

# Research Conference Proceedings

North Central Region  
American Association for  
Agricultural Education



**Research Conference and Session Coordination**  
**University of Minnesota – Twin Cities**

**Conference Host**  
**The Ohio State University**  
**Virtual Conference**

**October 14-16, 2020**

## **Review Process for the North Central Research Conference**

University of Minnesota faculty, as the 2020 NC-AAAE Conference Research Host, and members of the North Central AAAE Research Committee offer sincere gratitude to the nine colleagues who served as members of the panel that evaluated this year's research submissions. A total of 47 research abstracts were submitted. Based on quality rankings and time allotted in the conference schedule, 35 abstracts were selected for presentation at the 2020 Virtual North Central Conference.

### **Research Manuscript Reviewers for 2020 AAAE North Central Region Research Conference**

Adam Cletzer; University of Missouri

Brad Greiman; University of Minnesota

Laura Hasselquist; South Dakota State University

Rebecca Mott; University of Missouri

Rama Radhakrishna; Penn State University

Michael Rosch; University of Illinois

Scott Smalley; Iowa State University

John Tummons; University of Missouri

Donna Westfall-Rudd; Virginia Tech University

**Research Session 1: Distinguished Research Presentations**  
**Wednesday, October 14 (4:00pm – 4:55pm ET)**

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*The Effect of Two Reflective Strategies on Student Multicultural Competency Development during an Online Multicultural Course*

Dr. Lauren Lewis Cline, Oklahoma State University  
Dr. Penny Pennington Weeks, Oklahoma State University  
Dr. William G. Weeks, Oklahoma State University  
Dr. J. Shane Robinson, Oklahoma State University  
Dr. Karen Hickman, Oklahoma State University

*Comparing College of Agriculture Students' Post-Transfer Experiences to their University Peers*

Michael S. Retallick, Iowa State University  
Elizabeth A. Foreman, Iowa State University  
Jennifer Bundy, Iowa State University  
Kelsey Powell, Iowa State University  
Miranda M. Morris, Iowa State University

*Hemp on the Horizon: Understanding Influences on Industrial Hemp Purchases*

Dr. Taylor K. Ruth, University of Nebraska-Lincoln  
Dr. Blake C. Colclasure, Doane University  
Dr. Tessa Durham Brooks, Doane University  
Dr. Andrea Holmes, Doane University

*Nebraska Agricultural Educators' Use of Social Media to Engage Stakeholders*

Ben Robinson, University of Nebraska-Lincoln  
Dr. Nathan Conner, University of Nebraska-Lincoln  
Dr. Taylor Ruth, University of Nebraska-Lincoln  
Dr. Bryan Reiling, University of Nebraska-Lincoln

*Gender Stereotypes of Suits and Boots: Student Perceptions of Gender in School-based Agricultural Education and Careers*

Kendra Flood, The Pennsylvania State University  
Kevin Curry Jr., The Pennsylvania State University  
Kathy Sexsmith, The Pennsylvania State University

**Research Session 2**  
**Thursday, October 15 (1:00pm – 1:55pm ET)**

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**AgCM Breakout Room**

*Fear or preparedness? A Content Analysis of the “Murder Hornet” News in the United States.*

Rafael Quijada Landaverde, The Ohio State University  
Dr. Joy Rumble, The Ohio State University

*Communication crisis? A Case Study of the Video "Milk? No thanks" in Latin America and The Caribbean.*

Rafael Quijada Landaverde, The Ohio State University  
Dr. Joy Rumble, The Ohio State University  
Dr. Annie Specht, The Ohio State University

*Exploring the Influence of the “Gluten-Free” Label Claim on Parents’ Food Purchasing Decisions*

Jaelyn Peckman, University of Missouri  
Dr. Courtney Meyers, Texas Tech University  
Dr. D. Adam Cletzer, University of Missouri

*Talking About Mental Health: An Analysis of Mental Health Messages Promoted by Organizations that Support Ohio School-Based Agricultural Education*

Summer McLain, The Ohio State University  
Dr. Jera Niewoehner-Green, The Ohio State University  
Dr. Annie Specht, The Ohio State University

*Exploring Characteristics, Motivations and Limitations to Increasing Agricultural Communication SAE Participation*

Dr. Rebecca D. Swenson, University of Minnesota - Twin Cities  
Dr. Troy D. McKay, University of Minnesota - Twin Cities  
Dr. Garrett M. Steede, University of Minnesota - Twin Cities

**Higher Ed Breakout Room**

*Students’ Expectations and Connectedness in a Video-Linked Course*

Alyssa Rockers, The Ohio State University  
Dr. Joy N. Rumble, The Ohio State University  
Dr. Emily B. Buck, The Ohio State University

*Identifying Skills Needed for Agricultural Communications Students’ Career-Readiness*

Elizabeth Wyss, University of Missouri  
D. Adam Cletzer, University of Missouri

*Agricultural Leadership: A National Portrait of Undergraduate Courses*

D. Adam Cletzer, University of Missouri  
Rebecca L. Mott, University of Missouri  
Jon C. Simonsen, University of Missouri  
John D. Tummons, University of Missouri  
Jaelyn Peckman, University of Missouri  
Kate Preston, University of Missouri

*The Knowledge Gap: A Case Study on Information on Climate Change among Beekeepers in El Salvador.*

Rafael Quijada Landaverde, The Ohio State University  
Dr. Mary T. Rodriguez, The Ohio State University

*Investigation of Recruitment Efforts and Factors Influencing the Undergraduate College Choice Process for Students Enrolled in Agricultural Education at Kansas State University*

Emma Lehmann, Kansas State University  
Dr. Gaea Hock, Kansas State University

**R & R Breakout Room**

*What Fifteen Years of New Teacher Data Reveals About Agriculture Teacher Turnover in Kansas*

Jason Hughes, Kansas State University  
Dr. Brandie Disberger, Kansas State University  
Dr. Gaea Hock, Kansas State University  
Dr. Jon Ulmer, Kansas State University

*Mentoring Needs of Novice Agriculture Teachers: A Longitudinal Qualitative Collective Case Study*

Dr. Brandie Disberger, Kansas State University  
Dr. Shannon Washburn, The Ohio State University  
Dr. Gaea Hock, Kansas State University  
Dr. Jon Ulmer, Kansas State University

*Career Choice and Beliefs: Insights from Second Generation Agriculture Teachers*

Milan Pozderac, The Ohio State University  
Ty Casey, The Ohio State University  
Tracy Kitchel, The Ohio State University

*That's Not In My Position Description: A Discourse Analysis of SBAE Migratory Context*

Dr. Becky Haddad, University of Minnesota  
Dr. Josh Stewart, Oregon State University  
D. Brett Milliken, Oregon State University  
Dr. Jonathan J. Velez, Oregon State University

*Virtual Mentoring in Agricultural Education: Describing the Digital Literacy, Technology Self-Efficacy, and Attitude Toward Technology of In-Service Agricultural Educators*

Tiffany G. Morey, The Pennsylvania State University  
Daniel D. Foster, The Pennsylvania State University

**Research Session 3**  
**Friday, October 16 (1:00pm – 1:55pm ET)**

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**Extension Breakout Room**

*University-Industry Supported Extension Education Program for Supporting Colombian Rural Youth Career Development*

Carlos Alberto Parra-Salinas, Universidad de Caldas, Colombia  
Andrés Felipe Zabala-Perilla, Purdue University  
Neil A. Knobloch, Purdue University

*Rural Colombian Youth Motivations to Learn a Second Language to Participate in an International Entrepreneurship Development Internship*

Carlos A. Parra Salinas, Universidad de Caldas, Colombia  
Neil A. Knobloch, Purdue University

*Rural Colombian College Students' Motivations and Proficiency to Learn English as a Second Language Before and After Participating in an Agricultural International Internship*

Carlos A. Parra Salinas, Universidad de Caldas, Colombia  
Margarita Maria Lopez, Universidad de Caldas, Colombia  
Neil A. Knobloch, Purdue University

*Examining Factors Related to Youth Value of Mindful Living among 4-H Youth Mindfulness Program Participants*

Mariah K. Stollar, Purdue University  
Dr. Suzanna Windon, The Pennsylvania State University

*Turnover Intention among 4-H Volunteer Leaders*

Dr. Suzanna Windon, The Pennsylvania State University  
Mariah K. Stollar, Purdue University  
Dr. Rama Radhakrishna, The Pennsylvania State University

**Instruction Breakout Room**

*Are You Smarter Than an Agriculture Student? Teacher Attitudes and Preparation to Teach Gifted Students*

Olivia M. Hile, Michigan State University  
Aaron J. McKim, Michigan State University  
Tyson J. Sorensen, Utah State University

*Gifted Students in the Agriculture Classroom: A Needs Assessment*

Olivia M. Hile, Michigan State University  
Tyson J. Sorensen, Utah State University  
Aaron J. McKim, Michigan State University

*A Comparative Analysis of Agriculture and Science Teachers' Perceived Approach and Efficacy Teaching Problem-Solving*

Bryanna Nelson, Purdue University  
Dr. Hui-Hui Wang, Purdue University  
Dr. Neil Knobloch, Purdue University  
Dr. Sarah LaRose, Purdue University

*Expanding the Agricultural Educator's Toolkit: Identifying Challenges in Digital Media Production Technology*

Dr. Troy D. McKay, University of Minnesota - Twin Cities  
Dr. Garrett M. Steede, University of Minnesota - Twin Cities  
Dr. Rebecca D. Swenson, University of Minnesota - Twin Cities

*Influence of Commodity Supported CASE Training on Agriculture Education Teachers*

Chelsea Bowen, Kansas State University  
Dr. Jonathan D. Ulmer, Kansas State University  
Dr. Gaea A. Hock, Kansas State University  
Dr. Jason D. Ellis, Kansas State University

**Teaching Profession Breakout Room**

*Adjusting, Appeasing, and Rearranging: How Agriculture Teachers Reconcile the Demands of the Profession*

Haley Q. Traini, Oregon State University  
Becky Haddad, University of Minnesota  
Josh Stewart, Oregon State University  
Jonathan J. Velez, Oregon State University

*Beyond Dialogue: Social Identity Development of Agriculture, Food and Natural Resources Educators*

Brandon Roiger, Union Theological Seminary  
Harley Braun, University of Minnesota – Twin Cities  
Dr. Amy Smith, University of Minnesota – Twin Cities

*Positions of Influence: How SBAE Influencers Position Mobile Teachers*

Dr. Becky Haddad, University of Minnesota  
D. Brett Milliken, Oregon State University  
Dr. Josh Stewart, Oregon State University  
Dr. Jonathan J. Velez, Oregon State University

*Agricultural Educators and the Pandemic: An Evaluation of Work and Life Variables*

Aaron J. McKim, Michigan State University  
Tyson J. Sorensen, Utah State University

*Teachers Changing the Discipline: A Case Study of Participatory Professional Development*

R. Bud McKendree, Michigan State University  
Aaron J. McKim, Michigan State University

# **The Effect of Two Reflective Strategies on Student Multicultural Competency Development during an Online Multicultural Course**

Dr. Lauren Lewis Cline, Oklahoma State University  
Dr. Penny Pennington Weeks, Oklahoma State University  
Dr. William G. Weeks, Oklahoma State University  
Dr. J. Shane Robinson, Oklahoma State University  
Dr. Karen Hickman, Oklahoma State University

## **Introduction**

The first multicultural course required in core general education curriculum was developed by Denison University in 1979 (Fitzgerald & Lauter, 2004). Emphasis on multicultural education across university campuses has increased in the past half-century (Banks & Banks, 2001). Simultaneously, the agricultural workforce has increased in diversity during the 21st century as a result of globalization and to meet the growing worldwide food security challenges (Handelsman & Stulberg, 2016). Changing agricultural workforce demographics have heightened the importance of multicultural competencies needed to be successful in the industry and a multicultural society.

Multiculturalism can be defined by an individual's (a) multicultural competence (MC; [Banks, 1995; Mallinckrodt et al., 2014; Sue et al., 1992]) or (b) multicultural personality (MP; [Ponterotto, 2010]). MC consists of the knowledge, skills, and attitudes/beliefs domains (Banks, 1995; Sue et al., 1982; Sue et al., 1992) a person may develop to better acknowledge, understand, and appreciate difference (Sue & Sue, 2008). Multicultural personality (MP) explains why individuals may adapt to new or different environments uniquely and why people differ in their desire to improve equity and inclusion (Fietzer et al., 2016). MP traits may provide a basis to predict why individuals develop MC at different levels (Ponterotto, 2010),.

AGLE 2403: Agricultural Leadership in a Multicultural Society (hereafter referred to as "online multicultural course" or "the course") is a three-credit hour asynchronous, online undergraduate course taught through the agricultural leadership major at Oklahoma State University. Objectives for the course are framed by Bucher's (2015) model for diversity consciousness. The course has historically only used asynchronous online discussion (AOD) as the reflective strategy to facilitate students' consideration diversity and multiculturalism in agriculture and to formatively assess learning, even though other reflective strategies for online courses were suggested (Allen & Hartan, 2009; Brookfield, 2013, 2016; Cain & Smith, 2009; Hatton & Smith, 1995; Herrington & Oliver, 2002; Kanuka et al., 2007; Knights, 1985; Markewitz, 2007; Means et al., 2010; Piburn & Middleton, 1997; Pulford, 2011; Seale & Cann, 2000). While evidence-based (Brookfield, 2000; Cain & Smith, 2009; Hatton & Smith, 1995; Hawkes, 2006; Markewitz, 2007; Means et al., 2010), AOD does require a significant time commitment by instructors and graders (Pulford, 2011).

As undergraduate agricultural programs strive to build a prepared workforce in ever-evolving multicultural communities, research to understand MC development through effective pedagogy is crucial. The development of global competencies (Grudzinski-Hall, 2007; Moriba & Edwards,

2013) has been studied in diversity courses within agricultural education and leadership (Rice et al., 2014), yet the specific impact of online multicultural courses within agricultural contexts on MC development is limited. Additionally, evidence-based instructional methods and reflective strategies in online multicultural courses within agricultural contexts is needed.

### **Theoretical Framework**

Transformative Learning Theory (TLT) provides the theoretical framework for this study (Mezirow, 1991, 2000). TLT states critical educational moments may challenge and change the perspectives of students (Kitchenham, 2008; Merriam et al., 2007; Mezirow, 2000). Four stages of learning characterize TLT: (a) experience, (b) critical reflection, (c) action, and (d) reflective discourse (Merriam et al., 2007; Mezirow, 2000). Two stages, critical reflection and reflective discourse, are essential to the purpose and design of this study. Critical reflection fosters meaning-making of lived experiences, while reflective discourse is “a dialogue devoted to searching for common understanding and assessment of the justification of an interpretation or belief” (pp. 10-11) that helps learners develop more empathetic understanding of others (Mezirow, 2000).

### **Purpose**

The purpose of this study was to determine the effect of two reflective strategies (online reflective discussion with peers [ORD] and individual reflection worksheets [IRW]) on MC development among undergraduate students completing an online multicultural course. Two research questions and hypotheses guided the study:

1. Are changes in MC significantly different for undergraduate students in an online multicultural course who complete ORD with peers as compared to those who complete IRW?

$$H_{o1}: \mu_1 \text{change in } MC_{ORD} = \mu_2 \text{change in } MC_{IRW}.$$

2. Are changes in MC between the groups significantly different when controlling for MP scores?

$$H_{o2}: \mu_1 \text{change in } MC_{ORD} \text{ controlling for MP scores} = \mu_2 \text{change in } MC_{IRW} \text{ controlling for MP scores.}$$

### **Methods**

An experimental pretest-posttest design (Privitera, 2017) was used for this study. The target population were students completing the online multicultural course. A field test in spring 2019 ( $N = 108$ ) and a pilot test in summer 2019 ( $N = 38$ ) were conducted. For this study, a time and place sample (Oliver & Hinkle, 1982) was used from the accessible population of students ( $N = 111$ ) who completed the course during the first eight-week term of the fall 2019 semester. Students were randomly assigned to two sections one week before the course started by the

Office of the Register. One section was the treatment group completing IRW ( $n = 58$ ) and the other section was the control group completing ORD ( $n = 53$ ).

The pre-test instrument, administered during the first week, consisted of the six-construct Everyday Multicultural Competencies/Revised Scale of Ethnocultural Empathy (EMC/RSEE [Mallinckrodt et al., 2014a]); the seven-construct Multicultural Personality Inventory-Short Form (MPI-SF [Ponterotto et al., 2014]); and demographic questions to gather age, gender, ethnicity, and religious affiliation data. The EMC/RSEE instrument was administered as the post-test after completion of all activities during the final week.

The Cronbach's (1971)  $\alpha$  value of the EMC/RSEE and MPI-SF constructs ranged from .63 to .89. The overall EMC/RSEE  $\alpha$  was .63. The overall MPI-SF  $\alpha$  was .78. Data were analyzed using SPSS Version 23 software. The following limitations to the study are acknowledged: (a) lack of probability sampling, (b) ecological validity, (c) history effects due to the university's transition to a new learning management system and uncontrollable extraneous variables, (d) testing effects, (e) regression to the mean, and (f) lack of confirmatory factor analysis during the instrument validation process (Privitera, 2017).

## Results

A repeated measures analysis of variance (RM-ANOVA) was conducted to determine if a statistically significant ( $p < .05$ ) difference in MC development existed between students who participated in ORD as compared to students who completed IRW. The assumptions of independent and identically distributed variables, normality, and sphericity (Mauchley's  $W = 1.0$ ) were met. Equal variances were assumed for both the pre-test MC ( $F(1, 109) = .043, p = .836$ ) and the post-test MC ( $F(1, 109) = 1.517, p = .221$ ). There were no statistically significant differences between changes in MC for the two group means,  $F(1, 109) = .765, p = .384, \eta_p^2 = .007$  (Table 1). The  $H_0$  null hypothesis was retained.

**Table 1**

*RM-ANOVA Comparing the Change in MC Development between Groups*

Source of Variance	<i>SS</i>	<i>MS</i>	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	1- $\beta$
Repeated Measure Effects							
PrePost	1.139	1.139	1	36.365	.000	.250	1.000
PrePost*Group	.003	.003	1	.101	.751	.001	.061
Error	3.415	.031	109				
Between Subjects Effects							
Intercept	3025.152	3025.251	1	22306.103	.000	.995	1.000
Group	.104	.104	1	.765	.384	.007	.140

Error	14.783	.136	109
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Descriptive analysis of the study variables indicated statistically significant relationships between pre-test MC, post-test MC, and MP scores (Table 2). As a result of the lack of statistically significant difference between the control and treatment groups' means, attention turned to analysis of the difference when controlling for MP scores.

**Table 2**

*Correlations between Pre-test MC, Post-test MC, and MP Score (N = 111)*

	1	2	3	M	SD
1. Pre-test MC	-			3.62	.311
2. Post-test MC	.635**	-		3.77	.264
3. MP Score	.410**	.368**	-	3.47	.305

Note. \*\*Significant at the 0.01 level (2-tailed).

A repeated measures analysis of covariance (RM-ANCOVA) was conducted to determine if a statistically significant ( $p < .05$ ) difference in MC development existed between students who participated in ORD as compared to students who completed IRW in the course when controlling for MP scores. The assumptions of independent and identically distributed variables, normality, and sphericity (Mauchly's  $W = 1.0$ ) were met. Equal variances were assumed for both the pre-test MC ( $F(1, 109) = .307, p = .580$ ) and the post-test MC scores ( $F(1, 109) = .711, p = .401$ ). There were no statistically significant differences between changes in MC for the two treatments,  $F(1, 109) = .1589, p = .210, \eta_p^2 = .014$  (Table 3). The  $H_0$  null hypothesis was retained.

**Table 3**

*RM-ANCOVA Comparing the Change in MC Development between Groups*

Source of Variance	SS	MS	df	F	p	$\eta_p^2$	1- $\beta$
Repeated Measure Effects							
PrePost	.099	.099	1	3.175	.078	.029	.423
PrePost*Group	.049	.002	1	.065	.799	.001	.057
PrePost*MP Score	.002	.049	1	1.589	.210	.014	.239
Error	3.365	.031	108				
Between Subjects Effects							
Intercept	9.874	9.874	1	88.455	.000	.450	1.000

MP Score	2.727	2.272	1	24.434	.000	.184	.998
Group	.057	.057	1	.511	.476	.005	.109
Error	12.055	.112	108				

### **Conclusions**

This study found there were no differences in MC development between students who completed IRW and students who completed ORD in this online multicultural course. Earlier research studies indicated the importance of discussion in online learning (Brookfield, 2000; Cain & Smith, 2009; Hatton & Smith, 1995; Markewitz, 2007; Means et al., 2010; Pulford, 2011). In comparing students who completed IRW to students who completed ORD, no difference was found between the group mean change in MC. Preliminary analyses to establish correlation between study variables found moderate relationships between student post-test MC, pre-test MC, and MP scores. When controlling for MP scores, there were still no differences in the group mean change of MC among students.

Our findings suggest there may be no added learning benefit to ORD when compared to IRW in online multicultural courses. Brookfield (2000) suggests critical reflection as a precursor to reflective discourse in the transformative learning process; the findings of this study support this notion. These findings also counter the conclusion of other scholars who found online discussion more advantageous to learning than other forms of reflection (Cain & Smith, 2009; Kanuka et al., 2007; Markewitz, 2007; Pulford, 2011). Although a preference for AOD is evident in the literature (Brookfield, 2000; Hatton & Smith, 1995), this study does not provide evidence to preference it in this online multicultural course. It can also be concluded from this study that at least two stages of the transformative learning process (Mezirow, 2000), critical reflection and reflective discourse, result in MC development during the online multicultural course.

### **Discussion, Implications, and Recommendations**

Rather than solely relying on reflective discourse strategies such as AOD in online multicultural courses, the inclusion of multiple reflective strategies may be sufficient to meet student learning goals (Brookfield, 2000; Hatton & Smith, 1995). This study suggests the benefit of both ORD and IRW as online reflective practices to support the transformative learning process. Multicultural instructors should consider incorporating either ORD, IRW, or both, as reflective strategies in online multicultural courses taught in agricultural contexts. Any single strategy should not be viewed as a one-size-fit-all instructional method to guide students through transformational learning in an online multicultural course, as both prove conducive. Likewise, instead of solely adopting AOD because of its prevalent use and assumption as a best practice (Allen & Hartman, 2009; Hawkes, 2006; Piburn & Middleton, 1997; Seale & Cann, 2000) instructors should consider other evidence-based strategies.

Further research questions exist for online multicultural instruction in agricultural contexts. The factorial structure of this study's instruments should be explored among the target population at Predominately White Institutions (PWIs) completing an online multicultural course to determine

alignment with initial validation procedures. Differences among the constructs of the instruments based on reflective strategies should also be studied and analyzed using multivariate and multilevel modeling techniques. MC development of students after completing the course should be investigated longitudinally. This study should be replicated using other online reflective strategies and at other PWIs with data analysis procedures influenced by critical race theory to improve generalizability. Additional variables not included in this study could be considered to find if they play a role in student engagement, learning, and MC development in online multicultural courses.

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**Comparing College of Agriculture Students' Post-Transfer Experiences  
to their University Peers**

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# Comparing College of Agriculture Students' Post-Transfer Experiences to their University Peers

## Introduction

*Transfer shock* is defined as a drastic decrease in academic performance in the semester(s) following transfer to a four-year university (Hills, 1965). Researchers have built on this initial work studying both transfer shock and the barriers associated with this phenomenon. Nearly 80% of transfer students experience transfer shock (Laanan, 2001) due to a variety of issues that have been categorized into three areas: academic, psychological, and environmental (Laanan, 2001, 2007). Academic barriers include curricular gaps between two-year and four-year institutions, discrepancies in pre-requisite completion, and variations in academic preparedness across two-year programs (Doyle, 2009, Goldrick-Rab, 2006; Kopko and Crosta, 2016; Porchea, 2010; Seine, 2014; Townsend & Wilson, 2009). Psychological barriers include stress associated with social integration at the four-year institution and difficulty finding a work-school-life balance (Goldrick-Rab, 2006; Porchea, 2010; Schwehm, 2017; Townsend & Wilson, 2009). Environmental barriers include larger class sizes, lack of interactions with professors, and adjusting to a new city and campus at the transfer institution (Laanan, 2001, Tobolowsky & Cox 2012). Although these barriers are well-studied, there is a gap in the literature when it comes to exploring various sub-groups of transfer students like those from specific colleges. Understanding whether students from a College of Agriculture and Life Sciences (CALs) have post-transfer experiences like those of their peers in other colleges is important for offering programming, specialized support and services to minimize transfer shock.

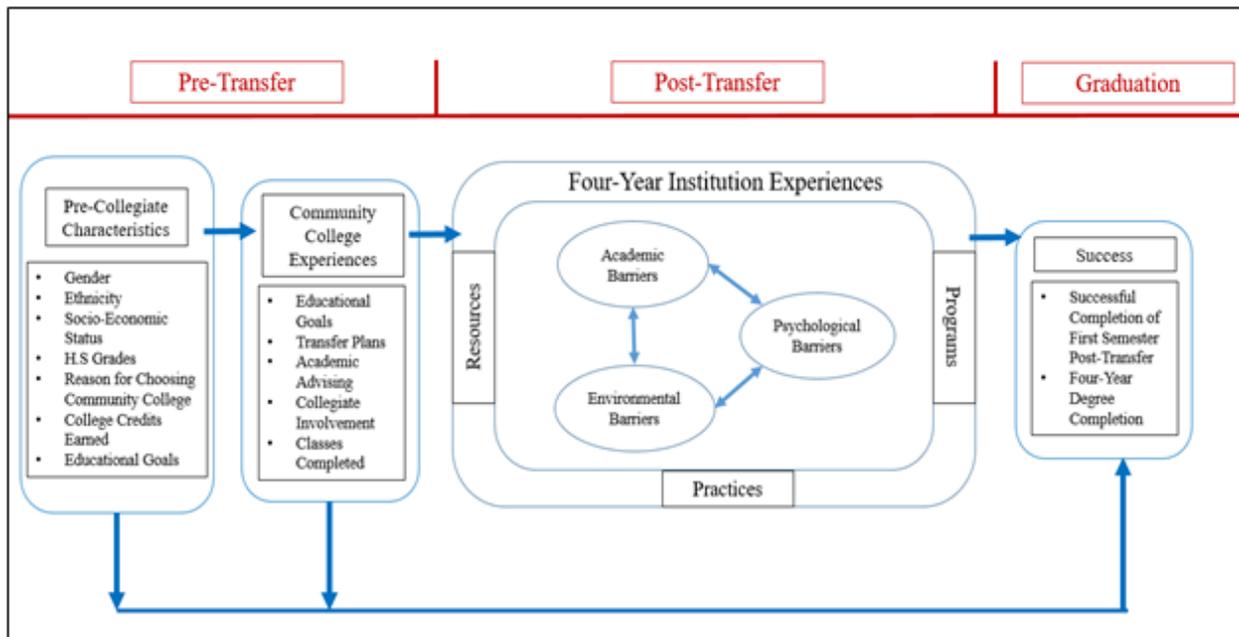
## Conceptual Framework

The Pre- and Post-Transfer Characteristics and Experiences Framework Leading to Student Success (Figure 1) was developed to guide this study. Foreman and Retallick's (2012) Collegiate Leadership Development Model provided the initial structure and framework for the model and a comprehensive review of literature related to transfer and student success was used to fully develop the framework.

The framework suggests a combination of pre- and post-transfer experiences and characteristics leads to student success including the ultimate success of graduation. Pre-transfer includes a cadre of characteristics associated with the student including demographic, socio-economic, and academic preparation as well as community college experiences including academic rigor, academic advising and support, and transfer planning, resources, and support. The post-transfer component includes programming, resources, and best practices while minimizing academic, psychological, and environmental barriers. On-time graduation is the end result and the primary measure of success but can be evaluated at a more granular level including completion of first term, persistence to second term, adequate progress through degree program, and graduation rates. This study focuses on the post-transfer portion of the model.

Figure 1

Pre- and Post-Transfer Characteristics and Experiences Framework Leading to Student Success



### Purpose and Research Questions

The purpose of this study was to compare first semester, post-transfer experiences of CALS transfer students to their peers across Iowa State University after completing their first term. The following research questions guided the study.

RQ1 –What were the differences, if any, in the academic confidence and preparation to transfer?

RQ2 –Did students’ awareness and use of academic resources and their perceived usefulness differ?

RQ3 –Did CALS students utilize different advisement tools than their peers?

### Methods

This study was conducted as part of a larger research project designed to investigate the transfer process at Iowa State University. All second-semester undergraduate transfer students including those transferring from 2-year and 4-year institutions were surveyed using a researcher-developed survey instrument.

To generate the survey, six focus groups consisting of first-semester transfer students were conducted. Focus group feedback revealed themes associated with the transfer process (Siberski & Bundy, 2019). Using these themes and previously documented transfer student barriers (Laanan 2001, 2007), the researchers developed a survey instrument divided into three sections: planning to transfer, experiences at previous institution, and experiences occurring shortly after transfer.

Content and face validity were established by distributing the survey to administrators, faculty members, academic advisers, and student service specialists who were familiar with transfer programs and policies. These individuals were asked to provide feedback on the question content as well as the structure, length, and composition of the instrument. Based on their feedback, changes were made to the number and content of questions within the survey. IRB approval was received.

Qualtrics (Qualtrics Labs, Inc., Provo, UT) was used to conduct a pilot study to test the reliability of the survey instrument. The survey was distributed to current transfer students within CALS (N=88) via email. Forty-four students responded (49% response rate). Following pilot data collection, an exploratory factor analysis was completed to identify latent factors and facilitate item reduction. Based on the results of the pilot study, the instrument was further refined.

Qualtrics (Qualtrics Labs, Inc., Provo, UT) was used to conduct the survey. Student registrar data were combined with survey results to address the research questions in this study. The survey instrument was sent via email and three email reminders were sent to non-respondents. Once the survey closed, data from respondents and non-respondents were matched to student records via email addresses. The data were then de-identified to ensure confidentiality.

The student experiences and all data collection for this study occurred prior to the Covid-19 pandemic. The survey instrument was distributed to all 1,048 ( $N = 262$  CALS,  $N = 786$  non-CALS) students who met the inclusion criteria. A total of 552 students responded (52.67% response rate) by starting the survey and 481 completed a significant enough portion of the instrument to be included in data analysis resulting in a usable response rate of 45.89%. The usable response rate of those students who responded from CALS was 39.65% ( $n = 104$ ) and from non-CALS 45.67% ( $n = 377$ ).

To address non-response error, demographic variables of respondents and non-respondents were compared using registrar data. Differences were found related to gender ( $X^2 = 54.72$ ,  $p < .000$ ), incoming GPA ( $t = -6.02$ ,  $p < .000$ ), and first semester GPA ( $t = -6.026$ ,  $p < .000$ ), where respondents were more likely to be female and have higher incoming and first semester GPAs. Therefore, caution should be made when generalizing beyond those students who responded.

Because the size of our comparison groups (i.e., CALS and non-CALS students) was unequal, we used SPSS (version 25) to draw a random sample from the 377 non-CALS respondents to make two equal groups of 104 for analysis. Descriptive statistics including measures of central tendency were used to answer the research questions as were inferential statistics including  $t$ -statistics and Chi-squared to determine differences.

## Results

The first research question focused on students' academic confidence and preparation to transfer. Nearly identical numbers of CALS and non-CALS students reported that they planned to transfer prior to attending their previous institution ( $n = 70$ , 67.31%;  $n = 68$ , 65.38%, respectively) and there were no statistically significant differences in the level of satisfaction ( $m = 3.23$  and 3.17, respectively on a 4-point scale; somewhat satisfied) regarding how their transfer credits were applied. Students were asked to respond to seven academic confidence statements regarding the

extent to which they agreed with them (Table 1). There were no differences between CALS and non-CALS students. Both groups somewhat agreed with statements regarding feelings of success, ability to complete coursework, being academically challenged, and helpful faculty.

Table 1

*Self-perceived academic confidence of CALS and non-CALS transfer students, (N = 178)*

Academic Confidence	CALS (n=91)		Non-CALS (n=87)		t	p
	M	SD	M	SD		
Feelings of Success	4.44	.70	4.32	.77	1.06	.29
Coursework Completion	4.36	.79	4.26	.81	.79	.43
Challenged Academically	4.35	.69	4.39	.69	-.38	.71
Helpful Faculty	4.32	.80	4.36	.76	-.32	.75
Comfort Asking Questions	3.41	1.20	3.71	1.26	-1.66	.09
School/Life Balance	3.09	1.33	3.39	1.35	-1.51	.13
Did Poorly on Exams	2.91	1.35	2.76	1.28	.78	.44

\* $p \leq .05$

Note. 5-point Likert-type ordinal scale: 1 = strongly disagree, 2 = somewhat disagree, 3 = neither agree not disagree, 4 = somewhat agree, and 5 = strongly agree.

Students were asked about awareness, use and usefulness of academic resources as part of research question two. Respondents were asked to share the extent to which they were aware and used a series of seven resources (Table 2). Office hours, supplement instruction and peer group studying were used most while writing and media center, tutoring within clubs, and academic coaching was least used and often unknown to both groups of students. No statistically significant differences between groups were found.

Table 2

*Transfer student awareness and use of academic resources, (N = 208)*

Academic Resources	CALS (n=104)				Non-CALS (n=104)			
	Used	Aware Did Not Use	Aware Did Not Need	Not Aware	Used	Aware Did Not Use	Aware Did Not Need	Not Aware
Instructor/TA Office Hours	50	25	23	2	52	9	32	1
Supplemental Instruction	42	17	34	10	18	20	34	15
Peer Study Groups	29	18	26	26	19	14	37	24
Tutoring Services	17	17	60	8	13	18	64	0
Tutoring through Program	12	10	47	28	3	10	45	35
Help Rooms	10	19	32	36	10	15	28	39
Writing and Media Center	7	24	55	13	11	14	62	7
Tutoring through Clubs	3	8	26	62	2	10	32	48
Academic Coaching	2	13	65	22	6	10	60	18
Other Resources	2	3	8	15	4	3	12	9

After responding to the awareness and need for academic resources, respondents were asked about the usefulness of the resources (Table 3). Overall, both groups somewhat agreed to the usefulness of the resources listed. Three resources were statistically significantly different with Non-CALS students having a high level of agreement regarding the usefulness of tutoring through their program, office hours, and help rooms.

Table 3

*Perceived usefulness of academic resources of CALS and non-CALS transfer students, (N = 208)*

Usefulness of Academic Resources	CALS (n=104)		Non-CALS (n=104)		t	p
	M	SD	M	SD		
Academic Coaching	4.50	.71	3.83	.98	1.04	.39
Writing and Media Center	4.29	.76	4.18	1.08	.24	.81
Tutoring Services	4.24	.83	4.15	.90	.25	.80
Tutoring through Program	4.08	1.31	5.00	.00	-2.42	.03*
Peer Study Groups	3.90	.90	4.00	.88	-.39	.69
Instructor/TA Office Hours	3.86	.90	4.29	.75	-2.60	.01*
Supplemental Instruction	3.67	1.07	3.83	1.09	-5.42	.59
Help Rooms	3.40	.97	4.40	.69	-2.65	.02*
Tutoring through Clubs	2.67	.58	3.50	.71	-1.39	.31
Other	3.50	.71	4.00	1.00	-.66	.56

\* $p \leq .05$

*Note. Note.* 5-point Likert-type ordinal scale: 1 = strongly disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, and 5 = strongly agree.

There was a significant difference in the number of students who participated in learning communities with CALS students more likely to participate (Table 4). However, there were no differences between the groups when it came to statements regarding learning community usefulness (Table 5). Students somewhat agreed that the learning community experience helped with socialization, increasing awareness of resources, helped with transfer transition and making friends, and encouraged involvement. Respondents neither agreed nor disagreed with the statement that learning communities improved their housing placement.

Table 4

*Participation of CALS and non-CALS transfer students in learning communities, (N = 208)*

Participation in Learning Community/Peer Mentor Group	CALS (n=104)		Non-CALS (n=104)		$\chi^2$	p
	n	% of Respondents	n	% of Respondents		
No	57	54.81	80	76.92	14.19	.00*
Yes	46	44.23	21	20.19		
No Response	1	.96	3	2.88		

\* $p \leq .05$

Table 5

*Learning community experiences of CALS and non-CALS transfer students, (N = 208)*

Learning Community Exp	CALS (n=46)		Non-CALS (n=21)		t	p
	M	SD	M	SD		
Helped with Socialization	4.20	1.08	4.10	1.48	.29	.77
Increased Awareness of Resources	4.13	1.10	4.29	1.10	-.52	.60
Helped Transfer Transition	3.98	1.05	4.00	1.26	-.07	.94
Helped Make Friends	3.87	1.25	4.00	1.17	-.42	.68
Encouraged Involvement	3.84	1.07	4.00	1.21	-.49	.62
Improved Housing Placement	2.53	1.17	3.07	1.54	-1.16	.26

\* $p \leq .05$

*Note. Note.* 5-point Likert-type ordinal scale: 1 = strongly disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, and 5 = strongly agree.

Research question three focused on student advisement tools. Respondents strongly agreed that academic advisers were knowledgeable of degree requirement (Table 6). In addition, responding to concerns in a timely fashion, respondents somewhat agreed that academic advisers were knowledgeable about applying transfer courses, the transfer process, transfer resources and career options. They somewhat agreed that instructors, both within and outside their major, were readily available. Students reported that the registration orientation was useful (Table 7). There were no differences between CALS students and their peers in responses for any of the items related to this question. Student reported using a variety of campus visit types (Table 8) and CALS students were more likely to visit as part of a youth organization or conference.

Table 6

*Comparison of academic adviser experiences of CALS and non-CALS students, (N = 208)*

Academic Adviser Experience	CALS (n=92)		Non-CALS (n=85)		t	p
	M	SD	M	SD		
Knowledge of Degree Requirements	4.67	.73	4.68	.68	-.08	.94
Responds to Concerns in a Timely Manner	4.53	.95	4.64	.71	-.82	.41
Knowledgeable about Applying Transfer Course	4.47	.99	4.46	.91	.06	.95
Knowledgeable about Transfer Process	4.42	.96	4.45	.93	-.16	.87
Knowledgeable about Career Options	4.41	.92	4.41	.81	.01	.99
Knowledgeable about Transfer Resources	4.18	1.01	4.21	1.11	-.16	.87
Served as a Mentor	4.04	1.07	3.79	1.08	1.58	.11

\* $p \leq .05$

*Note. Note.* 5-point Likert-type ordinal scale: 1 = strongly disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, and 5 = strongly agree.

