Delving into the impostor phenomenon: its incidence and effects on young agricultural educator career attrition

by

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Abstract

Teacher attrition is not a new challenge for school-based agricultural education (SBAE) programs and has presented itself as a challenge since the inception of the content area in the early twentieth century. The supply of agriculture teachers does not currently meet the demand created by expanding and new SBAE programs. Countless studies have explored the reasons for job displeasure and attrition within agricultural education, but none have explored the impostor phenomenon as a potential contributor to teacher attrition. The impostor phenomenon, also known as impostor syndrome, is a phenomenon characterized by self-doubt of intellect, skills, or accomplishments, typically amongst high-achieving persons. These individuals experience pervasive feelings of self-doubt, anxiety, depression, and feelings of being a "fraud" at work, despite career-related accomplishments. This study utilized the Clance Impostor Phenomenon Scale to establish the frequency and intensity of impostor phenomenon in a sample of agriculture teachers with less than ten years of teaching experience. Ajzen's Theory of Planned Behavior was also used to conceptualize the decision to leave the classroom. Both constructs were applied to a questionnaire and disseminated to nearly 1,000 teachers in NAAE Region II. Data analysis revealed over 92% of teachers had moderate to intense impostor feelings, with 11% having intense symptoms. Impostor scores were significantly correlated with participant's propensity towards leaving the classroom, with the planned behavior constructs of perceived behavioral control and perceived norm being significant indicators. Participants with low perceived background in production agriculture also had significant correlations with impostor feelings.

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Dedication

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"I'm an agricultural educator by choice and not by chance."

– Ag Teachers' Creed

Chapter 1 - Introduction

Background and Setting

This thesis is a record of a quantitative study evaluating the frequency of and possible predictors of the impostor phenomenon among secondary agricultural education instructors in the United States. The study also aims to identify if relational evidence exists between the phenomenon and agriculture teacher attrition. The study focused on middle/high school agricultural educators in seven U.S. states in the Fall of 2023. This chapter explores the background of the agriculture teacher shortage faced by schools across the country, communicates the significance of the concerns, and identifies current gaps in knowledge surrounding the problem.

Shortage of School-Based Agricultural Educators

A shortage of school-based agricultural educators has been an ongoing issue since the passage of the Smith-Hughes Act in 1917, which provided funding and support for the integration of agriculture programs in secondary schools (Eck & Edwards, 2019). Eck and Edwards (2019) identified historical trends in supply and demand of school-based agricultural educators. Their work has shown an increased demand in recent years, nearing all-time highs, while the supply of graduates exiting agricultural education programs steadily decreased in the 1980s, before plateauing in the 1990s, which has remained nearly constant into the 21st century. These trends insinuate a lack of supply to meet the current demand in school-based agricultural education (SBAE) programs.

The shortage of SBAE teachers and the reasons they choose to leave the profession is heavily documented. Lemons et al. (2015) performed a qualitative study with former agriculture teachers, who chose to leave the classroom, and found those teachers were passionate about their

students and content area but recalled the high expectations amongst themselves as well as from others, the "burdens" of the job, and people (i.e. difficult teaching partners, students, parents, administrators, and community members) as reasons they left. Another recent study found convoluted job descriptions and a growing list of duties required to be a successful agriculture teacher contribute to agriculture teachers leaving the classroom (Traini et al., 2021). The recent COVID-19 pandemic only exacerbated the increased workload, which led to lower overall job satisfaction, less work-life balance, and an increased level of stress (Hoelting, 2022). While the pandemic has since concluded, its effects in school systems are still felt today. The National Center for Education Statistics (2022) reported 63% of schools with vacant teaching positions in the 2022 school year attributed the increase in vacancies directly to the pandemic.

Numerous studies in the field of agricultural education have identified relationships between self-efficacy, commitment to their career, classroom management, competency in teaching strategies, working conditions, and burnout, amongst others, as attributing factors to leaving the profession (Lemons et al., 2015; McKim & Velez, 2015; Tippens et al., 2013). There is very little literature linking impostor phenomenon as a potential reason agriculture teachers choose to remain in or exit the teaching field.

Supply and Demand of SBAE Teachers

Each year, the National Association of Agricultural Educators sponsors the National Agricultural Education Supply & Demand Study (Smith et al., 2023a). The most recent data available is from the 2022 study. Reporting institutions recorded 869 license-eligible completers of undergraduate and graduate agricultural education programs. A total of 650 completers were female, while males made up the remaining 218. The vast majority, 85%, were white (Smith et al., 2023a).

The study also provided data on the number of programs amongst responding states. There were 8,987 SBAE programs, which employed 14,516 SBAE teachers in 2023 (Smith et al., 2023a). Over 2,000 (n = 2,023) were reported as new hires, with 30.3% (n = 613) being teachers who moved schools. A total of 677 newly certified undergraduate and graduate students entered the classroom. Over 300 (n = 338) were alternatively certified. The remaining 395 were either unknown or did not possess a teaching license (Smith et al., 2023a). As of September 15, 2022, the study reported 142 full-time and 6 part-time positions still open. The demand for SBAE programs continues to remain high, with 254 new agriculture programs being added and 335 new positions being created (Smith et al., 2023a). Despite the growth, there were some positions (n = 86.5) and programs (n = 48) lost (Smith et al., 2023a). The reasons for the losses were not stated but, as program growth trends upwards, teacher attrition and inability to fill positions may be suspect.

The primary reason teacher reported for leaving the profession (N = 839) was retirement (n = 179), which made up 21.3% of the sample. Seeking employment outside of teaching (n = 157) and transitioning to a content area outside of agriculture (n = 129) rounded out the top three. Additional reasons for leaving included staying at home (n = 62), transitioning to school administration (n = 41), moved to production agriculture (n = 41), contract not renewed/terminated (n = 37), transitioned to agricultural extension (n = 28), moved to post-secondary positions (n = 22), enrolled in continuing education/graduate school (n = 15), health-related reasons (n = 10), death (n = 5), and other/unknown comprised the remaining few (n = 95).

The Current State of Attrition in Education

The National Center for Education Statistics, or NCES, tracks several metrics related to teacher attrition, pay, and satisfaction in the U.S. The most recent data on teacher attrition in the U.S. was recently published for data pertaining to the 2021-2022 school year (National Center for Education Statistics, 2024). The NCES (2024) report groups teachers into three categories for reporting; Stayers, which are teachers who remain in their teaching position at the same school; Movers, which are teachers who remain in teaching but move schools; and Leavers, which are teachers who left the teaching profession altogether. The 2021-2022 nationwide average for Stayers was 84.1%, while movers totaled 7.9%, and Leavers made up the remaining 7.9% (National Center for Education Statistics, 2024). NCES (2024) provided the following numbers of Stayers for the states included in this study; Stayers: Arkansas, 86.2%; Colorado, 65.6%; Kansas, 80.8%; Louisiana, 85.9%; New Mexico, 82.3%; Oklahoma, 85.4%; and Texas 78.5%. Movers within the profession were as follows: Arkansas, 6.9%; Colorado, 9.8%; Kansas, 7.0%; Louisiana, 8.4%; New Mexico, 10.6%; Oklahoma, 5.7%; and Texas 13.8% (National Center for Education Statistics, 2024). Texas had the second highest percentage of Movers in the country. Leavers in each state totaled the following: Arkansas, 7.0%; Colorado, reporting standards were not met; Kansas, 12.2%; Louisiana, 5.7%; New Mexico, 7.1%; Oklahoma, 8.8%; and Texas 7.7% (National Center for Education Statistics, 2024). Kansas had the second highest percentage of leavers among U.S. states. Despite suspected impacts from the pandemic, these results were not significantly different from the period between the 2011-2012 and 2012-2013 school years, the last time this data was collected (National Center for Education Statistics, 2024). Data has not been reported by the NCES for the subsequent years since the pandemic. While the most recent two studies lacked significant differences, there is an upward trend when comparing the

most recent data with that from the 1980s. The NCES (2024) reported a nationwide average rate of attrition increasing from approximately 6% in the 1980s to 8% today.

Purpose and Need for the Study

The purpose of this study was to identify if, in fact, school-based agricultural educators experience impostor phenomenon and, if so, to what extent do they feel impostor effects. Due to the continued effects of teacher attrition facing agriculture programs across the country, this work may be important in identifying causes of teachers leaving the profession. In order to evaluate impostor phenomenon in SBAE teachers, the conceptual framework provided by Clance (1985b) was used to determine the presence and intensity of impostor phenomenon among this study's sample.

Furthermore, the study incorporated a second conceptual framework in Ajzen's (1985) Theory of Planned Behavior. The Theory of Planned Behavior seeks to identify the behaviors and intentions of individuals as it relates to their behavior and decision making. The decision, or behavior, being examined in this study was whether an individual was planning to remain in or leave their teaching career within various timeframes.

Coupled together, the impostor concept (Clance, 1985b) and Theory of Planned Behavior (Ajzen, 1985), were used by researchers to identify if any relationship exists between impostor phenomenon and one's planned behavior to stay in or leave the teaching profession. After data was collected, correlations were drawn between the two concepts, as well as among certain demographic data. This work aims to add to the existing literature on agriculture teacher retention. This work also lays the groundwork for additional studies on impostor phenomenon, an area currently experiencing large gaps in research.

This body of research directly relates to two research values identified by the American Association for Agricultural Education: Ensuring Diversity, Equity, Inclusion, and Belonging; and Examining Social Dynamics in Human and Life Sciences (AAAE, 2023). Recuriting and retaining a diverse and inclusive population of agriculture teachers is paramount to addressing the attrition problem facing schools today. Addressing the needs and well-being of those diverse teachers will be accomplished by examining the social dynamics of our agriculture teachers.

Purpose Statement and Research Questions

The purpose of this quantitative study was to identify if SBAE teachers experienced feelings of impostor phenomenon and to identify if the level of impostor phenomenon they experience is a possible predictor for agriculture teacher attrition in a region within the U.S. This study was guided by the following research objectives:

1) Describe the prevalence of impostor phenomenon among current NAAE Region II agriculture teachers who have taught for less than ten years in the states of Arkansas, Colorado, Kansas, Louisiana, Oklahoma, New Mexico, and Texas.
2) Identify the relationship between NAAE Region II agriculture teachers' level of impostor phenomenon and the length of their teaching career.
3) Determine the relationship between NAAE Region II teachers' intensity level of impostor phenomenon and their likelihood of leaving the agricultural education profession.
4) Determine the relationship between NAAE Region II teachers' intensity level of impostor phenomenon and their self-identified personal and professional characteristics.

Limitations

The following barriers were identified as possible limitations of the study:

1. This study was limited to agricultural educators in the area identified as “Region II” by the National Association of Agricultural Educators, which includes the states of Arkansas, Colorado, Kansas, Louisiana, Oklahoma, New Mexico, and Texas.
2. The researchers were unable to obtain a sample consisting solely of teachers with less than ten years of teaching experience which reduced the response rate and led to possible sampling errors.
3. The findings of this study cannot be generalized to teachers with more than ten years of teaching experience or those outside of the seven states targeted. The researchers also do not recommend generalized results beyond the 118 participants included in the study due the lack of a representative sample.
4. SBAE teachers who may have experienced impostor phenomenon and have already left the classroom were not surveyed. Future research on this population may identify trends not found in this study.
5. While efforts were made to reduce non-response error, individuals who did not respond to the survey may have been more or less prone to feelings of impostor phenomenon.
6. In many sources of literature, impostor phenomenon is a trait attributed to high-achieving individuals. This study did not purposively select or define high-achieving SBAE teachers for the sample.

