S
Certification Obtainment for Students	18	8.7	R
Demonstrated competency in agricultural plant science	6	2.9	I
Experience with district of innovation	5	2.4	I
Ability to create and manage interactive, innovative, hands-on projects for student engagement and effectively teach and work with high school students	4	1.9	S
Improve the quality of Agriculture, Food, and Natural Resources education instruction, counseling, management, and leadership to produce success for all students	4	1.9	S
Have a working knowledge of the objectives and TEKS of courses in the program	3	1.5	C
Knowledge of industry related software	3	1.5	I
Eligibility to serve as adjunct faculty with partner institutes of higher education	2	1.0	S
Alternative certifications will be considered	1	0.5	C
Proper training in Public School Instruction	1	0.5	C
Inform students about agriculture and agricultural literacy	1	0.5	S
Utilize the school's outdoor learning area	1	0.5	S
Physically able to move about the room to perform formative assessments and adequately facilitate small and large group instruction	1	0.5	R
Strong animal science background	1	0.5	I

Note. Characteristic Category: R = Realistic, I = Investigative, A = Artistic, S = Social, E = Enterprising and C = Conventional.

Conclusions/ Discussion/ Implications

The results of this study led to eight conclusions. First, high school job postings are the primary teaching positions sought after in Texas. With 78.6% of job postings requesting a 9-12th grade educator, schools must differentiate their open position, ensuring they have the competitive edge to fill their vacancy (Lee, 2005). Appealing to employees using family/personal culture and whole-school impact statements could lead to success in recruiting educators (Ulferts, 2016). Showing strong alignment with values, goals, culture, needs, and demands could allow employers to effectively recruit and select employees who will experience job satisfaction and reduce turnover (Kristof, 1996).

The second major conclusion from this study is that agricultural science programs do not specify their contract lengths in job postings. Only 89 out of 206 job postings mentioned the length of the contract within the position description. This lack of clarity could lead to distrust and potentially deter prospective employees (Khan et al., 2020). The Model of Person-Organizational Fit emphasizes the importance of communicating job demands to assess whether an individual's skills, knowledge, and abilities match the job requirements (Kristof, 1996). Employees who choose a job with clear expectations can perform their roles effectively, leading to improved performance and greater job satisfaction. Among the schools that did disclose their contract length, the most common were longer contracts ranging between 220 and 229 days. Previous literature has described agricultural education as a demanding profession lacking a work-life/family balance (Sorensen et al., 2016; Traini et al., 2021). Therefore, employers must communicate the significance of this balance to potential hires as a recruitment strategy and to demonstrate alignment of needs as outlined by Kristof (1996).

This study also found agricultural educators are in the largest demand to teach animal science and applied agricultural engineering, as over half of the postings contained one or more courses that fell in these pathways. This trend highlights a growing need for educators who possess expertise in these fields. As the industry continues to evolve, the emphasis on these subjects underscores their relevance and the necessity for qualified professionals to meet educational and industry standards (Texas Education Agency, 2023). These courses require specific knowledge, skills, and abilities to instruct, and identifying these upfront in a job posting can allow the most qualified candidates to apply (Kristof, 1996). This could, in turn, lead to overall job satisfaction and optimal performance (Veltkamp, 2023).

Holding a valid teaching certificate is highly important when it comes to student achievement (Goldhaber & Brewer, 2000). School districts see this importance and continue to hold this standard for their potential employees. As the most frequent request in this data collection, school districts are actively seeking qualified teachers for their positions. Even with the teacher shortage that the agricultural education profession has seen, alternative certification still seemed like an education shortcoming and not a desired trait when looking for applicants (Bowling & Ball, 2018). Alternative certifications are those that obtain teacher certification without going through a university teacher preparation program (National Research Council, 2010). Therefore, agricultural science teachers need to advocate to their students who are even considering a career in agricultural education to major in agricultural education with teacher certification.

Agricultural science and technology knowledge is valued when it comes to secondary agricultural science teachers. School districts see the importance and value of their teachers having working knowledge of agriculture and communicate that standard when adding desired qualifications to their job postings. A bachelor's degree is still held as the gold standard in terms of classroom qualifications. This knowledge, along with having teaching certification, is at the top of the school district's list for classroom qualifications and should leave agricultural science teacher preparation programs with a sense of security that this pathway is still needed and supported by school districts alike.