Table 7

*Perceived usefulness of student registration orientation, (N = 208)*

	CALs (n=104)		Non-CALs (n=104)		<i>t</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Usefulness of Registration Orientation	3.86	1.08	3.92	1.07	-.38	.71

\* $p \leq .05$

*Note. Note.* 5-point Likert-type ordinal scale: 1 = strongly disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, and 5 = strongly agree.

Table 8

*Type of campus visits used by CALs and non-CALs transfer students, (N = 208)*

Campus Visit Use	CALs (n=104)		Non-CALs (n=104)		$\chi^2$	<i>p</i>
	<i>n</i>	% of Respondents	<i>n</i>	% of Respondents		
Custom College Visit	23	22.12	21	20.19	1.97	.37
Experience Iowa State (EIS)	21	20.19	17	16.35	2.18	.34
Transfer Tuesday Visit Day	19	18.27	26	25.00	4.24	.12
Group Visit	12	11.54	14	13.46	2.37	.31
Admissions Daily Visits	10	9.62	6	5.77	2.75	.25
College/Dept Visit Day	10	9.62	3	2.88	5.46	.06
Youth Organizations/Conferences	9	8.65	0	0.00	10.71	.00*
Other	3	2.88	4	3.85	2.21	.33

\* $p \leq .05$

**Conclusions, Implications, and Recommendations**

This study begins to fulfill the need for empirical evidence related to post-transfer experiences comparing CALs and non-CALs students who completed one complete semester at Iowa State University and provides some insight into the similarities and differences between the CALs and non-CALs student transfer experience.

Based on the results of this study, it could be concluded that little differences exist between CALs and non-CALs transfer students in student perceived level of academic confidence, the use of academic resources, and participation within learning communities. It could be concluded that the current systems and processes are effective for transfer students. Students from both CALs and non-CALs report generally positive experiences in all areas, but the information provided in the findings provides valuable insight into resources which were widely utilized and those which were not. These findings also provide evidence as to their level of awareness of resources and whether they elected to use them.

Examination of these insights offer the institution the opportunity to determine the value and need for minimally used resources and/or to communicate more effectively with students

regarding under-utilized resources. Many students lack awareness of academic resources, such as help rooms and peer study groups, and further marketing of programs could increase student engagement and improve learning outcomes. Lack of awareness of some resources does not seem to be limited to CALS students and a discussion of the merits of these programs could improve implementation campus-wide. It was interesting that CALS students perceived three academic resources less useful than their non-CALS peers. More research is needed to better understand this phenomenon and explore what resources CALS students use.

Finally, the CALS respondents reported higher levels of student learning community participation. Student learning communities are a critical component of learning and engagement for students who have entered a new learning environment (Colvin & Ashman, 2010) where their outcomes aim to improve student development in environmental, academic, and psychological domains (Brook & Oliver, 2003). Learning communities are an effective means to address barriers described by Laanan (2001). Respondents in both groups agreed that learning community experiences assisted them in the transfer process, which is supported by the research. Therefore, more students should be encouraged to participate in learning communities for these reasons.

Further research is needed to learn more about the transfer experience of students from CALS. Research topics should include the impact of academic resources on classroom effectiveness, the activities and procedures associated with CALS learning communities and learning community practices used by other colleges on the same campus. This study focused on awareness and use of resources and learning communities. Dialogue among faculty and academic staff across colleges and with university-level admissions as well as in-depth further study of student experiences may be necessary. It may be valuable to provide this survey to future transfer students to create a metric for use of learning community programs and resources.

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## **Hemp on the Horizon: Understanding Influences on Industrial Hemp Purchases**

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The 2018 Farm Bill removed industrial hemp from its list of federally controlled substances (United States Department of Agriculture [USDA], n.d.), and opened opportunities for farmers and consumers across the country. The industrial hemp industry made \$1.1 billion in 2018 and is anticipated to double by 2022 (Woods, 2019). In 2019, consumer demand for industrial hemp products increased 20% for leading producers and is expected to continue to increase, opening up new opportunities for farmers across the country (Global Cannabinoids, 2019).

Nebraska is one of the many states allowing growers to apply for licenses to grow their own hemp products in the US (Young, 2019). However, there was pushback for legalization, and a state senator said, “The hemp bill’s a Trojan horse bill for marijuana. If you don’t want your children or grandchildren getting easy access to drugs...don’t vote for this bill,” (Young, 2019, para. 6). Additionally, Governor Pete Ricketts made a statement saying, “there is no such thing as medical marijuana,” and claiming marijuana to be “a dangerous thing,” (KMTV, 2020, para. 2 and 4). Despite hemp products not containing high levels of the psychoactive properties found in marijuana (Chandra et al., 2019), Nebraska lawmakers’ vocal opposition and association of hemp and marijuana may lead to a social stigma associated with the production and use of industrial hemp. This stigma and a general lack of knowledge related to hemp may impede sales of hemp products in Nebraska. For the industry and growers to succeed, agricultural communicators will need to know the social influences on consumers’ decisions to purchase industrial hemp products.

### **Theoretical Framework**

This study was guided by the spiral of silence theory, which proposed that people will conform their attitudes and behaviors to match the perceived majority’s opinion (Noelle-Neumann, 1974). A person’s fear of isolation from the group can cause them to change their opinion or remain silent when their opinion is incongruent from the group’s opinion (Noelle-Neumann, 1974). Their likeliness to share their opinion to the group is reliant on the a) strength of their attitude, b) perceived majority opinion toward the topic, and c) perceptions of future trends in attitude toward the topic (Noelle-Neumann, 1974). When people have weak attitudes toward a topic and believe the public to hold opposing attitudes, they will typically remain silent even if they are technically in the majority. However, if they perceive the future trends in attitude to align closely with their own, they will be more likely to speak out on the issue (Noelle-Neumann, 1974).

While public opinion research related to industrial hemp has been limited, there has been plenty of research related to the support or opposition to legalizing/decriminalizing marijuana in the US that may provide insight for this study. Galston and Dionne (2013) concluded attitude toward marijuana legalization was mostly ambivalent, and while support for legalization is growing, opposition to legalization has been intense. Researchers also found support for marijuana legalization from liberals but concluded conservatives were not as vocal in neither their support

nor opposition (Cruz et al., 2016; Galston & Dionne, 2013). Cruz et al. (2016) also concluded that US consumers with personal experiences with marijuana, or who knew people who used marijuana, were more likely to support legalization. Additionally, gender and age have been found to influence support for marijuana legalization, with men and younger people being the most supportive (Galston & Dionne, 2013).

There is a clear gap in the literature for understanding how people decide to purchase industrial hemp products and more research is needed in this area. Concepts from the spiral of silence may provide a baseline understanding for how societal and peer pressures (Cruz et al., 2016; Noelle-Nuemann, 1974) could inform industrial hemp purchases. For the purpose of this research, public support of industrial hemp has been operationalized as the purchase and use of industrial hemp products. The spiral of silence variables (attitude toward industrial hemp production, perceptions of others' attitudes, and future trends in attitudes toward industrial hemp) may influence consumers' decision to purchase hemp products due to the stigma surrounding the products. Additionally, hemp knowledge (Brenan, 2019; Hiller Connell, 2010), political ideology (Cruz et al., 2016; Galston & Dionne, 2013), and demographics (Galston & Dionne, 2013) have been linked to perceptions of industrial hemp, and therefore have been included in the model to predict hemp purchases.

### **Purpose & Objectives**

In accordance with the American Association for Agricultural Education Research Priority Area 1: Public and Policy Maker Understanding (Enns et al., 2016), the purpose of this study was to determine the influences on consumers' decision to purchase industrial hemp products. The following objectives guided this study:

1. Identify respondents' hemp purchasing behaviors in the past six months;
2. Identify respondents' knowledge of industrial hemp;
3. Identify respondents' attitude, perceptions of others' attitudes, and perceived future trends of attitudes toward industrial hemp; and
4. Analyze how personal characteristics, knowledge, attitude, perceptions of others' attitudes, and perceived future trends of attitudes toward industrial hemp predict industrial hemp purchases.

### **Methods**

Quantitative methods were used to fulfill the purpose of this study. This research was part of a larger industrial hemp project to educate Doane University students about hemp production. Hemp plants were approved to be grown in the Doane University greenhouse, and there was a need to educate the students about the commodity to address any misconceptions they possibly possessed. A series of educational presentations were delivered to students during the arrival of the hemp plants, and a census of the students exposed to the campaign was attempted to be reached for this research. This population consisted of students in introductory science courses ( $N = 139$ , and 112 students ( $n = 112$ , response rate = 80.5%) completed the survey questionnaire prior to the educational presentation.

Approximately half of the respondents were female (56.3%,  $n = 63$ ), and the majority were white (85.8%,  $n = 95$ ). The largest number of respondents possessed moderate political values (48.3%,  $n = 54$ ) followed by conservative values (27.7%,  $n = 31$ ). The majority of the students were also freshmen (77.7%,  $n = 87$ ), and 42.0% ( $n = 47$ ) indicated they were from a rural hometown.

A paper survey instrument with 25 questions was distributed to students in class. *Hemp use* was measured with a check-all-that apply question. Respondents were asked to select all industrial hemp products they had purchased in the past six months. For objective four, this variable was transformed into a dichotomous variable where the respondent had either purchased at least one industrial hemp product or had not purchased an industrial hemp product in the six months before the study.

*Attitude toward industrial hemp* and *perceptions of others' attitude toward industrial hemp* were measured on the same 8-item, 5-point, bipolar semantic differential scales that were adapted from prior research (Ruth et al., 2019), and included statements like “good/bad” and “beneficial/not beneficial.” Statements were coded so that positive adjectives were a five and negative adjectives were a one. The statement stem for attitude toward industrial hemp was, “I believe growing industrial hemp in the US is...” and the statement stem for the perceptions of others' attitudes variable was, “I believe the majority of Americans think growing industrial hemp is...” Both indexes were averaged, and attitude toward industrial hemp (Cronbach's  $\alpha = .94$ ) and perceptions of others' attitudes toward industrial hemp (Cronbach's  $\alpha = .97$ ) were found to be reliable (Field, 2013). *Perceptions of future trends in attitudes* were measured with a 7-item, 5-point Likert-type scale adapted from Ruth et al. (2019), with labels ranging from 1 = *strongly disagree* to 5 = *strongly agree*. The average of the items was calculated to create the construct (Cronbach's  $\alpha = .80$ ).

Knowledge of industrial hemp was measured with 20 true/false statements. Respondents were also given the option to select “I do not know”. These statements were adapted from US government documents about industrial hemp (Congressional Research Service, 2019; USDA, n.d.). The knowledge construct was found to be reliable with a KR20 of .84 (Kuder & Richardson, 1937). For analysis, the construct was treated as a count variable, and the number of questions correctly answer have been reported.

Prior to distribution, the questionnaire was reviewed by a panel of experts to address the validity of the instrument (Ary et al., 2010). Additionally, the survey was piloted with a sample of 20 students in an upperclassmen soil science class.

All data were analyzed using SPSS version 25. Objectives one through three were answered using descriptive statistics. A logistic regression was used for objective four. The dichotomous variable for industrial hemp use was treated as the dependent variable; use of industrial hemp was coded as a 1 and no use was coded as a 0. Attitude, perceptions of others' attitudes, perceptions of future trends in attitudes, knowledge, and political ideology were all treated as continuous predictor variables. The continuous variables in the model were normally distributed and had a skewness and kurtosis between +/- 2 after the removal of two outliers. Categorical variables were dummy coded so the category with the largest frequency was treated as the control (Gender – Men, Hometown – Urban/Suburban; Field, 2013).

## Findings

### Hemp Purchasing Behaviors

The majority of respondents in the study reported not having purchased an industrial hemp product in the past 6 months (64.9%,  $n = 72$ ), while 35.1% ( $n = 39$ ) had purchased at least one industrial hemp product in the past six months. The check-all-that-apply question indicated the most frequently purchased hemp product was makeup or cosmetics (18.0%,  $n = 20$ ), followed by CDB oil (14.4%,  $n = 16$ ), consumables (6.3%,  $n = 7$ ), and pet products (5.4%,  $n = 6$ ).

Table 1

*Hemp products purchased in the past six months.*

Product	% ( $f$ )
Makeup or Cosmetic Products (Skin Cream)	18.0 (20)
Cannabidiol (CBD) Oil	14.4 (16)
Consumables (e.g. Gummies)	6.3 (7)
Pet Products Made from Hemp	5.4 (6)
Hemp Fiber	3.6 (4)
Hemp Protein (e.g. Powder Supplements)	3.6 (4)
Hemp Seed Oil	0.9 (1)
Hemp Milk or Juice	0.0 (0)
Hempcrete	0.0 (0)

### Hemp Knowledge

Respondents answered a total of 20 true or false knowledge questions, and the range for correct answers was zero to 18. On average, students answered 8.15 questions correctly ( $M = 8.15$ ,  $SD = 4.28$ ).

### Hemp Perceptions

On average, respondents in the study reported slightly positive attitudes toward growing industrial hemp in the US ( $M = 3.52$ ,  $SD = .80$ ) but perceived others to have neutral attitudes toward the production of hemp ( $M = 2.79$ ,  $SD = .92$ ). When asked how they believed others would feel about the growth of industrial hemp in the US in the future, respondents agreed attitudes would be favorable ( $M = 3.67$ ,  $SD = .52$ ).

### Predicting Hemp Purchases

The logistic regression model was statistically significant ( $\chi^2(7) = 25.13$ ,  $p < .01$ ) and could account for approximately 30% of the variance in the likelihood to purchase industrial hemp products ( $pseudo-R^2 = 0.30$ ). The only predictors of industrial hemp purchases were gender and attitude (Table 3). Females were more likely than males to purchase industrial hemp products. Additionally, as attitude toward growing hemp increased by one point, the log odds of the likelihood to purchase industrial hemp products increased by 2.69.

Table 2  
*Likelihood of purchasing industrial hemp products.*

Predictor	<i>B</i>	<i>Odds</i>	<i>p</i>
Constant	-2.00	0.14	.42
Gender	-1.36	0.26	.01*
Attitude	0.99	2.69	.02*
Knowledge	0.11	2.04	.12
Rural Town	0.71	2.04	.16
Politics	-0.46	0.63	.42
Others' Attitude	-0.22	0.81	.47
Future Trends	-0.22	0.80	.71

### Discussion & Recommendations

The spiral of silence did not have an influence on the past purchases of hemp as proposed in the framework. Despite the low knowledge of industrial hemp, the respondents did hold slightly positive attitudes toward it. Respondents also perceived others to have neutral attitudes of industrial hemp. This neutral perception may mean Nebraska's historical stance on marijuana legalization and vocal senators on the topic of industrial hemp (Young, 2019) were not perceived to represent the majority opinion of the state. Additionally, the respondents agreed that views toward industrial hemp in the future would be positive. Younger people, like those in the sample, have been found to be the most supportive of marijuana legalization (Galston & Dionne, 2013), and the respondents in the study may hold similar views toward industrial hemp.

The logistic regression model was statistically significant and accounted for a moderate amount of variance in predicting industrial hemp purchases (Cohen, 1988). In this study, males were less likely than females to purchase industrial hemp. Galston and Dionne (2013) had concluded men were more supportive of marijuana legalization than women, so there does not appear to be equal support for marijuana and industrial hemp across gender groups. Additionally, the majority of participants in the study had purchased cosmetic products made from hemp, which may partially explain why women were more likely to purchase hemp products. The only other predictor in the model for industrial hemp purchases was attitudes, and respondents with more positive attitudes were more likely to purchase the products. Although the model did not exactly reflect the spiral of silence, the respondents' own attitudes might be the most predictive of the behavior because they perceived others to feel similar to themselves and did not feel societal pressure related to the topic of industrial hemp products (Noelle-Neumann, 1974).

This research is not generalizable to other populations but does offer valuable insight for future practice and research. Agricultural communicators should partner with industrial hemp commodity organizations to help develop strategic messaging. Tailoring communication to young women and addressing key health or beauty concerns could lead to even stronger attitudes and purchasing intentions. This research should be replicated with respondents across Nebraska as well as the US to allow the findings to be generalizable to the public. Focus groups could also be used to determine how social interactions may influence consumers' own decision to vocally support using industrial hemp products.

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## **Nebraska Agricultural Educators' Use of Social Media to Engage Stakeholders**

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Social media's usage as an effective communication tool has significantly increased over the past decade, and nearly two-thirds of adults use a social networking platform (Perrin, 2015). The seven most used social media platforms include Facebook, Twitter, Instagram, LinkedIn, Snapchat, Pinterest and Reddit (Kellogg, 2020). While these sites are often used for personal communication, Graybill-Leonard (2011) recommended agriculturalists utilize social media platforms to communicate agricultural issues and promote social movements. Research has found agriculturalists possess positive attitudes towards using social media to communicate about agriculture and recognized the importance of sharing accurate information to their target audience in their posts (White et al., 2014). Social media sites have been found to be a key communication channel in delivering information (Bowen et al., 2013), and researchers have established that social media is viewed as a positive delivery method for communication of information to agricultural organizations' stakeholders (Beattie, 2019; Bowen, 2013; Rogers-Randolph, 2018). Rogers-Randolph et al. (2018) specifically recommended the FFA organization consider ways to strengthen their mission using social media.

There are more than 700,000 FFA members, aged 12-21, in 8,612 chapters across all 50 states, Puerto Rico and the U.S. Virgin Islands (National FFA, 2019). Currently, agricultural educators use social media for various purposes. Baker et al. (2017) described how to set up a model for agricultural educators with a desire to participate in social media. Agricultural educators need to set a goal before creating any type of posts; this goal could focus on the FFA program, community, the students or the agricultural industry. After a goal is selected, the audience needs to be defined. Every post should reflect the audience and the goal in order to deliver an effective product (Baker, 2017).

While there has been research supporting the need for FFA and agricultural education programs to engage stakeholders through social media (Baker et al., 2017; Rogers-Randolph et al., 2018), there has been limited research exploring the specific types of social media posts agricultural educators create for their FFA chapters. Understanding how agricultural educators currently utilize social media to promote their programs and engage stakeholders will be instrumental in developing agricultural communications professional development activities in the future to support these educators.

### **Conceptual Framework**

The Shannon and Weaver Model of Communication was used to guide this research (Shannon & Weaver, 1949). This linear communication model demonstrates how a message moves from a source of information to a final destination. The model starts with the sender of information who transmits the idea to the receiver who decodes the message. The communication channel is the infrastructure through which the information is transmitted to the receiver (Shannon & Weaver,

1949). For the purpose of this study, we are interested in identifying the types of social media channels Nebraska agricultural educators (senders) are using to send messages to their community stakeholders (receiver). We are also interested in identifying the types of messages being delivered in this communication process.

### **Purpose and Objectives**

In accordance with the American Association for Agricultural Education's National Research Agenda, Priority Area 5: Efficient and Effective Agricultural Education Programs (Thoron et al., 2016), the purpose of this research was to identify how agriculture programs are using various types of social media channels to meet the needs of their community stakeholders. The following objectives were used as a guide for this study:

1. Identify how often Nebraska agricultural educators use social media to share information about their chapter;
2. Describe Nebraska agricultural educators' perceived effectiveness of social media platforms for sharing information with the community;
3. Identify the types of information posted on Nebraska agricultural educators' social media accounts; and
4. Describe how Nebraska agricultural educators use social media to collaborate with other teachers.

### **Methods**

A survey was developed using the online survey software, Qualtrics, and distributed online to the Nebraska Agricultural Educators (NAE) listserv in May of 2020. The NAE comprised of current high school Nebraska agricultural educators. The survey link was active for three weeks, and three follow-up emails were sent to potential respondents. The listserv at the time of distribution included 269 current agricultural education teachers, which serves as the population for this study ( $N = 269$ ). After removal of incomplete surveys, there were a total of 82 responses ( $n = 82$ ), for a response rate of 30.4%. The majority of the respondents described their gender as being female (57.69%,  $n = 45$ ). The age of the respondents varied; the majority of the respondents' age was between 31 and 40 (35.9%,  $n=28$ ), followed by the age ranges 20-25 (17.95%,  $n = 14$ ) and 26-30 (17.95%,  $n = 14$ ). Number of years in education from the respondents varied with most results being less than 10 years of teaching experience. The educators with 6-10 years (29.27%,  $n=24$ ) of experience led the respondents, followed closely by those with 1-5 years (28.05%,  $n=23$ ). The survey instrument consisted of 17 questions and was distributed using the NAE. The instrument was reviewed by a panel of experts for content validity prior to distribution (Ary et al., 2010). Only frequencies for individual items have been reported in the results section, therefore reliability was not reported.

### **Results**

#### **Objective 1**

Respondents were asked often they used various online platforms to share chapter information (Table 1). The largest percentage of respondents used Facebook at a frequency of 1-3 times/week

(54.9%,  $n = 45$ ). After Facebook, the platform with the highest response was Instagram, with 1-3 times/week (32.5%,  $n = 25$ ). The majority of respondents reported never using Snapchat to share information with the community (88.0%,  $n = 66$ )

Table 1.  
*Frequency of Social Media Use for Sharing Information with Community*

	1-3 Times/Week % (f)	3+ Times/Week % (f)	0-1 Times/Month % (f)	2-3 Times/Month % (f)	Never % (f)
Facebook ( $n = 82$ )	54.9(45)	11.0(9)	9.9(8)	18.3(15)	6.1(5)
Instagram ( $n = 77$ )	32.5(25)	3.9(3)	5.2(4)	6.5(5)	52.0(40)
Twitter ( $n = 81$ )	27.2(22)	3.7(3)	6.1 (5)	8.6(7)	54.3(44)
Snapchat ( $n = 75$ )	9.3(7)	2.7(2)	0.0(0)	0.0(0)	88.0(66)

## Objective 2

Nebraska agricultural educators were asked to rate how effective the listed social media accounts in Table 2 were for sharing information with their communities. Respondents also had the option to select “not applicable” for each platform if they did not use it. The social media platform with the most responses as being *very effective* was Facebook (58.44%,  $n = 45$ ) followed Twitter (32.5%,  $n = 13$ ).

Table 2.  
*Effectiveness of Social Media Accounts at Sharing Information with Community*

	Very Effective % (f)	Slightly Effective % (f)	Not Effective % (f)
Facebook ( $n = 77$ )	58.4(45)	39.0(30)	2.6(2)
Twitter ( $n = 40$ )	32.5(13)	55.0(22)	12.5(5)
Instagram ( $n = 38$ )	18.4(7)	68.4(26)	13.2(5)
Snapchat ( $n = 10$ )	10.0(1)	60.0(6)	30.0(3)

## Objective 3

Table 3 identifies the type of information that Nebraska agricultural educators would post on their social media accounts and the frequency of these posts. The information most commonly and frequently posted was contest results (73.8%,  $n = 59$ ). This was followed closely by community service projects (56.3%,  $n = 45$ ) and chapter announcements (56.3%,  $n = 45$ ). The most frequently selected information for never being posted was seasonal posts (66.7%,  $n = 52$ ), followed by alumni news (60.3%,  $n = 47$ ) and SAE visits (54.4%,  $n = 43$ ).

Table 3.  
*Type of Information Posted on Social Media Accounts*

	Always Posted %(f)	Sometimes Posted %(f)	Never Posted %(f)
Contest Results (n = 80)	73.8(59)	23.8(19)	2.5(2)
Community Service Projects (n = 80)	56.3(45)	41.3(33)	2.5(2)
Chapter Announcements (n = 80)	56.3(45)	36.3(29)	7.5(6)
Student Projects (n = 78)	20.5(16)	65.4(51)	14.1(11)
Other (n = 22)	13.6(3)	27.3(6)	59.9(13)
SAE Visits (n = 79)	11.4(9)	34.2(27)	54.4(43)
Alumni News (n = 78)	9.0(7)	30.8(24)	60.3(47)
Seasonal Posts (n = 78)	2.6(2)	30.8(24)	66.7(52)

#### Objective 4

Potential activities that Nebraska agricultural educators could possibly use social media accounts to collaborate with other agricultural teachers are located in Table 4. The most likely activity for an agricultural teacher to complete was gaining an idea for a chapter activity (41.8%, n = 33) This was followed by agricultural teachers reaching out and providing help to other agricultural educators (35.4%, 28) or providing a new lesson plan/lab to another teacher (26.6%, n = 21).

Table 4  
*Likelihood to use Online Platform for Collaboration*

	Extremely Likely %(f)	Somewhat Likely %(f)	Neither Likely or Unlikely %(f)	Somewhat Unlikely %(f)	Extremely Unlikely %(f)
Gaining an idea for a chapter activity (n = 79)	41.8(33)	48.1(38)	2.5(2)	5.1(4)	2.5(2)
Providing help to another ag teacher (n = 79)	35.4(28)	46.8(37)	11.4(9)	5.1(4)	1.3(1)
Providing a new lesson plan or lab to another teacher (n = 79)	26.6 (21)	40.5(32)	21.5(17)	7.6(6)	3.8(3)
Seeking out advice on a situation on your officer team (n = 78)	21.8(17)	38.5(30)	18.0(14)	10.3(8)	11.5(9)

Helping another agricultural teacher with a lesson plan or lab ( <i>n</i> = 78)	19.2 (15)	48.7(38)	20.5 (16)	7.7(6)	3.9(3)
Learning information to help with classroom management ( <i>n</i> = 79)	19.0(15)	38.0(30)	19.0(15)	15.2(12)	8.9(7)
Collaborating together on a lesson plan ( <i>n</i> = 79)	12.7(10)	39.2(31)	30.4 (24)	10.1 (8)	7.6(6)
Collaborating together on a community service project ( <i>n</i> = 79)	12.7(10)	46.8(38)	26.6(21)	5.1(4)	8.9(7)

### Discussion & Recommendations

Social media can be used for communicating, promoting, networking, and advocating for youth programs, such as FFA and 4-H (Beattie, 2019; Bowen, 2013; White, 2014); therefore, it is important to understand how Nebraska agricultural educators are leveraging these platforms to connect with their communities. Findings from this study indicated respondents held favorable attitudes toward using social media to promote their programs and were most frequently using Facebook and Instagram. Facebook was also identified as very effective for sharing information with the community, but only a minority of respondents identified Instagram as being very effective. Additionally, about one-third of respondents believed Twitter was a very effective way to share communication despite the respondents not posting to the platform as much as others. Most often, these social media platforms were used to post contest results, highlight community service projects, and chapter announcements. The limited posts related to alumni news, student projects, and SAE visits may indicate Nebraska agricultural educators are using social media to share quick updates opposed to stories that take longer to unfold.

Respondents indicated they were also likely to collaborate with other agricultural teachers on social media with lesson plans, chapter activities, community service projects, and member management. Collaborations have been found to have a dramatic effect on teacher retention, and this study demonstrated that social media could be one way to promote those collaborations. The positive views of social media in this study may be reflective of the age of the majority of the respondents falling between 20 and 40. Because of the small response rate and lack of data available for Nebraska agricultural educators' demographic information, the findings from this study cannot be generalized to the population. However, the findings still provide an insight into how agricultural educators are currently using social media to communicate with their stakeholders. Teacher education programs across the country should partner with agricultural

communications faculty to develop curriculum and professional development programming to prepare future and current agricultural educators to leverage social media channels for chapter promotion and community engagement. These programs could focus on teaching educators how to use social media for two-way communications and to develop long-term communication goals to help strengthen their relationships with community stakeholders.

Future research should determine how chapters' stakeholders prefer to find information online. Identifying the audience's preferred communication platforms and what information they want to receive can help inform professional development for agricultural teachers using social media in the future. This study should also be replicated in other states to help their teachers best engage and communicate with the stakeholders in their communities.

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*Gender Stereotypes of Suits and Boots: Student Perceptions of Gender in School-based Agricultural Education and Careers*

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**Introduction**

STEM careers are enjoying explosive growth in the U.S. economy. Official projections suggest that between 2018 and 2028, the number of STEM jobs will increase by 8% to more than 10 million positions (U.S. Bureau of Labor Statistics, 2020). Yet, estimates also show that 600,000 of these jobs will remain unfilled, even though many require a bachelor's degree or lower education level (Xue & Larson, 2015). Women are needed to fill these positions, and with their inclusion there are a host of benefits gender equity brings to the workplace (Fine et al., 2020) including an increase in boardroom questions (Fine et al., 2020), creativity, and innovation (Roberge & van Dick, 2010).

Gender theorists have long shown that societies form gendered expectations regarding both family responsibilities and career choices, creating discriminatory environments in workplaces (Bottia et al., 2015; Mau & Li, 2018; Wang & Degol, 2017). As such, women have been less likely to enter traditionally masculine STEM career fields, while men are less likely to pursue feminized careers due to the fear of society's judgement (Hakim, 2006). Yet, the literature has shown that school-based interventions designed to break gender stereotypes, such as hiring female math and science teachers, increases the likelihood of girls pursuing and graduating with a degree in STEM (Bottia et al., 2015; Correll, 2001). Girls often feel a need to be recognized for their performance and to seek feedback, and female mentors who provide positive feedback can help raise girls' participation in STEM degrees (Bottia et al., 2015; Correll, 2001). Even so, boys can find STEM undesirable because of societal pressures in high school, with research reporting masculinity perceptions as a stronger indicator of entering the STEM field than performance (Archer, DeWitt, and Willis, 2014). Our research builds on this literature by exploring how gender stereotypes are perceived to shape agricultural career choices among students in school-based agricultural education programs.

**Theoretical Framework**

The social cognitive theory of career development (SCCT) developed by Lent et al (1994) models how persons, background, contextual, and experiential factors affect career decision making. When personal factors, backgrounds, and social expectations all connect, adolescents start to see what career is suitable for them (Lent et al., 1994). These factors begin to affect the activities or learning experiences students participate in that lead to an interest being developed. Using SCCT through the lens of gender can help identify how high school age boys and girls

develop self-efficacy, goals, and choice actions differently when career planning in the agricultural profession.

### **Purpose**

The purpose of this mixed methods investigation was to explore how gender stereotypes are perceived to shape agricultural career choices among students in Pennsylvania high school-based agricultural education programs. The scope aligns with research priority 3 of the National AAAE Research Agenda (Roberts et al., 2016); Sufficient Scientific and Professional Workforce that Addresses the Challenges of the 21<sup>st</sup> Century: Question 1: What strategies are effective in recruiting diverse populations into agriculture and natural resource careers? Specifically, this work was guided by the following research questions:

1. What perceptions do SBAE students hold regarding gender stereotypes for careers in agriculture?
2. Are there differences in the perceived importance of FFA, SAE, and classroom instruction across gender and level of program involvement?

### **Methods**

We collected three sources of data for this mixed methods study. First, we conducted four focus groups at each of three SBAE programs in urban, suburban, and rural Pennsylvania to ensure representations from diverse populations. We asked teachers to help recruit four groups of students at each school according to gender and degree of involvement in FFA. Level of involvement in FFA was used as a grouping to ensure those with a casual experience in the program were not overpowered in their opinions by those with more engagement in the program. At each school, we conducted the following four focus groups: 1) Female, Highly Involved. 2) Female, Limited Involvement. 3) Male, Highly Involved. 4) Male, Limited Involvement. The groups were divided as such to ensure they had the opportunity to voice opinions on gender discrimination in a safe space. The focus groups explored students' perceptions and experiences of gender equity and/or gender-based obstacles to participation in agricultural education, their suggestions for improving gender equity in agricultural education programming, and how gender shapes their prospects in agricultural careers as young men and women.

The second source of data we collected was a survey administered to students during the focus group protocol. The survey consisted of demographics (gender, ethnicity, grade level, agriculture courses taken) and likert type questions to gauge their perceived importance of each component of the three-circle model (FFA, SAE, Classroom Instruction). The final source of data was gathered from a sorting exercise. Students worked in small groups (n= 24) during their gendered focus group sessions to categorize 20 common agricultural careers as either "male", "female", or "both". The careers were sourced from the agexplorer virtual career finder spanning the nine career focus areas in AFNR (Discovery Education, 2020).

Interviews were transcribed for qualitative analysis in NVIVO. An emergent coding process first identified major themes and was then refined through a second cycle coding effort focused on

identifying attitudes and beliefs. Triangulation, peer debrief, and data saturation were utilized to achieve Merriam and Tisdell's (2016) definitions of creditability and consistency. Quantitative data were analyzed in SPSS version 26. Descriptive statistics were used to report demographic data, and a t-test was used to detect differences in perceived importance of the three-circle model.

## Findings

The qualitative data revealed several broad themes regarding perceptions of gender in SBAE, with three salient themes including "Anyone can do any agricultural career", "SBAE busting stereotypes", and "Cognitive dissonance on gender discrimination". Students of both genders commonly expressed that "anyone can do" any agricultural occupation they choose and specifically that women can do jobs traditionally performed by men if they choose. Billy stated "Of course [a] female, if she wanted to, I feel like she could do any of the male positions and if a male wanted to do any of them, they could. It is just what suits the different genders better based on like, physical features and just how our genders respond to certain things".

Although students acknowledged the presence of gender stereotypes for certain careers in agriculture, students usually perceived their SBAE program to be breaking, rather than reinforcing, gender stereotypes. Cody referenced this in discussing his Ag Issues LDE team when he stated "[our program] breaking down those stereotypes really influences [participation]. Our ag issues [LDE team]...was mixed [gender]. It was nice to get viewpoints from each side... and just like in class.... stereotypes aren't really a thing here."

Finally, students were asked to explain why, if anyone can do whatever job they want, do we continue to observe marked gender differentiation in who performs different agricultural careers. They commonly struggled to articulate their views on gender discrimination, suggesting either that their classroom education is not providing the vocabulary with which to describe their perceptions about gender discrimination, or that they have limited experience with gender discrimination thus far in their education and personal lives. Mya stated "Women can be all of these {jobs}.... It's just, I think you see them in those positions more. But I also feel like women aren't exposed to these jobs as much as males are... I really don't know how to explain it".

A total of 53 students participated in the focus groups and completed the questionnaire (n= 13 – Urban; n= 23 – suburban; n= 17 – rural). 28 students were in the "highly involved" group while 25 were in the "limited involvement" group. The sample was split between males (n= 27) and females (n= 23), predominately white (n= 41), sophomore standing (n= 21), with 49 of the students having completed 2 or more agriculture courses. Results from the quantitative survey based on level of program involvement are displayed in Table 1. Students in the focus groups with limited involvement in the SBAE program reported significantly lower perceived importance of the FFA ( $p= .00$ ) and SAE ( $p= .04$ ) components of the three-circle model. No differences were observed with the importance of classroom instruction, or for any of the three components between genders.

Table 1

*Students Perceived Level of Importance of the Three-component Model of SBAE*

SBAE Model Component	Level of SBAE Involvement	n	M	SD	<i>t</i>	<i>p</i>	<i>d</i>
FFA	Highly Involved	28	2.82	.39	5.22	.00*	1.43
	Limited Involvement	22	2.05	.65			
SAE	Highly Involved	28	2.43	.63	2.09	.04*	.59
	Limited Involvement	22	2.05	.65			
Classroom	Highly Involved	28	2.79	.42	.86	.39	
	Limited Involvement	25	2.68	.48			

\*Note: Scale =1-3 where 1 = *Not at all Important*, 2= *Somewhat Important*, 3= *Extremely Important*

The data on perceived gender roles for agriculture careers are displayed in Table 2. Several careers were identified as “male” or “female” by nearly all student groups, including Florist and Horse Trainer as “female careers” and Welder, Beef Cattle Rancher, Landscaper, and Forester as “male careers”.

Table 2

*Student Classification of Agricultural Careers*

Ag. Career	Male	Female	Both
Agriculture Engineer	17	-	7
Agronomist	10	-	14
Beef Cattle Rancher	22	-	2
Communications Specialist	-	11	13
Crop Farmer	15	-	9
Farrier	7	4	13
Florist	-	24	-
Forester	21	-	3
Greenhouse Manager	2	6	16
Horse Trainer	-	16	8
Human Resources Manager	1	4	19
Landscaper	21	-	3
Marketing Specialist	2	5	17
Meat Inspector	13	-	11
Nutritionist	-	9	15
Pet Groomer	-	14	10
Research Technician	5	-	19
Sales Representative	4	1	19
Veterinarian	-	12	12
Welder	23	-	1

\*Note 24 groups of students assigned each of the 20 careers

### Conclusions & Recommendations

These combined qualitative and quantitative data sources paint a complex picture of how these students perceive how gender roles in society shape future career opportunities in agriculture. When asked to identify whether society expects women, men, or both to perform a list of 20 agricultural occupations, they consistently identified gendered patterns in who is expected to perform what job. Yet in their commentary regarding the ability of either gender to enter/engage in agriculture professions, students perceived their programs as busting these stereotypes. A striking finding was that students had limited capacity to explain the divergence between their observations of gender roles in agricultural careers and the sentiment that “anyone can do” any agricultural job they want, or in other words, that no gender barriers exist. Further, there are unique implications on SAE and FFA participation by gender. They hinted at an understanding that women are socialized to perform jobs requiring ‘soft skills’ in the agricultural sector, as reflected in their high rates of participation in FFA, whereas men are socialized to perform jobs entailing heavy manual work, as reflected in their SAE choices. Even so, these differences highlighted in the gendered focus groups were not reflected in the likert type responses where no differences were found on perceived relative importance of the SBAE model components.

This study used the SCCT framework to identify the importance of gender as a person input that can shape SBAE students' perceptions of career opportunities, highlighting the role of society and the learning environment (the SBAE program) in shaping perceptions and resulting career interests. In our study, conflicting perceptions of how SBAE programs break gender norms and of societal norms surrounding masculinity both influenced how students perceived potential agricultural career prospects. Given that students had difficulty expressing their views on gender discrimination in clear terminology and did not consistently recognize the difficulty of individuals exerting agency to change systemic gender discrimination in social structures, it is recommended outreach efforts be established to help SBAE teachers to integrate critical reflection on gender roles and stereotypes in their curriculum. It is also recommended that future research on perceptions of gender be done with a generalizable sample and explore the lack of differences in perceived relative importance of FFA and SAE.