Basic Assumptions

During this study, the following assumptions were made:

1. All participants responded truthfully to the questionnaire disseminated.
2. The National FFA Organization provided an accurate representation of NAAE Region II teachers for the target population.

3. Agriculture teachers who served as participants in this study were able to interpret information about SBAE programs.

Definition of Terms

Agriculture Teacher – an instructor employed at the secondary (middle/high school) level that teaches coursework within the realm of agriculture, food, and natural resources.

FFA – FFA is a dynamic youth organization that changes lives and prepares members for premier leadership, personal growth, and career success through agricultural education. FFA develops members' potential and helps them discover their talent through hands-on experiences, which give members the tools to achieve real-world success (National FFA Organization, 2024).

FFA Advisor – An agriculture teacher who advises students enrolled in a local FFA chapter.

Impostor phenomenon – A behavioral health phenomenon described as self-doubt of intellect, skills, or accomplishments among high-achieving individuals. These individuals cannot internalize their success and subsequently experience pervasive feelings of self-doubt, anxiety, depression, and/or apprehension of being exposed as a fraud in their work, despite verifiable and objective evidence of their successfulness. The terms impostor syndrome and impostor phenomenon (IP) are used interchangeably, with IP gaining more frequent use in recent literature (Huecker et al., 2023, Introduction section, para. 1).

NAAE – The National Association of Agricultural Educators is a federation of state agricultural educators associations with more than 9,000 members. Our members are involved in school-based agricultural education at any level, from middle school through postsecondary, and state and national agricultural education leadership (National Association of Agricultural Educators, 2024).

SBAE – School-based agricultural education, in reference to the direct instruction in agriculture at the middle and high school levels in the U.S.

Teacher Attrition – The trend of teachers leaving the education profession.

Chapter 2 - Review of Literature

Background and Setting

A large body of literature exists in relation to the reasons why SBAE teachers leave the teaching profession, yet none have examined the possibility of impostor phenomenon serving as a conduit for teacher attrition. In fact, very little research has been conducted in the broader field of education and pedagogy, with the exception of post-secondary academia, relating to impostor phenomenon. This chapter will explain the process of identifying related literature and discuss the theoretical frameworks and existing research relating to the objectives of this study.

A systematic review of literature was conducted in various journals and databases associated with the fields of agriculture, pedagogy, and agricultural education. However, there were a limited number of credible studies conducted within these narrower fields of inquiry. Therefore, work administered within the more generalized fields of psychology were consulted, as this is where much of the work in impostor phenomenon research has been conducted, in order to provide a comprehensive review of the literature.

The Impostor Phenomenon

Impostor phenomenon is an idea that developed out of the research conducted by Dr. Pauline Rose Clance in the 1970s and 1980s (Clance, 1985a, Clance, 1985b, Clance & Imes, 1978). Impostor phenomenon (IP), also known as impostor syndrome, is defined as:

> A behavioral health phenomenon described as self-doubt of intellect, skills, or accomplishments among high-achieving individuals. These individuals cannot internalize their success and subsequently experience pervasive feelings of self-doubt, anxiety, depression, and/or apprehension of being exposed as a fraud in their work, despite verifiable and objective evidence of their successfulness. The terms impostor syndrome

> and impostor phenomenon (IP) are used interchangeably, with IP gaining more frequent use in recent literature. (Huecker et al., 2023, Introduction section, para. 1)

Initially, impostor phenomenon was found to primarily affect high-achieving women in academia (Clance & Imes, 1978). Since then, additional research exposed a similar prevalence of impostor phenomenon among men and, in some cases, are actually more likely to experience feelings of impostor syndrome than women (Clance & O'Toole, 1987). The impostor phenomenon is characterized by the feelings that one, despite outstanding accomplishments, is a fraud that has "fooled" those around them into thinking they are competent in the tasks they have been charged with (Clance & Imes, 1978). The construct of impostor phenomenon has proliferated among the general public's vernacular, often dubbed impostor syndrome, since its inception by Clance.

A more recent study found a significant, positive correlation between scores on the Clance Impostor Phenomenon Scale (CIPS) and Beck's Depression Inventory, associating impostor phenomenon with feelings of depression (McGregor et al., 2008). Fraenza (2016) poses an underlying social component to feelings of impostor phenomenon. In Fraenza's study, graduate students partook in a survey that included a CIPS instrument, a Zung Self-Rating Anxiety Scale, and a Perfectionistic Self-Presentation Scale. Findings indicated that a statistically significant relationship existed between impostor phenomenon scores and anxiety scores. Additionally, the study concluded that perfectionism was the leading predictor of impostor phenomenon scores, followed by anxiety and what graduate program they were enrolled in. Moreover, online graduate students were found to have significantly lower impostor phenomenon scores compared to traditional graduate students, although their anxiety scores were

not significantly different (Fraenza, 2016). Peteet et al. (2015) found that low psychological well-being and low ethnic identity were predictors of the impostor phenomenon among talented ethnic minority undergraduate students. The same study showed a relationship between first-generation college students and impostor phenomenon score, but it was not a significant predictor for an individual's score (Peteet et al., 2015). Aside from these predictors, a myriad of indicators for impostor phenomenon have been identified in the literature.

Contributing Factors of Impostor Phenomenon

An array of literature pertaining to impostor phenomenon provides predictors and indicators for those who experience the impostor phenomenon at a variety of levels. Ross and Krukowski (2003), using the Harvey Impostor Phenomenon scale and the DSM-III-R personality disorder scale, identified six predictors of impostor feelings among undergraduate students: Detachment, dependency, entitlement, mistrust, workaholism, and low self-esteem. Another study, using a personality inventory scale, correlated enhanced levels of neuroticism and lower levels of conscientiousness with higher levels of impostor phenomenon (Bernard et al., 2010). In terms of self-efficacy, it has been found that as an individual becomes more efficacious, they tend to experience fewer impostor feelings, as one may expect (McDowell et al., 2015). McDowell et al.'s (2015) study found a slight, yet significant, negative correlation between perceived organizational support and impostor scores. This led the research team to believe the support an individual feels from an organization (i.e. company, job, etc.) can play a role in one's impostor feelings (McDowell et al., 2015).

A 2006 study by Caselman et al. (2006) found several predictors for impostor phenomenon among adolescents. Support among friends, dependability, and classmate support

were all considered predictors for females, while friend support was the sole significant predictor found in this individual study (Caselman et al., 2006).

Hughes et al. (2014) investigated the links between parenting style and impostor phenomenon development later in life. The study, consisting of undergraduate and graduate students, found a lack of parental care and parental overprotection were predictors of impostor scores (Hughes et al., 2014). This same study found men to be less responsive to parenting variables than females regarding their impostor scores (Hughes et al., 2014). A study among clinical and counseling psychology doctoral students in the U.S. found that 88% had at least moderate impostor feelings (Tigranyan et al., 2021). Tigranyan et al.'s (2021) study found students with higher impostor scores to correlate with higher levels of perfectionism, depression, anxiety, and self-compassion.

These studies shed light on the predictors and indicators of various demographic populations with lived experiences of impostor phenomenon. From the detachment and low self-esteem seen among undergraduate students, to the influence of parent styles on later development, and the staggering prevalence of impostor feelings among doctoral students in certain fields, these findings underscore the multifaceted nature of impostor phenomenon and its potential impact on individuals' well-being and professional trajectories. Understanding these predictors is crucial for implementing effective interventions and support systems to alleviate the burden of impostor feelings and foster resilience in those affected. The associating factors and burdens identified here, as one may assume, could conceivably contribute to adverse effects in the lives of those who experience impostor feelings, which are discussed in the next section.

Consequences of Impostor Phenomenon

As one may imagine, factors associated with impostor phenomenon, along with impostor feelings themselves, could have a profound impact on an individual's personal and professional lives. Through the lens of the conservation of resources theory, Hutchins et al. (2017) examined the role impostor phenomenon plays in job satisfaction and emotional exhaustion among university faculty. Researchers found that individuals experiencing high levels of impostor phenomenon tend to use avoidant coping mechanisms, which in turn depletes an individual's capacity to avoid psychological strains (Hutchins et al., 2017). This same study linked emotional exhaustion related to impostor phenomenon to low job satisfaction (Hutchins et al., 2017). Bernard et al. (2010) found heightened levels of impostor feelings could be linked with a higher sensitivity to depression, anxiety, low self-discipline, and lower perceived level of competence. These attributes can have a profound impact on one's social life and quality of professional work.

In a study focused directly on the impacts of the impostor phenomenon on one's career, Neureiter and Traut-Mattausch (2016) found individuals with higher impostor scores had an increased fear of career success and less apparent plans or strategies for their career future. They suggest that impostor feelings are actually a coping mechanism to deal with fears of rejection in the workplace (Neureter & Traut-Mattausch, 2016). As with similar studies, the research team found a higher fear of failure and lower level of self-esteem as impostor traits increased (Neureter & Traut-Mattausch, 2016). The effect of these characteristics on an individual's career could drive them away from pursuing leadership roles or career advancements.

As discussed here, the significant impact of impostor phenomenon on one's personal and professional lives is evident. Higher levels of impostor phenomenon led to the use of avoidant

coping mechanisms, which in turn depletes individuals' capacity to handle psychological strains, leading to emotional exhaustion and low job satisfaction. The association with depression, anxiety, low self-discipline, and lower perceived levels of competence could easily translate into negatively affected work quality and job satisfaction as well. The lower rates of career planning and lack of motivation to pursue advanced career roles would have long term effects on an individual's career. More evidence is needed to identify and implement support strategies for those facing frequent and intense feelings of impostor phenomenon.

Interventions and Support Strategies for Impostor Phenomenon

As people with high levels of impostor feelings tend to use avoidant coping mechanisms to combat their feelings, Hutchins et al. (2017) recommends the use of training, coaching, and mentoring to introduce active coping strategies geared towards those experiencing impostor syndrome. An investigation that reviewed 17 studies concerning educational interventions, geared towards addressing impostor phenomenon within high-achieving professions, extrapolated the results to pinpoint strategies to assist healthcare professionals with impostor feelings (Siddiqui et al., 2024). The review found workshops to be a popular source of combating impostor syndrome in high-achieving individuals (Siddiqui et al., 2024). The studies provided evidence that group-based workshops enhanced awareness, acknowledgement, and consistent validation of the impostor phenomenon (Siddiqui et al., 2024). The recognition and acknowledgement of these symptoms were shown to alleviate the manifestations of self-doubt and isolation (Siddiqui et al., 2024). These results also indicated a larger understanding of the phenomena at an institutional level. One-on-one coaching was another recommendation made by previous studies, although researchers cautioned against using this approach for various reasons including the implication that impostor phenomenon is a medical dysfunction, placing the

responsibility for tackling the issue of many among few, and possibly even perpetuating feelings of isolation (Siddiqui et al., 2024). Supervisors are viewed as critical playmakers in instigating cultural changes to reduce impostor phenomenon and supervisor training in this area is vital. Limitations to implementing these changes can include limited resource allocation, qualified facilitators, and a lack of general awareness of the phenomenon (Siddiqui et al., 2024).

Research shows advocating for active coping strategies, such as training, coaching, and mentoring, to counteract the tendency to use avoidant coping mechanisms often used by individuals with high impostor feelings should be encouraged. These interventions not only alleviate self-doubt and isolation but also foster institutional understanding of the impostor phenomenon. More so, awareness should be brought to areas beyond the university setting, where much of the work on impostor behavior has been conducted.