The classroom qualifications aligned well with Holland's Vocational Personalities and Work Environments Theory (1966, 1997). Holland suggested that the "social" category aligns with the personalities of "teachers, nurses, and counselors" (Pence, 2024, p.6). Eight out of the 23 qualifications fell into the social category. Classrooms are very social, and educators must possess the qualities that invest in people and are strong in interpersonal skills (Pence, 2024). While the "investigative" category came in second for classroom qualifications with six, it emphasizes the need for teachers to be responsible for the content that the teacher could possibly teach and continue to grow in their knowledge within agriculture. This is consistent with prior literature that states that a teacher's knowledge of the subject impacts the curriculum within the classroom (Hashew, 1986).

The importance of classroom management must also be considered in teacher recruitment and retention efforts. Effective classroom management strategies are critical for maintaining student engagement, reducing disruptions, and fostering a positive learning environment (Marzano & Marzano, 2003). Educators who excel in this area can create structured and supportive classrooms that enhance student achievement and reduce teacher burnout (Bozkus, 2021). Given the high demands of agricultural education, incorporating professional development in classroom management into teacher preparation programs can help address these challenges and improve teacher efficacy (Burden, 2020).

Additionally, expertise in agricultural education requires both theoretical knowledge and hands-on skills, making it essential for teacher preparation programs to emphasize experiential learning (Roberts & Ball, 2009). Agricultural educators must be adept in diverse areas such as animal science, plant science, agribusiness, and agricultural mechanics, as these subjects form the backbone of many secondary programs (Talbert et al., 2020). As industry demands evolve, teachers must stay current with technological advancements and best practices to ensure students receive relevant and rigorous instruction (Wells & Hainline, 2021). Strengthening connections between schools and agricultural industries can provide valuable opportunities for professional development and enhance the overall quality of agricultural education programs (Lundry et al., 2015).

Recommendations

Based on the findings of this content analysis, it is recommended that school districts in Texas provide as much clarity as possible in their job postings to promote a competitive edge and lead to a more substantial chance of alignment of values, goals, culture, needs, and demands between candidates and their school district. Transparency regarding contract length, specific course assignments, required certifications, and expectations related to work-life balance should be explicitly stated to attract well-matched applicants. Additionally, incorporating testimonials from current educators and highlighting professional development opportunities could further enhance the appeal of job postings and contribute to improved recruitment outcomes.

Teacher preparation programs should use the requirements outlined in job postings to evaluate their current curriculum and training procedures to ensure these needs are being met and that they are producing qualified candidates. This may require reevaluating current course offerings or additional courses when possible. Programs should integrate real-world applications of content knowledge, industry-aligned certifications, and targeted classroom management training to align with employer expectations. Collaborating with local school districts to gain insights into emerging demands and adjusting curricula accordingly could further strengthen teacher readiness.

It is also recommended that teacher preparation programs in Texas use this information to continue to prepare their students with the necessary skills they need to be qualified candidates for the classroom. This would include preparing students with knowledge of all agricultural pathways, classroom management skills and techniques, understanding ways to obtain industry certifications, and overall knowledge of curriculum and instruction, based on the results of the content analysis. Teacher preparation programs can also use this information to grow the content knowledge within each course so that students have the working knowledge sought after by school districts. Expanding partnerships with agricultural industry leaders and educational organizations could provide more hands-on learning experiences and ensure that future educators remain at the forefront of industry advancements.

It is recommended this content analysis be continued nationally to compile a national qualification guide for job postings in agricultural education. A standardized set of expectations and qualifications could improve consistency in teacher preparation across states and help bridge gaps in agricultural education nationwide. Another recommendation would be to conduct a study on school administrators' perceptions of

classroom qualifications for agricultural science teachers. Understanding what administrators believe to be the most important classroom qualifications would be helpful when preparing teachers and pre-service teachers. This could guide professional development efforts, refine hiring processes, and ensure that teachers meet the evolving needs of agricultural education programs.

Further research should analyze job postings from an educator's perspective. A qualitative analysis could provide insight into the reasonableness of job demands as outlined in position postings and clarify the most effective recruitment strategies within agricultural education. Understanding what school districts seek in their candidates is incredibly important when preparing teachers to search for teaching positions. Additionally, examining how agricultural educators perceive job postings and their alignment with actual teaching responsibilities could shed light on potential disconnects and areas for improvement in recruitment. Understanding teachers' personality traits and where they align within the job postings can also be beneficial so that teachers choose the right position for them and therefore could potentially find their forever home within a school district. Future studies could explore retention strategies that align with personality fit and professional satisfaction to address teacher shortages and long-term career sustainability in agricultural education.