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## **Fear or preparedness? A Content Analysis of the “Murder Hornet” News in the United States.**

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### **Introduction**

The *Vespa mandarinia*, or as it is popularly known, the "Asian Giant Hornet" or "Murder Hornet," is the largest individual of its species worldwide (Matsuura & Yamane, 1990). The Murder Hornet (MH) originated in Japan, but became formally established in various locations of Asia, including countries such as Thailand, India, Nepal, and Russia. This species whose queens measure up to two inches has been recently seen in different regions of the world, including Europe and North America. However, there are no formal records of the species' settlement in these regions (Liu et al., 2017).

The MH made its first appearance in the United States in December 2019 (Fox, 2020). The MH caused interest when four sightings were registered in the United States and two more in Canada. News of the MH's arrival was spread through the media, generating concern, and alarming society. The MH is especially dangerous for bee colonies. This hornet feeds itself and its brood with honeybees' larvae and is capable of killing, by decapitation, an entire hive within hours (Fox, 2020). The arrival of the MH comes at a time when bees have been declared highly vulnerable species to climate change. Additionally, honeybee's role in multiple ecosystem processes and pollination is essential for the conservation of biodiversity and agricultural production (Flores et al., 2019).

*The New York Times* and *National Geographic* were among the first media outlets to spread the news of the “killer” hornet arriving in the United States. Despite being a risk to honeybees, the hornet does not represent the same level of risk to humans. However, there are records of human deaths associated with the MH (Yanagawa et al., 2007). Yanagawa et al. (2007) established that this species would attack humans as a defense mechanism when threatened.

This study sought to analyze news messages about the MH in the United States in order to understand how the media may be contributing to or alleviating the complex problems associated with the introduction of the invasive MH and decline of the honeybee. Thus, this study contributes to priority 7 of the AAAE National Research Agenda (Andenoro et al., 2016).

### **Theoretical Framework**

According to Altheide and Michalowski (1999), fear is prominent in most news media. Specific names, adverbs or adjectives are commonly used as symbols to elicit messages of fear and risk (Altheide, 1997). Historically, a large number of studies examining fear messaging in the news have focused on crime (Chiricos et al., 1997), murder (Chadee et al., 2019), and terrorism (Nellis & Savage, 2012). However, efforts are underway to understand the content of fear messages on other topics such as diseases (Wahl, 2003), wildlife (Cromsigt, 2013), and death (Ciałkowska-Rysz & Dzierżanowski, 2013). When audiences are presented with fear messages, they develop a desire for information about the prevention or preparation to counter the problem. However, according to Wray et al. (2004), the audience's knowledge and perceptions of the message are impacted by the characteristics of and communication about threats. News about “unexpected, malicious, killing of

innocents, and difficult to prevent” events are more likely to create distress and fear among the public (Wray et al., 2004, p. 4). Studying the sentiment of media content can lead to strategies to reduce fear-induced irrational impacts on society. Media combine multiple frameworks as a powerful mechanism for defining and solving problems and shaping public opinion. People’s response and perceptions to a specific event depend on the and the information that is highlighted in the context (An & Gower, 2009). According to An and Gower (2009, p. 2), “framing theory suggests that the mass media do even more than creating saliency. By selecting what to include and what to exclude from a story, the news media frame a story; that is, the media limit or define the story's meaning and thereby shape people's interpretation of that story.”

### **Purpose and Research Questions**

The purpose of this qualitative research was to study news content about the MH sightings in the United States. To fulfill the purpose, the following research question was used.

What frames do news media use to communicate about MH?

### **Methodology**

This study used qualitative content analysis to determine if news about the MH used a frame of fear or provided information to prepare audiences in the United States. Qualitative content analysis is “a method for describing the meaning of qualitative materials in a systematic way” (Schreier, 2012, p. 1). Forty news articles were collected through the LexisNexis and NewsBank databases available at The Ohio State University library. The following procedures were used in both databases, and items were identified using the terms “Murder Hornet” and “Asian Giant Hornet” within the period from May 1, 2020, to June 11, 2020. This timeframe encompassed six consecutive weeks. The primary instrument was a researcher team-developed codebook using grounded theory methods. Some examples codes included *Adaptation Measure: Any activity, product, or practice directed at incorporating giant hornets into the ecosystems of the United States* and *Risk: The possibility, threat, or occasion for a negative consequence to occur in the ecosystems of the United States*. Coders received the proper protocols and pertinent information to analyze each news article. Reliability was ensured by parallel coding among research team members. The researchers coded the news report independently to ensure trustworthiness in the data.

### **Results**

#### **Fear**

News articles on the MH in the United States were published after seeing some individuals of this species in Washington state. The dissemination of this news sparked public interest in this species native to the Asian region. The news articles included in this study brought to public attention the video by Coyote Peterson (a popular YouTube influencer), in which a MH is placed on his arm. At the same time, he describes the sensations and physical consequences derived from the sting of this hornet. An article commented “ for many, those concerns were heightened by a video of adventurous YouTuber Coyote Peterson being stung by one of the hornets; and promptly falling to the ground and writhing in agony.”

Although its scientific name is *Vespa mandarinia*, there was the indiscriminate use of names, such as Murder Hornet and giant hornet, that promote fear among audiences among the news articles analyzed. One of the articles referred to the indiscriminate use of the species

name to emphasize its possible consequences in the United States. The article mentions, "The invasive insects go by a confusing array of names, but the New York Times, National Geographic, NBC News and other sources are warning Americans about the potential impact of their spread." The articles described the hornet using adjectives such as giant, murder, invasive, and gigantic. The articles emphasized the physical characteristics of the hornet, mainly by comparing it to those of other species in the same genus. An article mentioned "The hornets, recently discovered in Washington state, can reach 2 inches long. While they don't generally attack people, especially if they're not provoked, they have a painful sting that, for some, can be fatal."

News articles used words like decapitate, attack, and kill to spread messages related to this species' predation processes against swarms of bees. One of the items quoted an expert saying, "here you have a colony of wasps acting like a pack of wolves and killing an entire colony of honeybees that live together and are extraordinarily efficient at it." An aggressive character and the nature of the attack on this species are described in the news articles, as opposed to what the literature and experts state about the hornet's behavior. An article mentioned, "The hornets are known to aggressively devastate beehives." News articles emphasized the potential danger of death to humans if stung by a MH. One of the articles read, "The predators kill between 40 and 50 people annually in Japan - many victims suffer from allergies, but some have died from the potency of the venom alone."

Comparisons with other similar events were used in the articles to emphasize the severity of the MH's arrival in the United States. For example, some items compared this event to the presence of killer bees in 1970. An article mentioned "the hornet "hype" reminds them [experts] of the 1970s public scare when Africanized honeybees, nicknamed "killer bees," started moving north from South America." In other cases, the MH's possible settlement in the northern region was condemned by some articles as yet another effect of the globally debated phenomenon of climate change. On the other hand, some news articles referred to the COVID-19 pandemic. The severity of the global health situation and the resulting social, economic, and environmental complications were used to frame the problems Americans are currently facing. An article mentioned, "The concern is understandable when you consider that we are already dealing with a viral pandemic that has established itself." Another article claimed

Finally, bee conservation has become a priority for many public and private organizations. The news articles used the public interest in bees to emphasize the risk that MHs poses to bees. An article mentioned, "Also, news of the hornet comes after years of effort to regain the bee population." Another article commented, "Bees can't catch a break. It's always pesticides or parasites or SOMETHING."

### **Preparedness**

Although the news articles included in this study seek to inform audiences about the possible MH plague in the United States. None of the news articles offer the general public or those at higher risk (honeybee keepers) solutions, prevention measures, adaptation, or mitigation before the spread of the species. What could potentially be a plague with effects on pollination and honey production is described in the news articles as an "invasion." Few mentions are made about efforts to counter this possible invasion in the United States. Some of the articles included entomology experts' opinions to warn about the potential risks of this species to humans and the consequences on agricultural and ecological systems. Some articles mentioned private companies' efforts on research and technologies that potentially will support stakeholders to protect bees and humans from the MH. An article mentioned

“while the Asian giant hornet (#murderhornet) is large, it’s typically not aggressive with humans. It can be a problem for bees, though, so Bayer scientists are organizing a trapping program, reports entomologist Dick Rogers”

### **Conclusions & Recommendations**

News coverage about the MH in the United States mainly use a frame of fear among the news about the MH in the United States. Few articles covered strategies to prepare or mitigate the potential invasion of the MH. The articles tended to focus on the physical characteristics of the MH highlighted with adjectives that denote the dominance and aggressiveness of the species. Also, all risks associated with the arrival of the species in the United States were prominent in the articles. The focus on fear and risk in the news articles as well as the use of specific names and adjectives to elicit fear aligns with previous literature (Altheide, 1997; Altheide and Michalowski, 1999). The current coverage of MHs may prompt audiences to overestimate the immediate threat to humans and be consumed with the problems associated with MHs rather than potential solutions (Wray et al., 2004).

The results of this study show how the media passively disseminate information about invasive species. Extension educators, agricultural communicators, and agricultural educators should work with entomologists to identify and disseminate information about preparation and mitigation strategies associated with the potential invasion of MHs. These efforts could work to counter the fear being spread in the news media and help to alleviate some of the pressures facing the complex problems associated with MHs (Andenoro et al., 2016). Also, audiences should be educated to to proactively address media-disseminated information about invasive species.

Future research should include a quantitative content analysis to determine the proportion of news articles that elicit fear and the proportion that promote solutions and preparedness. Additionally, future research should examine the impact of the news media on consumer and agriculturalists’ perceptions of MHs.

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## **A Communication crisis? A Case Study of the Video "Milk? No thanks" in Latin America and The Caribbean.**

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### **Introduction**

Cow's milk has been a staple in the diet and the nutritional recommendations of countries worldwide (Rozenberg et al., 2016). In Latin America, the dairy sector provides essential economic contributions and helps to reduce poverty and food insecurity. However, the dairy industry is questioned for human health, environmental, and animal welfare aspects. According to Rozenberg et al. (2016), negative messages about the dairy industry have contributed to the production and consumption of substitute foods. Globally, messages exposing the negative aspects of the dairy industry are broadcast in multiple formats, reaching large and influential audiences. The content of these messages influence consumers' buying and consumption decisions, especially when there is limited information about the benefits of the dairy industry.

This qualitative research is a pioneer in examination of agricultural communication crises in Latin America. The problem addressed in this study is the possible communication crisis derived from the video *Milk? No thanks*. The video was released in October 2019 by the non-profit organization LIBERUM. In the video, celebrities and renowned athletes in the Latin American and Caribbean contexts articulate the consequences of milk production and offer suggestions for the substitution of dairy products in the diet. Understanding the consequences of a communication crisis in Latin America is essential to address the impacts of the product or service in question (Edgar et al., 2012). This research study seeks to understand agricultural communication crisis practices in the development of more sustainable production systems (Linder et al., 2016). The relevance of this study lies in the comparison of a possible communication crisis between the region of this study and the United States, including the effects, approaches, and responses of the interested parties.

### **Theoretical Framework**

According to Fearn-Banks (2016), a communication crisis is "a dialogue between the organization and its public before, during, and after the negative occurrence. The dialogue details strategies and tactics designed to minimize damage to the organization's image" (p. 2). A communication crisis could create risks in areas such as public safety, financial loss, and loss of reputation.

*The Relational Crisis Management Model* offers a holistic view of the elements and stages involved in managing a communication crisis. This model emphasizes the approach to the aspects of the crisis in the form of "clusters" or related to each other and removes the path to the crisis from a linear or sequential methodology (Jaques, 2007). The Relational Crisis Management Model is composed of two phases (1) Pre-Crisis Management and (2) Crisis Management. The first phase includes two stages (1) crisis prevention and (2) crisis preparedness. In the second phase are the stages (1) crisis incident management and (2) Post-crisis management.

### **Purpose and Research Questions**

The purpose of this research project was to study the communication crisis in the Latin American dairy industry due to the video "Milk? No, thanks" in 2019. The following research questions were used to guide the study:

1. What message does the video "Milk? No, thanks" portray?
2. How did the media respond to the video?
3. How did the agricultural industry respond to the video?
4. How can the phenomenon of the video "Milk? No, thanks?" be compared to the Relational Crisis Management Model?

## **Methodology**

This case study explored the communication crisis in the Latin American dairy industry due to the video "Milk? No, thanks." Multiple sources of information were collected and analyzed to fulfill the proposed research questions.

To understand the message of the video, a qualitative content analysis of the 2-minute and 44-second video was completed. This same qualitative methodology was used to study the response of the media to the video. Eight digital media responses, including blogs, news, and videos, were selected. A social media analysis in response to the video was developed using Meltwater. Meltwater is an interactive platform to monitor and analyze the different interactions on social networks. We examined social media posts made between October 14, 2018 (video release date), to May 14, 2020 (study closing date).

Finally, to study the response of the agricultural (or dairy) industry to the video three Latin American dairy experts and three business owners were invited to an online semi-structured interview. Participants were recruited through the graduate network of one of the researchers. The interviews lasted an average of 30 minutes, were conducted in Spanish, and were audio-recorded with participants' prior authorization. The interviews were transcribed and translated from Spanish as well as the video, and the media responses used in the study. All the data sources were translated by a non-professional translator who was also a member of the research team. Example questions of the interviews included *What do you think or feel when watching the video?* and *What has changed in consumers since the video was broadcast?*

For video and media response coding, a qualitative codebook was developed by the research team using three code categories, including general codes, emotional and logical appeals (Goodwin, 2010), and apology strategies (Benoit, 1995; Coombs, 1999). Coding was implemented in parallel by two members of the research team to guarantee the reliability of the information. For the analysis of the interviews, grounded theory methods were implemented, and the coding process was manual.

## **Results**

### **Qualitative Content Analysis**

For most of the video (2 minutes and thirty-seven seconds), four entertainment celebrities and two athletes shared information. In the rest of the video (7 seconds), images of cows and calves in agricultural production units were observed. The speakers disseminated information about environmental, human health, and animal welfare impacts of the dairy industry. The narrative also promoted the consumption of other food alternatives. The

information was shared without any reference to the source. Four themes emerged from the video, including environmental impacts, human health, animal welfare, and dairy alternatives.

### ***Environmental impacts***

According to the video, people should stop consuming milk and dairy products because of soil deterioration and the excessive exploitation and use of water resources. Speakers in the video emphasized the relationship between liters of water consumed per one liter of milk produced. One of them mentioned, "Just in Mexico, 12,000 million liters of milk are produced per year. So, 12 billion liters of our water are spent [each year]." A guilt appeal regarding the impacts of the dairy industry on the environment and natural resources was used.

### ***Human health***

The video aimed to break historical knowledge of health benefits gained through dairy consumption. The video claimed there were no human growth or physiological development benefits. Although no specific data is provided, the video carries the message that consuming cow's milk is detrimental to human health. One of the speakers said, "Scientific studies show that when you drink cow's milk, you increase the risk of contracting some diseases."

### ***Animal welfare***

According to the video, the production and processing of milk and dairy products disrespects and violates animal welfare. First, the video exposes the physical and psychological abuse suffered by cows in production units. The characters in the video raise their voices against controlled cycles of animal reproduction and milking routines. Reference is made to infections and diseases derived from the constant milking routines. To demonstrate this, speakers use phrases such as "cows are subjected to intense suffering, and because I cannot imagine the pain of being exploited a lifetime."

### ***Substitute products***

Finally, in the video, an invitation is made to consume vegetable protein products as substitutes for milk and dairy products. These substitutes are described using words like "healthy," "delicious," and "ethical." Using social modeling, the personalities in the video share their experience consuming these products, emphasizing the multiple benefits of making the dietary change.

### **Media Response**

For the second research question, researchers analyzed the content of the media responses to the video "Milk? No thanks." Some of the media responses analyzed were designed and broadcast simultaneously by the producers of the video. However, other media responses contradicted and disparaged the video message by providing information in favor of the dairy industry and urging the consumption of dairy products. The media responses were mainly directed to Eugenio Derbez, the primary and most influential celebrity in the video.

In the articles with content supporting the video content, the themes found in research question one were reinforced. In these manifests, celebrities introduced themselves as experts on diet or nutrition as they spread the messages to persuade consumers and convince them to substitute or remove dairy products from their daily diets.

On the other hand, those media responses that contained information counter to the video message were disseminated as denial, shifting the blame, and evasion of responsibility. All the media responses which disagreed with the video made reference to the principal themes and characters in the video while presenting some arguments to support their favorable position toward the production and consumption of dairy products. Those interested in belittling the video's message used informative appeals, social modeling, humor, and empathy.

Finally, a social media analysis was conducted using Meltwater. Mexico was the country with the highest average media coverage during the study period. Out of 343 entries, 341 were shared on Twitter. Most of the entries had a neutral sentiment (68%), followed by positive (17%) and negative (15%). According to the platform, the trending topics were *glass of milk*, *double standards*, *#milknothanks*, *milk*, *alternatives*, *liters of water*, and *harsh reality*. Despite the massive diffusion of the video, high frequency of responses on social media were only seen 3 days after the video release.

### **Industry Response**

The third research question explored how the agricultural industry responded to the video. Among the interviewees, the video generated different reactions, including concern, laughter, or frustration. Participants acknowledged that the 'celebrity' feature made it easier for video speakers to spread a 'wrong' message about the dairy industry. Despite acknowledging the video reached many people, the interviewees ruled out the impact the video had on the consumption patterns of milk and dairy products. Participants attributed the small impact of the video to the *existence of other essential needs*, the *low purchasing power of Latin American societies*, and the *comic trajectory of the main character in the video*. When asked about the actions implemented to counter the video's message, interviewees stated that they had maintained habitual and constant efforts to guarantee the traceability of food and consumer education.

### **The Relational Crisis Management Model**

The fourth research question compared the phenomenon of the video to the *Relational Crisis Management Model*. Although the results showed some actions aimed at educating consumers, there is no evidence of prevention plans to handle a communication crisis. The lack of coherent communication crisis management plans has reinforced the low investment in constant preparation of entities and professionals in communication crisis management. The results show a deficient response to the video. Dairy industry stakeholders did not identify a communication risk or problem after the video message, so a direct response or management plan was not implemented. Finally, the repercussion after the video transmission was relatively fast. The video was transmitted and generated interaction between users for a short period.

## **Conclusions & Recommendations**

The multiple data formats analyzed in this study suggest that the video "Milk? No, thanks?" did not generate a communication crisis for the dairy industry in Latin America. Some media issued messages intended to reduce the impact or deny negative news about the dairy industry. The video had no massive reach among consumers.

Some socioeconomic variables characteristic of the locality of this study may have minimized the impact of the video. According to the results, unmet human welfare needs in Latin America came before video messages that included animal welfare, dairy substitutes, environmental degradation, and human health.

This study contributes to limited research on communication crises in the Latin American region. Although this video did not generate a communication crisis, the results showed the lack of management plans and the low level of response derived from limited knowledge and human capital trained in crisis management.

Professionals should implement communication crisis plans and promote the development of academic and human capital in this discipline of study. Researchers should explore other events in the same context of this study that has potentially generated a communication crisis in agricultural production sectors. It is necessary to study how the background and characteristics of a speaker have an effect on the dissemination of messages in the Latin American media.

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## **Exploring the Influence of the “Gluten-Free” Label Claim on Parents’ Food Purchasing Decisions**

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### **Introduction**

In recent decades, United States agriculture has shifted from production-based to consumer-driven (Baldwin, 2016; Bogren, 2003). As consumers are becoming further removed from production agriculture, research suggests transparent communication with consumers may serve as a strategy to reengage consumers’ trust in food production (Rumble & Irani, 2016). The agricultural and food industries are responding to consumer demand for transparency through various communication techniques, including sharing messages in the form of front-of-package (FOP) food label claims. Food manufacturers use FOP labeling claims to catch the attention of a hurried grocery shopper (US FDA 2018). Although intended to give basic information (FDA, n.d.), consumers view FOPs as a comprehensive, balanced summary of a food’s healthiness (Van Kleef & Dagevos, 2015) and the food label serves as the sole source of information for many consumers (Beyranevand, 2017). Consumers do not always accurately interpret FOP claims which can create confusion and misinterpretation from a misleading label (Beyranevand, 2017).

The retail marketplace has seen a substantial increase in the amount of food products containing “free-from” claims, particularly “gluten-free” (Prada et al., 2019). Although a gluten-free diet is treatment for people suffering from celiac disease, wheat allergy, and non-celiac gluten sensitivity (NCGS), diagnoses of these allergies account for 1-1.5%, 0.4%, and 6% of the United States population respectively (Igbinedion et al., 2017; Leonard & Vasagar, 2014; Lionetti & Catassi, 2011; Lis et al., 2015; Vierk et al., 2007). Based on these statistics, a maximum 7.9% of the United States population could have a diagnosed medical reason to adhere to a gluten-free diet; yet, nearly 63% of Americans believe a gluten-free diet could improve mental and physical health and up to a third are limiting intake of foods containing gluten (Lebwohl et al., 2018; Shmerling, 2017). Topper (2015) found 77% of people who claimed to be adhering to a gluten-free diet did not have celiac disease and there has been a surge in the percentage of the population voluntarily following this diet (Bulka et al., 2017).

Although food labels serve as an information source for consumers to form opinions about food and agriculture (Hersey et al., 2013), there is little research to describe how consumers make sense of the plethora of FOP labeling claims in the marketplace (André et al., 2019) and little is known about possible stigmatization effects as a result of absence-claim labels, including “Gluten-Free” (Yeh et al., 2019). Furthermore, a relatively small amount of agricultural communications research has been conducted regarding how FOP labeling claims impact

purchasing decisions (Cantrell et al., 2020) that may lead to supporting or avoiding food products based on misinformed perspectives (Beyranevand, 2017; Schaefer et al., 2016).

With more than 20,000 new food products entering the food market each year, consumers come into contact with a variety of food label claims (USDA Economic Research Service, 2019). Evidence shows consumers rely on FOP labeling claims to make decisions and impact their food purchases (Skubisz, 2017). Hamlin and McNeill (2016) and Hamlin, McNeill, and Moore (2015) found health claims and FOP labeling claims can bias the perceptions consumers formulate regarding food products. Priven et al. (2015) found consumers perceive products containing a “free-from” labeling claim to be healthier than those with no “free-from” claim. Although a “Gluten-Free” label is a quick allergy reference for individuals suffering from celiac disease, NCGS, or a wheat allergy, the thought of how this label affects the rest of the population and purchasing intent to support or avoid food products must be considered.

### **Conceptual Framework**

The Heuristic Systematic Processing Model (HSM) describes how people receive and process persuasive messages (Chaiken & Trope, 1999). Heuristics are described as mental shortcuts used to form opinions by decreasing cognitive effort and time investment (Andrews et al., 2011; Metzger et al., 2010). This study built upon previous research that found consumers apply heuristic strategies when making food purchasing decisions (Graham et al., 2015). Specifically, this study is rooted in the heuristic processing component of this model where people invest minimal cognitive effort to process persuasive messages and rely on accessible context to form an opinion and make a quicker decision (Chaiken et al., 1999). This study continues to build upon previous research that found consumers apply heuristic strategies when making food purchasing decisions (Graham et al., 2015).

### **Purpose & Objectives**

The AAAE National Research Agenda (Roberts et al., 2016) Research Priority 1 places emphasis on conducting research to ensure agriculture is valued by the public and policy makers (Enns et al., 2016). The purpose of this study was to evaluate the phenomenon of how parents perceive and utilize the “Gluten-Free” FOP when grocery shopping among those who voluntarily follow a gluten-free diet. This study aligns with this research priority by exploring the impact of food labels, which are monitored by the U.S. Food and Drug Administration (2018). The following objectives guided the study:

- RO1: Explore how consumers use the “Gluten-Free” FOP during the decision-making process.
- RO2: Examine consumers’ perceptions of the “Gluten-Free” FOP claim on naturally gluten-free foods.
- RO3: Describe consumer perceptions of the gluten-free diet.

### **Methods/Procedures**

This study employed a phenomenological qualitative research approach using semi-structured, in-depth interviews to collect data. This study is rooted in phenomenology as it provides insight

into the common human experience of grocery shopping and becoming subjected to food product FOP claims, specifically the “Gluten-Free” claim. A phenomenological approach allowed the researchers to determine the “essence of the experience as perceived by the participants,” (Ary et al., 2014, p. 501). Participants were recruited through nutrition-based Facebook groups (i.e. “Gluten-Free,” “Clean Eating,” “Healthy Kids,” and “Healthy Moms”). To determine qualification for participation, a Qualtrics link to a screening questionnaire was posted in the Facebook groups for six weeks. The questionnaire determined eligibility to participate based on three characteristics: (1) no family members diagnosed with celiac disease or other gluten intolerance, (2) buy “Gluten-Free” foods as often as possible, and (3) be a parent. These qualifications ensured only people who voluntarily follow a gluten-free diet in absence of a medical diagnosed reason would be studied.

The screening survey had 354 responses. Of these responses, 277 selected “yes” to a family member diagnosed with celiac disease or other gluten intolerance, 25 did not purchase “gluten-free” foods “as often as possible”, and three were not parents; thus, not meeting the parameters of the target population. This resulted in 49 qualified respondents. Initial email invitations to participate in the interviews were sent to 27 of the qualified participants who were between the ages of 18 and 53, maximizing the chance of the participant having a child living at home. Eleven people responded confirming participation. All participants were parents who purchase gluten-free foods “as often as possible” in the absence of a diagnosed gluten intolerance. All participants were females between 32 and 62 years of age and geographically distributed across the United States.

The interview questioning guide was designed to address each of the research objectives and specifically asked participants to identify factors that motivate food purchasing decisions, compare purchasing intent and reasoning of food with a “Gluten-Free” label versus no such claim, perception of “-free” claims found on food products, and attitude of foods containing a “Gluten-Free” label. The questioning guide included images of various food products for participants to compare purchasing intent that were shown to participants during the synchronous interviews via Zoom, an online video and audio-conferencing platform. The questioning guide was structured to include open-ended questions, clarity of wording, and proper order of questions to generate on-topic responses. The questioning guide was structured to avoid the use of leading, double-barreled, or confusing questions (Ary et al., 2014). Audio recordings of the interviews were transcribed verbatim and axial hand coding was utilized to identify emergent themes using Creswell and Poth’s (2018) “bottom up” approach.

## **Findings**

The study’s findings are organized into emergent themes of the three research objectives. Themes were developed through axial coding and the process of grouping participants’ answers to interview questions based on similar context to discover emergent themes. Findings related to each research objective are presented in sequential order beginning with the most commonly referenced theme. The researchers implemented negative case sampling to ensure credibility and trustworthiness. Table 1 describes the emergent themes within each research objective.

**Table 1***Summary of Emergent Themes Discovered for Each Research Objective*

Research Objective	Emergent Themes
RO1 Explore how consumers use the “Gluten-Free” FOP during the decision-making process.	<ol style="list-style-type: none"> <li>1) Consumers actively search for the “Gluten-Free” FOP.</li> <li>2) The “Gluten-Free” FOP is used as a heuristic tool.</li> <li>3) The “Gluten-Free” FOP is viewed as trustworthy.</li> </ol>
RO2 Examine consumers’ perceptions of the “Gluten-Free” FOP claim on naturally gluten-free foods.	<ol style="list-style-type: none"> <li>1) Hollow claims are confusing and raise misperceptions.</li> <li>2) Hollow claims reinforce heuristics.</li> <li>3) Gluten-free consumers recognize hollow claims as a marketing tactic.</li> </ol>
RO3 Describe consumer perceptions of the gluten-free diet.	<ol style="list-style-type: none"> <li>1) A gluten-free diet promotes overall health and positive feeling.</li> <li>2) Gluten is associated with carbohydrates.</li> <li>3) People have different thresholds for gluten tolerance.</li> </ol>

The first objective explored how consumers use the “Gluten-Free” FOP during the decision-making process. When viewing side-by-side food packages with varying FOP claims, participant choices were influenced by the “Gluten-Free” FOP. One participant stated “I look for the ‘gluten-free’ label. It is an easy identification for me when I’m shopping for something new for my son to try.” Many participants shared using the “Gluten-Free” FOP to arrive at a quicker decision. One participant shared, “It is nice to see the ‘no-gluten’ because I can pick it up and [know it is gluten-free] without a doubt and move on.”

Examining consumers’ perceptions of the “Gluten-Free” FOP claim on naturally gluten-free foods was an objective of this study. Findings suggest “Gluten-Free” claims that appear on natural gluten-free foods generate confusion, skepticism, and misperceptions about food wholesomeness and production practices. When asked about a “Gluten-Free” claim appearing on a beef steak package, one participant expressed, “For the meat, it would probably confuse me. I would be starting to think, ‘Are they supposed to have fillers inside that are gluten that I didn’t know about...it would raise some questions in my head.’” Many participants associated a “Gluten-Free” FOP claim on a whole muscle beef product as a cue that the animal this meat was derived from was fed a gluten-free diet.

The final objective studied why consumers voluntarily choose to adhere to a gluten-free diet in absence of a medical diagnosis of celiac disease, NCGS, or wheat allergy. Although no participants in this study have a medical diagnosed health reason to follow the gluten-free diet, many participants choose to adhere to the diet to promote overall health and a positive feeling, associate health benefits of a gluten-free diet with benefits of a low-carbohydrate and low-sugar diet, and feel the average consumer has a unique threshold of gluten tolerance.

### Conclusions/Discussion/Implications

Findings of this study support previous research that absence-claims nudge consumers during the decision-making process (McFadden & Malone, 2018). The “Gluten-Free” absence FOP was overwhelmingly noted by all participants as a claim they are naturally drawn to and rely on when evaluating food products which aligns with previous research (Zysk et al., 2019). Participants were found to actively search for the “Gluten-Free” FOP claim, which is supported by Centurión et al. (2019) who found consumers fixate their eyes on FOP claims located on food product packages.

One of the most powerful findings of this study is recognizing consumers’ utilization of the “Gluten-Free” FOP as a heuristic tool. Many participants admitted to using the “Gluten-Free” FOP before referencing the Nutrition Facts panel or ingredient list, which is consistent with the FDA’s (2018) explanation that a FOP decreases the likelihood of nutrition panel use. Participants used this claim as a heuristic tool to minimize cognitive effort and time investment, which supports the findings of Hartmann et al. (2018) who found “free-from” claims require less cognitive effort than nutrition panels. The findings suggest consumers often use the “Gluten-Free” FOP as a summary of the food attributes in an effort to make a quicker food purchasing decision.

Findings suggest consumers do not often question the authenticity of FOP claims. Many participants shared feeling no need to double check the accuracy of claims, but rather the “Gluten-Free” FOP claim evoked a feeling of confidence in the ingredients. These findings are supported by Abrams et al. (2015) who found parents may recognize their initial impression of a food product is not always accurate; however, they rarely choose to consider a product past the initial impression (Abrams et al., 2015).

The concept of placing an attribute-related claim on a food product of which is inherently absent to the product category is considered a “hollow” claim (Burke et al., 1997). Hollow “Gluten-Free” FOP claims confused participants and surfaced misperceptions regarding food wholesomeness. When asking participants about the inclusion of a “Gluten-Free” FOP on a whole muscle beef steak, participants began to share they originally thought all whole muscle beef products were gluten-free, but since some products include a labeling claim, perhaps whole muscle beef products could contain gluten. Similarly, Harris et al. (2011) found that when nutrition-related FOP claims are included on food products, consumers often overgeneralize the meaning of the claim, which leads to confusion. Consistent with the FDA’s (2018) explanation of viewing FOPs as confusing, this study finds consumers become puzzled with hollow “Gluten-Free” FOP claims. Participants began to wonder if fillers or binders could be present in beef products lacking a “Gluten-Free” claim. These results are supported by previous research (Colby et al., 2010; Schleenbecker & Hamm, 2013) that found consumers inaccurately perceive FOP claims. Beyranevand (2017) also worried if an “ordinary purchaser” could be misled by food labeling claims.

Misperceptions about agricultural production methods formed as a result of the “Gluten-Free” FOP. Participants said they assumed beef products including a “Gluten-Free” FOP claim were derived from cattle fed a gluten-free diet. These findings are consistent with Siegrist and Keller

(2011) who found consumers do not always accurately interpret claims on food product packages, and claims can create skepticism for food products. Research conducted by Prada et al. (2017) also found consumers inaccurately perceive FOP labeling claims.

Many participants shared a realization for hollow “Gluten-Free” claims as a marketing tactic for manufacturers to sell more products. These findings are supported by Fenko et al. (2016) who discussed the skepticism consumers can incur as a result of too many labeling claims present on a food product and an overwhelming amount of stimuli to process.

Because none of these participants had a medically diagnosed reason to follow a gluten-free diet, it was interesting to find most participants follow this diet to promote overall health and a positive feeling. These findings are synonymous to previous research that describes the rising popularity of a gluten-free diet as partly due to a desire to promote overall health and to manage weight (Christoph et al., 2018; Gaesser & Angadi, 2012).

### **Recommendations**

The findings of this study provide recommendations for practitioners to implement within industry and to guide future research regarding gluten-free diets and food labeling. The FDA and USDA FSIS should restructure government oversight of food labeling claims to transition from a reactive regulation process to a proactive process to prevent misleading, especially hollow “Gluten-Free” claims, from appearing on products. Agricultural commodity organizations, extension programs, and secondary education should design and facilitate FOP educational programs. Food manufacturing companies should conduct proper market research before designing FOP designs as hollow “Gluten-Free” claims confused consumers.

Future research should examine consumers’ perceptions of the Certified “Gluten-Free” claim compared to the “Gluten-Free” claims not certified by a third-party authorizer. Because all participants were female, it would be beneficial to examine the use of “Gluten-Free” FOP labeling claims in the male population to gain insight if men and women use food package information differently. All of this study’s participants were recruited through Facebook nutrition and health groups so it would be interesting to investigate the impact of information source on opinion formation.

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## **Talking About Mental Health: An Analysis of Mental Health Messages Promoted by Organizations that Support Ohio School-Based Agricultural Education**

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### **Introduction and Literature Review**

The pervasiveness of mental illness in the United States is a growing concern and the situation for youth is even more alarming, with approximately 3.5 million youth experiencing a major depressive episode in 2018 (Lipari, 2018). Additionally, one estimate of lifetime prevalence of any mental illness in adolescents aged 13-18 is nearly 50%. For up to half of youth with anxiety, behavior, mood and substance use disorders, onset occurs before age fifteen (Kessler et al., 2007; Merikangas et al., 2010) and the emotional and physical impacts often persist well into adulthood (Chen et al., 2009; Copeland et al., 2015). With youth spending much of their day in school during the academic year, this context provides opportunities for positive development and interventions related to mental health. Although school-wide intervention programs can play an important role in promoting mental health, specific programs or clubs that students engage in can also improve mental health stigma (Ahmad et al., 2020). Mental health may not be the sole focus of many programs and clubs but awareness of and sensitivity to students' experiences can expand the supportive network for youth in schools. Agricultural education programs are unique in that they play a role in both formal education and youth development arenas within the school context, but little is known about how they address mental health.

### ***Adolescent Mental Health and Stigma***

Adolescence is a critical period of physical, social and emotional growth and development important for supporting overall wellness (World Health Organization, 2019). However, mental illness can make this transition period more challenging. The U.S. Department of Health and Human Services (HHS) and the National Institute of Mental Health (NIH) define mental disorders among adolescents as “persistent symptoms that affect how a young person feels, thinks, and acts” which, “can interfere with regular activities and daily functioning, such as relationships, schoolwork, sleeping, and eating” (National Institute of Mental Health, n.d.; Office of Adolescent Health, 2017). Mental illness also affects certain youth populations differently. Groups shown to experience unique mental health challenges include males, rural populations, LGBTQ+ community members, people of color, and people of lower socioeconomic status (SES) (King et al., 2007; National Alliance on Mental Illness, n.d.; Pieterse et al., 2012; Reiss, 2013; Rueter et al., 2007). Despite the high frequency of mental illness in adolescents, only one in three receive treatment (Merikangas et al., 2011). Factors such as low SES, lack of community resources, and shortages of mental health professionals impact their ability to receive treatment (Andrilla et al., 2018; Cummings, 2014; Hawkins, n.d.; Thomas et al., 2009).

Even when resources are available, another barrier to treatment is mental health stigma. Stigma can thwart help-seeking behavior and discourage conversations around mental illness (Abbey et al., 2011; Corrigan, 2004; Corrigan et al., 2014; Bowers et al., 2013; Henderson et al., 2013; Knaak et al., 2017). Stigma can include the co-occurrence of labeling, stereotyping, separation, status loss, and discrimination (Link & Phelan, 2001) and for youth facing mental illness, stigma can be perpetrated within the school environment and extracurricular organizations. Perceptions

of school climate may influence student life satisfaction and maladaptive behavior (Suldo et al., 2012). This alone makes the case for working to promote positive school climate. More importantly, school climate is also associated with stigmatizing beliefs related to mental health (Townsend et al., 2017). Research has indicated that perceived social consequences impact the willingness of youth to utilize mental health services and that students perceive greater peer stigmatization as compared to family and school personnel (Chandra & Minkovitz, 2007; Moses, 2010). Further, certain populations such as African American, Latinx/Hispanic, LGBTQ+, and males in general struggle with increased mental health stigma (Chandra & Minkovitz, 2006; Haas et al., 2011; Kranke et al., 2012; Moses, 2010; National Alliance on Mental Illness, n.d.).

### ***Role of Agricultural Education Programs***

Agricultural education programs are unique in that they play a role in both formal education and youth development arenas. These programs have the ability to influence youth both inside and outside the classroom through a three component model which includes classroom instruction, leadership education through National FFA Organization and experiential learning (National Association of Agricultural Educators, n.d.). In Ohio, agricultural education programs reach a great number of youth with a reported 33,590 students enrolled in agricultural education courses, 25,439 of which were active FFA members across 312 chapters. These students are taught by 499 middle and high school Ohio agricultural educators (2019 Ohio FFA Annual Report, 2019), demonstrating great potential for impact within these programs.