Impostor Phenomenon in Higher Education

A great deal of impostor research has occurred within academia, particularly among graduate students and university faculty. One study suggests that untenured faculty experience more intense impostor feelings than tenured faculty (Hutchins, 2015). In that same study, emotional exhaustion was a significantly correlated effect of impostor phenomenon on faculty members (Hutchins, 2015). Mentoring was found to be an important tool for university personnel in combating impostor tendencies (Hutchins, 2015). Another study positively correlated work-family conflicts with impostor phenomenon and cited the competitive nature of academic careers as a possible source of these feelings (Shreffler et al., 2023). Data was collected on faculty ranking, years of service, and gender identity. Researchers suggested action by university administrators to recognize and address awareness of impostor phenomenon and consequences of it in academia (Shreffler et al., 2023).

Graduate students have been an important area of focus for impostor studies as well. Various studies have focused on the effects of impostor phenomenon on minority students (Collins et al., 2020; Lawrence et al., 2021; Peteet et al., 2015), women in graduate programs (Clance, 1978; Collins et al., 2020; Yang et al., 2024), online versus traditional students (Fraenza, 2016), as well as graduate students enrolled in specific programs. Some content areas within higher education, for both graduate and undergraduate students, studied for the presence of impostor phenomenon include medicine (Armstrong & Shulman, 2019; Siddiqui et al., 2014), psychology (Ross & Krukowski, 2003; Maftei et al., 2021; Tigranyan et al., 2021), and STEM fields (Collins et al., 2020; Yang et al., 2024), among countless others. The fields of agriculture, education external to higher education (i.e. teacher-education, primary education, and secondary education), and the intersection of the two, agricultural education, are three areas with miniscule impostor phenomenon research.

Impostor Phenomenon in Primary/Secondary Education

Surprisingly little literature exists in the realm of primary and secondary education concerning the impostor phenomenon. This may be due to a pervasive trend, emerging out of the work of the originator of the impostor phenomenon, Dr. Pauline Rose Clance, whose focus was on high-achieving women in a higher-education setting (Clance, 1978). Some relevant literature relating to pre-service teachers and secondary students was identified for this review.

A study of more than 1,600 pre-service teachers in the U.S. found that 93% experienced at least moderate levels of impostor phenomenon, while a staggering 54% had intense impostor thoughts (LaPalme et al., 2022). These thoughts had a negative relationship with an educator well-being measurement (LaPalme et al., 2022). This study also concluded that use of the

adaptive emotion regulation strategy can mitigate the effects of impostor phenomenon (LaPalme, et al., 2022).

Caselman et al.'s (2006) study on eleventh and twelfth grade secondary students found data to support that impostor phenomenon exists among adolescents at similar rates to adults. The authors of this study use this foundation to hypothesize that impostor feelings may begin to develop during childhood (Caselman et al., 2006). A qualitative study of three secondary STEM teachers revealed that teachers perceived adolescent students as having impostor syndrome related to STEM education (Amoa-Danquah, 2023). Teachers viewed student impostor feelings related to STEM content as a barrier to their teaching (Amoa-Danquah, 2023). Moreover, STEM-related impostor syndrome was suggested to be inversely related to a student's STEM self-efficacy (Amoa-Danquah, 2023). Yoakem (1988) found that secondary students experience impostor phenomenon but did not detect significant score differences between gender or post-secondary (e.g. college-bound or non-college-bound) plans.

Impostor Phenomenon in Agricultural Education

Although limited, there exists a minute amount of literature surrounding impostor phenomenon in the general field of agriculture. A study of multiracial secondary agricultural education students found significant levels of impostor phenomenon exist during their experiences in the secondary agricultural education setting (Markham, 2021). Markham's (2021) study indicated the youth organization, FFA, magnifies impostor feelings among multiracial youth due to its particular style and culture. While this work relates to students enrolled in secondary agricultural education, parallels may be drawn to the secondary agricultural education instructors around the country that identify as multiracial, as Markam (2021) reports that 93.75%

of secondary agriculture teachers were white at the time of the study, but a lack of research in this area inhibits us from drawing any conclusions about the teachers of these students.

A phenomenological study conducted by Lawrence et al. (2021) analyzed feelings of impostor syndrome among underrepresented, minority graduate students studying within the field of agriculture, food and natural resources at predominantly white institutions. The discussions from this study center around several themes, including stronger feelings of impostor phenomenon by first-generation, underrepresented, minority students. Furthermore, the students included in the study, who had studied at a Historically Black College or University (HBCU) felt a lack of support and effort towards diversity and inclusion, likely promoting feelings of impostor syndrome.

While important, the work connected to impostor phenomenon in the realm of agricultural education is limited to the experiences of underrepresented populations – an area which is limited itself. In general, very little impostor literature relating to agricultural education at the secondary and post-secondary levels exists. This fact illustrates the need for more impostor research in the areas of education and agriculture.

Career Satisfaction and Attitudes of SBAE Teachers

School-based agricultural educators' attitudes towards their careers have been studied in multiple capacities. One lens often looked at is the idea of work-life balance. A study among Oregon agricultural educators found that secondary SBAE teachers do struggle to balance multiple life roles with their career (Sorenson & McKim, 2014). This same study found the ability to achieve a sense of work-life balance had a significant positive correlation with ones perceived job satisfaction and commitment to the profession (Sorenson & McKim, 2014). Sorenson and McKim (2014) determined their sample of Oregon agricultural educators' job

satisfaction was not found to be influenced by demographics, such as gender and length of teaching career. While these findings can't be generalized outside the study's sample, this may indicate a more complex relationship between job satisfaction and the causes of early career teacher attrition. A study conducted with early career agricultural educators in Texas who left the profession probed the respondents to pinpoint their reasons for leaving. Nearly half of the participants identified a desire for more balance between their personal and professional lives as the primary reason they exited the classroom (Chaney, 2007). Other reasons cited included students being placed in their classrooms that did not choose to be there, large class sizes, and spending too much time away from family (Chaney, 2007).

Stressors of SBAE Teachers

A study among Utah agriculture teachers concluded SBAE educators experience significantly higher levels of stress than the average American (Lawver & Smith, 2014). Stress levels were found to increase with age, according to the study (Lawver & Smith, 2014). Other factors linked to stress included length of teaching career, time spent on teaching-related tasks, and type of teaching certification (Lawver & Smith, 2014). Interestingly, Lambert et al. (2012) found beginning career SBAE teachers, on average, were not in a state of stress and perceive themselves as being good at managing their time. Torres et al. (2009) found similar results among a sample of SBAE teachers of varying experience levels. The study showed no significant differences in stress levels compared to the norm data; however, time-related tasks and excessive paperwork were identified as sources of stress (Torres et al., 2009). The COVID-19 pandemic brought in whole new sources of stress for teachers beginning in 2020. The challenges of teaching hands-on content in a virtual format, school closings, and other challenges (Gregg et al.,

2023). The added stressors were found to increase emotional exhaustion among SBAE teachers (Gregg et al., 2023).

Stressors in the workplace have been shown to affect teacher attrition rates, as explored by Walker et al. (2004). In the aforementioned study, teachers who left their SBAE career were generally as satisfied with the profession with the exceptions of teaching agricultural mechanics and working with administrators (Walker et al., 2004). Blackburn et al. (2015) analyzed pre-service agricultural educators' perceived perceptions of their welding abilities while taking an agricultural mechanics course as part of their pre-service preparation program at a university. The students had low perceived welding abilities, despite doing well in coursework (Blackburn et al., 2015). These studies demonstrate a need for more agricultural mechanics education for pre-service agricultural educators. Byrd et al. (2015) discovered a significantly positive association between number of agricultural mechanics courses taken during the pre-service phase and perceived ability to teach various agricultural mechanics content.

The literature reveals numerous sources of stress for SBAE instructors. These sources of stress have been linked to teacher attrition in some cases. The effects of the pandemic introduced new hardships on teachers across the country, some of which are still felt at the time this thesis is being written. These findings emphasize the importance of targeted support and education to alleviate stress and enhance proficiency within certain content among agricultural educators.

Conceptual Framework

This study used a cross-sectional survey design, with three unique measures. The three measures comprising the framework of this study were a respondent demographic survey, Ajzen's (1985) Theory of Planned Behavior, and the Clance Impostor Phenomenon Scale (Clance, 1985b). These latter two form the overarching structure to bridge the possible

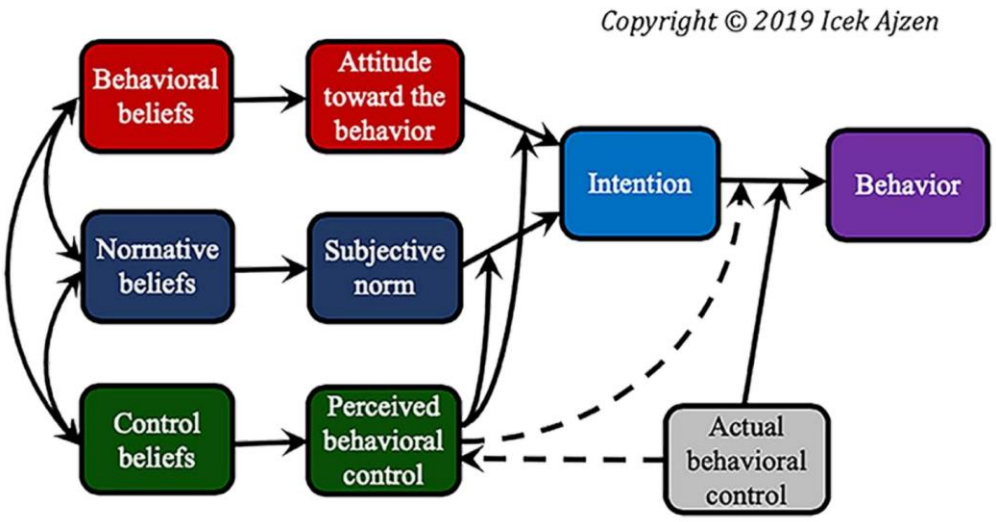
relationship that exists between an individual's score on the Clance Impostor Phenomenon Scale and, ultimately, their intended behavior to remain teaching in an SBAE setting.

Ajzen's Theory of Planned Behavior

Ajzen's Theory of Planned Behavior (Ajzen, 2019; Ajzen, 1985) states that behavioral, normative, and control beliefs shape our attitudes, view of the subjective norm, and perceived behavioral control in conjunction with a specific behavior. According to Ajzen (2019), the attitudes, perceived subjective norms, and perceived behavioral control then shape our intentions to act upon that specific behavior. Those actions then turn into what we would consider to be the actual displayed behavior. According to Ajzen, behavioral beliefs generate positive or negative attitudes toward the behavior. These are the considerations for the likely consequences and experiences one might face if they act upon a behavior. Normative beliefs are what people think others believe and bring about a perceived subjective norm. These are often the perceived views of someone the person acting on the behavior would deem significant. A control belief is one's perceived behavioral regulation or control. In essence, this is the consideration for how well an individual thinks they can perform a specific behavior – or if they have any reservations about impediments that may alter the behavior. A fourth aspect, dubbed 'actual behavioral control,' accounts for one's actual abilities to perform a behavior, as opposed to their perceived abilities (Ajzen, 2019).

This theory was used to determine if a relationship exists between the severity of impostor phenomenon among SBAE teachers and their intentions, or planned behavior, on leaving the secondary classroom. As teacher attrition continues to be a barrier for schools across the country, identifying predictors and sources of attrition remains important. Figure 1.1. visualizes the Theory of Planned Behavior through a schematic representation.