References

- Alvunger, D. (2021). Curriculum making and knowledge conceptions in classrooms in the context of standards-based curricula. *The Curriculum Journal*, 32(4), 607–625. <https://doi.org/10.1002/curj.108>
- American Association for Agricultural Education (AAAE). (2023). *AAAE Research Values*.
- Andrews, D., Van Lieshout, E., & Kaudal, B. B. (2023). How, where, and when do students experience meaningful learning? *International Journal of Innovation in Science and Mathematics Education*, 31(3). <https://doi.org/10.30722/IJISME.31.03.003>
- Behrstock-Sherratt, E. (2016). Creating coherence in the teacher shortage debate: What policy leaders should know and do. *Education Policy Center at American Institutes for Research*.
- Best, R.W., Robinson, J. S., Terry, R., Edwards, M.C., Cole, K.L. (2024, May 20-23). Tasks associated with teaching school-based agricultural education: The classroom and laboratory instruction component. [Conference presentation abstract]. 2024 AAAE National Conference, Manhattan, KS, United States.
- Bowling, A. M., & Ball, A. L. (2018). Alternative certification: A solution or an alternative problem? *Journal of Agricultural Education*, 59(2), 109–122. <https://doi.org/10.5032/jae.2018.02109>
- Bozkus, K. (2021). A systematic review of studies on classroom management from 1980 to 2019. *International Electronic Journal of Elementary Education*, 13(4), 433–441. <https://doi.org/10.26822/iejee.2021.202>
- Burden, P. R. (2020). *Classroom management: Creating a successful K-12 learning community*. John Wiley & Sons.
- Catalano, A., Asselta, L., & Durkin, A. (2019). Exploring the relationship between science content knowledge and science teaching self-efficacy among elementary teachers. *Journal of Education*, 7(1), 57–70. Retrieved from: <https://files.eric.ed.gov/fulltext/EJ1217961.pdf>

- Croom, D. B. (2008). The development of the integrated three-component model of agricultural education. *Journal of Agricultural Education*, 49(1), 110–120. <https://doi.org/10.5032/jae.2008.01110>
- Darling-Hammond, L., & Bransford, J. (Eds.). (2007). *Preparing teachers for a changing world: What teachers should learn and be able to do*. John Wiley & Sons.
- Darling-Hammond, L., & Oakes, J. (2021). *Preparing teachers for deeper learning*. Harvard Education Press.
- Donaldson, M. L. (2013). Principals' approaches to cultivating teacher effectiveness: Constraints and opportunities in hiring, assigning, evaluating, and developing teachers. *Educational Administration Quarterly*, 49(5), 838–882. <https://doi.org/10.1177/0013161X13485961>
- Egmir, E., Erdem, C., & Kocyigit, M. (2017). Trends in educational research: A content analysis of the studies published in "International Journal of Instruction". *International Journal of Instruction*, 10(3), 277–294. Retrieved from: <https://files.eric.ed.gov/fulltext/EJ1150776.pdf>
- Goldhaber, D. D., & Brewer, D. J. (2000). Does teacher certification matter? High school teacher certification status and student achievement. *Educational evaluation and policy analysis*, 22(2), 129–145. <https://doi.org/10.3102/01623737022002129>
- Grossman, P. (Ed.). (2021). *Teaching core practices in teacher education*. Harvard Education Press.
- Guerriero, S. (2017), Pedagogical knowledge and the changing nature of the teaching profession, *Educational Research and Innovation*, 32(3). <https://doi.org/10.1787/9789264270695-en>.
- Hashew, M. Z. (1986, April). Effects of subject matter knowledge in the teaching of biology and physics. [Paper presented]. Annual Meeting of American Educational Research Association, San Francisco, CA, United States.
- Hightower, A. M., Delgado, R. C., Lloyd, S. C., Wittenstein, R., Sellers, K., & Swanson, C. B. (2011). *Improving student learning by supporting quality teaching*. Sage publications.
- Holland, J. L. (1966). A psychological classification scheme for vocations and major fields. *Journal of Counseling Psychology*, 13(3), 278. <https://doi.org/10.1037/h0023725>
- Holland, J. L. (1997). *Making vocational choices: A theory of vocational personalities and work environments* (3rd ed.). Psychological Assessment Resources.
- Hughes, G. D. (2012). Teacher retention: Teacher characteristics, school characteristics, organizational characteristics, and teacher efficacy. *The Journal of Educational Research*, 105(4), 245–255. <https://doi.org/10.1080/00220671.2011.584922>
- Khan, M. Y., Mushtaq, J., & Naz, S. (2020). Impact of training and development on job satisfaction and job performance with moderating effect of person job fit. *UW Journal of Management Sciences*, 4(1), 1–20. Retrieved from: <https://uwjms.org.pk/index.php/uwjms/article/view/21>.
- Kilag, O. K., Marquita, J., & Laurente, J. (2023). Teacher-led curriculum development: Fostering innovation in education. *Excellencia: International Multi-disciplinary Journal of Education* (2994-9521), 1(4), 223–237. Retrieved from:

- https://www.researchgate.net/publication/376646617_Teacher-Led_Curriculum_Development_Fostering_Innovation_in_Education
- Krippendorff, K. (2018). *Content analysis: An introduction to its methodology*. Sage publications.
- Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, 49(1), 1. <https://doi.org/10.1111/j.1744-6570.1996.tb01790.x>
- Lee, D. M. (2005). Hiring the best teachers: Gaining a competitive edge in the teacher recruitment process. *Public Personnel Management*, 34(3), 263–270. <https://doi.org/10.1177/00910260050340030>
- Leijen, Ä., Malva, L., Pedaste, M., & Mikser, R. (2022). What constitutes teachers' general pedagogical knowledge and how it can be assessed: A literature review. *Teachers and Teaching*, 28(2), 206–225. <https://doi.org/10.1080/13540602.2022.2062710>
- Lewis, S. C., Zamith, R., & Hermida, A. (2013). Content analysis in an era of big data: A hybrid approach to computational and manual methods. *Journal of Broadcasting & Electronic Media*, 57(1), 34–52. <https://doi.org/10.1080/08838151.2012.761702>
- Lundry, J., Ramsey, J. W., Edwards, M. C., & Robinson, J. S. (2015). Benefits of career development events as perceived by school-based, agricultural education teachers. *Journal of Agricultural Education*, 56(1), 43–57. <https://doi.org/10.5032/jae.2015.01043>
- Marzano, R. J., & Marzano, J. S. (2003). The key to classroom management. *Educational leadership*, 61(1), 6–13. Retrieved from: https://www.researchgate.net/profile/Robert-Marzano/publication/283749466_The_Key_to_Classroom_Management/links/56f26c0908aed354e57293d3/The-Key-to-Classroom-Management.pdf
- Menter, M., Göcke, L., & Zeeb, C. (2024). The organizational impact of business model innovation: assessing the person-organization fit. *Journal of Management Studies*, 61(3), 926–967. <https://doi.org/10.1111/joms.12902>
- National Center for Education Statistics. (n.d.). *Schools and Staffing Survey (SASS): Overview*. NCES. <https://nces.ed.gov/surveys/spp/results.asp>
- National FFA Organization. (2019, January 14). *Agricultural Education*. FFA. <https://www.ffa.org/agricultural-education/>
- National Research Council. (2010). *Preparing teachers: Building evidence for sound policy*. NRC. <https://www.nap.edu/catalog/12882/preparing-teachers-building-evidence-for-sound-policy>
- Omare, E., Imonje, R. K., & Nyagah, G. (2020). Teacher qualification, experience, capability beliefs and professional development: Do they predict teacher adoption of 21st century pedagogies? *International Journal of Curriculum and Instruction*, 12(2), 639–670. Retrieved from: <https://files.eric.ed.gov/fulltext/EJ1291857.pdf>
- Patfield, S., Gore, J., Prieto, E., Fray, L., & Sincock, K. (2022). Towards quality teaching in higher education: pedagogy-focused academic development for enhancing practice. *International Journal for Academic Development*, 1–16. <https://doi.org/10.1080/1360144X.2022.2103561>