When it comes to populations that face unique challenges with mental illness, agricultural education programs serve these youth as well. Most recent data estimates FFA members nationwide are 54.95% male and 45.05% female. FFA members across the country are mostly white (80.41%), though other races and ethnicities also comprise membership: Asian/Pacific Islander (0.63%), Black (4.13%), Hispanic (12.51%) and Native American (2.19%). Unfortunately, no current publicly accessible data exists on member demographics in Ohio (Lawrence et al., 2013).

### ***Conceptual Framework***

In the age of digital media, organizations that support agricultural education have taken to using web pages, online publications such as newsletters and magazines and social media accounts like Facebook, Twitter and Instagram to reach student, teacher and stakeholder audiences. Access to digital media for youth is nearly ubiquitous. A 2018 survey indicated 95% of teens have access to a smartphone. As many as 45% of teens surveyed self-reported that they are online “almost constantly” (Pew Research Center, 2018). It was estimated that, in 2019, adults over the age of 18 spent an average of 12 hours and nine minutes with media each day, with digital media accounting for just over 6 and a half of those hours (Dolliver, 2019). Theories of media effects suggest that the media have the power to influence not only the importance of an issue in the eyes of the consumer through *agenda setting* (McCombs & Shaw, 1972), but also the way the consumer comes to think about the issues through *framing* (Scheufele & Tewksbury, 2007). Agenda setting is most often considered in the context of news media, where the “role of the news media is the transmission of issue salience from the media’s agenda to the public’s agenda,” whether or not this is intended (McCombs & Guo, 2014). Framing is considered an

extension of agenda-setting when talking about the effects that media can have on consumers. It involves the construction of social reality influenced by the way a subject is discussed in the media (Scheufele, 1999). The way the media frames a topic can impact consumer beliefs, attitudes and behaviors surrounding that topic (Tewksbury & Scheufele, 2009). Media that mention (or fail to mention) topics related to mental health can influence audiences in the same way.

### **Purpose and Objectives**

Agricultural education programs have the potential to influence stigma surrounding mental health for the youth populations they serve, as they spend considerable time interacting with peers, teachers, and advisors across their digital media platforms. The purpose of this study was to learn how mental health topics are discussed by organizations that directly support the mission of school-based agricultural education programs in Ohio. The results of this study will allow professionals to begin to understand the culture created surrounding mental health in agricultural education programs through the messages sent to students and educators who interact with websites, publications and social media accounts these organizations maintain. The researchers identified two research questions:

1. How often do organizations that directly support Ohio school-based agricultural education mention mental health topics on their websites, associated publications and social media accounts?
2. What messages surrounding mental health topics are being sent to Ohio agricultural students and educators through websites, social media accounts and publications produced by organizations that directly support the mission of school-based agricultural education?

### **Methodology**

To describe the mental health messages and conversations being promoted within the organizations that support the mission of school-based agricultural education in Ohio, the researchers completed a qualitative content analysis of organization websites, publications and social media accounts. The following organizations were selected for this study for their direct support of agricultural educators and/or agricultural education students: National FFA Organization, Ohio FFA, American Association for Agricultural Education (AAAE), Ohio Association of Agricultural Educators (OAAE), and National Association of Agricultural Educators (NAAE).

### ***Data Collection***

Keyword searches were used to gather data available on organization websites and in publicly accessible news and journal publications produced by the organizations. Meltwater Media Monitoring and Analysis software was used to extract discussions happening through Twitter, Instagram and Facebook accounts associated with these organizations. A separate Facebook search was also conducted. Searches were narrowed to include posts and publications issued from July 2019 to July 2020 by user handles associated with each organization. This timeline

was selected for recency and due to Meltwater software limitations. The key terms searched included “mental health,” “mental illness,” “mental disorder,” “depression,” “anxiety,” “wellness,” “emotional health,” “wellbeing,” “stress” and “coping”. Terms were used in all searches and were selected for their common usage in mental health literature.

Publications included in data collection were AAAE’s *Journal of Agricultural Education*, NAAE’s *Agricultural Education Magazine*, NAAE’s *News and Views*, OAAE’s newsletter, *FFA New Horizons* magazine, *Ohio FFA Foundation News* and Ohio FFA’s *2019 Annual Report*. Searchable PDF documents of these publications were used to search for terms.

Websites searched included ohioffa.org, ffa.org, naae.org, aaaeonline.org and ohioaae.com. Results were not limited based on date published. Results across website, publication and social media searches were manually explored to eliminate irrelevant results, for example, when the term, “stress” was used as a figure of speech.

## Findings

### *Frequency of Mental Health Topic Mentions*

Website searches uncovered a total of 2,929 key term mentions across two of the organizations’ web pages, ffa.org and naae.org. However, after manual exploration of the data, relevant results were narrowed down to 180. The most frequently mentioned terms were “stress” ( $n = 80$ ) and “anxiety” ( $n = 32$ ). The sites ohioffa.org, aaaeonline.org or ohioaae.com did not return results.

Across each of the publications included in the content analysis, a total of 28 key terms were mentioned within issues published in the last 12 months. After manual exploration of the data it was determined that 25 of those mentions were relevant to the study. The most frequently mentioned key terms were “stress” ( $n = 13$ ), “suicide” ( $n = 3$ ) and “wellness” ( $n = 3$ ). The *Agricultural Education Magazine* included the greatest number of mentions ( $n = 9$ ), followed by the *FFA New Horizons* magazine ( $n = 6$ ). The *OAAE Newsletter* and the *Ohio FFA 2019 Annual Report* returned no results.

The social media search conducted using Meltwater Data Monitoring and Analysis software returned a total of 48 results from 30 authors on the Twitter platform. No results were returned for either Instagram or Facebook. After narrowing data down to accounts associated with the organizations being studied it was determined that 12 of the initial results were relevant. The author @NAAERegionVI accounted for 7 of the relevant posts. The other authors included @NAAE, @Teach\_Ag (an account for a nation campaign by NAAE) and @OhioFFA. Three of the results were posts that the author “retweeted” instead of producing themselves. All results included the key term, “wellness.” No other key term returned results. Due to known privacy restrictions preventing results to be returned from the Facebook platform through the Meltwater software, a separate key term search was conducted with Facebook accounts associated with each of the organizations studied. The account associated with National Association of Agricultural Educators, user handle @NAAEagedu, returned 10 results posted within the last 12 months. The account associated with National FFA Organization, user handle @nationalffa, returned two results posted in the last 12 months. The key terms “wellness” and “stress” were the only terms that returned results. Facebook accounts associated with AAAE, OAAE and Ohio FFA returned no results posted within the last 12 months.

### ***Mental Health Messages***

To answer the second research question, the researchers conducted an analysis using the constant comparative method. Though website searches returned a few mentions of wellness and mental health programming in conference agendas, committee reports and mentoring program packets, most mentions were in reference lists, personal biographies or as secondary remarks. Mentions occurring in this format tended to use a neutral tone. Only one news article, found on the ffa.org website, highlighted mental health as a community issue. Another article discussed a movie about grain bin entrapment and quoted a farm owner saying the movie “also highlights a bigger mental health issue.” Additional mentions promoted an individual or FFA chapter for service work encouraging suicide awareness or stress relief in their school’s student body. Three links to stress and coping resources were also found.

Many results that surfaced during website searches reoccurred during publication and social media searches. A new result included NAAE’s *News and Views* publication which twice promoted an “Invest in You Wellness Calendar” for the month of April 2020, highlighting ways to practice self-care and casting mental wellness in a positive light.

Social media content analysis returned the fewest results often, with post recurring across platforms. The most frequently returned posts from the Meltwater search were authored by the user handle @NAAERegionVI on Twitter. Each of the posts returned from all relevant authors across Twitter were mentions of the wellness calendar promoted by NAAE. The separate Facebook search returned nine mentions of this calendar on NAAE’s associated Facebook page, as well as two mentions from the National FFA Organization page promoting the same article found through the website and publication searches. In general, mentions across all websites, publication and social media accounts occurred in passing, adding little value to the articles, web pages, and news stories in which they occurred.

### **Discussion**

The mental health situation in the United States is unsettling when it comes to youth and the barriers they face in receiving appropriate treatment. While stigma surrounding mental illness represents only a single barrier, it can have negative effects in the social environment of public school during critical years of development. Youth spend the majority of their days in school during the academic year. Thus, it is a place where research and programming concerning mental health stigma and can begin. As a part of this system, school-based agricultural education and related organizations can play a role in supporting mental health.

However, the results of this content analysis indicate that the topic of mental health is not widely discussed or promoted by organizations that directly support school-based agricultural education in Ohio and across the nation. Looking through the lens of media effects and agenda setting, the consumer of messages promoted by these organizations might logically conclude that mental health is not an issue important enough to discuss in agricultural education settings. While a few direct, positive mentions of mental health, suicide and wellness featured mental health advocacy, the majority of mentions did nothing to validate mental health issues, instead framing them in a way that failed to convey a sense of importance.

The mission of school-based agricultural education extends beyond simple memorization of agricultural facts just as the work of educators and students extends beyond the regular school

day. Agricultural education prides itself on youth development, which includes the whole individual. While agricultural educators and FFA advisors should not be expected to take on the role of mental health professionals, the topic should be broadly discussed to reduce stigma. Findings indicate that several gaps remain, exposing a need for continued research into mental health messaging and organizations that support school-based agricultural education. First, it is unclear if professional organizations that support the mission of agricultural education have any responsibility to equip teachers with the knowledge and resources to have mental health conversations with students. Or, if this is considered the role of the administration and counseling team. Further, little is known about where agricultural education students receive positive messages around mental health and if social media might play an important role in that. Finally, more exploration into the experiences of agricultural education students in their programs is needed to understand how that culture influences their understandings of mental health and stigma.

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## **Exploring Characteristics, Motivations and Limitations to Increasing Agricultural Communication SAE Participation**

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### **Introduction**

The foundation of school-based agricultural education (SBAE) rests on three components, often referred to as the three-circle model: classroom or laboratory instruction, leadership experiences through FFA, and supervised agricultural experience (SAE) projects that expose students to work-based learning. Agricultural education preparation programs encourage pre-service teacher educators to include all three components for a comprehensive approach to learning. Yet, despite all three circles appearing equal in size within models, educators are often not able to give all three components the same amount of attention in practice (Shoulders & Toland, 2017). One component of this model, Supervised Agricultural Experiences (SAEs), is valuable for student development but can be hard for educators to fully implement (Dyer & Osborne, 1995; Rank & Retallick, 2016; Retallick, 2010).

Project-based SAEs are designed to help students connect the community, careers, and classroom. Through SAE experiences, students explore potential post-secondary paths open to them, learn what is expected in workplaces, and develop skills that will help them transition into professional environments (Robinson & Haynes, 2011). Despite strong benefits, SAE participation overall has been declining (Lewis, Rayfield, & Moore, 2012; Retallick & Martin, 2008). For example, less than half of SBAE students surveyed by Lewis, Rayfield, & Moore (2012) had an SAE project. At the same time, careers and post-secondary programs in some SAE areas, including agricultural communication, are on the rise (Bonnen, 1986; Doerfert & Cepica, 1991; Weckman, Witham, & Telg, 2000).

In order to better understand agricultural communication SAE projects and examine potential needs for resources and support, interviews with 12 agricultural educators were conducted. These educators were from states across the country and had at least one student who was a national proficiency award winner in agricultural communications during the last 3 years. These interviews focus on characteristics of successful agricultural communication projects, motivations to participate in agricultural communication SAEs, and limitations. This research results in recommendations for better supporting agricultural communication SAE projects.

### **Theoretical Framework**

Intrinsic motivation theory offers a conceptual framework to explore motivations and challenges among educators and students related to agricultural communication SAEs. Intrinsic motivation theory describes how internal and external rewards can motivate behavior, and it has been applied to educational settings, teacher communication, and student behavior (Deci & Ryan, 2010). Intrinsic motivation theory describes how individual interest, learning environment,

amount of challenge, skill, feelings of competence, and autonomy can affect perceptions of rewards and motivation (Deci & Ryan, 2010). For this research, intrinsic motivation theory guided researchers to look for internal and external motivations and barriers among educators and students when considering agricultural communication SAE projects.

Previous researchers have suggested that a lack of student motivation, along with facilities, resources, and limited teacher supervision, led to the decline in overall SAE participation (Dyer & Osborne, 1995). Teachers and the FFA organization have tried to increase motivation mainly through external factors like degrees, awards, and requirements. Bird, Martin and Simonsen (2013) discussed cases of SAE projects in which extrinsic motivation was successfully used to initiate student SAE participation but cautioned that students should be supported to find more internal motivators like knowledge gain and career skills to sustain involvement over time. Drawing from motivational research (Ryan & Deci, 2000), researchers suggest a continual focus on “externally rewarding students’ continued participation in SAEs, either through program requirements, money, or awards can condition students for the award more so than the experience,” and in turn, “diminish students’ internal drive for the experience” (Bird, Martin & Simonsen, 2013).

### **Purpose and Research Questions**

The goal of this study was to better understand agricultural communication SAE projects and potential teacher needs for resources and support. The following research questions guided this study:

RQ1: What are characteristics of agricultural communication SAE projects?

RQ2: What are current motivators and limitations for educators and students who participate in agricultural communication SAEs?

### **Method**

To answer the research questions above, in-depth phone interviews were conducted with agricultural educators who had an agricultural communication proficiency award winner in 2017, 2018, or 2019. From National FFA lists of student winners and their schools, which is posted on their website, researchers found contact information for corresponding FFA chapters, schools, and educators. After eliminating duplicates, educators who had relocated, and those without viable contact information, individual phone interviews were successfully completed with 12 teachers across a wide range of states, following best practices for qualitative research described by Dillman, Smyth, and Christian (2014). Interviews ranged from approximately 17 minutes to close to an hour in length, with the typical interview lasting between 20-30 minutes. Phone interviews were digitally recorded and transcribed.

The context of this study includes larger efforts to support additional agricultural communication SAE projects, and continuing to support a pipeline of students interested in and prepared for agricultural communication programs and careers. To avoid potential researchers’ bias, interview

scripts were written and reviewed for potential leading questions and interviewees were careful to give potential space and opportunity for educators descriptions of negative experiences with agricultural communication, including sharing limitations and challenges with agricultural communication SAE projects.

Researchers analyzed the data using qualitative open coding techniques (Strauss & Corbin, 1998). Common patterns for each research question were identified, along with quoted comments that illustrate these patterns. To strengthen the trustworthiness, credibility, and accuracy of data, researchers reviewed content multiple times, ensured themes were supported across multiple interviews, and involved multiple researchers in checks to make sure quoted material accurately represents multiple teacher responses and reflects interviewee intentions. Important insights are discussed below.

## **Findings**

### **Characteristics of SAE Projects**

#### ***Completed by High-achieving Students in a Variety of Classes***

When asked to describe students that have been a good fit for agricultural communication SAE projects, educators used adjectives like impressive, sharp, skilled, successful, hard-working, ambitious, and trustworthy. Educators looked for students who had demonstrated interest or skill in speaking, writing, leadership, or organizing activities. Others found that agricultural communication SAEs were another way to encourage continued growth for "when you get kids that are interested in [communication and leadership aspects of FFA], you have to push them to expand on that." Educators described looking within and outside their agricultural classes for creative students or student leaders, for example, reaching out to students involved in the yearbook, with a strong social media presence, enrolled in higher-level English classes, athletes, or writers of the student newspaper.

#### ***Projects were Integrated Across Communication Channels and Applied to the Real World***

Educators described a great variety of projects, which were often integrated across communication channels and applied to real-world communication challenges. Students wrote newsletters, created social media content, organized events, sent publicity materials to local newspapers, hosted local radio spots, conducted interviews for local television stations, wrote magazine columns, created videos, took pictures, created websites, presented at organizational meetings and in classrooms, designed flyers, and hosted stakeholder panels. Instead of being a single activity, students sustained communication over these channels and combined them to solve a communication challenge. Often content was connected to FFA and agricultural classroom activities, but for some schools, students worked for an outside organization, including farm bureaus, commodity organizations, small businesses, conservation organizations, lake associations, trade and marketing associations, farm unions, county fairs, or farmers markets.

#### ***Projects were Highly Student Driven***

A consistent message from interviewees was that their agricultural communication SAEs were highly student-driven. Educators described a strong student role in pursuing agricultural communication SAEs, setting up communication channels, and building connections. A few educators mentioned that students had been inspired by national level FFA experiences and had requested to do communication work when they returned. Many educators described students who were proud of FFA chapter successes and wanted to raise visibility of their activities, while other educators described students who wanted to maintain connections or create more community with peers.

## **Motivations**

### ***Customizable to Meet Student Interests***

Educators said that agricultural communication SAEs were flexible and customizable, which allowed students to pursue their unique passions, both in terms of specific types of communication - whether it was speaking, social media, or design - and sectors of agriculture. It was important to find the right alignment with student interests, according to educators, so they would put the work into the project and stay engaged in classroom and FFA activities.

### ***Efficient for Students and Teachers***

Interviewees also admitted that they were motivated to have agricultural communication SAEs because they were efficient for educators. Agricultural communication projects were easy to supervise, did not require site visits during summer months, and helped maintain chapter communications for the teacher. When possible, educators were able to align agricultural communication SAE work with classroom activities and integrate it with curriculum. When they could implement a cohort model for agricultural communication SAEs, educators also found that they could leverage peer-to-peer teaching among students. Overall, educators agreed, "Ag comms is probably one of the easier [SAEs] compared to livestock and stuff, because keeping track of animals is a lot harder." Educators were not required to head out and visit each site in person, and could meet in person or over the phone individually with students.

### ***Students Gain Transferable Skills***

Networking, writing, speaking, interpersonal communication, media literacy, visual design skills, strategy, professionalism and social communication were all skills that educators mentioned that students gained from completing their agricultural communication SAE projects and that would be valuable to them in the future, regardless of future career paths. Teachers also mentioned that agricultural communication SAEs allowed students to be better prepared for any type of journalism or business marketing career. One educator explained, "If you can write an article for a newspaper and you can write an article that goes on social media, you can certainly write a paper for college English class. I think that core skill development is important, because everybody's going to need reading, writing, and all kinds of communication skills."

### ***Visible Among Peers and Community***

Educators said students were motivated to complete agricultural communication SAE projects, because their work was highly visible among their peer groups, within the school community, and in local businesses. Students were excited to see their followers grow. For example, an

educator described a student who returned from an FFA trip and was very motivated to stay connected with everyone there. As part of their agricultural communication SAE project, the student started a national FFA ag chat Facebook group, and was motivated to stay with it due to its quick expansion to 5,000+ people. This really helped get their buy-in to all kinds of FFA activities.

## **Limitations**

### ***Lack of Familiarity with Agricultural Communication***

Interviewees consistently described the lack of familiarity with agricultural communication among students and peers as the largest barrier in encouraging additional agricultural communication SAE participation. Educators reported that they weren't always comfortable encouraging agricultural communication projects due to a lack of familiarity with options, best practices, careers or with communication channels in general. It also wasn't top of mind for educators when students were looking for a project. Interviewees stressed that agricultural communication was not part of their teacher training and that made them feel unprepared to lead students through these projects, think about related ideas and make relevant connections.

### ***Limited View of Agriculture***

Educators said stereotypes of what agriculture includes also limits participation in agricultural communication SAEs. As one educator said, "I don't think our kids realize that that is part of the ag industry. They just think that, I go sit on tractors and plow fields." Educators were also working against assumptions that SAE projects must involve plants or animals, as one teacher said, "I know a big stereotype for my kids is that you have to have an animal to be in FFA. So, I think [more Ag Com SAE promotion] could bring a whole new kind of perspective to our program."

### ***Confusing National FFA Guidelines***

Interviewees pointed to a lack of clarity about how to distinguish agricultural education and agricultural communication SAE projects as a major barrier to participation and relayed frustration at being disqualified at the state level and national level for blurring the line between education and communication. One teacher said, "Even looking at my own student's projects, it is blurred. Is this really ag comm or is this really ag ed? Even within ag comm, you've often got an educational portion." Interviewees acknowledged that many projects were connected to the school environment because it was readily accessible.

## **Discussion, Recommendations, and Conclusions**

Educators interviewed for this research found value in agricultural communication SAEs and offered excellent ideas on how to further support these projects. Agricultural communication SAE projects provided an opportunity to engage high-achieving students, allowed them to build foundational skills, and offered significant skills and rewards for students, teachers, FFA programs, and community organizations. The motivations interviewees described were a combination of internal and external factors. Internal motivational factors like customizable topics and transferable skills were mentioned along with more external factors like visibility,

awards, and efficiency. These findings suggest that teachers interviewed might be open to some of the teaching strategies suggested by previous researchers to enhance intrinsic motivators, for example, by demonstrating how agricultural communication SAEs are important to educational and career development, as well as being personally meaningful for students ( Bird, Martin, & Simonsen, 2013; Reeve, 2009).

This research was limited by the small sample size and focus on teachers. Future research should explore benefits, motivations, and challenges of agricultural communication SAE work from students' perspective. Further research should also explore the impact of additional agricultural communication resources and curriculum for educators. A content analysis of SAE materials and applications could offer additional insight about best practices, potential approaches, and resources needed to support successful SAEs.

Given some of the barriers described by educators in this study, university programs might consider adding agricultural communication curriculum into SAE courses or other content areas for pre-service teachers. There might be additional opportunities for partnerships between colleges and high schools to build dual credit introductory agricultural communication courses or to create additional resources for secondary educators. Because it led to a high amount of frustration for educators, National FFA should look closely at SAE guidelines to eliminate overlap so requirements create a clear path to recognition and success for students interested in agricultural communication SAEs.

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## **Students' Expectations and Connectedness in a Video-Linked Course**

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### **Introduction**

Prior to widespread online learning due to COVID-19, online learning had been growing in availability and popularity (Perry & Pilati, 2011). Additionally, there had been a growing trend of courses being offered synchronously to online and in-person students (Symonds et al., 2012). Video-linked classrooms allow students to have a more personalized learning space when allowed to interact both formally and informally with their peers, which leads to a greater feeling of connectedness (Kinash et al., 2015). Connectedness helps a student feel connected and engaged with their university.

Connectedness grows in importance when universities have students taking courses on multiple central and regional campuses. Video-linked classes offer a unique opportunity for universities that have multiple campus locations to produce similar experiences for all students. However, students from different campuses bring a variety of expectations which must be considered to adjust to non-traditional classrooms. Research has shown the more a student's expectations of a class are violated, the less likely they are to be successful and learn in a class (Hirschy & Braxton, 2004). While online and video-linked courses offer an answer to many geographical, environmental, and convenience-based problems, students may struggle to learn in an alternative format if it is not consistent with their previous experiences or expectations. Thus, this study sought to add to research aimed at ensuring "meaningful and engaged learning in all environments" (Edgar et al., 2016, p. 37) by understanding student expectations of a video-linked course.

### **Theoretical Framework**

In every conversation, individuals have expectations. These expectations then determine their satisfaction with their experience, as dictated by Expectancy Violation Theory (EVT). EVT was originally theorized by Burgoon to explain spatial violations and the spatial closeness that is used when conversation partners have varying levels of intimacy (Booth-Butterfield & Noguchi, 2000). However, the theory has also been used to other interactions including classroom settings (Booth-Butterfield & Noguchi, 2000; Frisby & Sidelinger, 2013; Mongeau & Carey, 1996). According to EVT, individuals have expectations in interactions (Wright & Roloff, 2015). Violations occur when something deviates from what had been expected, and then these violations are judged as either good or bad depending on the circumstances (Wright & Roloff, 2015). Expectancy violations are made up of communicator reward valences and violation valences (Burgoon et al., 1987). Communicator reward valence refers to a combination of the violator's power to reward or punish and their positive or negative attributes (Burgoon et al., 1987). Violation valence is the positive or negative value given to the violation that has occurred and is independent of *who* enacted the violation. When a violation occurs, the communication recipient interprets the meaning of the violation and assigns positive or negative value to it (Burgoon et al., 1987). The combination of the communicator reward valence and violation

valence determines the overall positive or negative evaluation of the interaction where the violation occurred (Burgoon et al., 1987).

In education, teachers start with a piece of communicator reward valence predetermined through their ability to reward and punish via grading or other manner. Koermer and Petelle (1991) suggested when the relationship between an expectation and experience is perceived as incongruent but negative, students find it less satisfying than when they have congruent and positive perceptions. In other words, students' perceptions of a class are more satisfying when they have high expectations and a positive experience (Koermer & Petelle, 1991). When students' expectations are violated, their learning can be disrupted (Hirschy & Braxton, 2004). Therefore, in order to maximize learning for students, instructors should attempt to meet or exceed student expectations in order to limit the number of expectancy violations a student may experience (Frisby & Sidelinger, 2013).

### **Purpose & Objectives**

The purpose of this study was to understand how students' expectations of college courses impacted their perceptions and experiences in a video-linked course. There were three research objectives:

1. Describe and compare student course expectations between two video-linked campuses.
2. Describe and compare the nature of expectancy violations among students at both campuses.
3. Describe and compare how enrollment in a video-linked course impacted students' sense of belonging and connectedness.

### **Methods**

This study investigated students' perceptions of a video-linked classroom via qualitative research using semi-structured interviews. The population of this study was students enrolled in an introduction to agricultural communication course that was offered through a video-linked format at two campuses of The Ohio State University during the Fall 2019 semester. The instructor was present with a small group of students at a regional campus classroom and that classroom was video-linked to a larger portion of the class on the main campus. All students enrolled in the course were given an equal opportunity to participate in this study and were given a \$10 Amazon digital gift card as an incentive. Data collection occurred at the end of the Spring 2020 semester following the university's decision to finish the academic year online as a result of the COVID-19 pandemic. Sampling occurred until data saturation was reached (Creswell & Poth, 2018). Eight students participated in this study (regional campus:  $n = 3$ ; main campus:  $n = 5$ ).

The interview questions were informed by EVT and included questions about classroom structure, previous class experiences, advantages and disadvantages of video-linked classes, and their view of the relationship between the two campuses. All interviews were conducted via

Zoom video calling. Interviews were recorded and transcribed for consistency and to ensure accuracy of analysis (Creswell & Poth, 2018). Data were analyzed through constant comparative method (Glaser, 1965). The data were organized by research objective and thick and rich descriptions of the data were developed to ensure transferability (Lincoln & Guba, 1985). A research audit process aided the dependability and confirmability of the results (Flick, 2009; Lincoln & Guba, 1985). As the primary researcher, I was not involved in the instruction or development of the course.

## **Results**

### **Research Objective One**

Students in both sections of the course reported having initial course expectations. These included grade, course material, and format expectations. We will focus on course format expectations for this objective as they are most germane to this study and were the overwhelming expectation describe by students.

A student in the video-linked section of the course expected the course would be seated and said,

I wasn't aware that it would be taught [video-linked]. I don't know if that was somewhere that I just didn't read through the fine detail, but like the first day of class that was explained thoroughly that she would be teaching from [city] and we would be Zooming to them.

Another student did not expect the class to be taught virtually and said, "When I did hear that it was through Zoom, it made me very nervous and I didn't know [instructor] either." One student in the video-linked section explained they had initially expected the instructor to split their time between the two campuses and said,

I was like, 'How is this gonna work?' My expectations were that [instructor] would be equally split between the two campuses. And figuratively, she was, but I feel like I anticipated her being on [city] campus a lot more, and just like more one-on-one interaction with her.

In contrast, a student from the in-person section shared their expectations were no different from any other in-person course solely because the instructor was in-person with them.

### **Research Objective Two**

While the violations described were overwhelmingly neutral or positive, there were some negative violations described by participants. One student described a day when their was an audio malfunction and students in the video-linked class had to watch the video feed while the instructor typed on the screen. They described this as a negative violation of their expectation. Another student in the video-linked course shared that this was the only course where they did not see the instructor in person and said, "During class time, even in an online class, I think I met

with the instructor one time just to talk about things. So, it was a strange, it was weird but honestly, I have a problem learning in that format.”A student in the video-linked course shared that this course was very different from their previous experience with online classes, and they enjoyed having a real-time instructor available during class time. A different student shared their negative expectations were positively violated, largely because of the instructor’s interactions with the class. This student said,

She did exceed expectations. She made a point to make sure that all of us, even though she wasn’t there with us physically, that she was making sure that we understood the content. And if we had questions that she was always there to answer.

Another video-linked student shared a positive expectation violation because the class went much better than they thought. A student from the in-person section shared that the class met their expectations partially because the instructor was in-person with them and that was what they had expected; resulting in a neutral violation.

### **Research Question Three**

Most students described a greater sense of connectedness to the campus they were not a part of as a result of this course. Students from both campuses expressed the value of the connections they gained from getting to know students at the other campus, and shared it helped them understand more about their relationship to the other campus. One student from the in-person section of the course shared they would be attending class at the main campus in the next year, and the connection through the video-linked class showed them what classes would be like. In addition, the same student shared the course helped them to understand the two campuses were more connected than they previously believed. A student in the video-linked section of the course shared they previously held negative stereotypes about the other campus and students that attended there, but this course helped them realize through peer editing and other interactions the only difference between the two groups was location.

The sentiment of connection was held throughout the participants. Another student from the video-linked section who also had perceived some stigma around students that attended the regional campus said,

I met people from the [city] campus that I wouldn’t have met otherwise. I know some of them will be transferring to [city] this year, semester, and whatnot. I feel like I’m more connected to them than I would have been if I hadn’t been in that class. And now, there’s some that I’m kind of friends with on social media now and I just wouldn’t have met them otherwise.

One student from the video-linked section shared they felt a sense of connection to the students in the other section and expressed that connection across the university could increase if more courses were offered this way. Another student from the video-linked section shared they appreciated the look into a course at another campus, but did not perceive that their peers shared this sentiment. This student had previously attended a regional campus not associated with this

study and explained they felt many of their classmates held stereotypes about the regional campus, resulting in feelings of resentment.

### **Conclusions & Recommendations**

As video-linked and online learning becomes more common in educational settings, it is important to understand the best ways to maximize student learning in alternative learning environments (Edgar et al., 2016) . This study found that students have expectations when entering a course, and in this case many expectations related to course format. In order to neutralize an expectation violation regarding course format, course format should be clearly communicated to students at scheduling and by the instructor prior to the start of the course. This would allow the class to begin by meeting the expectations previously communicated (Koerner & Petelle, 1991). However, there is value in positively violating a students' expectations and challenging them to adapt to a new situation. In this study, this concept was demonstrated by main campus students sharing their initial perception of regional campus students, and how this changed throughout the course experience. Further research should be done to assess student expectations and learning impact as well as the balance between meeting and altering student expectations.

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## **Identifying Skills Needed for Agricultural Communications Students' Career-Readiness**

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### **Introduction**

Researching employer needs is valuable when evaluating the effectiveness of agricultural communications programs, especially as both agricultural and communications practices continue to change rapidly with new technology and practices (Doerfert & Miller, 2006; Morgan & Rucker, 2013). Research has demonstrated a need for regularly gathering data on a program's focus through surveys of local communications professionals who are often alumni of a program (Morgan, 2012; Sprecker & Rudd, 1998). Although these studies have small sample sizes, they provide valuable local information to university programs within a given state, exploring the specific needs of that state's agricultural communicators. The vast differences in agricultural production across the United States can require specific areas of expertise (Sprecker & Rudd, 1998; "40 Maps That Explain Food In America, n.d.). Research could help local communications programs revise their curricula to better prepare graduates for work in their state (Morgan, 2012; Sprecker & Rudd, 1998).

In response to this need, this study seeks to determine what skills agricultural communications professionals believe undergraduates need to obtain in an undergraduate agricultural communications program in order to meet the challenges presented in this evolving discipline. This study addresses the National Research Agenda's Priority 3, preparing a sufficiently scientific and professional workforce, as well as Priority 7, addressing complex problems (Roberts, et al., 2016).

An explanatory sequential mixed methods design was used to determine Missouri's agricultural communications professionals' beliefs and priorities related to skills needed for undergraduate agricultural communications students to learn to be career ready (Creswell & Plano Clark, 2017).

### **Conceptual Framework**

This study uses the program systems model (PSM) for curricular development (Finch & Crunkilton, 1999). The PSM (Figure 1) describes the feedback loop that influences university curricula. Students are an input to the system, and the students are then shaped by their academic program and other environmental factors during their education. These students become program

outputs (program graduates) through the direct influence of faculty, resources, and the curriculum itself. The graduates then provide feedback to the university related to their education experiences and perceived career preparedness.

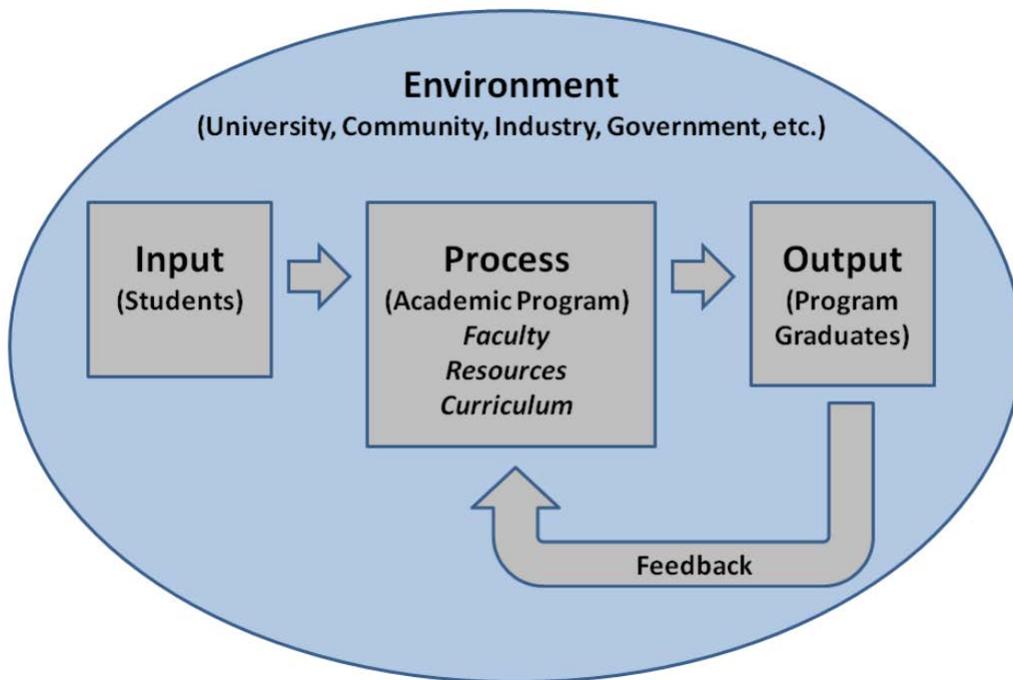


Figure 1. Program Systems Model with emphasis on curriculum content. Adapted from Finch & Crunkilton (1999).

### Purpose

The purpose of this study is to identify the skills and competencies Missouri agricultural communications professionals believe agricultural communications students need to be career-ready after graduating with a bachelor's degree.

### Research Questions

Two research questions guided this study:

1. What skills and competencies do Missouri agricultural communications professionals consider most important for undergraduate students to learn to become career ready?
2. Why, under what conditions, and to what degree do Missouri agricultural communications professionals believe specific skills and competencies to be important?

### Methods

#### Research Design

This study used an explanatory sequential mixed methods design featuring an initial quantitative survey, with follow-up qualitative focus groups (Creswell & Plano Clark, 2017).

## **Population and Sample**

This study included, in both survey and focus group, individuals who are employed in Missouri in a professional form of agricultural communications, including but not limited to agricultural broadcast journalism, public relations, marketing, or advertising (Ary et al., 2018).

The population was determined using existing networks of agricultural communicators, including alumni groups and professional groups, such as the Missouri Ag Communicators Committee within specific disciplines in agricultural communications. Using a census, the researchers invited all 45 individuals to participate in the survey. Out of the 45 individuals, 89% (n=40) participated in the initial survey, and 23% (n=9) participated in the follow-up focus groups (Ary et al., 2018).

Although this is a small number of participants, it was a near-exhaustive list of agricultural communications professionals in Missouri and encompassed a wide variety of job titles, sectors of agricultural communications, and educational backgrounds.

## **Data Collection and Analysis**

The list of skills was adapted and compiled from Morgan and Rucker (2013), Clem et al. (2014), and Robinson et al. (2017). The survey was distributed via Qualtrics following the Tailored Design method (Dillman et al., 2014). Respondents were asked to rank a list of 55 skills along a six-point continuous Likert scale to indicate the skills they believe are most important for undergraduates to develop during their agricultural communications undergraduate coursework. The skills were grouped into categories based on previous literature (Morgan & Rucker, 2013).

After the survey results were collected, the researchers analyzed the data using SPSS version 26 to run descriptive statistics. Results of this survey informed the follow-up focus group protocol. Semi-structured focus group questions were used to expand our understanding of respondents' rankings of skills.

Two one-hour long focus groups were held via Zoom, with four participants in the first group and five participants in the second. The groups were reflective of the diversity of survey participants, representing a variety of job titles, types of firms, and facets of agricultural communications.

The qualitative data were analyzed through whole-text analysis after the focus group audio was transcribed verbatim. The researcher analyzed this data using the constant-comparative method and open and axial coding to develop themes (Glasser & Strauss, 1967).

## **Results**

The survey respondents' ranking of each category of skills is shown in Table 1 below. A higher score indicates that respondents ranked those skills as more important.

Table 1

*Descriptive statistics for agricultural communications skill rankings*

Skills Category	<i>M</i>	<i>SD</i>	<i>n</i>
Adobe	3.3222	.69609	40
Digital Design	3.5905	.800089	40
History	3.8417	.58899	40
Project Management	4.0133	.41914	40
Reporting	4.1867	.50360	40
Soft Skills and Personal Characteristics	3.8939	.44605	40
Strategic Analysis	3.8889	.60858	40
Theory and research	4.0083	.60701	40
Writing	4.6889	.36550	40

*Note: 1=Not At All Important, 2=Slightly Important, 3=Moderately Important, 4=Very Important, 5=Extremely Important*

After analyzing the two hours, and 53 pages, of transcript data, the following three themes emerged about what respondents believed to be important skills for agricultural communications undergraduate students. Pseudonyms were assigned to each participant.