Figure 1.1 Schematic Representation of Ajzen's Theory of Planned Behavior (Ajzen, 2013)



In the realm of agricultural education, the Theory of Planned Behavior (TPB) has been used in numerous studies. McKim et al. (2017) used TPB to understand the role of SBAE teachers in teaching leadership within their agriculture courses. Teachers were found to have positive attitudes towards teaching leadership concepts, favorable subjective norms, confidence in their perceptions of behavioral control, and content knowledge of leadership (McKim et al., 2017). A study of Florida secondary agriculture teachers evaluated their perceptions on integrating science into the agriculture curriculum (Myers & Washburn, 2008). The TPB was used to identify positive perceptions of science integration, few perceived barriers, high levels of perceived support, and high perceived behavioral control (Myers & Washburn, 2008). A TPB study looking at pre-service agriculture teachers' interest in participating in international experiences found higher levels of interest in traveling to developed countries within a group and included barriers and motivations to participation (Murphrey et al., 2016). In an international study, Zaremohzzabieh et al. (2021) used the Theory of Planned Behavior to identify predictors

of students in agriculturally-based institutions of higher education in Malaysia in choosing careers in agriculture. The researchers found that attitudes towards agriculture, perceived behavioral control, agricultural knowledge, and perceptions of sustainable agriculture methods were significant predictors of students' intentions to pursue agricultural careers (Zaremohzzabieh et al., 2021).

Clance's Impostor Phenomenon Construct

The Clance Impostor Phenomenon Scale, or CIPS scale, was initially developed out of research by Clance and Imes (1978) in the 1970s. Clance is credited with coining the idea of impostor syndrome as described in this chapter. Chrisman et al. (1995) found the CIPS scale to have a high level of internal consistency. Impostor phenomenon, as it is detected via the CIPS scale, was found to relate to, but was significantly distinguishable from, the constructs of depression, self-esteem, social anxiety, and self-monitoring; additionally, three factors were found to be valid themes brought forth by the CIPS scale: Fake, Discount, and Luck (Chrisman, et al., 1995). The CIPS scale is a twenty-question instrument, developed by Clance, to identify the intensity in which one experiences impostor phenomenon. As outlined in this chapter, the CIPS scale has been utilized in a number of fields with, however, diminutive use in the various areas of the agricultural sciences.

Statement of Problem

Existing research does not shed light on the pervasiveness of impostor phenomenon in agricultural education. A primary goal of this study is to contextualize the prevalence of the phenomenon among secondary agriculture teachers in the United States. As impostor symptoms have been linked to negative mental side-effects, the extent to which SBAE teachers feel impostor symptoms will be an important area of study. Due to effects of teacher attrition facing

SBAE programs across the country, a significant goal of this work is identifying potential predictors of agriculture teacher attrition. Upon completion of this work, recommendations will be made to address impostor feelings in agricultural education.

Summary

The literature review conduced for this study focused on exploring the relationships between impostor phenomenon and career attrition among SBAE teachers. Despite extensive literature on why teachers leave the profession, little research has evaluated impostor phenomenon as a potential factor contributing to attrition. Pulling from broader research in psychology and academia, this study aims to fill this gap by investigating the prevalence and predictors of impostor phenomenon within the context of agricultural education.

A systematic review of literature was conducted across various journals and databases. Very little literature was uncovered relating to agriculture and primary/secondary education. Many of the sources found pertained to the fields of higher education and psychology. Factors found to contribute to impostor syndrome include personality traits, perceived organizational support, and parenting styles, among others. These predictors offer valuable insights into understanding and addressing impostor phenomenon among educators. Moreover, research suggests that impostor phenomenon can lead to emotional exhaustion, reduced job satisfaction, and hindered career advancement, highlighting its significant implications for both personal and professional well-being. Efforts to mitigate impostor phenomenon have been explored. These involve interventions such as training, coaching, and mentoring, as well as institutional changes to foster supportive environments. Overall, this study sought to deepen our understanding of impostor phenomenon in agricultural education, especially as it pertains to teacher retention. The

researchers conceptualized the study using Ajzen's (1985) Theory of Planned Behavior and Clance's impostor test (Clance & Imes, 1978) to achieve this.

Chapter 3 - Methodology

This chapter provides context for the systematic undertaking of the survey and the successive data analysis. Various research methods and tests for reliability and validity were utilized in this study. The research shared here is quantitative in nature and provides a new frame of reference for the field of agricultural education as it relates to teacher intentions and impostor phenomenon.

Institutional Review Board

The researchers applied for approval from the Kansas State University Institutional Review Board (IRB) regarding human subjects' research in the Spring of 2023. The appropriate Collaborative Institutional Training Initiative (CITI) training modules were completed for working with human subjects. The researchers included the variables to be studied, data collection methods that were utilized, risk-protection strategies, benefits of the study, confidentiality methods, and informed consent details in the IRB application. Approval was granted (IRB-11700) on May 31, 2023. All participants were required to provide informed consent upon accessing the survey. Identifying information was not collected during the data collection phase to provide anonymity to respondents.

Role of the Researcher

This study was conducted through a quantitative approach. The researcher utilized survey development and dissemination methods outlined by Dillman et al. (2009). The researcher made efforts to reduce bias throughout the study by using a systematic approach for sampling and data collection. As the researcher is a current high school agricultural educator, there is a possibility for the presence of bias within the study due to the researcher's subjective interpretations and

knowledge of the profession. Pilot testing and reliability/validity measures were imposed to aid in the reduction of bias.

The researcher created the questionnaire, disseminated the survey, collected the data, and analyzed the results. The researcher does not provide recommendations for extrapolating this data beyond the sample utilized in the study. The recommendations for practice and research provided by the researcher may introduce room for bias and subjectivity on the matter of impostor phenomenon and planned behavior.

Research Design

This study utilized survey development methods identified by Dillman et al. (2009) within the context of the impostor phenomenon and Theory of Planned Behavior conceptual constructs. Dillman et al.'s (2009) tailored design method was referenced to account for the scientific approaches to survey construction, to develop a set of survey procedures, and to ensure a positive social exchange to encourage response. Pilot testing and cognitive interviews were utilized as tools to reduce measurement and non-response error. Much of this work was applied to the general survey flow and demographic questions. The impostor test and questions pertaining to planned behaviors were influenced by literature governing those specific constructs.

Ajzen's (2019) Constructing a Theory of Planned Behavior Questionnaire document was used to discern important guidelines for assembling planned behavior instruments. Based on these recommendations, formative research resulted in defining the planned behavior in this study as the intent to remain in or leave the teaching profession among current agricultural educators with less than ten years of teaching experience.

Simple adjustments were made to the Clance Impostor Phenomenon Scale (Clance, 1985b) for the purposes of this study. The twenty-question instrument was tweaked to fit within

the wording of the survey and was otherwise left intact. All instructions and scales provided in the original published instrument were included in this survey's questionnaire. Scoring guidelines provided by Clance (1985b) were followed during data analysis.

Population and Sample

The overall population in this study was determined to be all agriculture teachers in the United States. The target population was agriculture teachers with less than ten years of teaching experience. The National Association of Agricultural Educators (NAAE) Region II teachers with less than ten years of teaching experience were purposively selected as an accessible population of agriculture teachers in the United States. Region II of the NAAE consists of the states of Arkansas, Colorado, Kansas, Louisiana, New Mexico, Oklahoma, and Texas.

After the accessible population was established, teachers were selected at random from each state using a stratified random sampling method, as defined by Fraenkel et al. (2015). According to the 2023 NAAE Supply and Demand Survey results, Region II contained 4,225 agriculture teachers in 2,342 SBAE programs in 2023 (Smith et al., 2023b). This compares, respectively, to 14,756 and 9,212 nationally (Smith et al., 2023b). The study's research objectives relate to teachers with less than ten years of teaching experience. It is not known how many of those 4,225 Region II teachers have taught for less than ten years, as data for each year of experience is not provided by the NAAE. The researchers requested a sample of teachers within this range from the National FFA Organization, but the request could not be accommodated. Thus, requesting a larger sample size than originally called for, of teachers with varying years of experience, was deemed the next course of action. In anticipation of challenges in obtaining enough responses from this sampling source, the investigators sought to oversample and obtain 1,000 NAAE Region II agriculture teachers' contact information. Emails for 968

agricultural educators were received from the National FFA Organization in October of 2023. The sample included 143 randomly selected teachers from each of the seven states included in the study, apart from New Mexico. Only 110 participants were included from New Mexico. This is presumably due to fewer than 143 SBAE instructors teaching in the state. According to the 2023-2024 New Mexico FFA teacher directory, there are 135 teachers/FFA Advisors in the state (New Mexico FFA, 2024).

Instrumentation

A questionnaire was constructed and included a twenty-question impostor phenomenon test, based on a modified version of Clance's (1985b) Impostor Phenomenon Test, twelve questions related to the Theory of Planned Behavior constructs, and an additional ten to eleven demographic questions. The range of demographic questions was due to the use of a skip-logic question relating to the participants' prior membership in FFA.

Modifications to the Clance Impostor Phenomenon Test included minor rewording of questions from general statements to more-targeted expressions towards the field of agricultural education. Questions for the Theory of Planned Behavior construct had to be crafted from scratch, using Ajzen's (2019) guidelines established in his questionnaire creation document. The document recommends five to six, seven-point semantic differential questions per construct, of which there are four, within one planned behavior instrument (Ajzen, 2019). After cognitive interviews, it was determined that the twenty questions, in addition to the twenty-question impostor test and twelve demographic questions, was too long and could reduce our response rate. Therefore, the number of questions per construct was reduced to three. While not ideal, the researchers were able to select two questions per construct for omission through a process of removing those deemed analogous to other questions. To ensure the initial ideas of the

researchers, as they related to the constructs, were included, the remaining three questions were edited to include the information omitted in the two eliminated questions. Ajzen's recommendations for pilot testing and question-wording were heeded as well.

Validity and Reliability

Content validity was established through a cognitive interview process with a panel of experts. The individuals utilized for the cognitive interview process were a high school counselor, an agriculture teacher, and an automotive technology teacher. While the counselor and automotive teacher are not familiar with agricultural education jargon, all three educational professionals were selected for their knowledge and expertise in pedagogy and CTE (career and technical education). The agricultural education teacher was in their sixth year of teaching and was employed in the same district as the primary investigator. Because of these factors, the primary investigator ensured they were not included in the sample received from National FFA. As a result of these three interviews, minor changes were made to the questionnaire. Changes included clarifications of wording on the questions relating to the Theory of Planned Behavior construct.

A post-hoc analysis of the data collected during a pilot test was used to establish internal consistency for reliability. The pilot survey was sent to secondary agriculture teachers with ten or less years of teaching experience in a neighboring state, as they would not be included in the NAAE Region II target population. A total of 33 teachers completed the pilot survey. Cronbach's Alpha was used for the post-hoc analysis. The Clance Impostor Test consisted of 20 items (α = .84). The Theory of Planned Behavior consisted of twelve items, three from each construct: Attitude (α = .73), Perceived Norm (α = .03), Perceived Control (α = .78), and Intention (α = .94). Efforts were made to address the low score in the perceived norm category. Researchers

worked to reword the questions in the Perceived Norm construct and added two additional questions to address the low reliability score. However, it should be noted here that the two additional questions were not asked in the final survey due to a publishing error. The edited questions were asked as changed. Data collection had already begun by the time the mistake was noticed and it was decided to move forward with the questions as they were.