- Pence, C. (2024, February). Career theories. Cheryl Pence, PhD. <https://cherylpence.com/career-theories>
- Rice, A. H., & Kitchel, T. (2016). Deconstructing content knowledge: Coping strategies and their underlying influencers for beginning agriculture teachers. *Journal of Agricultural Education*, 57(3), 208–222. <https://doi.org/10.5032/jae.2016.03208>
- Roberts, T. G., & Ball, A. L. (2009). Secondary agricultural science as content and context for teaching. *Journal of Agricultural Education*, 50(1), 81–91. <https://doi.org/10.5032/jae.2009.01081>
- Robinson, J. S., & Edwards, M. C. (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. <https://doi.org/10.5032/jae.2012.01150>
- Roller, M. R. (2019). A quality approach to qualitative content analysis: Similarities and differences compared to other qualitative methods. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, 20(3). <https://doi.org/10.17169/fqs-20.3.3385>
- Shoulders, C. W., & Toland, H. (2017). Millennial and non-millennial agriculture teachers' current and ideal emphasis on the three components of the agricultural education program. *Journal of Agricultural Education*, 58(1), 85–101. <https://doi.org/10.5032/jae.2017.01085>
- Smalley, S. W., & Rank, B. D. (2019). Preservice teacher perceptions of the role of an agriculture teacher during their early field experience. *Journal of Agricultural Education*, 60(2), 99–108. <https://doi.org/10.5032/jae.2019.02099>
- Smith, A. R., Foster, D. D., & Lawver, R. G. (2022). National agricultural education supply and demand study, 2021 Executive Summary. <http://aaaeonline.org/Resources/Documents/NSD2021Summary.pdf>
- Solomonson, J. K., & Retallick, M. S. (2018). Over the Edge: Factors nudging mid-career, school-based agriculture teachers out of the profession. *Journal of Agricultural Education*, 59(4), 1–19. <https://doi.org/10.5032/jae.2018.04001>
- Sorensen, T. J., McKim, A. J., & Velez, J. J. (2016). A national study of work-family balance and job satisfaction among agriculture teachers. *Journal of Agricultural Education*, 57(4), 146–159. <https://doi.org/10.5032/jae.2016.04146>
- Spokane, A. R., & Cruza-Guet, M. C. (2005). Holland's theory of personalities in work environments) In SD Brown & RW Lent. *Career development and counseling: Putting theory and research to work*, 24–42.
- Talbert, L. E., Bonner, J., Mortezaei, K., Guregyan, C., Henbest, G., & Eichler, J. F. (2020). Revisiting the use of concept maps in a large enrollment general chemistry course: implementation and assessment. *Chemistry Education Research and Practice*, 21(1), 37–50. <https://doi.org/10.1039/C9RP00059C>
- Terry, R., & Briers, G. C. (2010). Roles of the secondary agriculture teacher. In R. M. Torres, T. Kitchel, & A. Ball (Eds.), *Preparing and advancing teachers in agricultural education* (pp. 88–99). Columbus, OH: The Ohio State University Press.

- Texas Education Agency. (2023). *Teacher Shortage Areas 2023-2024*. TEA. <https://tea.texas.gov/texas-educators/educator-initiatives-and-performance/teacher-shortage-areas-2023-2024>
- Tonnetti, B., & Lentillon-Kaestner, V. (2023). Teaching interdisciplinarity in secondary school: A systematic review. *Cogent Education*, *10*(1). <https://doi.org/10.1080/2331186X.2023.2216038>
- Traini, H. Q., Haddad, B., Stewart, J., & Velez, J. J. (2021). Adjusting, appeasing, and rearranging: How agriculture teachers reconcile demands of the profession. *Journal of Agricultural Education*, *62*(2), 167–184. <https://doi.org/10.5032/jae.2021.02167>
- Ulferts, J. D. (2016). A brief summary of teacher recruitment and retention in the smallest Illinois rural schools. *Rural Educator*, *37*(1), 14–24. Retrieved from: <https://files.eric.ed.gov/fulltext/EJ1225312.pdf>
- U.S. Department of Education. (n.d.). *Raise the bar: Strengthening the teaching profession*. USDE. <https://www.ed.gov/raisethebar/educators>
- Veltkamp, N. C. M. (2023). *Fit Dynamics in Recruitment: Recruiter Perspectives on Person-Job, Person-Organization, and Person-Recruiter Fit* [Master's thesis, University of Twente]. ProQuest Dissertations & Theses Global.
- Vitto, J. M. (2003). *Relationship-driven classroom management: Strategies that promote student motivation*. Corwin Press.
- Wahlgren, B., & Aarkrog, V. (2021). Bridging the gap between research and practice: how teachers use research-based knowledge. *Educational action research*, *29*(1), 118–132. <https://doi.org/10.1080/09650792.2020.1724169>
- Wang, H., & Klassen, R. M. (2023). Longitudinal relationships between teachers' utility values and quitting intentions: A person-organization fit perspective. *Teaching and Teacher Education*, *127*, 104–109. <https://doi.org/10.1016/j.tate.2023.104109>
- Wells, T., & Hainline, M. S. (2021). Examining teachers' agricultural mechanics professional development needs: A national study. *Journal of Agricultural Education*, *62*(2), 217–238. <https://doi.org/10.5032/jae.2021.02217>