**Foundational skills are crucial for agricultural communications undergraduates’ success after graduation.** While a wide variety of skills were covered in both the survey and the focus groups, writing, editing, and the ability to outline a story were frequently mentioned as essential “foundational skills” for career success.

“If you can’t write clearly, you probably can’t create a good quality product [in other media] either. Video isn’t going to look as good if you can’t tell the story correctly. To be a great sprinter, you have to be able to walk. If you can’t walk you probably can’t sprint either,” said David.

**A basic introduction to technical skills makes agricultural communications undergraduates more prepared for a variety of jobs.** Technical skills studied in this research included use of the Adobe Creative Suite software, website design, digital layout and design, videography, photography, and audio editing. When asked about the importance of these skills, focus group respondents agreed that while the importance of these skills varied widely among their different job titles, it is important for students to receive a basic introduction to these technical skills in order to execute the creative work needed in all facets of agricultural communications. Respondents were unanimous in their willingness to teach interns or new hires how to maximize their technical skills as long as the students had a foundation of knowledge from which to start.

“Nothing gets out the door at [our company] without going through [our designer and videographer] and her creative process. So I can write, but it doesn’t turn into much on the internet right? It just looks like a Word document if it doesn’t go through a creative process,” said Julie.

**A wide variety of agricultural industry knowledge is extremely valuable for undergraduates preparing for a career in agricultural communications.** When asked about how much or what kind of agricultural knowledge they believed undergraduates should obtain, the groups believed that students’ backgrounds in agriculture were irrelevant. However, focus group participants believed that regardless of the students’ agricultural background, undergraduate agricultural communications curriculum should include a wide variety of agricultural topics to give students an introduction to many facets of the industry. This “mile wide, inch deep” approach to agricultural curriculum can prepare students for a wide variety of agricultural communications positions, in addition to preparing them to discuss many agricultural topics intelligently with future employers or ag industry leaders.

“I think that there should be a great introduction to almost all facets of agriculture, so you could sit at a dinner table and across the course of dinner, you could talk to Blake Hurst [president of Missouri Farm Bureau] and not be out of place. That’s about as deep as it needs to go to be able to inquire, ask, to visit about it...so you could have either from an elevator speech to a dinnertime conversation and not be out of place,” said Karen.

### **Discussion**

The first research question used to guide this study was “What skills and competencies do Missouri agricultural communications professionals consider most important for undergraduate students to learn to become career-ready?” The prioritization of skills by this population was similar to those in the studies from which the survey was adapted (Clem et al., 2014; Morgan and Rucker, 2013; and Robinson et al, 2017). Additionally, in previous literature and in this study, very few skills were marked as “Not At All Important” or “Slightly Important,” which supports the original authors’ lists of essential skills, but also provides little direction for curriculum development.

While the survey results confirmed the general importance of nearly all skills listed, those results did not explain under what circumstances, to what degree, and, most importantly, why those skills were important. The follow-up qualitative strand, however, added depth to the participants’ answers to the survey.

First, agricultural knowledge was not covered in-depth in the survey, due to the breadth of information that can be included in any kind of agriculture degree and the variation in knowledge needed depending on the agricultural communications position held by respondents. However, when asked about agricultural knowledge in the focus groups, respondents believed that a student’s agricultural background was irrelevant to their success in the discipline as long as they had a passion for the industry, a willingness to learn, and wide-ranging exposure to industry concepts in their education. This information is not only helpful to the development of agricultural communications undergraduate curriculum, but also could be applied to other disciplines within colleges of agriculture when they look to recruit students into their programs.

Second, and perhaps most importantly, the quantitative and qualitative aspects of this research, when analyzed together, led to a fairly simple formula (foundational skills, technical skills, and agricultural industry knowledge) for a successful agricultural communications undergraduate program. The development of this likely transferable formula would not have been possible in a quantitative research project alone. In accordance with PSM, these findings can help alter curricula and make agricultural communications programs better suited to the needs of today's agricultural communications employers.

### **Conclusions/Recommendations**

Missouri agricultural communications professionals were quite clear in this study on what makes agricultural communications undergraduate students employable. The research lead to a fairly simple formula for agricultural communications curricula: foundational skills, technical skills, and industry knowledge. University agricultural communications departments can use the results of this research to revise agricultural communications undergraduate programs in a way that will create effective agricultural communicators that meet their state's demands.

Future research could be conducted on a national scale in order to better generalize the conclusions. Additionally, university agricultural communications programs in other states or regions could replicate this study to determine the niche needs of agricultural communications employers in their area and to improve their curriculum to better meet those needs. Further evaluative studies could also be conducted to determine which of the skills professionals found most valuable are already being taught effectively in university agricultural communications programs.

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## **Agricultural Leadership: A National Portrait of Undergraduate Courses**

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### **Introduction/Literature Review**

In the latter decades of the 20<sup>th</sup> century, there was an explosion of interest in leadership as a solution to societal problems, which led to a proliferation of undergraduate courses (Rost, 1991; Western, 2019). The leadership coursework offered in agricultural education has continually evolved over the decades to meet students' needs. Initially, leadership education in agriculture emerged to supplement teacher preparation. Consequently, agricultural education's earliest leadership courses were primarily designed to prepare future educators to develop young leaders in the context of FFA (Simonsen & Birkenholz, 2010; Velez et al., 2014). Courses were practical and contextualized in the chapter experience. They focused on officer development, public speaking, parliamentary procedure, and teamwork skills (Simonsen & Birkenholz, 2010).

Gradually, the rigor of agricultural leadership coursework increased as theoretical foundations were added to the existing skills development framework (Simonsen & Birkenholz, 2010). Focus also began to shift from preparing future educators to working directly with undergraduates to develop their own leadership skills (Velez et al., 2014). These new courses began to attract students from other majors and departments throughout the university (Simonsen & Birkenholz, 2010), and the number of leadership courses, minors, and certificates expanded to meet that demand (Brown & Fritz, 1994, 1998; Fritz, et al., 2003; Velez, et al., 2015).

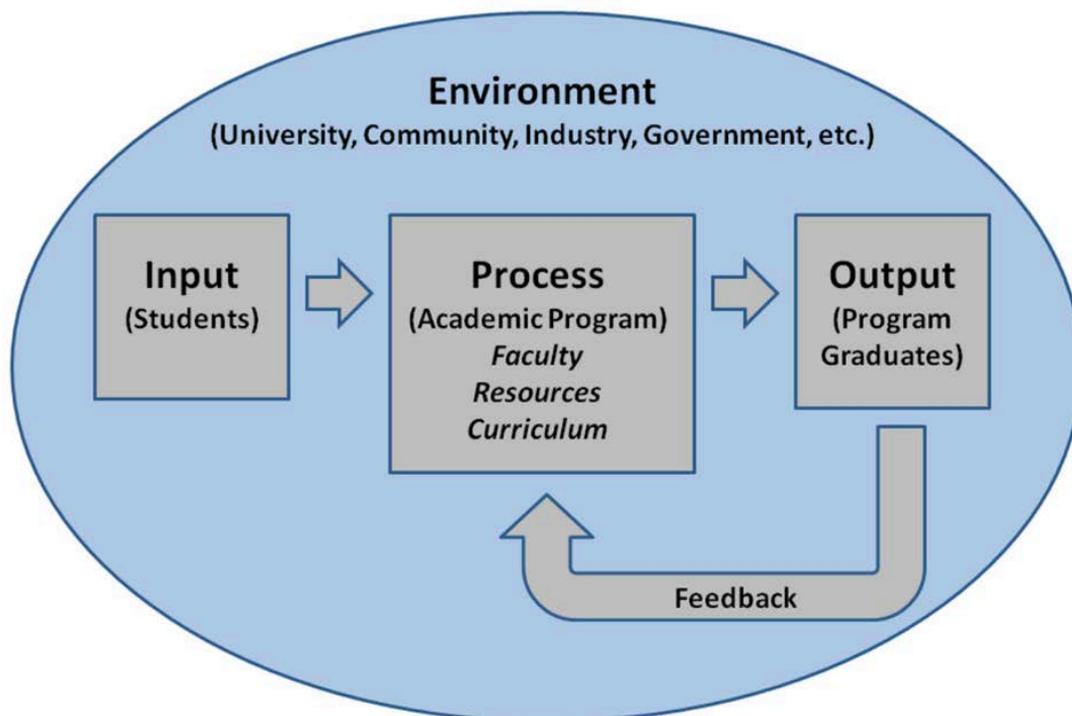
During the past 30 years, only a few studies have described the state of agricultural leadership education and demarcated the curricular and programmatic shifts described above. Brown and Fritz (1994) first studied the scope of leadership in agricultural education, concluding

65% ( $n=35$ ) of departments offered a total of 80 leadership courses. Later, Fritz and Brown (1998) reprised their study, surveying 52 departments, 36 of which reported offering leadership courses. Most recently, Fritz et al. (2003) again surveyed all 92 agricultural education departments, of which 45% ( $n=41$ ) responded; 68% ( $n=28$ ) reported offering a total of 82 leadership courses.

While the aforementioned authors described what exists, some authors described what should exist (e.g., Velez et al., 2014; Weeks & Weeks; 2020). Morgan et al. (2013) conducted a Delphi study of 15 leadership experts who largely agreed on the common courses all undergraduate leadership programs should include, which were: (a) introduction to leadership theory and practice; (b) team building, working with groups and teams; (c) capstone course; (d) personal communication; (e) personal leadership development; (f) seminar of leadership in agriculture; (g) organizational leadership theory; and (h) leadership ethics. However, the authors lamented that leadership courses “showed little consistency” and that essential courses should be “established so programs of leadership may have a benchmark by which they may compare their curriculum” (Morgan et al., 2013, p. 144). This study is intended to help establish this benchmark.

### Conceptual Framework

This study utilizes Finch and Crunkilton’s (1999) program system model (PSM). The PSM (Figure 1) uses a systems approach to describe a simple feedback loop mechanism wherein academic programs use new information to revise the process by which they educate and train students. This study explicitly provides information to revise the curricula involved in the process portion of this model.



*Figure 1. Program Systems Model. From Finch and Crunkilton (1999).*

### **Purpose and Research Question**

The National Research Agenda (Roberts et al., 2016) calls on researchers to conduct studies related to several priority areas. Research Priority 3 addresses preparing a scientific and professional workforce, which includes helping academic programs develop 21<sup>st</sup> century skills in graduates, such as leadership and teamwork (Crawford et al., 2011; Stripling & Ricketts, 2016).

The purpose of this study is to contribute to the national discussion about the future of agricultural leadership curricula by providing a comprehensive portrait of leadership coursework through content analysis. A single research question guides this study: What is the scope and nature of undergraduate leadership coursework offered in the United States?

### **Methods**

#### **Research Design**

This study employed a qualitative content analysis (Krippendorff, 2004). Content analysis is “a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use” (Krippendorff, 2004, p. 18).

#### **Data Sources and Collection**

This study was a census of the 99 member institutions of the American Association for Agricultural Education (AAAE). Included were all courses offered by member departments, and whose course titles or descriptions contained any of the following terms: (a) lead, (b) leader, (c) leadership, and (d) change. Course titles and descriptions were collected by systematically searching university course catalogues and departmental websites. After the initial data collection, the department heads of all 99 institutions were contacted via email to confirm or revise the list of courses believed to be offered at their institution. Of the 99 contacted, 67% ( $n=63$ ) responded; 78% ( $n=49$ ) confirmed and 22% ( $n=14$ ) offered minor revisions. A total of 231 courses met the wording criteria.

#### **Data Analysis**

Qualitative content analyses seek to “capture the meanings, emphases, and themes of messages to understand the organization and process of how they are presented” (Altheide, 1996, p. 33). Researchers followed an iterative process of reviewing and scrutinizing the data for concepts and patterns of concept occurrence — first individually, then as a team. Krippendorff has dubbed this process of “recontextualizing, reinterpreting, and redefining the research until some satisfactory interpretation is reached” the hermeneutic loop (2004, pp. 87-88). Our research team included five faculty members of Agricultural Education & Leadership at the University of Missouri. All five of the team members have experience in designing and delivering leadership coursework.

During the initial phase of analysis, each researcher examined the 231 course titles/descriptions on their own, deriving individual concepts (i.e., codes) and patterns of concept occurrence (i.e., categories) through the means described above. During phase two, the team met to compare results. Despite individuals having varying numbers of categories, we had 18 categories in common, which included 145 courses where at least four-fifths of the research team

agreed upon the category in which a given course belonged (62% of total courses analyzed); this left 86 courses uncategorized.

During phase three, we continued, as a team, to analyze the remaining 86 courses and continue the hermeneutic loop. Each team member characterized the dominant focus of each course based on its title and description. Criteria for inclusion were identified and discussed, and the decision to categorize a course was unanimous. New categories were created as new patterns came to light; occasionally, multiple categories were collapsed and renamed. Despite their inclusion of “leadership” in the title, four courses were removed from consideration during this phase of analysis, as the course description did not exhibit intent to meet leadership course objectives. In total, 24 categories were identified, including a final 227 courses. During the final phase, the research team examined the 24 categories for commonalities and arrived at seven themes based on: (a) the scope of leadership courses’ content, or (b) the structure of the courses.

### **Trustworthiness**

The use of a research team for data analysis contributed to this study’s credibility. The lead author kept an audit trail of the entire data analysis process to help promote dependability. The research team also examined their perceptions, assumptions, and values about leadership through journaling to provide the reflexivity that is needed for a transparent qualitative study (Lincoln & Guba, 1985).

### **Limitations**

Content analysis, which includes the interpretation of text, is both subjective and reductive. This makes categorization of courses difficult. Though categories were made to be mutually exclusive, many contained courses that could’ve reasonably been assigned to multiple categories. Since content analysis does not include working with human participants, it can be challenging to describe the concept being investigated with the thick description that is a hallmark of other qualitative approaches.

### **Results**

Of the 99 member institutions of (AAAE), 70% ( $n=69$ ) offered at least one leadership course. Number of courses offered ranged from 0 to 24, with a mean of 2.28 and a median of 4. Courses were predominately offered at the 2000 level. Total number of leadership courses offered nationwide was 227.

This content analysis used course titles/descriptions to categorize leadership courses into 24 categories based on the dominant characteristics of the course (Table 1); an additional level of abstraction was added by grouping categories by seven themes. The first three themes related to the intended scope of impact of the courses’ content.

Theme 1, Individual-level Focus, included categories of courses focused on the individual student, such as introductory courses designed to provide a survey of leadership theories, or personal leadership courses designed to help students discover their individual leadership strengths, styles, or values. Theme 2, Organizational-level Focus, included categories of courses designed to improve bounded systems, such as teams, organizations, and

communities. Theme 3, Societal-level Focus, included categories of courses discussing how leadership impacts broad societal issues, such as diversity, change, and ethics.

Table 1.

*Organization of leadership courses by category and theme*

<b>Theme</b>	<b>Category</b>	<b>Number of Courses by Category</b>	<b>Number of Courses by Theme</b>
Individual-level Focus	Introduction to Leadership Theory	24	45
	Personal Leadership Development	21	
Organizational-level Focus	Team and Group Leadership	17	33
	Organizational Leadership Development	14	
	Leadership and Community Development	2	
Societal-level Focus	Change	8	22
	Diversity and Culture	5	
	Global	5	
	Ethics	4	
Professional Focus	Ag Teacher Preparation	15	33
	Communications and Leadership	7	
	Leadership for General Career	6	
	General College/Career Success	5	
Methodological Focus	Seminar/Contemporary Issues	17	70
	Internships	13	
	Interdisciplinary/Humanities Approach	10	
	Specialty Programs/Special Groups	12	
	Individual Study	7	
	Capstone	6	
	Critical Leadership Studies	3	
	Single Theory Focus	2	
Developmental Focus	Youth Leadership Development	12	19
	Program Development, Delivery, and Volunteer Management	7	
Uncategorizable	Lack of focus in course description prevented categorization	5	5

The latter three themes were more disparate. Theme 4, Professional Focus, included courses intended to prepare students for leadership roles specifically as agriculture teachers, or more broadly in the agriculture industry. Courses in Theme 5, Methodological Focus, were defined by the structure of the course, rather than content or focus. For instance, the most common category of course was seminar/contemporary issues wherein content varied widely but the format of a seminar was constant. Conversely, Single Theory Focus were courses dedicated to a single leadership theory, such as Servant Leadership — a unique methodological approach.

Theme 6, Developmental Focus, included categories of courses related to teaching students to develop, deliver, and manage leadership programming. A distinction was made between courses focusing exclusively on youth and those intended for broader applications. Finally, Theme 7, Uncategorizable, were courses where the course description listed far too many diverse concepts or theories to determine a dominant focus.

### **Discussion/Conclusions/Recommendations**

Several interesting conclusions can be drawn from the results of this study. First, there are significantly more leadership courses ( $n=227$ ) than were discovered in the most comparable, most recent study ( $n=82$ ) (Fritz et al., 2003). It is unclear whether this is due to an increase in courses, or simply a result of the method of data collection. It is worth noting that the percent of responding institutions offering leadership courses remains similar: 70% in this study compared with 68% in Fritz et al., (2003).

Second, there appears to be an interesting schism between courses intended for general consumption (i.e., Themes 1-3) and those intended to prepare future agriculture educators (i.e., Professional focus and Developmental focus). Perhaps agricultural leadership did not make a *shift* toward directly preparing undergraduates for leadership, but rather *expanded* to that audience while simultaneously fulfilling its original mission.

Lastly, the courses identified as essential by experts in Morgan et al. (2013) appear to have already been the bulk of courses offered. Introduction to leadership, personal leadership, team leadership, organizational leadership, and seminar are five of the six largest categories of courses. Taken together, the eight essential types of courses identified by Morgan et al. (2013) account for 45% ( $n=103$ ) of all courses. There seems to be more consistency in courses nationwide than anticipated.

Recommendations for future research include conducting a content analysis of leadership courses' syllabi in the style of Fritz & Brown (1998) to examine course objectives, theories, and textbooks. Similarly, those findings should then be compared to the state of the art in leadership research to determine if agricultural leadership continues to evolve.

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## **The Knowledge Gap: A Case Study on Information on Climate Change among Beekeepers in El Salvador.**

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### **Introduction**

Over the past several decades, academia and field professionals have spread a message about bees' vulnerability to diseases, insecticides, and agricultural fertilizers. Bees have both an economic and environmental importance because they participate in essential natural pollination processes for food production and the continuity of biological diversity (Turner, 2019). According to the United Nations Food and Agricultural Organization [FAO] (2019), 35% of agricultural production depends on the pollination of bees, birds, and bats. Through pollination, bees contribute an average of \$117 billion to the world economy (Costanza et al., 1997). However, they face tremendous threat as a species, climate change being one of them. According to Soroye et al. (2020), climate change affects the species by abruptly altering temperature and precipitation levels to which they have historically adapted. In several regions of the world, the weather instability, especially temperature, has led to a reduction in bee communities (Godin, 2020). According to Godin (2020), between 2000 and 2014, there was a 17% reduction in bee populations worldwide. If no action is taken to protect bees from climate change, the projections are discouraging for the species' survival.

To conserve bee communities, many public and private organizations have stepped up efforts to study the impacts of climate change (World Wild Fund [WWF], 2019). These efforts aim to develop and disseminate technical capabilities that facilitate the protection and adaptation of the species against new climatic phenomena. Beekeepers themselves are currently implementing practices that protect bees from the weather phenomenon. However, for many of these farmers, the lack of updated information on climate change is a limitation (Turner, 2019). According to Anguaya (2015), farmers, mainly rural or small-scale farmers, have not fully understood climate change due to a lack of accurate and updated information.

This qualitative case study explored the information gap on climate change that beekeepers experience in rural areas of El Salvador. According to the last agricultural census of El Salvador in 2007- 2008, only 1070 beekeepers were registered at the national level. The agrarian census reported that beekeeping generated between at least 5,000 seasonal jobs in 2006-2007 (Mayorga, 2012). However, the leaders of the country's public agricultural entities suggest that since then, the number of beekeepers and jobs has doubled, although there are no updated formal records on national beekeeping production (Mayorga, 2012). Thus, this study contributes to priority 6 of the AAAE National Research Agenda (Graham et al., 2016).

### **Theoretical Framework**

In developing countries, rural farmers are characterized by low incomes and a limited educational level (FAO, 2019). These conditions perpetuate low access to reliable information, especially in technical or scientific knowledge (Brinkman & Wessler, 2003). Despite increased research and dissemination of information on climate change, farmers continue to have limited

access to this information, making the practical use of this knowledge in agricultural production impossible (Anguaya, 2015).

According to Brinkman & Wesseler (2003), information exchange is the stage before socioeconomic development. Without this information exchange, the process of adaptation or mitigation to climate change would not be possible. Historically, farmers have experienced information gaps in multiple agricultural issues. The theory of information gap states that:

as the infusion of mass media information into a social system increases, higher socioeconomic status segments tend to acquire this information faster than lower socioeconomic status population segments. Hence the gap in knowledge between the two tends to increase rather than decrease (Gaziano, 2016. p.1).

When a knowledge gap is created, multiple factors intervene, mainly related to the lack of economic resources, limited access to educational opportunities, and social inequality. In any area of knowledge, the information gap is characterized by communication skills, stored information, relevant social contact, selective exposure, and target media markets (Bonfadelli, 2003). Faced with the knowledge gap, farmers develop local knowledge in search of satisfying needs and remedying problems of agricultural production (Anguaya, 2015). Knowledge acquired by farmers at the local level is essential to inform educational initiatives aimed at reducing the specific knowledge gap, especially for localities with strong cultural roots.

### **Purpose and objectives**

The purpose of this qualitative study was to explore the perspectives of beekeepers on the information gap on climate change that they experience in El Salvador. The following research questions (RQ) led this study:

RQ1: How do beekeepers in rural El Salvador perceive climate change?

RQ2: How prepared do beekeepers in El Salvador perceive themselves to conserve their bee colonies under climate change conditions?

RQ3: What sources of information do beekeepers in El Salvador currently use about climate change?

### **Methodology**

In December 2019, eight beekeepers from Chalatenango, El Salvador, participated in this case study. The participants' contact information was obtained through a partnership with ACOPIDECHA, a non-profit organization aimed to provide financial assistance and technical support to beekeepers in the northern region of El Salvador. The beekeepers were personally invited by a member of the research team to participate in the study. The researcher provided a copy of the informed consent form to each participant, and the objectives of the study were presented through a verbal conversation. Each beekeeper participated in a semi-structured interview at the place and time of their preference. The interviews were conducted in Spanish, lasted an average of 45 minutes, and were recorded in audio with the prior authorization of the participants. Sample questions of the semi structured interview included *What do you think are the reasons for the reduction of bee communities in the ecosystems in which you work?* and *Do you think climate change could be affecting bee communities?*

Interviews, observations protocols (memos) and farmer records were used to triangulate the study. Transferability of the results was achieved by a thick rich description of the elements in each stage of the research process. According to Onwuegbuzie and Leech (2006), a reach description of the participants, settings and research procedures allows the findings to be transferred to another context. The interviews were translated into English by a non-professional translator. A non-professional translator is a valid research resource as long as he or she is sociolinguistically competent in the native language of the study participants (Squires, 2008). The interviews were transcribed into a word processing software. Peer debriefing included coding the interviews by the two researchers until achieving a level of agreement in the interpretation of the results. The peer debriefing process is a form of inter-rater reliability (Onwuegbuzie & Leech, 2006). Grounded theory methods including open coding and axial coding were used to identify emerging themes in the analysis of the interviews (Creswell, 2013). The researchers analyzed the interviews independently to ensure trustworthiness in the data.

### **Research Subjectivity Statement**

The principal investigator was born and raised at the study site, has previously worked in bee production, and has known some of the participants for most of his life. The other researcher had previously worked in Latin America. All members of the research team have professional experience working with farmers in developing countries.

## **Results**

### **Beekeepers' Perceptions and Knowledge of Climate Change**

The first question explored how beekeepers perceive climate change in rural El Salvador. Beekeepers shared impressions on the changes they have evidenced in the climatic conditions of the locality where they live and engage in productive activities. Referring to short-term climate change, one participant mentioned that "Here[the weather] is never stable. I can't trust what I see on TV because it [the weather]changes from one moment to the next... it happens suddenly." The perception of inconsistency in climatic conditions is similar when you question historical patterns of weather variability. One participant commented on this: "From one year to the next, the weather is not the same. Last year, for example, it hardly rained, and this year it rained more than normal". Despite identifying changes in the climate's behavior, beekeepers do not have a clear or formal definition of climate change. When asked to define climate change, the responses were "I don't know what climate change is", "I can't", and "I have no idea". However, when asked to explain climate changes, one of the participants mentioned: "The sensation feels warmer and warmer... rain is not constant, and sometimes we lose a lot on our crops due to the drought". The answer is a reinterpretation of the concept of climate change. Beekeepers understand that the climate is changing, and they can perceive the effects on productive livelihoods.

When asked about the effects of climate change on bees, one participant said "No, the weather is not affecting the bees. Climate affects crops and farm animals." Beekeepers do not perceive the direct impacts of climate change on bee populations. According to the interviewees, other problems are affecting bees with higher intensity than climate change. During the interviews, participants mentioned risks related to the use of agricultural chemicals (pesticides, herbicides, fungicides), the implementation of agrarian burning, especially in the sugar cane harvesting process, and proximity to cell phone antennas and cable service. According to beekeepers, they believe these antennas generate "radiation" capable of killing bees. On this,

participants mentioned “ Cell phone companies have installed [antennas] everywhere and they are very dangerous because of the radiation they broadcast. I had an apiary near an antenna and almost all of my hives died.”

### **Beekeepers Preparedness**

In the second question of this case study, researchers explored how prepared do beekeepers in El Salvador perceive themselves to be to conserve the bee colonies when experiencing climatic variability. Implementing the use of wooden boxes with metal applications, substituting foods with more protein, and changing the orientation of the swarm location are some practices that beekeepers have developed locally to protect bees and maintain honey production. Beekeepers assure that by applying these practices, they have improved the quality of life of the swarms. However, no type of registration or control demonstrates the effectiveness of methods against climate variability. A honeybee keeper commented “I’m doing everything I can to protect the hives and produce honey. However, it is not enough.” Another participant mentioned “The wooden boxes have helped me to make the winds hit the hives with less force.”

Despite the beekeepers’ efforts and practices to adapt bee communities to climate change in rural El Salvador, they haven’t developed a full adaptation capacity. Farmers are aware of their lack of knowledge of the worldwide impact phenomenon. “It is a concern I have because there are times when I no longer know how to protect them [the bees],” said one beekeeper. The perception of unpreparedness consistently emerged among beekeepers when asked about their ability to conserve bees against the climatic variety.

### **Access and Sources of Information**

The third question investigated the sources of climate change information currently used by beekeepers in El Salvador. Beekeepers highlighted their preference for the technical assistance to come from [Organization name] staff-members. According to the participants, personal interaction with a professional or technical agent is their top choice when they receive climate change information. One of the beekeepers commented: “When the people from ACOPIDECHA come to help me, they really help me understand why specific things are affecting my bee colonies. They have taught me how to take care of my girls [the bees]”. Despite preference for in person support, participants generally access more climate change-related information on the Internet through their mobile phones. However, they described the process as confusing or complicated. Less frequently, producers use information from written or audio media, and none mentioned television as technical information on climate change sources. A honeybee keeper mentioned “ On my own, I look for information, but the truth is that I don’t understand it, and then I don’t know how to apply it to my hives.”

According to the beekeepers, the information on climate change has been very scarce and written using complex terminology. This complexity of language has limited beekeepers in the practical use of climate change-related information in their agricultural practices. One of the beekeepers mentioned, “I don’t understand what they mean in the pamphlets they give me. I don’t use that information”. Another honeybee keeper mentioned “ On my own, I look for information, but the truth is that I don’t understand it, and then I don’t know how to apply it to my hives.”

### **Discussion, Conclusions, and Recommendations**

This case study sought to describe the knowledge gap between those seeking solutions for bee's conservation and protection against climate change and rural beekeepers in El Salvador. According to several studies, bees top the list of species at risk because of changing weather patterns. Despite information dissemination by international and national entities emphasizing the relevance and vulnerability of bees to climate change, beekeepers in rural areas of El Salvador do not share this perception. For beekeepers, there are other agricultural and economic-related phenomes affecting the local bee communities.

According to Brinkman & Wessler (2003, p.2), understand a knowledge gap is essential to *bridge information gaps between farmers, policymakers, researchers, and development agents in a constructive, appropriate, and efficient way*. This case study provides evidence a knowledge gap between beekeepers and other beekeeping stakeholders about climate change impacts on bees. Public perception of irrelevance on a subject potentially expands the information gap, especially for those experiencing it. For Salvadorian beekeepers, climate change is not a priority among the bee's risk.

Additionally, the information to which beekeepers have access is not comprehensively written for those with low levels of education or little professional technical preparation. According to Schiermeier (2010), one of the limitations of climate change information use is the complexity of the language and the lack of unification of terms among stakeholders. For beekeepers, not understanding the available climate change data has prevented them from incorporating it on their efforts to bees' conservation and agricultural production.

Future research studies should enlist and evaluate the efficiency of the practices already being implemented by farmers to cope with climate change. These practices are potentially knowledge resources with the capacity to be replicated in other contexts with socioeconomic similarities. Furthermore, it is essential to measure the economic and agricultural implications of those successful practices. In addition, the level of agreement of entomologists and extension agents regarding the results of this study should be studied; and jointly explore potential opportunities to improve beekeepers' access to information.

For stakeholders, the results of this study could be used to develop, implement, and evaluate educational initiatives aimed to increase human capacity among beekeepers, to ensure the bees' protection against climate change. Social, economic, and agriculturally related characteristics should be considered when planning educational initiatives on climate change (Anguaya, 2015). Finally, these results contribute to the reduction of the information gap, seeking to achieve its eventual elimination to safeguard agricultural production and contribute to other problems that include food security in the world and the conservation of species in global ecosystems.

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# Investigation of Recruitment Efforts and Factors Influencing the Undergraduate College Choice Process for Students Enrolled in Agricultural Education at Kansas State University

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## Introduction

There continues to be a shortage of agricultural education graduates to meet the yearly demand (Smith et al., 2017). The number of vacancies has been increasing as well as the number of positions and programs added yearly. In September 2017 there were 72 full time and 4 part-time vacancies and a growth of 216 new positions and 186 new programs added (Smith et al., 2018). In an effort to meet the demand, agricultural education programs at universities across the nation are ramping up their recruitment efforts (“Teacher Recruitment and Retention,” n.d.).

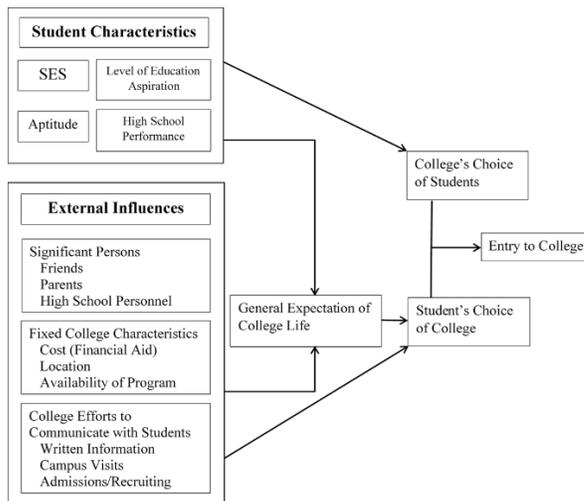
The 2016-2020 AAAE National Research Agenda Priority Area 3 communicates the need to investigate effective methods of recruiting agricultural education professionals (Stripling & Ricketts, 2016). To improve recruitment efforts, a better understanding of the student’s college choice decision making processes is needed. This study’s aim is to identify recruitment efforts and factors influencing the undergraduate college choice process for students enrolled in Kansas State University Agricultural Education major.

## Literature Review/Conceptual Framework

This study was framed around Chapman’s Model of Influences on Student College Choice (Figure 1). There are two main factors influencing college choice decisions: student characteristics and external factors (Chapman, 1981).

**Figure 1**

*Model of Influences on Student College Choice (Chapman, 1981).*



*Note.* Graphic from Bradford (2016).

Each of the student characteristics impact a student's college choice process (Chapman, 1981). The model includes three external influence categories: influences of significant people, the fixed characteristics of the institution, and the institution's own efforts to communicate with prospective students (Chapman, 1981). The combination of these influences helped to shape the student's college choice decision making process (Chapman, 1981).

Significant persons' influence functioned in three different ways: their comments from student's expectation of colleges, their direct advice as to where the student should apply and go, and where close friends have gone to school can influence the student's decision as well (Chapman, 1981). The fixed university characteristics include: cost, financial aid, location, and availability of desired course programs (Chapman, 1981). Washburn, Garton, and Vaughn (2002) found the level of family income sets parameters for college options students consider. Klein and Washburn (2012) studied students who were on a college visit and found they were influenced by in-state tuition and scholarship opportunities.

The availability of a quality degree program is also important for future students (Chapman, 1981). Bradford (2016) found degree programs which provided multiple career opportunities were extremely liked by students. Additionally, the courses, quality of facilities, and staff influenced their decision process (Bradford, 2016). Rocca's (2013) study found career opportunities were the most influential factor for both matriculants and non-matriculants.

The final category of Chapman's model (1981) is the communication efforts of the college toward potential students. College admission officers and high school guidance counselors believed that high school visits by college admissions representatives and campus visits were the most effective recruiting activities (Chapman, 1981). However, Bradford (2016) stated that on-campus 4-H and FFA visits, as well as, high school admission representative visits had little to no impact or influence. Her research indicated more than one-third of the students were influenced by OSU social media and more than one-fourth were influenced by CASNR social media (Bradford 2016). Matriculants who used the California State University-Fresno website reported it the most useful, followed by campus visits, and the degree program website (Rocca, 2013).

As for the college choice process timeline, Bradford (2016) reported that more than a quarter of students began looking at colleges before their freshman year of high school; started their choice process in 11<sup>th</sup> grade; and finalized their attendance and degree program by the first semester of 12<sup>th</sup> grade.

### **Purpose and Research Objectives**

The purpose of this research was to examine the college-choice process of students in the agricultural education major in an effort to make programming and recruitment process changes to positively grow the major at Kansas State University.

The three research objectives for this study were:

1. Determine usefulness of information sources in helping students decide to enroll in Kansas State University Agricultural Education major.
2. Examine external influences in a student's decision to enroll in Kansas State University Agricultural Education major.
3. Examine student's college-choice timeline regarding majoring in Agricultural Education at Kansas State University.

## Methodology

Survey research design was utilized to collect data for this study following recommendations from Dillman et al. (2014). The population of this study includes the students in the Agricultural Education major at Kansas State University at the start of the fall 2019 semester ( $n = 86$ ).

The instrument for this research study was modified from a survey used by Bradford (2016) to investigate recruitment strategies and college-choice decisions of first-year students at Oklahoma State University in the College of Agricultural Sciences and Natural Resources. Bradford (2016) modified previous surveys from Washburn et al. (2002) and Rocca (2013).

Validity of the instrument was established by reviewing the original instrument (Bradford, 2016), adjusting to fit the new population, and testing the Qualtrics survey before dissemination. Reliability of the items was reported by Bradford (2016) for the four main sections: information sources (.94), significant persons (.87), institutional characteristics (.81) and degree program characteristics (.76). Post-hoc reliability was conducted on the four main sections of the modified instrument: information sources (.89), significant persons (.87), institutional characteristics (.68) and degree program characteristics (.80).

The instrument was distributed via Qualtrics in early Fall 2019. An email was sent out over the AGED listserv with a request to complete the survey and a link to the survey. Responses were anonymous to protect the identity of the individuals. Three emails were sent out to obtain a response rate of 45% ( $n = 39$ ). Data collected from the survey was analyzed using SPSS 26. Means and standard deviations were calculated for each research objective as well as frequencies.

## Results

The respondents included 15 freshmen, 9 sophomore, 6 juniors, and 9 seniors. Only 8 were transfer students. Six students indicated they changed their major to agricultural education, while the remaining 33 started in the degree program. Seven students were first-generation. The majority of students were either 18 ( $n = 11$ ) or 19 years old ( $n = 10$ ). There were 25 females and 13 males, and all respondents were Caucasian. Thirty-six students attended a high school with an agricultural education program.

The first objective sought to understand the usefulness of information used by students to make the college-choice decision. Students were asked to evaluate how useful they found a variety of tools used to learn about the degree program. The top five items that were rated as "very useful" include: participation in 4-H and/or FFA events on campus ( $n = 22$ ); visit to campus ( $n = 19$ ); contact with a professor on the campus ( $n = 18$ ); interaction with major at off campus events ( $n = 16$ ); social media account ( $n = 10$ ). The top two items that students indicated were *not used* to learn about the degree program were: visits by ag ed major representatives to your school ( $n =$

21) and participation in ag ed major events on campus ( $n = 15$ ). Overall, students indicated they did receive useful information ( $n = 32, 91.43\%$ ) to make an educated decision about majoring in Ag Ed at Kansas State University.

The second objective examined external influences on the student’s decision to enroll in agricultural education at Kansas State University. Students ( $n= 36$ ) were asked to evaluate how influential a variety of institutional characteristics were on their college-decision choice (see Table 1). Students rated twelve items on a Likert-type scale from *not influential* = 1 to *very influential* = 5. The top most influential characteristics were preparation for employment ( $M = 4.47, SD = .65$ ); quality of reputation of faculty ( $M = 4.14, SD = .93$ ); quality of reputation of students ( $M = 3.97, SD = .81$ ); scholarships ( $M = 3.92, SD = .1.16$ ); and availability of other financial aid ( $M = 3.64, SD = 1.39$ ). The lowest ranking item was prominence of university athletic teams ( $M = 2.31, SD 1.17$ ).