Data Collection

The survey was sent out via email through Qualtrics in November of 2023. In the initial release of the survey, 107 of the 968 emails, or 11%, were returned as undeliverable. The initial contact was a personalized email with instructions on how to access the questionnaire. Weekly reminder emails were sent out to nonrespondents during the four-week duration of the survey. A total of 219 surveys were completed for a 23% accepting response rate. Of those 219 accepted responses, only 118 (12.2%) were usable. The vast majority of the 101 responses excluded from the study were of respondents who indicated they had more than ten years of agriculture teaching experience. Those with ten or less years of experience, and excluded from the study, did not fill out all portions of the Theory of Planned Behavior or Impostor Test questions, negating the scores they would have received on each of those sections. Much of the low response rate may be attributed to the inability to obtain a sample solely containing teachers with ten or less years of teaching experience as this request was not possible through the means of obtaining information from the National FFA Organization, hence the initial request for a larger sample size than would normally be needed. Due to the errors in sampling and inability to specifically target the study's accessible population, the population is not deemed representative by the researchers. Results of this study should not be generalized beyond the 118 participants of this study.

Data Analysis

Data was analyzed using SPSS Version 29 upon completion of data collection. The complete dataset was downloaded from Qualtrics and uploaded into SPSS. Responses that did not meet sample criterion were removed for data analysis. Responses removed included those outside of the pre-determined range of teaching experience and incomplete questionnaires. Quantitative methods were employed to correlate data and calculate descriptive statistics. Specific strategies, as outlined by Ajzen (2019) and Clance (1985b) were used to analyze those respective constructs.

Each of the four Theory of Planned Behavior constructs consisted of three, seven-point semantic differential questions, for a total of 12 questions pertaining to respondents planned behavior. The minimum possible score was 0 points, and the maximum total possible score was 84 points. The 12 semantic differential questions pertaining to the Theory of Planned Behavior were coded so that a lower score indicated a planned behavior towards leaving the classroom and a higher score provided a stronger indicator of staying in the profession.

Clance (1985b) developed the Clance Impostor Phenomenon Scale (CIPS Scale), which groups respondents into four categories. The category is determined by the sum of a survey completer's responses to each of the twenty impostor test questions. If a respondent's total score is less than 40, they are said to have few impostor characteristics. If their score is between 41 and 60, they fall in the moderate impostor experiences group. If they score between 61 and 80, they are classified as having frequent impostor feelings. A score above 80, out of a possible 100 points, would indicate intense impostor phenomenon experiences. Clance (1985b) notes that a higher score tends to reveal more frequent and serious interferences a person has in life due to elevated feelings of impostor phenomenon.

Frequencies for each question were obtained and correlations were drawn between items pertaining to the research objectives. Spearman's rho, Pearson's correlation, one-way ANOVAs, and T-Tests were used to identify differences and relationships between variables identified in the study. Interpretation of the effect sizes for correlation coefficients were based on the recommendations from Davis (1971). Davis' (1971) recommendations are found in Table 1.

Table 1. Davis' (1971) recommendations for correlation coefficient effect sizes

Coefficient	Effect size interpretation
.70 or higher	Very strong association
.50 to .69	Substantial association
.30 to .49	Moderate association
.10 to .29	Low association
.01 to .09	Negligible association

Researchers synthesized the results of each correlation and descriptive statistic to provide analysis for each objective. The researcher's major professor assisted in the data analysis portion to provide access to SPSS and background on correlational research.

Chapter 4 - Results

Overview of Participants

Table 2 below presents the general characteristics of the respondents (N = 118) of this study. There was a higher number of female respondents (n = 82) at 69.5%, compared to 29.7% male participants (n = 35). At 51.7%, most of the sample's highest level of education received was a bachelor's degree (n = 61), followed by 26.3% with a master's degree (n = 31), 16.9% with some graduate credits (n = 20), and 5.1% respondents indicating "other" (n = 6). The average years of teaching experience was nearly four years (M = 3.79, SD = 2.48), with a median response of four years and a mode of three years. Participants were recorded from each of the seven states included in the NAAE Region II sample: Arkansas (n = 13), Colorado (n = 26), Kansas (n = 33), Louisiana (n = 9), New Mexico (n = 9), Oklahoma (n = 14), and Texas (n = 14).

Table 2. Respondent Characteristics (*n* = 118)

Respondent Demographics		*f*	%
Gender			
	Male	35	29.70
	Female	82	69.50
	Prefer not to say	1	0.80
	Total	118	100%
Highest Level of Education Received			
	Bachelor's	61	51.70
	Some Graduate Credits	20	16.90
	Master's Degree	31	26.30
	Other	6	5.10
	Total	118	100%
Years Teaching Secondary Agricultural Education			
	Less than 1 Year	15	12.70
	1 Year	7	5.90
	2 Years	16	13.60
	3 Years	20	16.90
	4 Years	15	12.70
	5 Years	15	12.70
	6 Years	11	9.30
	7 Years	10	8.50
	8 Years	4	3.40
	9 Years	5	4.20
	Total	118	100%
State Currently Teaching In			
	Arkansas	13	11.00
	Colorado	26	22.00
	Kansas	33	28.00
	Louisiana	9	7.60
	New Mexico	9	7.60
	Oklahoma	14	11.90
	Texas	14	11.90
	Total	118	100.00%

Demographics associated with the respondents' background relating to the National FFA Organization and agriculture are included in Table 3 below. Over half of respondents (*n* = 76), or 64.4%, indicated they were a member of the National Association of Agricultural Educators (NAAE), while 22% (*n* = 26) reported they were only a member of their state agriculture

teachers' association. A total of 13.6% (*n* = 16) reported no membership in an agriculture teacher professional organization.

Table 3. Respondent Agriculture and FFA Background (*n* = 118)

Respondent Demographics			*f*	%
NAAE membership status	Yes		76	64.40
	No membership anywhere		16	13.60
	Only a member of state Ag Teacher association		26	22.00
		Total	118	100%
Perceived exposure to production agriculture prior to teaching	A Great Deal		51	43.20
	A Lot		26	22.00
	A Moderate Amount		16	13.60
	A Little		22	18.60
	None At All		3	2.50
		Total	118	100%
How were you certified to teach secondary agriculture?	Traditional teacher education program		72	61.00
	Transitioned from business/industry		36	30.50
	Certified through a master's program		3	2.50
	Existing license in other content area		2	1.70
	Other		5	4.20
		Total	118	100%
Were you an FFA member in high school?	Yes		95	80.50
	No		23	19.50
		Total	118	100.00%

Just under half, or 43.2% (*n* = 51), of participants reported they had a great deal of perceived exposure to production agriculture prior to teaching. Participants indicating "A Lot" of exposure totaled 22% (*n* = 26). A moderate amount of exposure was selected by 13.6% (*n* = 16). A little exposure was recorded by 18.6% (*n* = 22). No prior exposure to production agriculture was expressed by 2.5% of participants (*n* = 3).

When asked about their teaching certification route, 61% (*n* = 72) were traditionally certified through a pre-service agricultural education program at a college or university. Teachers

transitioning to the profession from business and industry accounted for 30.5% (n = 36) of study participants. A total of 2.5% (n = 3) were certified to teach through a master's program. Educators that had an existing teaching license in another content area was reported at 1.7% (n = 2). Five (n = 5) participants selected "other." The vast majority of respondents reported prior membership in the National FFA Organization, with 80.5% indicating "yes." The remaining 19.5% reported never being a member of the National FFA Organization.

Findings

Research Objective 1:

Research objective one aimed to describe the prevalence of impostor phenomenon among current NAAE Region II agriculture teachers who have taught for less than ten years in the states of Arkansas, Colorado, Kansas, Louisiana, New Mexico, Oklahoma, and Texas. Clance (1985b) developed the Clance Impostor Phenomenon Scale (CIPS Scale), which groups respondents into four categories. If a respondent's total score is less than 40, they are said to have few impostor characteristics. If their score is between 41 and 60, they fall in the moderate impostor experiences group. If they score between 61 and 80, they are classified as having frequent impostor feelings. A score above 80, out of a possible 100 points, would indicate intense impostor phenomenon experiences. Clance (1985b) notes that a higher score tends to reveal more frequent and serious interferences a person has in life due to elevated feelings of impostor phenomenon.

Table 4 displays the frequency of each of the four categories respondents were associated with. A total of nine respondents had few impostor characteristics, which equates to 7.6% of the sample. The group associated with moderate impostor phenomenon characteristics numbered 47, accounting for 39.8% of the sample. The most prevalent category was the frequent impostor

phenomenon group, with 49 participants identified, which was nearly half, or 41.5%, of teachers surveyed. The final group, who experienced intense impostor phenomenon characteristics, totaled 13, or 11% of the surveyed population. As a whole, the sample (N = 118) had an average score of 62.13 (SD = 14.70) out of 100 on the CIPS scale. A median score of 62 and a mode score of 54 were also found.

Table 4. Frequency of impostor phenomenon among NAAE Region II Teachers with less than ten years of teaching experience (*n* = 118)

Level of Impostor Feelings	*f*	%
Few IP Characteristics	9	7.6%
Moderate IP Characteristics	47	39.8%
Frequent IP Characteristics	49	41.5%
Intense IP Characteristics	13	11%
Total	118	100%

Research Objective 2:

Research objective two sought to identify the correlation between NAAE Region II agriculture teachers' level of impostor phenomenon and the length of their teaching career. A Pearson's correlation revealed there was negative, low association between the number of years teaching and the range of impostor feelings (R (116) = -.109, p = .24). The measurement consisted of four ranges: few, moderate, frequent, and intense impostor feelings. An additional Pearson's correlation was calculated between years of teaching experience and actual total score on the impostor scale. A negative, low association (R(116) = -.103, p = .27) was found between the two. It should be noted that the years evaluated are all relatively early in the participants' teaching careers. Therefore, these results cannot be extrapolated to determine a lack of correlation beyond ten or more years of SBAE teaching experience. Results described in this section are displayed in Table 5.

Table 5. Pearson's Correlation for years of teaching experience and impostor phenomenon (*n* = 118)

	R	*p*
Impostor Range (Few, Moderate, Frequent, Intense) *	-.109	.24
Impostor Score Total**	-.103	.27

Note: * $R(116) = -.109$, $p = .24$, ** $R(116) = -.103$, $p = .27$, ***$p < .05$

Research Objective 3:

Research objective three intended to determine the correlation between NAAE Region II teachers' intensity level of impostor syndrome and their likelihood of leaving the agricultural education profession. A simple linear regression was calculated using respondents total score of their planned behavior (Attitude, Perceived Norm, Perceived Control, and Intention) (dependent variable), which can be considered their propensity to remain or leave the profession, and the range of their Impostor score (few, moderate, frequent, intense) (independent variable). Each of the four planned behavior constructs consisted of three, seven-point semantic differential questions, for a total of 12 questions pertaining to respondents planned behavior. The minimum score among participants was 29 and the maximum score was 84, out of a total possible 84 points. The questions were coded in a way that a lower score would indicate a higher propensity for leaving the teaching profession. The average planned behavior score was just under 60 (M = 58.92, SD = 11.17), indicating there was 70% inclination towards staying in the profession among the sample.

A one-way ANOVA revealed there was a statistically significant difference ($R^2 = .19$, $F(4, 113) = 6.527$, $p = < .001$) between the four impostor score ranges and the respondents' planned behavior (TPB) score. The regression output was used to analyze the individual predictors for each planned behavior construct, as shown in Table 6. Statistically significant predictors included normative beliefs ($\beta = -.295$, $p = .002$) and control beliefs ($\beta = -.262$, $p =$

.007). The attitude and intention constructs were not significant ($p > .05$) predictors on impostor range in this study.

A Pearson correlation coefficient was also used to assess the linear relationship between two continuous variables: the respondents' total planned behavior score and actual impostor score. There was a statistically significant, moderate association between the two scores (r (116) = -.36, p <.001).

Table 6. Multivariable Linear Regression Results: Theory of Planned Behavior Predictors (n = 118)

	Unstandardized β	Standardized β	*t*	*p*
Constant	4.746		8.689	<.001**
TPB - Attitude	-.052	-.162	-1.390	.167
TPB – Normative Beliefs	-.063	-.295	-3.123	.002**
TPB – Control Beliefs	-.061	-.262	-2.767	.007**
TPB – Intentions	.030	.197	1.604	.112

Note: R^2 = .19, F(4, 113) = 6.527, **p < .001

Research Objective 4:

Research objective four sought to identify a relationship between NAAE Region II teachers' intensity level of impostor syndrome and their self-identified personal and professional characteristics. A series of one-way ANOVAs, Spearman Rho correlations, and independent t-tests were used to determine if relationships existed between self-reported characteristics and the respondents' impostor range.

The demographic information in Table 7 was correlated to the respondents' impostor range using one-way ANOVAs. The participants perceived level of exposure to production agriculture prior to teaching (e.g. agricultural work, farming/ranching, growing up in a production agriculture setting, involvement in agricultural organizations, etc.) had a statistically significant ($p < .05$) correlation to respondents' impostor range (F = 3.30, p = .02). Additional

demographic information collected and analyzed was not determined to be statistically significant. These included membership in the National Association of Agricultural Educators or a state teacher association, which state respondents were teaching in, and the level of education they had attained.

Table 7. One-Way ANOVA Correlations between self-reported characteristics and impostor range (*n* = 118)

Characteristic	F	*p*
Perceived level of exposure to production agriculture prior to teaching	3.304	0.023
NAAE Membership	.83	.479
State currently teaching in	.600	.616
Level of Education Attained	1.457	.230

Note: **$p < .05$

Independent samples t-tests were performed for three demographic datapoints. These included whether or not respondents were teaching in the state they were originally certified to teach in, if they were teaching in the state they were an FFA member in, and if they were a member of the National FFA Organization in high school. All three predictors were deemed insignificant ($p > .05$) in this sample. Table 8 outlines the results of these correlational calculations.

Table 8. Independent samples t-test correlations between self-reported characteristics and impostor range (*n* = 118)

Characteristic	F	*p*
Teaching in original certification state	.263	.609
Teaching in FFA membership state	.020	.887
Prior FFA Membership in high school	.020	.887

Note: **$p < .05$

The final series of demographic predictors calculated, described in Table 9, were identified using Spearman's rank-order correlation. Gender, aligning with previous research in

the impostor literature, had a low association and was not found to be a significant predictor ($p > .05$) of impostor phenomenon. Participants were also asked to share the route in which they became a certified teacher (i.e. through a traditional teacher certification program, through a master's degree program, transitioning from industry, etc.), which had a negligible association and was also found the be statistically insignificant ($p > .05$).

Table 9. Spearman's rho correlations between self-reported characteristics and impostor range (n = 118)

Characteristic	*R*	*p*
Gender	.152	.101
Certification Route	-.039	.678

Note: **$p < .05$

Chapter 5 - Summary, Conclusions, and Recommendations

Purpose of Study

The purpose of this study was to identify if, in fact, school-based agricultural educators experience impostor phenomenon and, if so, to what extent do they feel impostor effects. Due to the continued effects of teacher attrition facing agriculture programs across the country, this work may be important in identifying causes of teachers leaving the profession. In order to evaluate impostor phenomenon in SBAE teachers, the conceptual framework provided by Clance (1985b) was used to determine the presence and intensity of impostor phenomenon among this study's sample.

Furthermore, the study incorporated a second conceptual framework in Ajzen's (1985) Theory of Planned Behavior. The Theory of Planned Behavior seeks to identify the behaviors and intentions of individuals as it relates to their behavior and decision making. The decision, or behavior, being examined in this study was whether an individual was planning to remain in or leave their teaching career within various timeframes.

Coupled together, the impostor concept and Theory of Planned Behavior, were used by researchers to identify if any relationship exists between impostor phenomenon and one's planned behavior to stay in or leave the teaching profession. After data was collected, correlations were drawn between the two concepts, as well as among certain demographic data. This work aims to add to the existing literature on agriculture teacher retention. This work also lays the groundwork for additional studies on impostor phenomenon, an area with large gaps in knowledge at current.

This body of research directly relates to two research values identified by the American Association for Agricultural Education: Ensuring Diversity, Equity, Inclusion, and Belonging;

and Examining Social Dynamics in Human and Life Sciences (AAAE, 2023). Recruiting and retaining a diverse and inclusive population of agriculture teachers is paramount to addressing the attrition problem facing schools today. Addressing the needs and well-being of those diverse teachers will be accomplished by examining the social dynamics of our agriculture teachers.

Problem Statement and Research Questions

The purpose of this quantitative study was to identify if SBAE teachers experienced feelings of impostor phenomenon and to identify if the level of impostor phenomenon they experience is a possible predictor for agriculture teacher attrition in the U.S. This study was guided by the following research objectives:

1) Describe the prevalence of impostor phenomenon among current NAAE Region II agriculture teachers who have taught for less than ten years in the states of Arkansas, Colorado, Kansas, Louisiana, Oklahoma, New Mexico, and Texas.
2) Identify the relationship between NAAE Region II agriculture teachers' level of impostor phenomenon and the length of their teaching career.
3) Determine the relationship between NAAE Region II teachers' intensity level of impostor phenomenon and their likelihood of leaving the agricultural education profession.
4) Determine the relationship between NAAE Region II teachers' intensity level of impostor phenomenon and their self-identified personal and professional characteristics.

Synthesis of Findings by Research Objective

Research Objective 1:

RO1: Describe the prevalence of impostor phenomenon among current NAAE Region II agriculture teachers who have taught for less than ten years in the states of Arkansas, Colorado, Kansas, Louisiana, Oklahoma, New Mexico, and Texas.

This objective lays the groundwork for impostor research in agricultural education and sets the benchmark for impostor experiences among agricultural educators. The prevalence of impostor phenomenon among the 118 young SBAE teachers in this study was found to be substantial. Only nine teachers in the sample were categorized as having few impostor symptoms, codifying the remaining 92.4% (n = 109) of respondents as having moderate to intense impostor traits. The largest group, with 41.5% (n = 49) of participants, were the teachers who were in the third highest category – frequent impostor characteristics. Those with intense impostor characteristics were not as substantial but still accounted for 11% (n = 13) of the sample. With over 92% of young agriculture teachers included in the sample having in excess of few impostor symptoms, there may be sizable impacts on the profession which were not explored in this study. The average score on the CIPS scale was 62.13 out of a possible 100 points, which would classify the group average as having 'frequent' impostor feelings.

The sheer number of teachers with elevated impostor feelings can make for a compelling argument for the need for interventions in the profession. It is not yet understood how these varying levels of intensity affect a teacher's day-to-day work life or teaching. Although, it could be inferred that the negative side-effects of impostor phenomenon could manifest themselves in one's SBAE professional teaching career and should be evaluated in the future. The researchers do not recommend drawing inferences beyond the 118 participants in this study due to the inability to substantiate a representative sample.

Research Objective 2:

RO2: Identify the relationship between NAAE Region II agriculture teachers' level of impostor phenomenon and the length of their teaching career.

Prior to conducting this research, the authors hypothesized that amount of teaching experience would have an inverse relationship with impostor phenomenon scores. For example, it was thought as years of teaching experience increases, impostor feelings would decrease. This study found that relationship to have a low association and was not significant. This means we cannot associate years of teaching experience with higher or lower levels of impostor feelings. This sample could all be considered 'young' agricultural educators, which may have played a role in how the data analyzed here was portrayed.

Furthermore, the data, as presented here, may suggest that the first ten years are an area where impostor levels are higher, but this cannot be concluded without data from more experienced teachers. The researchers do not recommend drawing inferences beyond the 118 participants in this study due to the inability to substantiate a representative sample.

Research Objective 3:

RO3: Determine the relationship between NAAE Region II teachers' intensity level of impostor phenomenon and their likelihood of leaving the agricultural education profession.

This objective explored the propensity for SBAE teachers to leave the profession and correlated those suppositions with impostor scores. An initial hypothesis projected that lower scores on the Theory of Planned Behavior instrument (a higher inclination to leave the profession) would correlate with higher scores on the CIPS scale (stronger feelings of impostor phenomenon) and vice versa. This relationship was found to have a moderately associated, negative correlation through the subsequent data collection and analysis. These relational statistics were found to be significant during analysis on both impostor range and total impostor score.

In addition to the general relationship between the two variables, two predictors on the planned behavior instrument stood out as significant: Perceived behavioral control and normative beliefs. The perceived behavior control predictor addressed teachers' perceptions on their freedom to make decisions in their career, if they had adequate resources to accomplish the tasks of their job, and if they had the prior experiences necessary to do well at their job. The perceived norm predictor addressed the feelings of being pressured to remain in their teaching job by other agriculture teachers, their community, other teachers in their districts, and if they thought other agriculture teachers and teachers within their schools enjoyed their careers. It is not known yet where these feelings come from or how to specifically address them but this study does highlight them as areas warranted for further research. The predictors of intention (the actual behavior, which in this study was framed as leaving the profession) and attitude (towards their job as an agriculture teacher) were not found to be statistically significant predictors.

All of this can be summed up and interpreted to mean we can insinuate impostor feelings can be associated, at a moderate level, with feelings of leaving the profession among our 118 survey respondents. The researchers do not recommend drawing inferences beyond the 118 participants in this study due to the inability to substantiate a representative sample.

Research Objective 4:

RO4: Determine the relationship between NAAE Region II teachers' intensity level of impostor phenomenon and their self-identified personal and professional characteristics.

Objective four sought to identify demographic characteristics that may play a role in impostor symptoms and correlate them to CIPS scores. A number of characteristics were collected and analyzed via several inferential statistical calculations. The majority revealed no significant relationships with impostor scores.

The sole demographic question that linked as a probable predictor was a participant's perceived background with production agriculture. This is unsurprising as it is easily imaginable that someone who has limited exposure to the content in which they find themselves teaching deem themselves a 'fraud' while standing in front of a classroom full of students. The questionnaire provided the following as examples of prior agriculture background: agricultural work, farming/ranching, growing up in a production agriculture setting, and involvement in agricultural organizations. Participants ranked their perceived level of exposure on a scale from one to five: 1 = None at all; 2 = A little; 3 = A moderate amount; 4 = A lot; and 5 = A great deal.

The following demographic characteristics were explored as well, but were not determined to be significant indicators: membership in the NAAE, what state one teaches in, what level of education they've attained, if they were teaching in the state they were originally certified to teach in, if they teach in the state they were an FFA member in, if they were an FFA member in high school, how they were certified to become a teacher, and gender. The Spearman's rho calculations determined gender to have a low association and certification route to have a negligible association.

While most characteristics were found to have a low association with impostor scores, there is still value to add to the impostor literature. The role of gender and its lack of relationship to impostor scores align with contemporary impostor research. This conflicts with Dr. Pauline Rose Clance's initial understanding and conceptualization of the phenomenon, which was identified as a trait primarily possessed by high-achieving women. Recommendations for assisting those with limited backgrounds in agriculture are provided later in this chapter. The researchers do not recommend drawing inferences beyond the 118 participants in this study due to the inability to substantiate a representative sample.