**Table 1**

*Influence of institutional characteristics on decision to attend Kansas State University ( $n = 36$ )*

Characteristic	<i>M</i>	<i>SD</i>
Preparation for Employment	4.47	0.65
Quality of Reputation of Faculty	4.14	0.93
Quality of Reputation of Students	3.97	0.81
Scholarships	3.92	1.16
Availability of Other Financial Aid	3.64	1.39
Cost (tuition, room and board)	3.56	1.16
City in which campus is located	3.42	1.16
Distance from home	3.28	1.23
Campus safety	3.19	1.28
Quality of facilities	3.17	1.08
Class size	2.53	1.28
University Athletic Team	2.31	1.17

Students then evaluated how influential seven items were on their decision to major in agricultural education (see Table 2). The top three items included career opportunities available for graduates ( $M = 4.64, SD = .54$ ); quality and reputation of the course ( $M = 4.19, SD = .95$ ); and quality and reputation of the faculty ( $M = 4.17, SD = 1.11$ ). The lowest rated item was class size ( $M = 2.92, SD = 1.23$ ).

**Table 2***Influential items on the decision to enroll in Ag Ed at K-State (n = 36)*

Characteristic	<i>M</i>	<i>SD</i>
Career opportunities available for graduates	4.64	.54
Quality and reputation of the courses	4.19	.95
Quality and reputation of the faculty	4.17	1.11
Quality and reputation of the students	4.11	.98
Quality of facilities	3.06	1.15
Class size	2.92	1.30
Number of students in major	2.75	1.23

When asked to evaluate how significant people influenced their decision to major in agricultural education at Kansas State University, the top three people rated “*very influential*” were: high school agriculture teacher ( $n = 20$ ); [university, college] alumni ( $n = 11$ ); [university, college] staff ( $n = 10$ ).

The third objective examined the college-choice timeline of students currently majoring in agricultural education at Kansas State University. The largest percentage of respondents designated they began the process during the 11<sup>th</sup> grade ( $n = 13$ , 35%), but 54% ( $n = 20$ ) indicated they started the process during the 10<sup>th</sup> grade or before (see Table 3). Nineteen (51%) respondents finalized their decision to attend Kansas State University during their senior year of high school (see Table 4). While approximately one-third of the respondents ( $n = 13$ , 35%) knew they would major in agricultural education before their senior year in high school an additional eleven (30%) made that decision during their senior year with the remaining thirteen (35%) making the decision during the enrollment process or after (see Table 4).

**Table 3**

Year in School Students Began the Decision Making Process to Attend KSU for Agricultural Education ( $n = 37$ )

Grade in School	Frequency	Percent
Before 9 <sup>th</sup> grade	6	16.2
During 9 <sup>th</sup> grade	6	16.2
During 10 <sup>th</sup> grade	8	21.6
During 11 <sup>th</sup> grade	13	35.2
During 12 <sup>th</sup> grade	4	10.8

*Note.* They were allowed an “Other” choice, but there were no responses.

**Table 4**

Year in School Students Finalized the Decision to Attend KSU for Agricultural Education ( $n = 37$ )

Grade in School	Frequency	Percent
Before 9 <sup>th</sup> grade	0	0.0
During 9 <sup>th</sup> grade	1	2.7
During 10 <sup>th</sup> grade	5	13.5
During 11 <sup>th</sup> grade	7	18.9
During 12 <sup>th</sup> grade, 1 <sup>st</sup> semester	5	13.5
During 12 <sup>th</sup> grade, 2 <sup>nd</sup> semester	6	16.2
During the enrollment process	4	10.8
During freshman year of College	6	16.2
During sophomore year of College	3	8.2

*Note.* They were allowed an “Other” choice, but there were no responses.

### Conclusions, Implications, and Recommendations

Before discussing the conclusions of this study it is important to recognize the limitations. The response rate was only 45% and there were no efforts made to increase the number of responses beyond the reminder emails. The low number of responses may not tell the full story. The population for this study consisted of one university’s agricultural education, therefore caution should be made when considering the findings and recommendations listed below.

According to the results, students enrolled in agricultural education at Kansas State University typically begin the program as freshmen, are white and attended a high school with an agricultural education program. There were more females than males which is the current trend in the profession (Smith et al., 2018). Chapman (1981) admitted that the model is limited to influences affecting the more traditional ages of college students, 18-21 years old. Additional research should be done to assess how to recruit more non-traditional and underrepresented populations.

A major conclusion of the study was participants indicating their previous experience with activities and time spent on campus was very useful while making the college-choice decision. This validates the importance of campus tours and events hosted by different entities to expose students to campus and start to make them feel comfortable with the unique environment (Robinson et al., 2007). Due to the recent and ongoing pandemic, an increase in efforts to connect with students in a virtual format are being made. How can the items found to be useful and highly influential be translated to a new platform?

Ninety percent of respondents indicated the methods employed by the degree program helped them make an educated decision to major in Agricultural Education at Kansas State University. Contact with professors and other interactions with the major at off campus events rated highly impactful. This justifies the need to provide a variety of “touchpoints” with potential future students in an effort to connect and encourage them to major in the degree program.

Preparation for employment was the highest rated external influence. Students care about the need to be educated and ready to enter the workforce upon graduation (Bradford, 2016). High-quality reputation of faculty and students in the degree program are also highly valued (Bradford, 2016). Future students are paying attention to the culture of the program and those engaged in the program to help with their selection. Additionally, future students are concerned how they will pay for college (Klein & Washburn, 2012). The results indicated that scholarships and other financial aid packages did influence students when making the decision to enroll at Kansas State University.

High school agriculture teachers continue to be a highly influential group of individuals for students majoring in agricultural education (Washburn et al., 2002). They should be made aware of their impact on students and the profession and recognized for their support of the program.

The vast majority of students (89%) stated they began the college choice decision process before the 12<sup>th</sup> grade. Thirty-five percent made the decision to major in agricultural education during the college enrollment process or after they started post-secondary school. Therefore, recruitment efforts should continue to target students prior to their senior year of high school (Bradford, 2016), but also should extend beyond high school graduation to target students at community colleges (Bradford, 2016). Furthermore, visibility of the degree program at Kansas State University is important for those who might change their major to agricultural education.

Work must continue in the areas that were found to be influential and useful, while further examination should occur regarding the practices that did not have as high of an impact on the college choice decision process. Additionally, this survey should be sent to new students in the major to investigate how recruitment efforts changed due to the impact of COVID-19.

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## **What Fifteen Years of New Teacher Data Reveals About Agriculture Teacher Turnover in Kansas**

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### **Introduction and Need for the Study**

During a time when the country is experiencing critical workforce challenges, such as the skills gap, the need for a qualified and consistent career and technical education teaching force is as important as ever (USDOE, 2019a). The increase in demand for school-based agricultural education programs (SBAE) has witnessed total program numbers, student enrollments, and FFA membership hit all-time highs across the country (National FFA Organization, 2020; Smith et al., 2019). Yet, for many local school districts the challenge of finding, and more critically, keeping an agriculture teacher can be a daunting task. Despite the growth in SBAE, teacher turnover continues to be a factor in the loss of teaching positions and the closing of programs in many states (Smith et al., 2019).

Recent SBAE teacher retention research has focused primarily on the factors that influence job satisfaction, including school culture (Hasselquist et al, 2017), collaboration (DeLay & Washburn, 2013), and self-efficacy (Korte & Simonsen, 2018) and on factors impacting teacher retention and attrition, including teacher connectivity (Moser & McKim, 2020), working conditions and compensation (Solomonson et al., 2018), and work-family conflict (Sorensen et al., 2016). As the profession continues to seek answers to why teachers are leaving the classroom and works to develop solutions to retain them, it is incumbent we continue examining the variables influencing the retention and attrition of agriculture teachers. Previous research has found that teacher turnover is greatest among beginning teachers with less than 5 years of experience and that high poverty public schools have more turnover than affluent public schools (Carver-Thomas & Darling-Hammond, 2017; Ingersoll, 2003), yet these studies focused primarily on core subjects and special education teacher retention, and not specifically the retention of school-based agricultural education teachers.

### **Conceptual Framework**

Ingersoll's (2003), "The Revolving Door" concept was used to conceptually frame this study.

The data suggest that school staffing problems are not solely or even primarily due to teacher shortfalls resulting from either increases in student enrollment or increases in teacher retirement. In contrast, the data suggest that school staffing problems are to a large extent a result of a "revolving door"—where large numbers of teachers depart teaching for reasons other than retirement. From the framework of supply and demand theory, the data show that the problem is not primarily shortages, in the sense of an insufficient supply of teachers being recruited and trained (p.17).

There exists a "revolving door" of teachers in school-based agricultural education and this study sought to add additional data to the body of research on potential reasons for this phenomenon. More specifically, this study was founded on prior research revealing "that the revolving door varies greatly among different kinds of teachers and different kinds of schools" (Ingersoll, 2003, p.13).

## **Literature Review**

The literature review for this study focused on two main areas: research on new teacher retention and research on the impact of the level of school poverty on teacher retention.

### **New Teacher Retention**

The teaching profession has an annual teacher attrition rate of about 8% and the number of teachers leaving each year accounts for close to 90% of annual teacher demand (Carver-Thomas & Darling-Hammond, 2017). Research has revealed pre-retirement turnover accounts for the greatest percentage of teachers who leave the classroom (Ingersoll, 2003) with the highest attrition rates attributed to young and beginning teachers in their first five years in the classroom (Carver-Thomas & Darling-Hammond, 2017; Grissmer & Kirby, 1987; Ingersoll, 2003). Prior research indicates that the average retention rate of all teachers after their first year of teaching was 80% in the early 1980s (Grissmer & Kirby, 1987) and 86% in the early 2000s (Ingersoll, 2003). However, this same research reveals that by the fifth year of teaching, only 30% of men and 50% of women remained in the classroom in the early 1980s (Grissmer & Kirby, 1987) and 54% of all teachers remained in the classroom after the fifth year of teaching in the early 2000s (Ingersoll, 2003). In a study examining reasons Montana agriculture teachers leave the profession, it was found that those who left teaching averaged 3.25 years of experience (Igo & Perry, 2019).

### **Impact of Level of School Poverty**

Teachers who leave high-poverty schools are more than twice as likely as those who leave low-poverty schools to report job dissatisfaction as their reason for leaving the classroom, with the major areas of this dissatisfaction ranging from student motivation and discipline to lack of administrative support (Darling-Hammond, 1997). Using the 1997 National Center for Education Statistics (NCES), Loeb et al. (2005) found that “not only were the best paid teachers in low-poverty schools earning over 35% more than the best paid teachers in high-poverty schools, they also experienced much easier working conditions including smaller class sizes and pupil loads” (p. 47). Teachers in high-poverty schools are less likely to feel they have any influence over what matters most in their classrooms, such as curriculum and policies and also less likely to be satisfied with their compensation or feel they have the adequate teaching materials to effectively deliver the curriculum (Darling-Hammond, 1997).

## **Research Purpose and Questions**

Based on prior research and areas of teacher turnover not thoroughly examined, the purpose of this study was to determine if the teacher turnover trends among beginning agriculture teachers in Kansas was consistent with prior research and national data and if any new revelations about teacher turnover could be discovered. Based on the literature reviewed and for the purpose of this study, a teacher was considered a beginning agriculture teacher if they had zero to five years of teaching experience. The study sought to answer the following research questions:

1. At what point in their career are beginning agriculture teachers in Kansas most likely to leave the profession?
2. Is school poverty level in the district a factor in teacher turnover in Kansas?
3. Is there a difference between male and female Kansas agriculture teachers in teacher retention rates?

## **Methods/Procedures**

Document analysis research methods were used to answer the research questions for this study (Bowen, 2009; Hodder, 2000). Documents that can be analyzed for research studies take on many forms, including survey data, with the main objective of gaining understanding (Bowen, 2009; Hodder, 2000). A collection of Kansas agriculture teacher attrition data kept for 15 years (2004-2018) was analyzed in this study (Disberger, 2020). This data was kept on each cohort of new teachers who entered the profession and included name of teacher, name of initial school, involvement in novice teacher programming, years taught, whether they are still teaching, and if not still teaching, their current occupation. The initial list of teachers within each cohort was obtained from the novice teacher coordinator who served in the role between 2004-2016 and Kansas Team AgEd. This list was compared to the yearly agriculture teacher directory and vacancy bulletins. When data was missing, the specific teacher was contacted directly by either Facebook Messenger, email, or phone call. All efforts were made to collect the information directly from the teacher and when this was not possible, veteran teachers in the area were contacted to gain information.

The data of 258 teachers across 15 years (2004-2018) was included in the data examined. Due to limitations of the data, attrition from the classroom was calculated based on leaving the agricultural education classroom in Kansas and not necessarily leaving teaching altogether. Formulas within Excel were used to determine retention and attrition rates within each year of experience. To answer the second research question, data on students approved for free and reduced lunch within each school district was accessed on the Kansas Department of Education's website and added to the data set for each year (Kansas State Department of Education, 2020). "The percentage of students eligible for free or reduced-price lunch (FRPL) under the National School Lunch Program provides a proxy measure for the concentration of low-income students within a school" (USDOE, 2019b, p. 50).

Low poverty schools are defined as having 25.0 percent or less students eligible for free and reduced lunch, mid-low poverty schools are defined as having between 25.1 and 50.0 percent students eligible for free and reduced lunch, mid-high poverty are those school with 50.1 to 75.0 percent students eligible for free and reduced lunch, and high poverty schools are those with over 75.0 percent students eligible for free and reduced lunch (USDOE, 2019b). The researchers matched the percentage of free and reduced lunch eligibility for each district with the appropriate school poverty category and added that information to the data set for each teacher. The retention rate of teachers within each poverty category was calculated by dividing the number who stayed in the teaching profession by the total number who entered the classroom. Free and reduced lunch information was unavailable for the 2004 and 2005 school years so 2006 data was used for those two years. To answer the third research question, an additional column of data was added to differentiate male and female teachers and then the retention rate of each group was calculated by dividing the number who stayed in the teaching profession by the total number who entered the classroom.

## **Findings/Results**

The first research question sought to discover at what year of experience was teacher attrition the highest in Kansas. The data indicated that the year most agriculture teachers in Kansas left the classroom was after their third year (14.24%). Table 1 provides the retention percentages for

each beginning teacher cohort across their first five years of teaching experience along with an average retention percentage for each year of experience. The average attrition rates summarized at the bottom of Table 1 represent the percentage of teachers who taught in the classroom during that year of experience, but did not return to the classroom the subsequent year.

**Table 1**  
*Retention Rates of Kansas Beginning Teachers by Year of Experience*

School Year	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
2004-05	80.00%	80.00%	50.00%	50.00%	50.00%
2005-06	92.31%	92.31%	76.92%	69.23%	61.54%
2006-07	90.00%	60.00%	55.00%	50.00%	50.00%
2007-08	81.82%	81.82%	72.73%	54.55%	54.55%
2008-09	85.71%	71.43%	50.00%	50.00%	50.00%
2009-10	63.64%	63.64%	45.45%	45.45%	45.45%
2010-11	91.67%	66.67%	66.67%	58.33%	50.00%
2011-12	100.00%	63.16%	47.37%	42.11%	42.11%
2012-13	94.74%	78.95%	73.68%	68.42%	63.16%
2013-14	91.67%	83.33%	62.50%	58.33%	58.33%
2014-15	76.92%	76.92%	69.23%	69.23%	69.23%
2015-16	100.00%	100.00%	70.00%	60.00%	-
2016-17	72.22%	66.67%	61.11%	-	-
2017-18	76.00%	68.00%	-	-	-
2018-19	89.66%	-	-	-	-
Avg. Retention Rate	86.82%	75.11%	60.87%	56.45%	54.22%
Avg. Attrition Rate	13.18%	11.71%	14.24%	4.42%	2.23%

The second research question sought to determine if there was a relationship between school poverty level and teacher turnover. The data, summarized in Table 2, indicated that there was a higher retention rate in the lower poverty schools (67%) compared to mid-low poverty (57%) and mid-high poverty (57%) schools. High poverty schools had a 67% retention rate, but there were only 3 teachers who taught at a high poverty school.

**Table 2**  
*Retention Rate of Teachers by School Poverty Level*

School Poverty Level	Total Teachers	Teachers Who Stayed	Teacher Retention
Low Poverty	9	6	67%
Mid-Low Poverty	152	87	57%
Mid-High Poverty	94	54	57%
High Poverty	3	2	67%

The third research question looked at the difference between male and female teachers and retention rates. In Kansas, the data indicated there was a higher teacher retention rate among females (59%) than males (57%, see Table 3).

**Table 3***Gender and Beginning Kansas Teacher Retention Rates*

Gender	Total Teachers	Teachers Who Stayed	Retention Rate
Male	120	68	57%
Female	138	81	59%

**Conclusions, Implications, and Recommendations**

The major conclusion for this study was the patterns of beginning agriculture teacher turnover in Kansas is consistent with the turnover statistics of all teachers across the country (Carver-Thomas & Darling-Hammond, 2017; Grissmer & Kirby, 1987; Igo & Perry, 2019; Ingersoll, 2003) and there does exist a “revolving door” (Ingersoll, 2003) of agriculture teachers, but it appears the attrition from the classroom is greatest during the first five years. A high percentage of agriculture teachers are retained after the first year of teaching, but by year five, almost half the beginning teachers have left the classroom, with year three being the most critical. The data was consistent with the prior research (Ingersoll, 2003) in that the retention rate after the first year was 86.62% and the retention rate after year five was 54.22%. The findings of this study aligned with the previous research on the impact of the level of school poverty on teacher retention. The retention rate was higher in schools with lower poverty when compared with the retention rate at schools with higher poverty levels. The findings of this study were also consistent with prior research comparing gender retention rates (Grissmer & Kirby, 1987; Ingersoll, 2003) in that typically female teachers are retained at higher levels than male teachers.

The implications of the findings of this research point to the need for improved practice in new teacher induction along with the need to provide additional support to teachers teaching in high-poverty schools. Based on the findings of this research, it is recommended that teacher induction and teacher mentoring programs expand beyond just being offered to first year teachers. As the data suggests, attrition rates drastically decrease after the third year in the classroom. These findings are consistent with prior research that conclude that the longer a teacher stays in the classroom, the more invested they become (Grissmer & Kirby, 1987; Tippens et al., 2013). It is further recommended that teachers teaching in high-poverty schools receive additional support. This additional support could come from teacher mentors, state staff, or CTE administration. It is recommended that state and national leaders in agricultural education look for opportunities to provide targeted grant opportunities for agricultural education programs in high-poverty schools.

Additional research should be conducted focused on the characteristics of the specific agriculture program and school. It was observed while reviewing the data, that some programs had a much higher attrition rate than others. This study just focused on those leaving the profession in Kansas. It is recommended that further research also include those teachers moving schools within the state or out of state. In addition to the 8% of teachers who leave the profession, there are also about 8% who change schools making the overall turnover rate 16% annually (Carver-Thomas & Darling-Hammond, 2017). This study only looked at the impact of the poverty level of the district of the initial school on teacher retention. It is recommended that further research be conducted looking at the impact of poverty on teachers moving teaching positions, and the impact additional factors, such as rural and urban school settings and the minority composition of the school, have on agriculture teacher retention.

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## **Mentoring Needs of Novice Agriculture Teachers: A Longitudinal Qualitative Collective Case Study**

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### **Introduction**

Perhaps the most effective way to help solve the nationwide agriculture teacher shortage (Camp, 2002; Foster et al., 2016; Ingersoll, 2002; Kantrovich, 2010; Smith et al., 2017, 2018, 2019; Sutchter et al., 2016) is to invest in the beginning teachers who are entering the profession. Retention of teachers, partnered with recruitment efforts for future teachers, will help us resolve the greatest challenge facing agricultural education today, the lack of qualified teachers (National FFA, 2020).

To help retain beginning agricultural education professionals, they need comprehensive induction programs that include mentoring. Substantial research has been conducted on the importance of mentors for beginning teachers (Darling-Hammond, 2017; Pfund et al., 2006; Tait, 2008). Inadequate mentoring support was found to be a major contributor to teacher attrition according to Tait (2008). Mentoring has been examined within agricultural education and is a valuable tool to aid beginning teachers furthermore, they found it is not the time of interaction but the quality of interaction and the ability to build on similar experiences that makes a mentoring experience more successful (Burriss et al., 2006; Greiman, 2002; Lamm et al., 2020; Tummons et al., 2016). Lamm et al. (2020) also found less formal mentoring relationships were more productive when there was a prior relationship between the pair. Tummons et al. (2016) found the best predictor of mentor support was when the mentee felt similarities with the mentor. These studies identified prior relationships, quality relationships, mentor training, and mentor support as factors that led to a stronger mentoring experiences for novice teachers. They also show creating high quality mentor/mentee matches is in fact a science and should be done systematically.

This longitudinal qualitative study worked to understand the phenomenon of the beginning agriculture teacher by following teachers through their first three years of teaching. The goal of qualitative research is to conduct deep, rich conversations with a set group of participants (Moustakas, 1994). Beginning teachers have unique needs according to Moir's (1999) work, based on this, a qualitative study was better suited to understand their experiences and relationships with mentors.

### **Purpose & Objectives**

This research works to understand the experiences of beginning school based agricultural education teachers in Kansas that can be impacted through mentoring. The research objectives were 1) to understand who beginning agriculture teachers utilize as mentors and 2) how they describe those relationships and interactions.

## Theoretical Framework

Within Constructionism, the research is led by the theoretical perspective of interpretivism through phenomenology. Interpretivism allows the researcher to interpret the experiences and interactions of the participants to develop meaning and understanding

Phenomenology was selected to learn about the lived experiences of the participants. Phenomenology guided the research as “a starting point and a basis” (Crotty, 2015, p.79). This is fitting since the longitudinal nature of the study follows the participants at the beginning of their teaching journey and offers touchpoints throughout the three years of the research monthly. Seeking the lived experiences of a phenomenon (Bhattacharya, 2017) meets the purpose of this study. Pragmatism influences the research as well, allowing for the use of multiple methods of data collection and consideration of the practical implications of the research (Creswell, 2018). Moir’s (1999) work shows the needs of beginning teachers are dynamic and complex, therefore a qualitative study is better suited to understand their unique experience and relationships with mentors. Constructionism guides the research that is seeking to understand the lived experiences of beginning teachers and how mentoring is used. Interpretivism through Phenomenology provides an anchor (Crotty, 2009) for the research as all participants are experiencing the unique phenomenon of their first years as a teacher.

## Methods

Constructionism through Phenomenology guided the research as all participants experienced the unique phenomenon of their first years as a teacher. An instrumental case study design was used and one bounded system was established (Creswell, 2018). The bounded system was created by all participants being agricultural education graduates from Kansas State University in the mid 2010 decade who chose to teach agriculture in Kansas upon graduation. Due to the small sample size, all graduates meeting the criteria of the bounded system were invited to participate in the study through an e-mail invitation (Creswell, 2018). To maintain the anonymity of the participants, pseudonyms were used, and the demographics of the teachers were shared collectively.

The case study began with a visit to each teacher at their school which was scheduled between the 6<sup>th</sup> and 8<sup>th</sup> week of classes during their first year of teaching. The 3-4-hour visit included a tour of the school and agriculture program, informal introductions with an administrator of their choice, an observation of them teaching a class of their choice, and an in-person semi-structured interview (Merriam, 2009). Following the initial visit, the researcher conducted semi-structured phone interviews every four weeks, lasting approximately 30 minutes, during the academic year. Creswell’s (2018) protocol for conducting interviews was followed. The interview protocol was pilot tested with a second-year teacher not involved with the study and adjustments were made. Phone interviews were selected to maintain the one-on-one interaction but were less costly and time consuming than in-person interviews considering the significant distance between the interviewer and the teachers and the frequency of the monthly interviews within the three-year duration. The same interview protocol was used throughout the study. Each interview began with an open-ended question “what is going on in your life?” prior to engaging with the interview questions to invite the participant to “open up” (Creswell, 2018, p. 164). The next question asked

the teacher to “describe your feelings toward teaching in one word” followed by a series of questions asking them to reflect back on the last month regarding their accomplishments and strengths and then to look forward to the month ahead. The teachers were asked to specifically reflect on mentoring experiences they had with the following questions: “have you recently talked with a mentor or peer in education?” If so, “what did you discuss with them? Was this discussion helpful? If so, how?” The final question was always about setting up the next time to talk.

Each of the three years concluded with participants completing an individual reflection guide prior to a focus group hosted via Zoom. The reflection guides were provided to the teacher electronically and asked them to reflect on their year. The monthly interview responses and reflection guides influenced the focus group questions. Prompts in the focus group asked the teachers to “describe your experiences working with mentors and peers in education” in year one and transitioned into year three when the teachers were posed the question “many of you spoke about moving into more of a mentor role rather than a mentee role – describe those experiences. If that was the case, were you ready for that role?”

The same protocol was utilized in years two and three with the exception that the teachers who had transitioned between schools were visited on-site again. The three-year study yielded 11 in-person teacher observations, 19 reflection guides, 29 photos, 129 individual monthly interview transcripts and three focus group transcripts.

Data analysis was guided by grounded theory using the constant comparative method (Glaser & Strauss, 1967). NVivo 12 was utilized to provide organization and structure to the coding process completed by the researcher. Reflexive exercises were utilized extensively through the study including reflective journaling during and after the interviews and during the coding process by creating an audit trail to document the thinking process the researcher utilized to make organization decisions (Creswell, 2018). Reflexivity contributed to validity and reliability along with coded data being provided to a colleague for review and the comparison of focus groups transcripts to monthly interview transcripts. Finally, a researcher subjectivity statement positioned the research for data analysis as a former high school teacher and University agricultural education faculty member with who taught the participants most of their undergraduate agricultural education course work. Through the coding, the theme of “mentoring” emerged, this theme was divided into sub themes of school-based mentoring, agricultural education mentors and peer mentors.

Practices of quality qualitative research were established and documented to address rigor and trustworthiness. Rigor was established by selecting participants who were part of an established bounded system (Tracy, 2010). Interviews were recorded and transcribed and were solely analyzed by the researcher. Field notes were taken during the interviews and reflexive journaling (Guba & Lincoln, 2005) was conducted after the interview. A research log documented the thoughts of the researcher during the coding and analysis processes.

Potential bias was addressed by the creation of a subjectivity statement that identified the researcher’s background relationships with the study participants. The researcher is positioned (Jones, et al., 2006) within the research, acknowledging the researcher within the study rather

than observing from the outside. Furthermore, the data were provided to a peer/colleague for review at each step of the coding and analysis process.

Triangulation (Tracy, 2010) was established through multiple data sources including interviews, field notes, focus groups, reflection guides, teacher observations and photographs. Specifically, the annual, end-of-year focus groups provided triangulation of the monthly interviews as a reflection and peer consensus.

## Results

Eight teachers completed the first year of the study. In the second year, one participant continued to teach, but withdrew from the study leaving seven participants. In the final year there were six participants after one left the classroom to pursue a production agriculture career.

All participants were white, ranged in ages from 22-25 years old during their first year of teaching, and were traditionally certified. Six teachers were in programs where they were the only agriculture teacher, two teachers were in multi-teacher programs. One participant returned to their hometown to teach. One participant did not have high school agricultural education experience.

Including when teachers moved between schools, they taught in eleven different communities throughout the three-year study. The schools were in communities spread across Kansas. Utilizing the United States Department of Agriculture (USDA) definitions, two communities were greater than 2,500 in population and would be considered “urban clusters” while the other nine communities meet the definition of “rural,” with populations less than 2,500 (USDA, 2019, para. 2). All the communities had predominately white populations.

In the teacher’s first year of teaching, they talked about using three types of mentors; formally assigned school-based mentors, informal mentoring by agriculture teachers and self-selected peer mentors. *Formally assigned school-based mentors* were utilized by all participants in this study. The mentors held the following titles: middle/high school principal, high school counselor, family and consumer science teacher, agriculture teacher, middle school science teacher, physical education teacher, and a professional mentor outside the school. There were highly effective mentor relationships and some that were less effective. An example of a less effective formal mentor was Helen, she said, “My mentor was my co-teacher as well, that was kind of hard.” One district utilized a mentoring coach outside of the school district, Paige did not see a lot of value in that relationship, “I had an online mentor. She came and visited me maybe three times within a year. She would watch the same class every time. I would get no feedback.”

Most formal mentoring relationships were very helpful to the beginning teachers, Sophia said, “I have a mentor at school, and she has helped me a lot. She has been helping me with the PDP Toolbox where we go in and we load all of our professional development points and explain what we’ve done.” Clare relied on her mentor to assist with student management, she said, “when I have had that difficult student I am like ‘I don’t really know how to handle this’ he provided some insight.” The beginning teachers asked their formal school mentors about school policies and insight on how to work with individuals within the school and community.

*Agriculture teachers* were widely used as mentors by this group of teachers informally. Early on, the beginning teachers reached out to their cooperating teachers from their student teaching experience. Claudia said, “it [was] pretty natural to go back to [cooperating teacher] all the time after teaching under her and ask her questions...then I branched out to [ag teacher]. Within the first year they had transitioned to mostly relying on agriculture teachers within their FFA district. Informal conversations happened while students were gathered for leadership or competitive events. Crystal described her mentoring experience,

It was really nice to catch up with everybody at symposium and then we had our Dairy Foods and poultry CDE last Wednesday. I was talking to some teachers in the district about some problems I was having, I’m using all of their life knowledge and asking them for help.

Finally, the beginning teachers found value in attending state agriculture professional development conferences where they could gather with current teachers and their peers to exchange ideas.

*Peer mentors* were relied upon by each of the beginning teachers, but the frequency and how they were utilized varied. Within the group of eight participants, six had selected a specific peer they talked to more frequently within the group, both sides of the peer pairs talked about their relationship. During the peer mentor discussions, they exchanged ideas with both individuals sharing solutions rather than one mentoring the other. For example, Clare said, “I called and talked with [peer] and we talked about what we were teaching and ideas we could share. It has really helped me, and I hope it helps her too.” All the teachers posed some questions to their entire peer group, the cohort with which they graduated, Wendy provided this example, “I mean I wouldn’t say necessarily they’re technically a mentor, but within our block group we always text and throw ideas out and try and help each other.”

Over time, the frequency of their discussions with formal mentors decreased and became less formal. In some situations, the beginning teacher sought out a different mentor who they felt a better connection with. Agriculture teacher mentoring discussions transitioned from general topics to more specific as the teachers learned what they needed to know and who the experts in the field they could rely on were. Peer mentoring continued throughout the three-year study, but the frequency of the interactions decreased.

### **Conclusions, Recommendations, & Implications**

As Moir’s 1999 work indicated, the teachers experienced highs and lows during each of the three academic years. One way the teachers coped with the roller coaster experience was by using a variety of mentors. From this, implications on how beginning teacher programs can best utilize mentoring as a support structure for beginning teachers were made.

The first conclusion is for beginning teachers and those supporting their professional development. Beginning teachers should be encouraged to seek multiple mentors, at least one needs to be inside their school building or district. Formal mentors who are located outside of the school are less effective because many questions teachers had regarded policies and procedures inside the school, working with individuals in the school, or the community. Beginning teachers

can also benefit from mentors who are not their co-teacher as that individual already plays a mentoring role. A mentor outside their program can provide valuable insight. Ensuring mentors have a similar lunch time, planning period or other common time to connect is beneficial.

The second recommendation and most relevant to professionals conducting mentoring programs is how to establish mentoring relationships. Relationships are key, Lamm (2020) and Inzer and Crawford (2005) both found mentoring relationships that were less formal were more productive. For this group of beginning teachers, informal mentoring happened most often with other agriculture teachers during events they attended, and some conversations continued after the event. Informal mentoring by agriculture teachers was a significant support system for these beginning teachers.

Careful consideration should be given when making mentor matches as recommendations for practice, as Tummons et al. (2016) reminds us, mentoring relationships are most productive when there is a prior relationship or common interests. Veteran agriculture teachers should be reminded of the benefit they can provide beginning teachers in an informal mentoring role. All types of mentors play an important role in supporting beginning teachers, exchanging ideas, resources and encouraging self-reflection.

When facilitating professional development for beginning teachers, the teachers need to be provided situations where they interact with their peers, not just their graduating class, but all beginning agriculture teachers. This research shows the benefit of peer mentoring, this concept needs to be shared with the beginning teachers to aid them in establishing self-selected peer mentors and encouraged them to establish communication among everyone in the peer group to exchange resources and ideas. Recommendations for practice include supporting peer mentorship among beginning teachers.

This study is limited to the experiences of these individuals. While the lived experiences may be similar to other novice agriculture teacher's experiences, they each work in a unique school and community with their own unique personal backgrounds and experiences. Future research could further examine how to make successful mentor matches, mentor needs of non-traditionally certified teachers, and conducting a similar study with participants from a more diverse background and in suburban and urban communities.

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## **Career Choice and Beliefs: Insights from Second Generation Agriculture Teachers**

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### **Literature Review**

Recruiting and retaining teachers has been a persistent issue, signifying the need for new approaches in solving the issue. Both individuals and environment have an influence on how careers are perceived. (Beggs, Bantham, & Taylor, 2008; Metheny & McWhirter, 2013). With an agriculture teacher parent, Second Generation Agriculture Teachers (SGATs) have multiple dimensions of both individual and environment. In an individual, they get both the influence as a parent, but also someone who is in the profession. The environment is also unique as SGATs have opportunities to see the profession up close as many agriculture teachers struggle to balance work and home. This becomes important given the unique context of the agriculture teacher's work and life as often difficulty to balance (Croom, Flowers, Murray, & Wilson, 2011), which potentially bleeds into both work and life worlds.

Parents both directly and indirectly shape their child's environment, experiences, skills, and values, and give explicit expectations, which factor into their career decision making process later in life (Bukor, 2015). Related, students' views on family functioning (vocational interest and work values) predict students' vocational identity. (Whiston, & Keller, 2004). Family functioning could more accurately predict a child's certainty of choice than other factors (Penick & Jepsen, 1992; Watson & McMahan, 2005). Parents' own career path, values, and skills allows children to start thinking early about whether they want to pursue a similar career (Wasby & Daly, 1994). These studies and those in agricultural education (Ingram, Sorensen, Warnick, & Lawver, 2018; Thieman, Rosch, & Suarez, 2016) make clear *what* is a significant influence, it is unclear is *how* this decision-making occurs.

Teacher retention has also been a continual problem in education (Goldring, Taie, & Riddles, 2014). Kyriacou and Coulthard (2000) found values and perceptions are highly correlated, and students are most likely to choose a career that they perceive as compatible with their own career values, which implies a connection to career choice and career identity. Beyond career choice, teacher beliefs and identity may help us understand the retention dimension as a broader approach to viewing self-efficacy. Developing sound teaching practices begins with a foundation of core beliefs. Luft and Roehrig (2007, p. 47) state, "...beliefs reveal how teachers view knowledge and learning, and suggest how they may enact their classroom practice." These beliefs will change throughout their education and career, being influenced by a new experiences and observations of the learning process (Sosu & Gray, 2012). Further, Rice and Kitchel (2018) found not only did epistemic beliefs affect teacher practices, but also the beliefs about the purpose of their subject and the content they teach. Teachers' epistemic beliefs are a cornerstone piece of their career as it influences their instructional practice, teaching philosophy, and the development of teacher identity (Bukor, 2015). It is this these beliefs, practices, and philosophies that will ultimately shape a teacher's identity.

## **Purpose and Methods**

Studying SGATs helps us to understand emergent aspects of career decision-making and teacher beliefs and identity from cases who were saturated with exposure to the profession through a parent. The purpose of the study was to study cases of (SGATs) to garner their unique perspectives as it related to the recruitment (via career decision-making), and retention (via teacher beliefs and identity). The following research questions guided our work:

1. How did the agriculture teacher parent and their relationship with their SGAT child influence the child's decision to become an agriculture teacher?
2. How did the agriculture teacher parent and their relationship with their SGAT child influence their beliefs and identity as an agriculture teacher?

## **Methods**

This was deemed an instrumental case study (focus on the issues as opposed to the case) and collective case study (consisting of several cases in order to examine a phenomenon, population or condition) (Creswell, 2013; Stake, 2010). The bounded system serving as the case for this study was second-generation agriculture teachers (SGATs). We utilized a purposive sampling technique and chose a sample that met a certain set of qualifications (Tongco, 2007) aimed to ensure the parent's exposure of the career to the child/SGAT. Thirteen people meeting the criteria agreed to participate in the study. All of the first-generation agriculture teachers in the study were fathers. A study that took place from 2014-2016 indicated there was still a large majority of male ag teachers at 6,512 in 2016 and only 4,988 female ag teachers in the U.S. (Lawver et al., 2018). Between those demographics and the long-standing history of FFA being historically hyper-focused on education for boys (National FFA Organization, 2020), the researchers were not surprised that all parents in the study were men.

We used semi-structure interviews as our main source of data and started to reach saturation around the eleventh interview. During interviews, the researchers took field notes to bracket their experiences through the process. After verbatim transcriptions were finalized, each case (participant) was coded for general themes first. In qualitative research, the researchers were the instrument for which data were collected with (Creswell & Creswell, 2018). It is important to address positionality and briefly note relevant background. One researcher has been an agriculture teacher for 3 years and a teacher educator for over 15 years. Another researcher has completed an Agricultural Education degree but has not taught. A third researcher is an undergraduate majoring in agricultural education. All three researchers were students of Agricultural Education in high school and were actively involved and invested in their programs. Because of this vested interest, it was important that we acknowledged our positionalities as we collected and analyzed data.

The researchers analyzed all of the data to find central themes that were common across all of the participants. Once all cases were analyzed, the final analysis was conducted as a research team. Trustworthiness was established in several ways. Because multiple researchers were engaged in case analyses, researchers independently analyzed the same case and reconciled

differences prior to independent analyses. Findings are presented as themes with supporting statements and codes to provide thick, rich descriptions. Member checking was utilized to increase representation of the themes and as such, some themes were slightly modified to better capture the voices of the participants.

## **Findings**

There were three overarching themes that emerged from the data. The first theme corresponds with the first research question, but also provides insight into the second research question. The second and third themes focus more on the second and third research questions.

### **Experiencing the Profession and Impact through My Father**

SGATs expressed having grown up with a greater understanding of the career than their peers. They not only knew their father's position but also observed his day to day tasks. John stated, "I remember watching dad grading papers and I remember the jackets and those are two images that stuck in my mind that you look at your parents and what they do you think is normal and to me it was never any different." By observing many aspects of the profession, the SGATs not only saw the best the career had to offer, but also the downsides. Jane shared, "I felt more prepared to go into this career than anybody else could because ... I remember telling [my dad] like, 'I've seen the worst of it.'"