Conclusions

In conclusion, this study sheds light on the prevalence of impostor phenomenon among 118 young agricultural educators in NAAE Region II. Findings indicate a substantial prevalence of impostor traits among this group, with only a small minority exhibiting few symptoms. The average score on the CIPS scale suggest a notable level of impostor feelings within the sample. However, the study did not find a significant correlation between impostor scores and the length of teaching experience, indicating that impostor phenomenon may persist beyond the initial, early years of one's teaching career. This underscores the need for future research to explore impostor experiences among educators with varying levels of experience, beyond the ten-year mark, to provide a more comprehensive understanding.

Furthermore, the study identified a moderately associated, negative correlation between impostor phenomenon scores and the likelihood of leaving the agricultural education profession. Factors such as perceived behavioral control and normative beliefs emerged as significant predictors, highlighting areas for further investigation. The study also found that perceived background in production agriculture was a probable predictor of impostor symptoms, suggesting that prior exposure to the field may influence feelings of authenticity in the classroom.

Overall, while certain demographic characteristics may play a role in impostor phenomenon, the majority revealed no significant relationships with impostor scores. Some of these demographic relationships are similar to previous studies, specifically in the case of gender. It is important to note here the higher response rate among females in the study, which may be indicative of the increase in female agriscience teachers across the country. Numerous impostor studies have not found gender to play a significant role in impostor scores, conflicting

with the original work by Clance & Imes (1978), who originally conceptualized the idea. This suggest that impostor feelings among young agricultural educators may be influenced by a combination of personal, professional, and contextual factors, warranting continued research to better understand and address this phenomenon within the profession. Additionally, future studies should aim to expand beyond NAAE Region II and include educators from other regions to provide a more comprehensive understanding of impostor experiences in agricultural education nationwide.

Discussion and Implications

A persistent challenge in the field of agricultural education has been the shortage of school-based agricultural educators, dating back to the enactment of the Smith-Hughes Act in 1917, which aimed to integrate agriculture programs into secondary schools (Eck & Edwards, 2019). This trend continues to provide challenges to the agricultural education community today. The dwindling supply, coupled with the high demand for agriculture teachers has created an unfavorable environment for SBAE program sustainability. The reasons for this shortage have been heavily documented over the last few decades. The job burdens, high expectations, issues with self-efficacy, interpersonal challenges with colleagues, students, parents, administrators, and community members act as key factors influencing their decision to leave (Lemons et al., 2015; McKim & Velez, 2015; Tippen et al., 2013; Traini et al., 2021). The COVID-19 pandemic only added to an already expansive list of stressors (Hoelting, 2021). Teaching vacancies continue to rise, and solutions are needed to curb the trend (Smith et al., 2023).

This study has far-reaching implications in the field of agricultural education. The high incidence of impostor symptoms among the 118 respondents in this study highlights the need for targeted interventions and support mechanisms to address these challenges early in educators'

careers. Initiatives aimed at building confidence, providing mentorship, and fostering a supportive professional environment could help mitigate the negative impacts of impostor feelings on teacher well-being and retention. These actions could be easily implemented in current professional development opportunities afforded to SBAE teachers across the country, including state and national level agriculture teacher conferences and symposiums.

There are still many unknown pieces on the effects of teaching experience on impostor feelings. While the study did not find significant relationships between these variables among early-career teachers, it suggests the need for further investigations into how impostor feelings evolve over time and their potential impacts on teacher retention. The effects on long-term career satisfaction could be a missing link to trends in teacher attrition. Understanding the underlying factors driving career intentions is of paramount importance for our field so that we may provide targeted interventions to support teacher retention and well-being.

Overall, this research provides valuable insights into the prevalence, dynamics, and potential impacts of the impostor phenomenon on agricultural educators. By addressing these challenges through targeted interventions, support mechanisms, and further research, agricultural education stakeholders can work towards creating a more inclusive, supportive, and sustainable environment for educators in the profession. The potential implications and actions taken from this research can positively affect countless SBAE teachers who are coping with impostor phenomenon on a daily basis.

Limitations

This study was limited to agricultural educators in the area identified as “Region II” by the National Association of Agricultural Educators, which includes the states of Arkansas, Colorado, Kansas, Louisiana, Oklahoma, New Mexico, and Texas. Future research should

evaluate additional NAAE regions and SBAE teachers nationwide to gather a more complete picture of the impostor phenomenon as a whole profession.

The researchers were unable to obtain a sample consisting solely of teachers with less than ten years of teaching experience which reduced the response rate. This led to a sample the researchers could not justify as being representative of the population and not generalizable beyond the 118 study participants. Future research should expand the range of experience to include all years in the profession. If limiting the range, more selective sampling should be used to hone in on the specific population targeted. The sample for this study was received from the National FFA Organization, which was unable to fulfil our request for teachers with ten years of teaching experience or less. Future research may benefit from reaching out to the National Association of Agricultural Educators as an additional source for sampling, as they may be able to provide a random sample at specific experience intervals.

The findings of this study cannot be generalized to teachers with more than ten years of teaching experience. As this study only included a sample of young agricultural educators, conclusions should not be drawn based on years of teaching experience of those outside the range evaluated here.

The findings of this study cannot be generalized to teachers outside of the seven states targeted. Research from this study should not be extrapolated beyond Arkansas, Colorado, Louisiana, Kansas, New Mexico, Oklahoma, and Texas. As SBAE programs and norms differ from state to state, the effects of this study do not account for variances seen outside of the states addressed in this research. While significant differences among states were not discovered as part of this study, it is unknown if regional differences or other states would have the same trend.

SBAE teachers who may have experienced impostor phenomenon and have already left the classroom were not surveyed. Future research on this population may identify trends not found in this study. This study was limited to those teachers who responded and may have inklings to leave the profession but have not done so yet. Addressing this population could provide insights into predictors not found in this work. If teacher attrition is as pervasive and problematic as the literature would suggest, this would be an important demographic to survey.

While efforts were made to reduce non-response error, individuals who did not respond to the survey may have been more or less prone to feelings of impostor phenomenon. Care should be taken in future work to address non-response error and limit potential barriers to participation. In-person, paper studies at SBAE professional development trainings or other events that see large attendance among agricultural educators could be an improved method of surveying to increase responses.

In many sources of literature, impostor phenomenon is a trait attributed to high-achieving individuals. This study did not purposively select or define high-achieving SBAE teachers for the sample. Future work may identify traits of a high-achieving agricultural educators and target them for subsequent lines of inquiry. Inquiries of this nature may benefit from a qualitative approach to divulge common themes among those teachers experiencing varying degrees of impostor symptoms.

Recommendations for Practice

The apparent lack of research in this area warrants further exploration of the impostor phenomenon among teachers and students in SBAE settings. This study can serve as a jumping off point for research on the impostor phenomenon in the field of agricultural education. The results of this study should be shared with state and national agricultural education leaders to

spread awareness of the phenomenon and begin conversations surrounding helping those who experience it. At the rate in which this study found impostor feelings to preside over young agriculture teachers, additional support and work is needed to understand its effects on SBAE programs and teachers.

Similar to previous research (Hutchins et al., 2017, Siddiqui et al., 2024), it is recommended to develop accessible and adequate professional development for SBAE instructors. Professional development should focus on boosting awareness of the impostor phenomenon prevalence among SBAE teachers, strategies for actively coping with the associated symptoms, and workshopping targeted topics to reduce content-specific impostor feelings. Additionally, support may need to be developed for students within SBAE programs, but it is not yet known how this concept is lived out in adolescent SBAE students.

Evidence from this study shows the significant relationship that exists between preconceived levels of exposure to production agriculture and rate of impostor expressions. Workshops and professional development steered towards individuals with limited agricultural backgrounds are prescribed to address the needs of this population. More focused research concerning this population should be performed in future studies.

Regardless of agriculture background, SBAE teachers are required to teach a variety of subjects, some of which may be out of their realm of expertise and experience. It is recommended that impostor feelings should be explored as it relates to teaching varying content in the SBAE classroom. A number of studies suggest that agriculture instructors do not receive adequate training in the area of agricultural mechanics prior to teaching and lack an adequate level of self-efficacy when teaching shop classes.

The perceived behavioral control and perceived normative belief predictors in this study should be analyzed further for specific institutional and procedural changes. This study found these indicators to be significantly correlated, at a moderately strong level, with impostor scores. School administrators and leaders in agricultural education should evaluate the concepts tied to these predictors and address them within the profession to reduce impostor traits among SBAE educators. These traits are analyzed further under the recommendations for research.

Recommendations for Research

The lack of impostor phenomenon research in agricultural education leaves a wide swath of areas of inquiry into this line of work that have yet to be explored. Far more research is needed to further outline impostor phenomenon as it relates to the field of agricultural education.

The study found two significant, moderately strong predictors between impostor phenomenon and planning to leave the classroom. The perceived behavior control predictor addressed teachers' perceptions on their freedom to make decisions in their career, if they had adequate resources to accomplish the tasks of their job, and if they had the prior experiences necessary to do well at their job. These indicators should be explored in-depth to pinpoint specific causes of the negative feelings felt by participants of this study who also had higher levels of impostor syndrome. The perceived norm predictor addressed the feelings of being pressured to remain in their teaching job by other agriculture teachers, their community, other teachers in their districts, and if they thought other agriculture teachers and teachers within their schools enjoyed their careers. Lower scores on the perceived norm section correlated with higher impostor scores and should be explored further.

In general, a larger population should be targeted for future research. This includes additional NAAE regions and an expanded range of experience to include teachers beyond the

ten years of experience mark. As this study was limited to early career teachers, an expanse on the range of experience may find more marked differences in the feelings of impostor phenomenon among age/experience groups. Specific content typically taught in SBAE programs, such as agricultural mechanics, plant science, and animal science, should be evaluated for varying levels of impostor phenomenon among various demographics. Other career and technical education content areas should also be further researched. Underrepresented populations in agricultural education should be explored as well. Future research recommendations are grouped by target population or concept and listed below:

Leavers of Agricultural Education

Teachers who leave the SBAE profession should be researched to determine the levels of impostor phenomenon they faced during their teaching career. This may provide valuable insights into the reasons they left the classroom. This could also be extended to the leavers of pre-service agricultural education programs at post-secondary institutions. An additional area of inquiry could be the teachers who decide not to teach after the traditional student-teaching semester.

Pre-Service Teachers

Impostor phenomenon research should be conducted on pre-service agricultural education teachers enrolled in teacher preparation programs. Specific areas of inquiry may include pre and post impostor tests from the beginning of their teacher preparation period to the end to identify any changes in impostor scores. Involvement in extracurricular activities, professional development, and networking within the agricultural education profession at this stage should be examined for impacts on impostor phenomenon as well.

Early Career SBAE Teachers

Often considered a crucial period in ones' teaching career, typically seen as the time a teacher decides to stay in or leave the profession, early career agricultural educators should be targeted for further impostor phenomenon research. Pre and post impostor tests should be performed during critical professional development events and mentoring programs. Teachers' feelings of impostor phenomenon relating to specific areas of contest should be explored as well. Due to the nature of agricultural education, where teachers are typically teaching a variety of courses related to plant science, animal science, agricultural mechanics, among others, there may be areas where teachers are more confident in teaching than others. The areas they are less confident in may be areas where they see an increase in impostor syndrome. As alternatively certified teachers become more prevalent, this group should be researched for possible impostor phenomenon effects. Other factors, such as self-efficacy, commitment to the profession, and background in agriculture need to be analyzed for possible relations to impostor phenomenon.

SBAE Students

In addition to SBAE instructors, further research should be conducted on students enrolled in SBAE programs. As impostor phenomenon has historically been associated with high-achieving individuals, students who compete at higher levels in FFA career and leadership development events should be compared to the average student in the SBAE program for impostor traits. The same could be said for students holding an officer, committee chair, or other leadership role in the organization. In the more general classroom setting, affects of impostor feelings on test scores, social-emotional well-being, and success in areas outside of the agriculture department could be explored as well.

Final Thoughts

Teacher attrition is a multifaceted problem with no one origin. Impostor phenomenon cannot be seen as the be-all and end-all source of career displeasure but, as evidence in this study indicates, it could play a pivotal role in the ultimate decision to leave the classroom. With the ubiquitous presence of impostor phenomenon among the 118 SBAE teachers found in this research and the continuous trend of teacher attrition, this is an area that needs genuine attention. Early-career teachers have enough to worry about and feeling like an 'impostor' in their early years should not deter them from the profession. As someone who felt these feelings of being a 'fraud' in my initial years of teaching, I find I have an obligation to spread awareness of this phenomenon so that others may find comfort knowing it is a common reality.

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Appendix A - Institutional Review Board Approval

KANSAS STATE UNIVERSITY | University Research Compliance Office

TO: Gaea Hock
Communications & Ag Education
Manhattan, KS 66506

Proposal Number: IRB-11700

FROM: Lisa Rubin, Chair
Committee on Research Involving Human Subjects

DATE: 05/31/2023

RE: Proposal Entitled, "Evaluating Agriculture Teacher Imposter Phenomenon Identities and its Correlation to Teacher Retention."

The Committee on Research Involving Human Subjects / Institutional Review Board (IRB) for Kansas State University has reviewed the proposal identified above and has determined that it is EXEMPT from further IRB review. This exemption applies only to the proposal - as written – and currently on file with the IRB. Any change potentially affecting human subjects must be approved by the IRB prior to implementation and may disqualify the proposal from exemption.

Based upon information provided to the IRB, this activity is exempt under the criteria set forth in the Federal Policy for the Protection of Human Subjects, **45 CFR §104(d), category:Exempt Category 2 Subsection ii.**

Certain research is exempt from the requirements of HHS/OHRP regulations. A determination that research is exempt does not imply that investigators have no ethical responsibilities to subjects in such research; it means only that the regulatory requirements related to IRB review, informed consent, and assurance of compliance do not apply to the research.

Any unanticipated problems involving risk to subjects or to others must be reported immediately to the Chair of the Committee on Research Involving Human Subjects, the University Research Compliance Office, and if the subjects are KSU students, to the Director of the Student Health Center.

Electronically signed by Lisa Rubin on 05/31/2023 11:55 AM ET

203 Fairchild Hall, Manhattan, KS 66502 | (785) 532-3224 | fax: (785) 532-3278

Appendix B - Informed Consent

Imposter Phenomenon

Study Information and Consent

IRB-#IRB-11700

PRINCIPAL INVESTIGATOR/CO-INVESTIGATOR(S): Zachary Callaghan, Dr. Gaea Hock, Dr. Jonathan Ulmer, Dr. Brandie Disberger

CONTACT DETAILS FOR PROBLEMS/QUESTIONS: Zachary Callaghan (zcallaghan@ksu.edu) or Gaea Hock, 785-532-1166 (ghock@ksu.edu)

IRB CHAIR CONTACT INFORMATION: For the subject should he/she have questions or wish to discuss on any aspect of the research with an official of the university or the IRB. These are: Lisa Rubin, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224; Brad Woods, Associate Vice President for Research Compliance, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.

This study's aim is to identify possible factors that may impact a teacher's intent to remain or leave the agriculture teaching profession.

Information that will be collected as part of this research could be used for future research studies or distributed to other investigators for future research studies without additional informed consent. All data collected will be stored on a password protected account on a password protected computer in a secure area. Data will be stored for two years. The survey results will be stored on a password protected Qualtrics account on a password protected computer in a secure area to ensure confidentiality.

If you consent to participate in this study, please indicate below.

- ◯ Yes, I consent to participate in this study.
- ◯ No, I do not consent to participate in this study.

Appendix C - Questionnaire: Impostor Test Block

For the following questions, please select the number that best indicates how true the statement is of you.

It is best to give the first response that enters your mind rather than dwelling on each statement and thinking about it over and over.

Please select the number that best indicates how true the statement is of you

	1 - not at all true	2 - rarely	3 - sometimes	4 - often	5 - very true
I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task.	○	○	○	○	○
I can give the impression that I'm more competent than I really am.	○	○	○	○	○
I avoid evaluations if possible and dread others evaluating me.	○	○	○	○	○
When people praise me for something I've accomplished, I'm afraid I won't be able to live up to their expectations of me in the future.	○	○	○	○	○
I sometimes think I obtained my present position or gained my present success because I happened to be in the right place at the right time or knew the right people.	○	○	○	○	○
	1 - not at all true	2 - rarely	3 - sometimes	4 - often	5 - very true

	1 - not at all true	2 - rarely	3 - sometimes	4 - often	5 - very true
I'm afraid people important to me may find out that I'm not as capable as they think I am.	○	○	○	○	○
I tend to remember the incidents in which I have not done my best more than those times I have done my best.	○	○	○	○	○
I rarely do a project or task as well as I'd like to do it.	○	○	○	○	○
Sometimes I feel or believe that my success in my life or in my job has been the result of some kind of error.	○	○	○	○	○
It's hard for me to accept compliments or praise about my intelligence or accomplishments.	○	○	○	○	○

Please select the number that best indicates how true the statement is of you.

	1 - not at all true	2 - rarely	3 - sometimes	4 - often	5 - very true
At times, I feel my success has been due to some kind of luck.	○	○	○	○	○
I'm disappointed at times in my present accomplishments and think I should have accomplished much more.	○	○	○	○	○
Sometimes I'm afraid others will discover how much knowledge or ability I really lack.	○	○	○	○	○
I'm often afraid that I may fail at a new assignment or undertaking even though I generally do well at what I attempt.	○	○	○	○	○
When I've succeeded at something and received recognition for my accomplishments, I have doubts that I can keep repeating that success.	○	○	○	○	○

	1 - not at all true	2 - rarely	3 - sometimes	4 - often	5 - very true
If I receive a great deal of praise and recognition for something I've accomplished, I tend to discount the importance of what I've done.	○	○	○	○	○
I often compare my ability to those around me and think they may be more intelligent than I am.	○	○	○	○	○
I often worry about not succeeding with a project or examination, even though others around me have considerable confidence that I will do well.	○	○	○	○	○
If I'm going to receive a promotion or gain recognition of some kind, I hesitate to tell others until it is an accomplished fact.	○	○	○	○	○
I feel bad and discouraged if I'm not "the best" or at least "very special" in situations that involve achievement.	○	○	○	○	○

Appendix D - Questionnaire: Theory of Planned Behavior Block

Theory of Planned Behavior - Attitude Block

Please select the level to which you would find it pleasant or unpleasant to remain in the agricultural education profession for the foreseeable future.

unpleasant - 1	2	3	4	5	6	7 - pleasant
○	○	○	○	○	○	○

Please select the level to which you would find it enjoyable or not enjoyable to complete the expected role of an Ag Teacher.

not enjoyable - 1	2	3	4	5	6	7 - enjoyable
○	○	○	○	○	○	○

Please select the level to which you would find it important or unimportant to be a lifelong learner.

unimportant - 1	2	3	4	5	6	7 - important
○	○	○	○	○	○	○

TPB - Perceived Norm

Please select the level to which you agree or disagree with the following statement: I feel pressured to remain in the agriculture teaching profession by other agriculture teachers.

disagree - 1	2	3	4	5	6	7 - agree
○	○	○	○	○	○	○

Please select the level to which you agree or disagree with the following statement: Most of my agricultural education teaching peers enjoy their agriculture teaching career.

disagree - 1	2	3	4	5	6	7 - agree
○	○	○	○	○	○	○

Please select the level to which you agree or disagree with the following statement: I feel pressured to remain in the agriculture teaching profession from the community I teach in.

disagree - 1	2	3	4	5	6	7 - agree
○	○	○	○	○	○	○

Please select the level to which you agree or disagree with the following statement: I feel pressured to remain in the agriculture teaching profession from other teachers in the school district I teach in.

disagree - 1	2	3	4	5	6	7 - agree
○	○	○	○	○	○	○

Please select the level to which you agree or disagree with the following statement: Most of the teachers in my school district enjoy their teaching career.

disagree - 1	2	3	4	5	6	7 - agree
○	○	○	○	○	○	○

TPB - Perceived behavioral Control

Please select the level to which you agree or disagree you have the freedom to make decisions in your career.

disagree - 1	2	3	4	5	6	7 - agree
○	○	○	○	○	○	○

Please select the level to which you agree or disagree you have the resources to accomplish the tasks of your job.

disagree - 1	2	3	4	5	6	7 - agree
○	○	○	○	○	○	○

Please select the level to which you agree or disagree you have the prior experiences necessary to do well at your job.

disagree - 1	2	3	4	5	6	7 - agree
○	○	○	○	○	○	○

TPB - Intention Block

Please select the likelihood in which you intend to remain in the agriculture teaching field next year.

unlikely - 1	2	3	4	5	6	7 - likely
○	○	○	○	○	○	○

Please select the likelihood in which you intend to remain in the agriculture teaching field within the next five years.

unlikely - 1	2	3	4	5	6	7 - likely
○	○	○	○	○	○	○

Please select the likelihood in which you intend to remain in the agriculture teaching field until retirement.

unlikely - 1	2	3	4	5	6	7 - likely
○	○	○	○	○	○	○

Appendix E - Questionnaire: Demographic Characteristics

Demographics

In what state do you teach?

Including the current school year, how many years have you taught secondary agriculture?

What gender do you identify as?

- ○ Male
- ○ Female
- ○ Non-Binary
- ○ Prefer Not to Answer

What is the highest level of education have you received?

- ○ Bachelor's Degree
- ○ Some graduate credits
- ○ Master's Degree
- ○ other (please specify)

Are you a member of the National Association of Agricultural Educators (NAAE)?

- ○ Yes

- ◯ No
- ◯ I am only a member of my state Ag Teacher association

On a scale of 1-5, please rate your perceived level of exposure to production agriculture PRIOR to teaching (Agricultural work, farming/ranching, growing up in a production agriculture setting, involvement in agricultural organizations, etc.).

- ◯ 5 - A great deal
- ◯ 4 - A lot
- ◯ 3 - A moderate amount
- ◯ 2 - A litte
- ◯ 1 - None at all

How were you certified to teach secondary agriculture?

- ◯ Traditional teacher education program at a college/university
- ◯ Transitioned to teaching from industry and earned licensure through an alternative certification program or masters
- ◯ Certified to teach during Masters' program
- ◯ Existing teaching license in other content area and passed Ag Praxis
- ◯ _____ Other (please specify)

Are you currently teaching in the state you were originally certified to teach in?

- ◯ Yes
- ◯ No

Are you currently teaching in the state you received your high school diploma/GED?

- ◯ Yes
- ◯ No

Were you an FFA member in high school?

- ◯ Yes
- ◯ No

Do you teach in the state in which you were an FFA member?

- ◯ Yes
- ◯ No