Many SGATs shared the impact of trips prior to being an agricultural education student. Sarah says, "I'm serious, my dad took me everywhere. We went in backpacks with him on summer ag visits, when he took his kids to like the [city] stock show we would go with him to the [city] stock show as a family..." Participants recognized these trips as unique experiences that set them apart, exclusive from what their peers had. While some viewed these trips as vacations others would think of them as common part of their childhood.

The affect their father and his career had on them extended far beyond content knowledge as many addressed the impact their father had on others through their career. Sierra says,

I love the rapport [my father] had with his students. Like I could see their interactions... and how they interacted with him and they respected him.... That relationship that he was able to build with his students because of the time he would spend with them, like it's more than just the classroom time it's, you know, the projects the trainings, the travel. It's you really get to know them...

This impact on students is an area many wanted to emulate, and participants were aware of the role an agriculture teacher had outside of the classroom as well. Joe reflects, "As far as my childhood, I also saw a lot of the interactions that the students had and how much fun they had throughout the time." SGATs understood their father's impact extended far beyond the classroom, and for many this was a major factor in choosing the same career. In many ways this involvement shaped their childhood and was the foundation of their career decision and current teaching practices.

## **Fathers as Role Models, but Not “Cookie Cutters”**

All SGATs stated their father was a role model in their given career field. SGATs gained perspective on how much work it takes to be an agriculture teacher and with this experience are more prepared to have a balance that fits themselves. Some noted long hours and difficulty with their fathers finding balance; others noted seeing a balance. Jane stated her father had good balance but didn't know how intentional it was. For Mary, her father had an off switch at home when it came to work. Almost all of the SGATs mentioned making effort into a home balance regardless of the modeling. They also mentioned knowing the commitment it took to be an agriculture teacher when they were looking for a partner they knew would understand the workload.

On the surface, most SGATs said they teach similarly to how their father taught but they are using modern methods of teaching which use more technology than their fathers. Another value that was seen across many cases was the idea that if you are going to do something, do it right. This was a value that many of the SGAT's fathers drove into their pedagogy as many of the SGATs are teaching this to the members in their given program. This is seen in the execution of daily activities, fundraisers, annual banquets, and other FFA events. The majority is being done by the students with the oversight of their advisor. Nancy gave an example of her dad always trying to be his best,

...because I know why he works so much, he would redo every flippin worksheet, instead of like using the one from the previous year. That takes some serious time, but he would still at teaching you know, however many years would be like, "No, I think there's a better way to do it like I think it should be set up like this" and would like not reuse the worksheet or whatever it may be.

While SGATs respect their father and hold similar overarching values, some decided to teach different content and/or use different strategies. Related, SGATs surfaced shared tenets of their fathers' philosophies. One of the popular tenets focused attention on freshmen and new members. Joe spoke about the importance his father placed on building a relationship with freshman by saying,

... the best advice, it might even be the only advice that my dad gave me on, on teaching was, "Whenever you teach freshmen be excited every day." ... It's very important to be excited with your, with your freshman because that's, that's your future.

The value of developing good relationships with the students was also important. Mary noted the value her father placed on relationships by giving an example of her father taking two kids without an agricultural background under his wing and then seeing the respect that they showed to him because of it. Noah spoke about his father and how his impact is still being recognized within the school and community.

## **Inheriting Beliefs and Identity from my Father**

As an extension of the previous theme, central values were cited as reasons for joining the profession and as a basis for their teaching philosophies. Although not always explicitly stated, these values seemed to be inherited from their father over time. The values that influenced teacher pedagogy seems to be passed down more programmatically and their teaching methods being very similar to their father's without a conscious effort to be so. Nancy simply said, "Gosh, I'm not realizing how similar we teach until now." Jane expounded on this idea,

I think that he and I both believe that, in order to have that full experience program needs to be really well rounded that you need to have fairly equal, you know, emphasis put on classroom and FFA and SAEs. And then again, I mean, that's probably where I got the majority of my philosophy for that is from him...

These values were often seen in catchphrases that SGATs recalled and applied to many areas of their life and career. Examples of these included, "If you are going to be the teacher, be the teacher" and "Make a positive difference in the lives of students." These central values were also key in SGATs choosing their career path, as these values are the basis of the career goals used in the decision-making process. These are values inherited from their father by immersion, from being around him and his work. Perhaps this is why Samantha describes their career decision as a, "natural next step", a sentiment many of the participants expressed.

For clarity, however, this does not imply that SGATs are striving to have programs *exactly* like their father's programs. Harry describes how they and their father teach/taught at very different programs: one being low in numbers and rural and the other very large and urban. Harry explains,

I think [my father and I's teaching philosophies are] going to be fairly similar but I, I'm trying to remix perhaps instead of recreate, keep some of those things somewhat similar but change them for who I am and how I approach things.

## **Discussion**

This study underscores the previous research that parents are influential in career decision and in the formation of beliefs and identity, but it was important to capture the nuances of what does and does not translate from generation to generation. We posited that those nuances would be helpful in understanding issues related to teacher recruitment and retention, and the findings supported that notion. In particular, understanding the experiences and significant influences on SGATs was designed as framework that can help unpack several important factors that can be applied broadly to the profession. Ultimately, three modes of influence were identified that could help us understand recruitment and retention. One, immersion was important and included both personal and professional aspects and the interconnectedness of the two. Participants had little mention of things that "surprised" them when they entered the profession. Literature highlights that both career decision-making and identity have multiple factors (Penick & Jepsen, 1992; Whiston, & Keller, 2004; Watson & McMahan, 2005); immersion by the SGATs helped us understand that in a unique way. SGATs observed how their fathers balanced work and home

life, how their father interacted with the community, and time with their family among others. Because immersion was impactful to recruitment and retention, providing immersive experiences to potential agricultural teachers could lead to career success. We recommend studying career immersion in teacher preparation programs may be helpful to determine what immersive experiences early career teachers would need to develop their career trajectory and identity.

Secondly, this study reinforces the influence role models and mentors play in shaping beliefs and perceptions, which in turn impacts careers. While not every participant desired to entirely emulate their father, his career was used as a baseline understanding of what is expected. This is supported by literature as it relates in individuals' influences (Beggs, Bantham, & Taylor, 2008; Metheny & McWhirter, 2013). SGATs noted the role modeling was both subconscious and conscious, making it difficult to understand the fullness of this impact. What was evident was that their fathers impacted their beliefs, both when choosing a career and once in agricultural education. Role modeling underscores the importance of mentoring in pre-service and early career teachers, therefore, we recommend future practice and studies take into account role modeling as a component of career choice and mentoring.

Related to role modeling, understanding the impact of the career was important. This supports prior research identifying social value as one of the most influential factors in choosing a career (Ingram, et al., 2018). When SGATs spoke about how their father influenced them, they highlighted the impact the father had on their students and/or members of the community. This impact was easily observed and highly valued. It is recommended to dive deeper in the concepts of student impact by the teacher for both research and practice. Recruitment efforts should pivot their focus on highlighting the impact of the profession from not the teachers' perspectives, but by their students.

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# That's Not In My Position Description: A Discourse Analysis of SBAE Migratory Context

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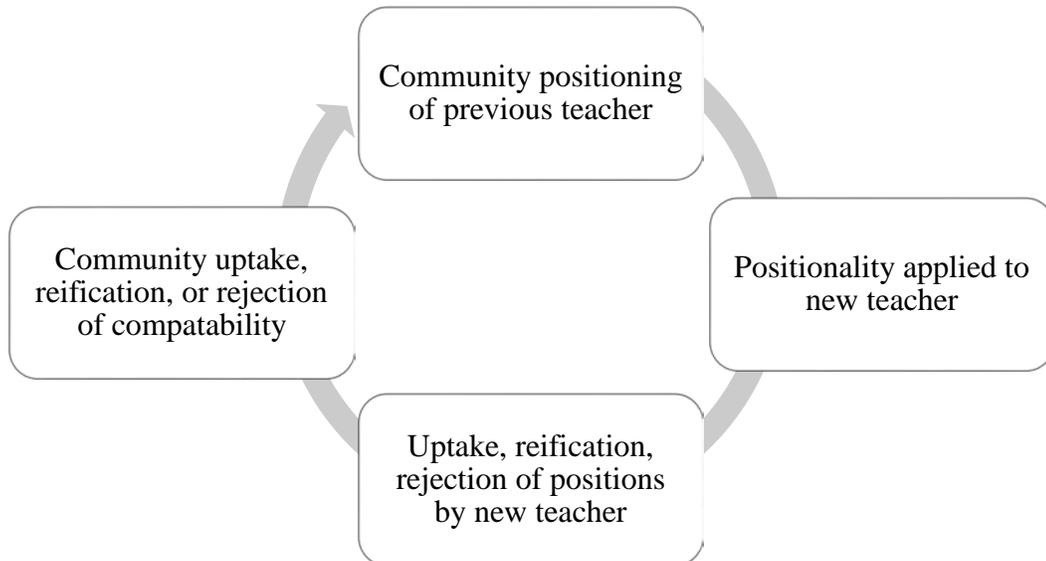
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## Introduction & Framework: Teacher Migration & Positioning Theory

While career moves often result from personal choice, validation in migratory processes largely manifest where researchers, other teachers, and administrators can exert significant influence. We can influence the ways School-Based Agricultural Education (SBAE) migrators are welcomed into new communities, as our research informs how the education profession studies the uniqueness of migrating teachers and their needs. This work shifts the paradigm of the professional conversation from current discourses of migrators being leavers, less effective, and generally lacking (Atterbury, et al., 2017; Feng & Sass, 2012; Gary, et al., 2015; Goldring, et al., 2014; Ingersoll, 2001; Ronfeldt, et al., 2012; Ross, et al., 1999; West & Chingos, 2009). Instead, we assume there is a system, people operate in it, and people seek learning and growth as distinctly hopeful human phenomena. People exercise social discourses in social structures, informing and being informed by them. Therefore, to better relay the relational nature of migration, we engaged *positioning theory* as a way to identify how people take up, reify, or reject social structures (Harré & van Langenhove, 1999; Davies, 2000). We aimed to understand the positions taken up, reified, and rejected in SBAE migrators perceiving support and challenge to further clarify retaining migrating teachers.

In the case of migrators, we position individuals in school systems, but also in broader discourses of education, teachers, SBAE teachers, and individuals' own subjectification inside their family systems and communities. We offer migration as a positioning phenomenon based on its circular nature. Figure 1 illustrates this point.

Figure 1. Conceptualizing the discursive position of SBAE migrators



Thinking of migration as a choice, through the lens of positioning, allows the unfolding of migration as relational. The goal of our study was to illuminate the productive positions enabling positive migration experiences.

### **Study Purpose, Assumptions, & Significance**

The purpose of this study was to unfold positions of migrating SBAE teachers to understand support and challenge to retain teachers in migratory contexts. To focus on the teacher within their system, we conceptualized migration as a social interaction (Berger & Luckmann, 1966; Blumer, 2018; Penson & Yonemura, 2012). Outlining teacher migration as a social interaction permitted the use of positioning theory (Davies, 2000; Harré & van Langenhove, 1999), through discourse analysis, to co-investigate the social navigations and structures in which mobile teachers operate. We focused our attention on this question: How do SBAE migrators position themselves and others in their co-constructed discursive context?

Our study aligns with AAAE Research Priority 3, Question 2: “What methods, models, and practices are effective in recruiting agricultural leadership, education, and communication practitioners and supporting their success at all stages of their careers?” (Roberts, Harder, & Brashears, 2016). This work addresses a little explored field in SBAE, despite mounting anecdotal evidence, that the advice offered, support conveyed, and action of the workforce tends toward mobility.

### **Methods & Procedures**

Employing positioning theory as an approach to discourse analysis sheds light on SBAE teachers’ positioning of themselves and members of their new community. We focused on migration in one SBAE program with consistent teacher *churn* (i.e. a new teacher every five years for the last 30). To examine the relational nature of migration, we invited the last three SBAE migrators since 2003 (the researcher familiar with the site excluded), to participate in the study. The SBAE teachers in this study taught at North Plains Consolidated (NPC) for five years or fewer before making their next career move. All the teachers were currently involved with the broader education profession in some form, and at the time of the study, all three were still employed by the NPC school district.

Having worked with participants through their reflexive positioning, further semi-structured interviews, based in dialogue, allowed for an answer (Patel Stevens, 2004, citing Bakhtin, 1990) regarding the positions imposed by self and others (including research discourses). The semi-structured nature of the interviews highlighted different *episodes* (Davies & Harré, 1990) of the migration experience: coming to teaching, prior teaching appointments, coming to, working at, and moving on from NPC. Interviews occurred via the Zoom video conferencing platform and in-person during November of 2019. All interviews were audio recorded and transcribed. Interviews ranged from 60 minutes to two and a half hours in-length, generating approximately 14 hours of audio data over 6 interview sessions.

Subsequently, we engaged a discursive process, shared with the participants, of reflective journaling and memoing (Auerbach & Silverstein, 2003; Gee & Handford, 2012), data mapping (Ash, 2003), member checking (Patel Stevens, 2004), and open coding (Ash, 2003; Davies, 2000; Kvale & Brinkmann, 2009). With individual speech episodes as the unit of analysis, we coded individual positions navigated by concept conveyed. Coding yielded 24 concepts

encompassed in four themes for SBAE migrators. The individual elements of our methods compile toward the credibility and trustworthiness of our study. Multiple points of the study accounted for answerability, authenticity, and reflexivity. We exercised caution to not falsely overlay acceptance of truth on given episodes through the co-iterative analysis (Patel Stevens, 2004) and data mapping (Ash, 2003).

### **Discussion of Findings**

Four themes emerged to describe how SBAE migrators position themselves in their co-constructed discursive context. Positioning is inherently reciprocal (van Langenhove & Harré, 1999). In positioning oneself, individuals also position others, therefore, we discuss SBAE migrator positioning both as positioning self and as positioning others in their co-constructed context.

*This is Where I'm Meant to Be* embodied positions that recount a sense of belonging. Beyond identifying from a particular geographical area, participants expressed ideas of belonging to a particular institutional position. Across the theme *I'm Where I'm Meant to Be*, teachers positioned themselves and those around them as *committed*, *geographically bound*, *connected*, and *supported/supportive*. Themes intertwined as teachers discussed support from various community influencers fostering greater connectedness in successful teaching in their community. Stephanie specifically discussed the content resources available to her:

One unique thing I had was the assistant principal was one of the former instructors, so I had him to help with onboarding. He was especially helpful with some of the discipline things I had because he already had relationship and rapport. Him being able to tell me, "This is who we use for welding materials," and "This is what we've done with that," was so helpful. At the time, PLCs weren't really a thing yet, but Mr. Meyer was a major veteran, so he was very helpful in that process.

Conversely, when teachers did not feel supported by their community, they suggested a diminished desire to connect within the community and commit for the long-term. Teachers consistently mentioned how various community influencers took it upon themselves to foster or reduce positions of *belonging* in the teachers with whom they worked. The former initiative on the part of the community influencers seemed to be expected, appreciated, and largely reciprocated.

*Additional Duties as Assigned* captured the ways these SBAE migrators position themselves as agricultural educators and FFA advisors, especially in light of the workload and challenge of the job itself. Participants outlined the challenges of their positions in particular institutional roles, expressed as participants positioned themselves as less competent, but surviving and persevering through the role despite significant challenges. Aaron talked about it as a process of becoming good:

Eventually you'll be good, you'll make those connections, and you'll know who to call when you have a question. You can reach out to community members, you can build a program, and you can have those great interactions with kids, because really that's what it's all about.

As these teachers deliberated their *Additional Duties as Assigned*, they wrestled with positioning themselves and being positioned in their institutional roles. Teachers perceived the positions they occupied as rejected by community members when they did not perceive support, were compared to others, or felt others were clueless about the work the agriculture teacher was actually doing.

*I'm the Real Deal* embodies a sense of being well-equipped to do the job. Beyond being able to perform well in an institutional role, participants expressed being able to elevate a program beyond what it was when they arrived. Across the theme of being *The Real Deal*, teachers positioned themselves with the dispositions to do the job well: *considerate, having a desire to build, resourcefulness, and experienced*. Stephanie discussed being able to build something as a significant consideration in accepting the job:

I was kind of hired with this promise of do what you want. It will be your program and you can turn it into whatever you want it to be. That was pretty appealing to me. The reality was half the time I was teaching junior high, which was not my fave, and the other part of the time was the high school stuff...I added some of my own stuff but was tied down schedule wise by the junior high electives and that wasn't something I was really into. They wouldn't let me do work-based learning. So that was another thing I didn't get to do that I had seen very successfully at other schools.

Within the differences of these teachers' experiences, the migratory context for SBAE teachers is varied, with many evidences present of the constant negotiation of establishing the position of the best person to do the job at that time.

*Everyone is Special* unpacks positions of purpose derived from being different from one's peers. Participants discussed enacting their own agenda and plans for what a program should be, particularly as it positioned them as more capable than their peers. Capability served participants well when their agenda aligned with those with whom they interacted, but broke down when limits were imposed on a person's autonomy, challenging their ability to position themselves as independent in their work. Aaron talked about the nuance of teaching agriculture relative to his peers:

I think I had a different attitude about my expectations with kids; what I wanted to get out of them. I always had the mindset, "This is an elective area. I'm trying to make this fun. I'm trying to make this interesting and worthwhile." I think that's a different mindset than let's say a math, or English, or Social, or Science teacher. You gotta take 12th grade English. So I think [the ag] position lends itself to that, which comes with different challenges too. Because you got to sell it or you're out of a job, so you gotta do that and it can't be fluff. It can't be just a fun and screw around type of thing.

Each teacher saw himself or herself as special, positioning as *unique, visionary, refreshed, lucky, and autonomous*. Relationally, holdover expectations strained relationships with feeling challenged rather than supported; they limited the ways teachers felt they could engage, working to reject a position of *limitation* rather than flourish in a position of *autonomy*.

### **Recommendations, Implications, & Conclusions**

*This is Where I'm Meant to Be, Additional Duties as Assigned, I'm the Real Deal, and Everyone is Special* culminated to suggest these teachers positioned themselves as capable, well-disposed, visionaries who belong in their roles in their communities. For migrators, dissonant expectations are magnified, especially if unclear when the job is accepted. Migrators bring the expectations from their former district and community with them. What a district gains in experience also brings the habits and expectations from a former way of practicing.

In aligning expectations with the socialization of teaching as an individualistic, conservative, and present focused profession (Lortie, 1975), we must be willing to question what positions our study exposed. For SBAE teachers, but especially migrators, positioning allows questioning the exposed constructions of this migratory context. Namely: 1) What do we expect of SBAE teachers and migrators? 2) Where do those expectations come from? 3) Which continuous expectations are held across teachers and which are released when new teachers enter the context? 4) How do we engage in discourses to clarify expectations for all involved?

Specific to our study, were implications regarding support, connection, and commitment. These mutually influencing positions were key to teachers finding their ideal career where they were, in this study and others (Haddad et al., 2019). The challenge for the SBAE migrator is clearly identifying, for themselves, what they are moving for (Haddad et al., 2019). In so doing, they can better articulate how they are able (or not) to meet the expectations of the various community influencers they will engage to develop a program. If teachers are moving to better their situation (Peterson, 1978) they must be intentional throughout the search process about what constitutes a better situation.

Importantly, SBAE migrators must find clarity, as they step into new communities, regarding their responsibilities. Only with clarity in responsibility can teachers act with their desired autonomy. Researchers must be cognizant of proposing solutions adding to a teacher's workload, given the implications of workload in this study and others. As a recommendation, teachers (migrators or not) can act in their communities by asking of any task: 1) Who else could aid in delivering this service to students? 2) How do I communicate to others this partnership has been established?

Exiting a program is inevitable. Whether from retirement, migration, or other measures, mobility permeates the teaching profession. Predecessors played a significant role, both tacit and intentional, in establishing expectations for their successor. Understanding the role of the predecessor necessitates a professional imperative relative to what is most helpful to incoming teachers relative to what their predecessors are able to leave behind. It is essential SBAE teachers consider the "work cycle" in terms of what they leave for the next person. Are you replaceable? What expectations are you establishing for your successor? Asking these questions elevates replaceability to a measure of success.

Lastly, for the SBAE teacher, a notable deliberation may be the expectation of the community regarding presence. Therefore, in contemplating a program move, how important is it to live in the community to which you migrate? In an era where jobs have become ways of life, housing geography is a necessary consideration. Furthermore, if we ask community influencers to invest and engage, on some level, SBAE teachers must be prepared to return investment. It is beyond the scope of this study to determine at what cost such investment occurs, but should be a weighty evaluation for mobile teachers as they seek to relocate based on geography.

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# Virtual Mentoring in Agricultural Education: Describing the Digital Literacy, Technology Self-Efficacy, and Attitude Toward Technology of In-Service Agricultural Educators

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## Introduction

“Rapidly evolving technology has not only fundamentally changed the way in which we live, work and communicate, but also revolutionized the education system” (Li, Worch, Zhou, & Aguiton, 2015, p. 1). Fundamental changes in the education system have brought to light the disconnect between needed skills and teacher capacity, creating a need for teachers to have the knowledge, skills and strategies to effectively integrate educational technology tools and platforms into their teaching and learning practices (Stobaugh & Tassell, 2011).

An educator's digital literacy: being able to select the correct form of technology to use for the appropriate and intended purpose; technology self-efficacy: having the knowledge and skills to properly use technology for the appropriate and intended purpose; and attitude toward technology: how one feels about using technology for a specific purpose, impacts their capacity and behaviors towards the utilization of technology. It can also affect their ability to meaningfully transfer skills between personal and professional use, including purposeful integration into teaching and learning experiences (Lemon & Garvis, 2016). When teachers have high levels of digital literacy, technology self-efficacy, and a positive attitude towards technology, they may find it easier to use technology in their teaching and learning practices (Joo, Park, & Lim, 2018).

## Conceptual Model

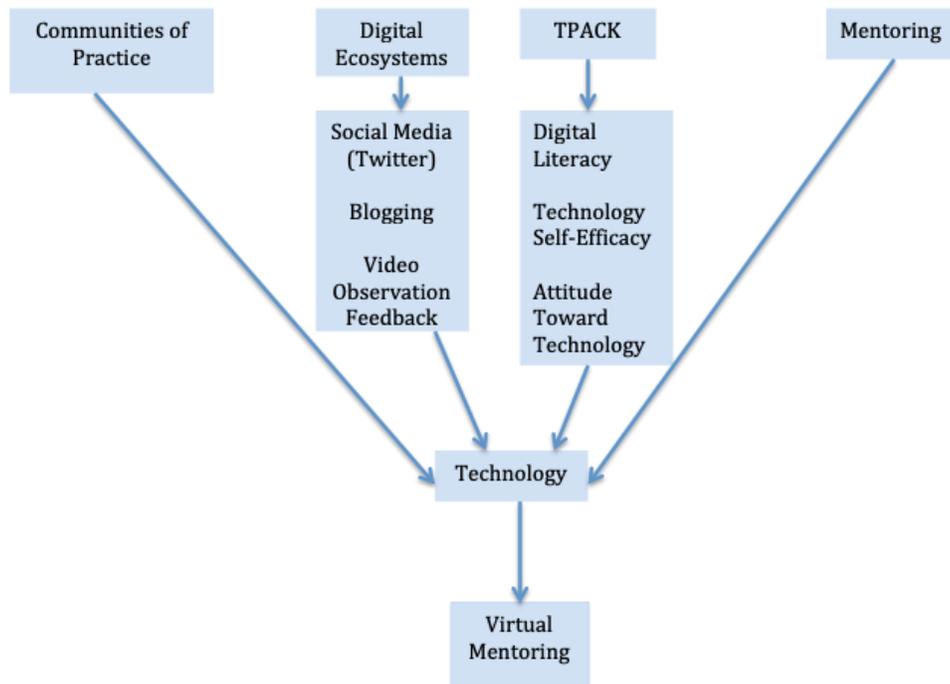


Figure 1

### *Conceptual Model for Virtual Mentoring Impact on TPACK Behaviors (Morey, 2020)*

The conceptual model that guided the study is presented in Figure 1. The virtual mentoring program that was examined in the study occurred when several key elements of the teaching and learning process: communities of practice, mentoring, and pedagogy content knowledge were combined with technology. With the increased usage of technology, mentoring relationships between veteran and novice teachers have transitioned into the digital world. The experience offers mentors valuable time to interact meaningfully with mentees, opportunities to contribute to mentees' development without the pressures they associated with having a student teacher, and a chance to develop mentoring skills (Reese, 2015).

Communities of practice have traditionally served as forums where teachers can discuss best practices for the teaching profession and where mentoring relationships have taken place (Wenger, 2007). When technology is added to a community of practice, it can result in the creation of an online professional learning community, which allows for virtual mentoring to occur (Liu, 2012). Engaging in a virtual mentoring program offers mentors valuable time to interact meaningfully with pre-service teachers, opportunities to contribute to pre-service teachers' development without the pressures they associated with having a student teacher, and a chance to develop teaching and mentoring skills to be successful mentors in the future (Reese, 2015). Virtual mentoring offers mentors the chance to participate in an online professional learning community with agricultural educators who share an interest in professional development and who can foster shared wisdom and operational knowledge (Carney, Dolan, & Seagle, 2015).

Within online professional learning communities, digital ecosystems can arise. A digital ecosystem is an interdependent group of people that share an established group of digital platforms for a mutually beneficial purpose, such as a common interest, and that is based off of the adaptive and sustainable processes from natural ecosystems (Briscoe, Sadedin, & De Wilde, 2011). Digital ecosystems can include platforms related to communication, reflection, and observation. Through participation in professional learning communities, teachers can gain experience and proficiency with using tools commonly used in the classroom such as Twitter, blogging, and video observation (Liu et al., 2015; Paulsen et al., 2015).

Participation in online professional learning communities allows for the discussion of technological pedagogy and content knowledge (TPACK) and best practices for teaching and learning with technology can be shared (Koehler & Mishra, 2009). This experience serves a way for teachers to improve their technology self-efficacy, expand their digital literacy, and develop a positive attitude toward technology (Koltay et al., 2015, Hatlevik & Hatlevik, 2018, Ata & Yildirim, 2019).

#### **Purpose and Objectives**

The purpose of the study was to describe the impact of virtual mentoring program participation on digital literacy behaviors, digital technology self-efficacy levels, and attitudes towards digital communication of in-service agricultural educators. The following research objectives guided the study:

1. Determine the extent to which participation in a virtual mentoring program is associated with overall digital literacy score outcomes.
2. Determine the extent to which participation in a virtual mentoring program is associated with overall technology self-efficacy score outcomes.
3. Determine the extent to which participation in a virtual mentoring program is associated with overall attitude toward technology score outcomes.

## Methods

Participants in the study were in-service agriculture teachers who had or had not participated in a virtual mentoring program at the Pennsylvania State University and who were not compensated for their participation. The in-service agriculture teacher virtual mentoring program participation group comprised four types of individuals: recent program graduates from The Pennsylvania State University, agriculture teachers from Pennsylvania, cooperating teachers, and out-of-state agriculture teachers that had all volunteered to serve as virtual mentors. A census was taken and all individuals from this group were surveyed. The in-service agriculture teacher non-participant group comprised Pennsylvania agriculture teachers who had no prior affiliation or experience with the virtual mentoring program. Because the population of agriculture teachers who met these requirements was greater than the number of agriculture teachers who had participated in the program, a random number generator was used to select study participants to ensure that the two comparative groups were of equal size.

The survey instrument was designed to capture information on digital literacy technology self-efficacy, and attitudes towards technology and included a combination of questions taken from three existing instruments that independently measured digital literacy, technology self-efficacy, or attitudes towards technology and utilized a 5-point Likert-type scale, with response choices of: *strongly disagree*, *disagree*, *neither agree or disagree*, *agree*, and *strongly agree*. The 10 questions related to digital literacy were taken from the Digital Literacy Skills scale developed by Ng (2012). The 33 questions related to technology self-efficacy were taken from the Technological Pedagogical Content Knowledge Scale (TPACK-Deep) developed by Kabakci-Yurdakul et al. (2012). The 17 questions related to attitude toward technology were taken from an instrument developed by Aydın and Karaa (2013).

The reliability of the survey instrument for the in-service agriculture teacher population was verified through the utilization of a pilot test completed by 38 in-service agriculture teachers who were not part of the study population and who were from a state other than the one where the study was conducted. Reliability tests were conducted using a Cronbach's Alpha test for internal consistency using SPSS. None of the survey questions were eliminated as a result of this test.

Face validity was established by having the study instrument reviewed by an in-service agriculture teacher that had not participated in the virtual mentoring program. Construct validity of the instrument was established with specific operational definitions that were included in the survey instrument to clarify the purpose and directions for each section of the instrument. Content validity was addressed by using a panel of experts comprised of in-service agriculture teachers who had not participated in the virtual mentoring program to evaluate the study instrument.

The survey instrument was administered to participants through Qualtrics. The survey was sent to potential respondents via e-mail. The survey administration procedure was developed using *Dillman's Internet, Phone, Mail, and Mixed-Mode Surveys, The Tailored Design Method, 4<sup>th</sup> ed.* (2014).

Independent sample *t*-tests were used to compare the overall digital literacy values, technology self-efficacy values, and attitude towards technology values between in-service agriculture teachers who have and have not participated in the virtual mentoring program. Random samples are one of the assumptions for independent sample *t*-test, but at times this is an inaccurate representation of the sample it represents (Dorofeev & Grant, 2006). Due to the fact

that the samples were not randomly selected, non-parametric Mann-Whitney U tests were also run for each independent sample *t*-test to check for consistency and accuracy of results.

### Results

For the purpose of the study, a completed response was considered one that had 85% of the survey items answered (Brosnan, Grun, & Dolnicar, 2017). Only completed survey responses were included for data analysis. Of the respondents, 62.2 % (n=56) had participated in the virtual mentoring program, while 37.8% (n=34) had not participated in the virtual mentoring program.

Descriptive statistics were run for each digital literacy, technology self-efficacy, and attitude toward technology survey item and overall digital literacy, technology self-efficacy, and attitude score for all in-service agriculture teacher survey respondents. Overall digital literacy, technology self-efficacy, and attitude toward scores for in-service agriculture teachers are shown in Table 1. Skewness and kurtosis values were within the acceptable ranges and analysis of the histograms and normal Q-Q plots supported the normality assumption for overall digital literacy score mean values, overall technology self-efficacy score mean values, and overall attitude toward technology score mean values of in-service teachers who had and had not participated in the virtual mentoring program.

**Table 1**

*In-Service Agriculture Teacher Overall Technology Behavior Scores*

<i>Item</i>	<i>In-Service Virtual Mentoring Program Participants</i>		<i>In-Service Non-Participants</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
	Overall Digital Literacy Score (Total Possible Score=50)	38.86	5.63	35.71
Overall Mean Technology Self-Efficacy Score (Total Possible Score=165)	130.30	17.05	122.68	17.66
Overall Mean Attitude Toward Technology Score (Total Possible Score=85)	55.60	7.61	56.27	1.59

Independent sample *t*-tests were run for each technology usage behavior. The assumptions for Levene's test were met and equal variances were able to be assumed. The results of the independent sample *t*-test showed that there may be a statistically significant between in-service agriculture teacher virtual mentoring program participation and overall digital literacy score ( $t(88) = -2.469, p = .015$ ) and overall technology score ( $t(88) = -2.030, p = .045$ ) and were confirmed by Mann-Whitney U tests for digital literacy ( $p=.006$ ) and technology self-efficacy ( $p=.009$ ). The results of the independent sample *t*-test run for overall attitude toward technology score ( $t(87) = -.446, p = .657$ ) showed no statistical significance and was confirmed by a Mann-Whitney U test ( $p=.976$ ).

### Conclusions and Recommendations

In-service agriculture teachers who had participated in the virtual mentoring program exhibited statistically significantly higher overall digital literacy levels than in-service agriculture teachers who had not participated in the virtual mentoring program. In-service agriculture teachers who participated in the virtual mentoring program were chosen because of their ability to exhibit the characteristics of a digitally-literate teacher: ability to use technology to improve teaching, familiarity with technology tools, a positive attitude towards the use of technology in teaching practices, and development of adequate technical skills to use different forms of educational technology (Güneş & Bahçivan, 2018). The virtual mentoring program incorporated the different steps involved in becoming a digitally literate teacher, which included mastering the technical and operational skills to use information communication technology for learning and in everyday activities that are part of the teaching and learning process (Ng, 2012).

The findings of the study support Hatlevik and Hatlevik's (2018) claims that technology self-efficacy is affected by vicarious experiences, such as mentoring and feedback from others who have a significant impact on their teaching practices, and that teachers prefer to develop digital competence and technology self-efficacy through collaboration with other teachers and that such relationships can have substantial associations with technology self-efficacy for instructional purposes and the use of technology during instruction. In the virtual mentoring program, in-service agriculture teachers regularly communicated and collaborated with their pre-service agriculture teacher mentee and the other in-service agriculture teachers who were also part of the mentee's mentoring team.

Reid (2017) found that how educators experience the different items related to technology adoption, such as training, hardware/software support, and updates can contribute to positive or negative perceptions of the educational technology usage. This was also noted by Ata and Yıldırım (2019) who found that one of the issues related to teacher attitudes towards the use of digital technologies was having the necessary active teaching strategies to incorporate it into their teaching and learning practices. In-service agriculture teachers who participated in the virtual mentoring program were provided with a series of trainings and support documents to help them learn how to use the different digital communication platforms used in the virtual mentoring program as part of the program onboarding process.

Recommendations for the development of digital literacy skills, technology self-efficacy skills, and positive attitude toward technology for in-service teachers include:

- Explore how virtual mentoring relationships could be established between in-service agriculture teachers with advanced digital literacy, technology self-efficacy, and attitude toward skillsets and those teachers who wish to improve their proficiency in those areas
- Establish virtual mentoring relationships between in-service teachers with high levels of digital literacy and technology self-efficacy and a positive attitude toward technology and in-service teachers that wish to develop these behaviors
- Network with state and national agriculture teacher professional organizations to develop a survey instrument to identify and recruit agriculture teachers interested in participating in a virtual mentoring program as mentors and mentees

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# **University-Industry Supported Extension Education Program for Supporting Colombian Rural Youth Career Development**

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## **Introduction**

Because of the socio-economic gap between rural and urban areas in Colombia, rural youth have been labeled as a “marginalized” population (Ocampo, 2014). In comparison to urban people, those living in Colombian rural areas experience greater levels of poverty, illiteracy, migration, and unemployment (DANE, 2019). In addition, due to the internal conflict that was developed in rural areas since 1950, some citizen in rural communities, especially youth, experienced psychological trauma (Torres & Barrios, 2018). Furthermore, rural youth do not have the same quality of public education, which limits their opportunities to access higher education. As such, rural youth perform 16% lower on the national education test compared to urban youth (ICFES, 2018), which results in only 22% of rural students (compared to 42% for urban students) enrolled in university-level degrees after they graduated from high-school (Ospina, 2019).

To address these gaps, in 2009, an alliance of the University of Caldas, Caldas Coffee Growers Association, and the Government of Caldas department started the “Universidad-en-el-Campo” (translated means, University in Rural Communities) program in the Caldas region (for the Colombian context, a department is the first non-overlapping political division. This division has the same level of the 50 states in the U.S. context). This university-industry supported Extension program aimed to implement dual-credit programs in agricultural areas to improve rural youth’s living standards, quality of education, and access to high education, which will reduce rural youth migration to urban areas. The program consists in three academic levels: (1) technical level during last year of high school; (2) technological level during the first year after finish high school; and, (3) university level. To date, over 2,050 rural students enrolled in “Universidad-en-el-Campo” (UCaldas, 2020). Nearly 20% of these students (n = 402) have been enrolled in post-secondary education, and 143 students (7%) developed business plans and/or implemented entrepreneurship projects in rural areas. Recently, an international component (aka, Nexus program) was added to the Universidad-en-el-Campo program (aka, UCampo). In 2019 and 2020, six graduate students participated in an internship (including academic courses, laboratory research, and cultural experiences) at Purdue University in the U.S.

The purpose of this qualitative study was to describe how the “Universidad-en-el-Campo” program helped rural Colombian students make career decisions. Three research questions guided the researchers: (1) What did rural students enrolled in the “Universidad-en-el-Campo” program perceive as possible alternatives for their career development within the marginalized context they lived in? (2) How the “Universidad-en-el-Campo” program help students engage in pursuing agricultural careers (education or occupational)? (3) What were the program benefits to the region in which it was developed?

## **Theoretical Perspective**

Colombian rural youth idealistic career aspirations are oriented toward University careers (as it happen to urban youth); however, their career decisions are not mainly determined by their personal goals, but by contextual constraints they experience in rural areas (Ospina, 2019). First, because of the combination of academic and socio-economic gaps between urban and rural high-school students, those living in rural areas are less likely to pursue the most demanded University

careers, such as, medicine, economics, business administration, or law. In most cases, youth sacrifice idealistic alternatives and pursue realistic options (professional or technical) (Celis, Jiménez, & Jaramillo, 2015; Ospina, 2019). Due to low family incomes, rural youth disregard the option of studying at private institutions because of more expensive tuition than public institutions. This reduces career alternatives for rural youth (Londoño, Canavire-Bacarreza, Bohórquez, & Cuartas, 2015). Moreover, most Colombian universities are located in urban areas imposes additional restrictions for rural youth: (1) students or their families have to incur in additional costs of transportation and/or lodging in order to assist to campus; and, (2) rural students prefer to stay close to their families and dismiss University options as further education because they want to stay close to home and are not able to move to urban communities where universities are located (Bernal, Pulido, Sanchez, & Sanchez, 2018; Jurado & Tobasura, 2012).

In summary, Colombian rural youth career decision-making process is mainly determined by barriers that are imposed by the context they live in (e.g., poverty, academic gap in comparison to urban youth, lack of universities close to rural areas, etc.). These barriers, in turn, suppose a higher cost for rural youth to achieve their academic goals (in comparison to urban youth).

From the theoretical perspective, there are two frameworks from which this phenomenon can be explained. First, Gottfredson's theory of circumscription and compromise explains that the career decision-making process is determined not only by students' idealistic aspirations (dreams), but also by contextual constraints. As such, because of these barriers, individuals sacrifice roles they see as more compatible with their self-concept in favor of those that are perceived to be more accessible. This sacrifice was defined by Gottfredson as "Compromise process" (Gottfredson, 1981). On the other hand, the Modern Expectancy-Value Theory, link achievement performance, persistence, and choice, directly to individuals' costs. These costs are associated to what the individual has to give up to do a task and/or the anticipated effort a student needs to put into task completion. (Wigfield & Eccles, 2000). Achievement motivation theorists attempt to explain people's choice of achievement tasks, persistence on those tasks, vigor in carrying them out, and performance on them (Eccles, Wigfield, & Schiefele, 1998).

### **Methods & Procedures**

A collective case-study approach (Jones, Torres, & Arminio, 2013; Creswell, 2007) served as the research design. Elements used to define and/or bound the case were: being a Colombian youth (aged 14-25), living in a Colombian rural area, and participating in the UCampo program. Moreover, the phenomenon studied (the issue) was the career decision-making process in a marginalized context.

To understand different youth perspectives, three groups of students participated in semi-structured face-to-face interviews at three points in time—high school students in 2013; college students engaged in entrepreneurship activities in 2016; and, college students engaged in an international entrepreneurship program in 2020 (different students in each group). The first set consisted of 25 rural high school students who signed up the dual-credit program during the academic period 2011-2013. These participants were selected because it was the first group that finalized the technical cycle of the UCampo program (first level). The second group (interviewed in 2016) corresponds to six rural youth that during the time frame of the interviews were developing entrepreneurship activities in rural areas in Colombia. The criterion to select this group was that participants were enrolled to the second level of the UCampo program (technological level). Finally, the third set of interviews (conducted in 2020) consisted of two

undergraduate students (third level of the UCampo program) that after completing the dual-credit program, were enrolled to University of Caldas to pursue agricultural-related careers. During the time frame of these interviews, those two students were participating in an international initiative that provided them with academic courses regarding rural entrepreneurship at Purdue University in the U.S.

Along with specific information regarding activities conducted during the time frame of the research, participants were asked to talk about the importance of the dual-credit program for their career development (i.e., education and/or occupational). Interviews protocols (questions) were validated by external academic reviewers (university professors and/or graduate students). All data sources were recorded in Spanish and results were transcribed and translated into English. After that, data was coded (Saldaña, 2013) using themes and codes that were aligned with the research questions, such as rural opportunities, rural constraints, career alternatives, etc.

Regarding researchers' positionality, it was critical to reveal how our biases and relevant experiences shaped this investigation. For example, one of the researchers is faculty at Purdue University, and provides leadership for the STEM systems learning initiative in youth development and outreach education and studies the effectiveness of experiential learning programs in nonformal educational contexts. The other researchers were graduate students whose studies are focused on agricultural education and global education. Further, all researchers had previous experience and had facilitated or participated in rural education activities before data collection in Colombia. The combination of these backgrounds influenced the data analysis, especially regarding how we interpreted participants' lived experiences and the dissonance they endured. As a consequence, our positionality in this investigation influenced our methodological decisions. The insider-outsider perspectives on the research team helped with interpretation of evidences through peer debriefing.

The researchers used an interpretivist paradigm to analyze the data. In order to ensure trustworthiness, other sources of data were used to triangulate interviews information (Loh, 2013). That is, interviews findings were contrasted and/or compared to regional press releases that were focused on different stages of the dual-credit program, and students' statement of purpose documents. Finally, findings were discussed in order to obtain conclusions, implications, and further recommendations regarding this kind of programs in Colombia.

## Results

Key themes with supporting categories and representative quotes emerged from the coding of the qualitative data.

### **Perception of lack of opportunities: migration as a real alternative.**

As a common element among the sets of interviews, participants perceived the context they lived in as a push factor for migrating to urban areas. They recognized that the rural context implied scarcity of resources, internal conflict situations, and lack of opportunities for developing their careers after finishing the school. As a participant said: *"I am going to tell you why I do not want to stay [in rural areas]: because there are no opportunities ... my village has had several problems, lack of transportation infrastructure, the armed conflict, and drug trafficking."* Along with those elements provided by the internal conflict (e.g., drugs and war), some participants identified that, although they wanted to pursue university careers (different than agriculture), their families could not support them to follow their goals. Moreover, their families suggested

them to leave rural areas. A participant remembered that when she was a school student, her mother told her, “*You have to follow a career that help you leaving the rural area ... and not come back to the farm.*” It shows that not only students, but also students’ families were aware about limitations of rural areas regarding career decisions. They saw migration as an alternative to face this reality.

### **The Extension program provided more than technical knowledge.**

Participants recognized that the Universidad-en-el-Campo program provided them with tools to pursue agricultural careers (i.e., education and/or occupational). First, they highlighted that the program was a real alternative to face contextual barriers they experienced. Moreover, they mentioned that after acquiring basic knowledge, they could continue either with entrepreneurship projects or with university careers—with the support of the University. Regarding the support on occupational activities, a participant said: “*During the whole process of Universidad-en-el-Campo program, we formulated a project ... with professors we were strengthening it ... I presented it, and I got the grant for 8 million Colombian pesos ... with this money, I built the transformation and storage warehouse.*” In addition, regarding further education, a participant who is currently an undergraduate student of Agribusiness Administration, and participated in an international internship in the U.S. remarked, “*Although I wanted to study Medicine, I decided to be enrolled to this program, then when I studied the technological level [of the program], I felt I was fall in love for this [Agricultural] career ...so, I decided to continue studying the professional level.*”

### **Extension education: A tool for peace and rural development**

Not only participants and researchers, but also Colombian civil society, recognizes the importance of supporting the rural youth career decision in order to establish peace and development in rural areas. When participants were asked about the impact of this program on their communities, they shared, “*I think that the education is the best step for a sustainable peace, if there is no education there is no peace*” or “*[this program] was a turning-point in my life ... I grew-up surrounded by plantains and coffee, and now I am in the U.S. learning for helping in the development of my region.*” In addition, other sources of information that were used to triangulate data remarked the impact of this kind of programs to recover regions that were affected by the internal conflict. The program was an option to keep youth away from conflict.

## **Discussion**

Regarding opportunities in rural contexts, participants were aware that they were disadvantaged in comparison to urban students. These disadvantages were based on two reasons: (1) During last 50 years, Colombia experienced an urbanization process, reduced investments in infrastructure and/or human capital in rural areas (Kalmanovitz & Lopéz, 2005); and, (2) internal conflict between government and guerrillas developed in rural areas, avoiding the presence of the government and protection and security in these regions (CNMH, 2015). This inequality, as it was observe in results previously presented, has been a push factor of migration to urban areas (Méndez-Sastoque, 2016). Approximately 12% of rural youth migrate from rural to urban areas every year (Jurado & Tobasura, 2012). Because youth migration reduce labor force in rural areas and exposes youth to less ideal conditions, it has been highlighted as the big challenge to be addressed concerning rural youth (Ocampo, 2014). An alternative option is to develop education

programs, in which rural youth are enrolled to formal or non-formal programs focused on rural activities (Ospina, 2019). Our findings show that this kind of Extension program can help rural youth improve their lives, promote entrepreneurship activities, and/or motivate rural students to pursue university education and agricultural careers. These findings supported findings presented by Cifuentes-Garzón & Rico-Cáceres, (2016), Parra & Mendez, (2005), and Ramos, (2016), which concluded that Extension-education programs are effective tools to engage rural youth to agricultural activities, promoting rural development in Colombia.

### **Conclusions, Implications, Recommendations.**

The Universidad-en-el-Campo program is a university-industry partnership that provides rural students opportunities to pursue university education, develop entrepreneurship skills and projects, and pursue agricultural careers, especially in rural communities where they can continue to live close to home and families. The findings of this program highlight that investing in and developing youth is a key strategy to rural and economic development in Colombia. University and industry-supported partnerships should continue to explore ways to connect K-12 education to out-of-school experiences and university-sponsored programs such as dual-credit programs. Finally, youth development and education programs should focus on building community capitals, including human capital, social capital, and cultural capital (Flora & Bregendahl, 2012).

Future studies should focus on advancing the knowledge based through mixed methods designs, longitudinal designs, and follow-up studies with youth participants, university faculty, and industry leaders. Further analyses should focus on the intersectionality of career decision-making and the affordances and barriers Colombian youth face in rural communities. Finally, future studies should unpack the social-emotional aspects that living in a post-conflict region plays in how they view their future and make career decisions.

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# **Rural Colombian Youth Motivations to Learn a Second Language to Participate in an International Entrepreneurship Development Internship**

Carlos A. Parra Salinas & Neil A. Knobloch

## **Introduction & Need for Research**

The development of human capital for rural and agricultural development in a globalized world is critical to bring new perspectives and ideas to address the 21st century challenges, such as food security, water scarcity, climate change and rural development. Bilingualism is a component of human capital (Mejia-Mejia, 2016; Jabba, 2013) because this component helps personal growth and social mobility (Mejia-Mejia, 2016). The level of English proficiency in Colombia is very low (Education First, 2019). Colombia is ranked at 17 out of 19 countries in Latin America. The level of English proficiency of rural Colombian students is lower than urban students because of several reasons: (1) the quality of rural education is lower than urban education; (2) shortage of trained teachers; (3) scarce resources for educational infrastructure; and, (4) fewer methodologies or strategies to motivate students (Buitrago, 2017).

To address these challenges in rural Colombian communities, dual-credit programs can engage rural high school students to earn college credits while completing high school. Additionally, dual-credit programs provide the opportunity for rural students to engage in additional academic activities through agricultural Extension education that allows students to improve their academic level; an example is the Nexo Rural Program. This program was designed for students who were enrolled in a dual-credit Extension and entrepreneurship education program to strengthen the scientific and business vocation of rural young people through international internships with an emphasis on research, technological development and innovation in STEM + A (Science, Technology, Engineering, Mathematics and Agricultural Sciences). In this way, a commitment was made to generate a culture that values knowledge and promote the participation of Colombian youth in international networks and contexts.

Students who participated in dual-credit programs showed a desire to improve the quality of education in a way that allows rural students to access new opportunities. To be competitive, a student must be able to communicate using a second language. Especially in English, which has been called the language of business. However, different factors can affect students' intentions. To address these second language issues in rural areas of Colombia, it is necessary to know the interest and motivations of dual-credit students to learn the English language.

## **Conceptual or Theoretical Framework**

Expectancy-value motivation served as the theoretical framework for this study. This theory was chosen because Wigfield and Eccles' (2002) model of EVT identifies two sources of motivation: students' expectation of success and the value of a goal. Seifer and Sutton (2009) explained motivation is a multiplicative formula: expectancy x value = motivation, thus is necessary for a person to have expectation of success and to assign a task at least some positive value to be motivated. For the study, college students participated in a dual-credit program, which had academic and agricultural entrepreneurship components. Additionally, the students were invited

to participate in English classes offered by the University at no cost to the students. The purpose of the study was to describe rural college students' motivations to learn English as a second language in a rural coffee region in Colombia.

### **Methods & Procedures**

This exploratory study was conducted with 80 students enrolled in a dual-credit program to describe the motivations of the rural youth to learn English as a second language. We conducted a survey to collect data during March and April 2019. The students were sent an e-mail with the invitation to complete the online Qualtrics questionnaire. There were 68 rural youth who responded to the questionnaire in a six-week period. The questionnaires used in this study consisted of 15 items organized into two sections: (1) Interest for study second language (developed for this study); and, (2) motivations to learn English (Ozgun & Griffiths, 2013). The items in the instrument were slightly modified for the context of this study. To measure the first section, a five-point anchored rating scale was used: (1) very low; (2) low; (3) average; (4) high; (5) very high. To measure the second section, a Likert scale was used: (1) strongly disagree; (2) disagree; (3) agree; (4) strongly agree. An expert panel consisting of two faculty members and five graduate students at Purdue University reviewed the instrument for content and face validity. As a result of the reviews, some items were reworded, added or omitted altogether. This study reports the findings from the pilot-test. The questionnaire was translated into Spanish and results were translated into English. SPSS statistical software was used to analyze the data. Frequencies for each item were reported.

### **Results & Discussion**

Nearly half of the students (42.6%;  $N = 29$ ) reported they knew a second language, and all of these students mentioned English as their second language. Regarding students' interest in a second language, 63.2% ( $N = 43$ ) said there were interested in learning a second language and the 50% ( $N = 34$ ) mentioned they were interested in learning English. Finally, 98.5% ( $N = 67$ ) of the students agreed it was important for them to learn English as a second language. Regarding rural agricultural science students' motivations to learn English as a second language, we divided the analysis in expectations and value because the motivations is the interaction between expectative and value. The students' expectations to learn second language (English) were presented in Table 1.

These results showed over 90% of rural Colombian students' agreed learning English is beneficial to getting a good job. Over 80% of the students agreed learning English is important to understand films, videos, TV or radio, reading books, and studying abroad. On the contrary, nearly 80% of the students did not agree people would respect them more if they spoke English. Regarding value, Seifer and Sutton (2009) explained value is the result of interest and self-determination, especially when given free choice. In this context, Values about the students' motives to select learn English were presented in Table 2. Four out of five students agreed they were interested in learning English so they can improve themselves, fulfill their own satisfaction, because their school and parents want them to learn English, and they had a desire to learn English.

Table 1. *Students Expectations to Learn English as a Second Language*

Outcome Expectations	Percentage Agreement				Total Agreement
	1	2	3	4	(3&4)
I think English is beneficial for getting a good job.	1.5	6.0	34.3	58.2	92.5
Learning English is important to me so that I can understand: films, videos, TV or radio in English.	4.5	7.5	50.7	37.3	88.0
Learning English is important to me because I will be able to read books in English.	4.5	7.5	41.8	46.2	88.0
I want to study abroad.	3.0	16.4	34.3	46.3	80.6
I am interested in American culture.	3.0	20.9	47.7	28.4	76.1
I want foreigner friends.	3.0	20.9	37.3	38.8	76.1
I think English is important for me because other people will respect me more if I speak English.	20.9	56.7	13.4	9.0	22.4

*Note.* Scale = (1) strongly disagree; (2) disagree; (3) agree; (4) strongly agree

Table 2. *Students' Motivations to Learn a Second Language*

Value Motivations	Percentage Agreement				Total Agreement
	1	2	3	4	(3&4)
I learn English so that I can improve myself.	4.5	9.0	40.2	46.3	86.5
I learn English for my own satisfaction.	4.5	10.4	49.3	35.8	85.1
My school wants me to learn English.	3.0	14.9	52.2	29.9	82.1
My parents want me to learn English.	1.5	17.9	49.3	31.3	80.6
To be honest, I have desire to learn English	4.5	16.4	35.8	43.3	79.1

*Note.* Scale = (1) strongly disagree; (2) disagree; (3) agree; (4) strongly agree

Rural Colombian students were interested in learning English and they were motivated because learning a second language provides them an opportunity for their future. For example, if the relationship between expectation and value is multiplicative and not additive as stated by Seifer and Sutton (2009), in this case "I think English is beneficial for getting a good job" (expectancy) x "I learn English so that I can improve myself" (value) = motivation to learn second language (English). Additionally, cultural aspects and future academic opportunities for rural students can be used to explain other expectations that support the rural student motivations to learn a second language. Finally, these results supported Ozgur and Griffiths' (2013) findings regarding importance of motivation to learn English.

### Conclusions, Implications & Recommendations

Although Colombian rural students experience low quality education and poor education infrastructure, the rural youth in this study were motivated to learn English as a second language and their reasons were aligned with outcome expectations and intrinsic value. Both expectations and values were high for Colombian rural students. Although no cause-effect relationship was

studied, the student's motivations could have been supported by Extension education programs to develop rural entrepreneurship, learning a second language, and studying abroad. Youth education programs can close the disparities between rural and urban education. Students in this study demonstrated that they value the opinions of other people who they respect. As such, parents and teachers can play a positive influence in motivating rural youth to pursue careers, further their education, develop entrepreneurship, and learn a second language.

This study provides information about college students' motivation to learn English as a second language, and the findings suggest students are more likely to want to learn a second language if they see positive outcomes for doing so. The analysis of this information can contribute to the strengthening of the educational methodology by the university and help serve as input in the development of politics for rural higher education in the Department of Caldas and Colombia.

It is important to know the motivational factors and expectations to learn a second language because programs could be developed or adapted to motivate and engage rural students to learning a second language. Also, it could help students already engaged in developing a second language to continue with a training advanced, which will allow bringing the globalization process closer to Colombian rural area.

Agriculture can play an important role to improve the quality of education in rural communities and the English level in rural areas of Colombia because agriculture provides a holistic approach, which enables students to connect with different areas subjects. Learning a second language is no stranger to the agricultural context and is important for human development and the development of the rural sector because it allows openness to other knowledge, it develops specific skills that facilitate communication, and finally, support the integration of multicultural society.

Colleges of agriculture should continue to develop programs that help to improve the quality of rural education, improve their academic and personal skills, and motivate students to continue in the agricultural science programs. One of these skills is the second language (English), the colleges of agriculture should include in a transversal way to use English in all academic areas, promote academic exchanges, strengthen English levels in professors, and promote the links of teachers and students in academic international networks.

Future studies should be conducted with a larger number of participants and in other rural areas of the Caldas Department and Colombia. With a larger number of participants, generalizability can be increased and multi-level models could be run to determine the structure of relationships regarding rural college students' motivations to learn a second language. Also, mixed methods designs with qualitative methods should be used to provide more contextualized understandings of college students' motivations.

It is essential to consider the relevance of the higher education in rural communities because services for human development are less developed and economic growth is slower. Second language skills would provide students more opportunities to participate in the current globalized community.

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# **Rural Colombian College Students' Motivations and Proficiency to Learn English as a Second Language Before and After Participating in an Agricultural International Internship**

Carlos A. Parra Salinas, Margarita Maria Lopez & Neil A. Knobloch

## **Introduction**

There are large disparities between the urban and rural education sector in Colombia. These disparities are because of the precarious conditions of rural schools and the lack of rudimentary conditions to benefit from the educational system. Lakin and Gasperini (2004) explained that this rural-urban gap in developing countries is caused by several reasons such as lack of schools, overcrowded classrooms, underequipped schools, children required to work, and teachers being under-qualified as well as not supported and poorly remunerated.

National governmental policies have been drawn up for the teaching of a second language in Colombia. English is the preferred second language in Colombia because of its global use (Roldan, 2016,), and with the purpose of "having citizens capable of communicating in English, with internationally comparable standards, that insert the country in the processes of universal communication in the global economy and in cultural openness" (Colombia, Ministry of National Education—MEN, 2004). In this context, in the Caldas Department (a department is similar to a state in the US), the Caldas government, universities in the region, coffee industry organizations, and private business sectors collaborated on different initiatives to close this educational gap through the link of agriculture and education. One of these initiatives is the Nexo Rural Global Program (NRGP). The NRGF is a new component of the Universidad-en-el-Campo (UCampo) program, and it was developed to provide an opportunity for college students in rural areas to participate in a six-month academic internship at Purdue University in the USA. The purpose of the NRGF internship is to develop participants' 21st-century skills, including English-proficiency (i.e., written and oral communications), professional and technical education, entrepreneurship, creativity and innovation, social and cross-cultural skills, and global awareness.

The Colombian Ministry of Education has made English language education a priority in recent years. Universities and K-12 schools have been investing in training and resources so that schools improve the teaching process to learn English as a second language. The NRGF is the first program in Colombia that was created for rural college students to participate in a six-month academic international experience. For this reason, it is critical to explore participants' motivation and language proficiency to learn English as a second language after completing the NRGF internship.

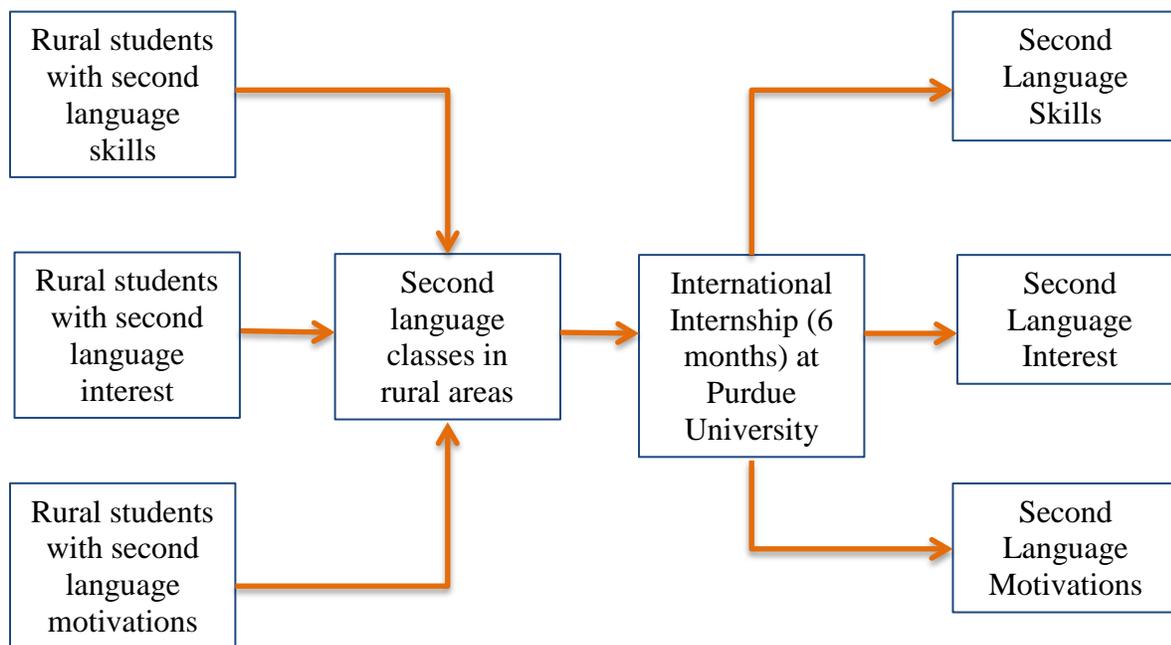
## **Conceptual & Theoretical Framework**

Figure 1 served as a conceptual framework for the study. This framework illustrates rural students with poor knowledge about English, but who have some interest and outcome expectation motivation to learn English as a second language, can participate in English classes and reach the level of English proficiency to participate in a 6-month academic internship at a land-grant university in the U.S. As such, six college students fulfilled the academic

requirements and the minimum level of English, and were able to participate in the academic internship in Purdue University for six months. After the students returned back to Colombia, they were completed two posttests: (1) English proficiency test; and, (2) questionnaire to assess their interest and outcome expectation motivation to learn English as a second language. The theoretical framework for the study was based on expectancy-value motivation theory. Eccles and Wigfield (2002) purport that students are more likely to engage in tasks that they are interested in (intrinsic value) and see there would be a positive result if they performed the task (outcome expectation).

**Figure 1**

*Conceptual Framework*



**Purpose & Research Question**

The purpose of this exploratory pilot study was conducted to describe college students' motivations to learn English as a second language and their English proficiency after participating in the international agricultural internship—the NRGP. The study was guided by two research question: (1) What were the participants' interest and outcome expectation motivation to learn English as a second language before and after the NRGP internship? (2) What were the college students' English proficiency before and after the NRGP internship?

**Methodology**

Six students participated in this qualitative study. Students had to perform a minimum level of English proficiency to be eligible to participate in the NRGP. As such, students who participated in the UCampo program were invited to participate in an English course. The Department of

Languages at Universidad de Caldas design and taught the English course. The aim for the course was to teach the students the English language and concurrently help them get familiar with culture in the U.S. The English course included the teaching of the four skills related to grammar and vocabulary—reading, writing, listening and speaking. Students were assessed on these four skills. To provide context, teachers included topics regarding agriculture to help students learn these words they might need use in conversations during the international internship.

A questionnaire to assess students’ motivation to learn English was used to collect data during April 2019 (pretest) and March 2020 (posttest). Students were sent an e-mail invitation to complete the online Google survey. The questionnaire was adapted from an existing questionnaire (Ozgun & Griffiths, 2013). The questionnaire consisted of 16 items organized into two sections: (1) Interest to study a second language; and, (2) outcome expectation motivation to learn English. The first section had a five-point anchored rating scale: (1) very low; (2) low; (3) average; (4) high; (5) very high. The second section used a Likert scale: (1) strongly disagree; (2) disagree; (3) agree; (4) strongly agree. The questionnaire was translated into Spanish and results were translated into English.

Moreover, Students completed an English language proficiency test in September 2019 (pretest) and March 2020 (posttest). The language proficiency test was designed by the professors of the Department of Languages to assess the four skills of using the English language—reading, writing, speaking, and listening. The results were reported in percentages and homologated to the Common European Framework of Reference for languages (CEFR).

### Results & Discussion

Regarding students’ interest to learn English as a second language, the participants were interested in learning English as a second language, both before and after the international academic internship (Table 1). All participants agreed learning English as a second language and their interest in teaching English was very high after completing the internship.

**Table 1.**

*Interest in Learning Second Language*

Interest Item	Percentage Agreement (%)									
	Pretest					Posttest				
	1	2	3	4	5	1	2	3	4	5
Interest in SL	0.0	0.0	16.7	16.7	66.6	0.0	0.0	16.7	16.7	66.6
Importance SL	0.0	0.0	0.0	16.7	83.3	0.0	0.0	0.0	0.0	100
Interest in Teaching English	0.0	0.0	0.0	16.7	83.3	0.0	0.0	0.0	0.0	100

*Note.* Scale = (1) very low; (2) low; (3) average; (4) high; (5) very high

Prior to participating in the international academic internship, students were motivated regarding outcome expectation to learn English. For example, students agreed getting a good job, their own satisfaction, wanting to study abroad, and desire to learn English were rated strongly agree by at

least three out of six students. After completing the 6-month international academic internship, students were highly motivated regarding outcome expectation to learn English. For example, students agreed "getting a good job", "my own satisfaction," "I want to study abroad," "interest in American culture," and "desire to learn English" were rated strongly agree by at least five out of six students. In the posttest, students rated the same three motivations as the highest but increasing the agreement level. Regarding disagreement, five out of six students did not agree that people would respect them more if they spoke English before the internship. After the internship, all six student did not agree people would respect them more if they learned English.

**Table 2.**

*Outcome Expectation Motivation to Learn English*

OE Motivation Items	Percentage Agreement (%)							
	Pretest				Posttest			
	1	2	3	4	1	2	3	4
I think English is beneficial for getting a good job.	0.0	0.0	16.7	83.3	0.0	0.0	0.0	100
I learn English for my own satisfaction.	0.0	0.0	50.0	50.0	0.0	0.0	0.0	100
I want to study abroad.	0.0	0.0	50.0	50.0	0.0	0.0	16.7	83.3
I am interested in American culture.	0.0	0.0	83.3	16.7	0.0	0.0	16.7	83.3
To be honest, I have desire to learn English.	0.0	0.0	50.0	50.0	0.0	0.0	16.7	83.3
I learn English so that I can improve myself.	0.0	0.0	66.6	33.4	0.0	0.0	33.4	66.6
I want foreigner friends.	0.0	0.0	100	0.0	0.0	16.7	16.7	66.6
Learning English is important to me so that I can understand: films, videos, TV or radio in English.	0.0	0.0	100	0.0	0.0	0.0	50.0	50.0
Learning English is important to me because I will be able to read books in English.	0.0	0.0	66.6	33.4	0.0	0.0	50.0	50.0
My parents want me to learn English.	0.0	0.0	83.3	16.7	0.0	0.0	83.3	16.7
My school wants me to learn English.	0.0	0.0	83.3	16.7	0.0	16.7	83.3	0.0
I think English is important for me because other people will respect me more if I speak English.	0.0	83.3	16.7	0.0	50.0	50.0	0.0	0.0

*Note.* Scale = (1) strongly disagree; (2) disagree; (3) agree; (4) strongly agree.

Finally, students completed a language pre-test after having had about eight months of English classes (i.e., 380 hours) and then a posttest after participating in the internship for six months at Purdue University. All six students were classified as basic users of the language (A1-A2) before they traveled abroad (Table 3). After living in an English speaking country and being immersed in the culture, students improved their English proficiency as independent users (B1-B2) by practicing English in an authentic context after receiving formal instruction.

These results showed the acquisition of the language improved after spending six months

interacting and communicating with others, especially in a context that was relevant (i.e., agriculture) and immersive (i.e., English speaking and U.S. culture). According to Johnson and Richards (1995), the input hypothesis stated by Krashen (1981) holds that “if the input is made comprehensible to the learner, either through the context within which it is used or as a result of simplified input, the acquisition will follow” (p. 82), which means that the more a student is exposed to the language the better they will acquire the language. On the other hand, Long’s (1981) theory of the Interaction Hypothesis states learners need to have many attempts to communicate in order to learn the language better, and they should participate in conversations to maximize the opportunity for learning and mastering the language (cited in Gass & Madden, 1985).

**Table 3.**

*English test results and CEFR scale*

Student	Test results			
	Pretest		Posttest	
	Score	CEFR	Score	CEFR
Student 1	4.1	A2	85	B2+
Student 2	4.4	A1	93	B2+
Student 3	4.7	A2	82	B1+
Student 4	4.4	A1	80	B1
Student 5	4.2	A1+	81	B1+
Student 6	4.9	A1+	93	B2+

*Note.* CEFR: Common European Framework

### **Conclusions, Implications & Recommendations**

Rural university students were motivated to learn English as a second language and improved their English language skills after participating in the NRGPI internship. Although this was not part of this study, the college students developed their English language skills at the same time they expanded their knowledge and skills of learning about agriculture and entrepreneurship at a land-grant university in the U.S. Providing an experiential approach to learning a second language by using a workforce development context, such as agriculture, may have helped rural Colombian students see the relevance and importance of learning English. This aligns with expectancy-value motivation that students are more likely to engage in tasks that they are interested in (intrinsic value) and see there would be a positive result if they performed the task (outcome expectation; Eccles & Wigfield, 2002).

Being immersed in the U.S. culture, students gained 21<sup>st</sup> century communication skills that will likely increase their confidence, which may help them make better decisions and positively impact their lives and their families. Students that travel abroad and have immersed experiences of living in another culture may become more open-minded and tolerant towards one another (MEN, 2004). Long-term, this can help them become leaders, role models, and mentors in their

communities and encourage other youth to study at the university and learn English so they have opportunities for personal and career growth. The NRGPI internship might be one of the few opportunities for rural Colombian students from low-income families to travel to a different country, meet new people, learn about the culture and change their reality and future. This investment in human capital can help develop rural communities in Colombia. Recently, English has become an important strategic priority for the Colombian Ministry of Education (MEN, 2004).

The results from this study provide preliminary evidence that an international internship may be an effective strategy to develop human capital for rural communities because English is a language currency that can lead to better paying jobs and entrepreneurship opportunities. Therefore, programs such as NRGPI can contribute to a better quality of life and rural development. This exploratory preliminary study is limited due to the small number of participants. As such, future studies should continue to include more participants, used mixed methods (quasi-experimental design for causality & interpretive case studies for more contextualized meaning) to determine if these preliminary results are causal, generalizable and transferable.

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## **Examining Factors Related to Youth Value of Mindful Living among 4-H Youth Mindfulness Program Participants**

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### **Introduction**

Various scholars have examined mindfulness among youth and adults (Broderick & Metz, 2009; Brown, West, Loverich & Biegel, 2011; Greco, Baer, & Smith, 2011; Mendelson et. al. 2010; Walach, et. al., 2006). Studies have also been conducted among youth in formal educational settings (Broderick & Metz, 2009; Zenner, Herrleben-Kurz, & Walach, 2014). Mindfulness program benefits include self-regulation (Brown & Ryan, 2004), improved ability to pay attention (Kabat-Zin, 2012), stress reduction (Chiesa and Serretti, 2009), and reduced mental health disorder symptoms (Creswell, 2017; Grossman, Niemann, Schmidt & Walach, 2004). However, the literature showed there was no published study assessing youth value of mindful living in a non-formal education context. In concert, there was no reported youth development mindfulness programming presented in an Extension education youth development, or 4-H programming, context. Because Extension has a duty to help individuals help themselves, and this gap in the literature has been identified, mindfulness should be an area of research and practice to help youth to better learn to manage their stress through mindfulness programming.

### **Conceptual Framework**

Mindfulness is “paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (Kabat-Zin, 2012, p. 1). Mindfulness practices are exercises regularly applied to emulate mindfulness, including breathing exercises, body scans, imagery exercises, progressive muscle relaxation, physical activities, and mindful eating (Powers-Barker, Carter, & Worthington, 2018). A mindfulness program is an educational program where people learn about mindfulness and how to apply mindfulness practices to promote relaxation. The present study examined factors affecting youth value of mindful living during a youth mindfulness program, including factors of state mindfulness, which differs from trait mindfulness.

Trait mindfulness examines the development of mindfulness traits and characteristics in an individual over time. This approach to studying mindfulness is found among both youth and populations (Baer, et. al. 2006; Barry, Loflin, & Doucette, 2015; Bluth, Roberson, & Gaylord, 2015; Broderick & Metz, 2009; Zeller, Yuval, Nitzan-Assayang, & Berstein, 2015). State mindfulness has not been as extensively studied and involves an individual’s “perceived level of attention to and awareness of their present experience during a specific period of time and

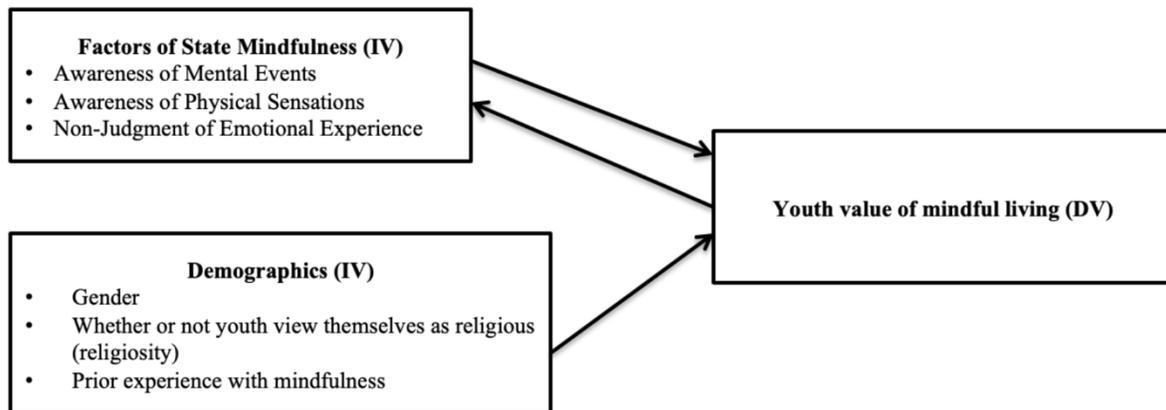
context” (Ruimi, Hadash, Tanay & Bernstein, 2019). In the present study, aspects of state mindfulness include awareness of mental events, awareness of physical sensations, and nonjudgment of emotional experience.

Awareness of mental events entails being aware of what is occurring in the mind, or noticing thoughts, feelings, and emotions (Baer, et. al., 2006; Cardaciotto, et. al., 2008; Feldman, et. al., 2007; Tanay & Bernstein, 2013). Awareness of physical sensations is observing what is felt in the body, or sensations such as temperature in a space, the sense of touch, or anything else a person can physically sense. (Baer, Smith, and Allen, 2004; Bluth, Roberson, & Gaylord, 2015; Tanay & Bernstein, 2013). Accepting one’s emotional experience, without labeling it as good or bad; or noticing thoughts, emotions and feelings and making peace with them, rather than allowing these thoughts to impact one’s mood or self-worth is non-judgement of emotional experience (Baer, et. al., 2006; Gratz & Roemer, 2004; Greco, Baer, & Smith, 2011; Neff, 2003).

In addition to aspects of state mindfulness, youth value of mindful living was another variable of interest in this study. Youth value of mindful living is a state of being where youth “apply heightened awareness to their relationships, health behaviors, and activities of daily life, while considering the impact...on society” (Niemec, 2012, p. 22) and see value in doing so.

These variables are presented in the conceptual model (Figure 1). The dependent variable was youth value of mindful living. The independent variables were components of state mindfulness, namely mental events, awareness of physical sensations, and non-judgement of emotional experience and selected demographic variables, namely gender, religiosity, and prior experience with mindfulness.

**Figure 1.** *Conceptual model*



**Purpose**

The purpose of this study was to describe factors affecting youth value of mindful living. This study examined the relationship between youth value of mindful living and selected demographic variables and youth factors of state mindfulness.

**Study Objectives**

This study was guided by three study objectives:

1. Describe demographics, youth value of mindful living, non-judgment of emotional experience, awareness of physical sensations, and awareness of mental events among study participants.
2. Determine if there is a relationship between youth value of mindful living and non-judgment of emotional experience, awareness of physical sensations, and awareness of mental events.
3. Determine if there is a relationship between youth value of mindful living and gender, religiosity, and prior experience with mindfulness.

### **Methods/Procedures**

A paper pencil quantitative survey methodology addressed the study objectives. The study population was a convenience sample of subjects ages 10-18, attending mindfulness programming at three 4-H camp study sites in Ohio and Pennsylvania.

The study instrument was designed using two existing instruments and items developed by the authors. The previously validated instruments included the Five-Factor Mindfulness Questionnaire (FFMQ) and the State Mindfulness Scale (SMS). Youth value of mindful living construct items were developed by the authors after reviewing Niemec's (2012) definition of mindful living. Table 1 presents a summary of instruments used in the study.

**Table 1.** Summary of instruments used in the research study

<i>Instrument</i>	<i>Variable Measured</i>	<i>Scale</i>	<i>Cronbach alpha original / (from this study)</i>	<i>Total items (Items adapted for this research)</i>
Five Factor Mindfulness Questionnaire (FFMQ)	Non-judgment of emotional experience	5-point Likert scale from 1=Strongly disagree to 5=Strongly agree	.87(.92)	8(5)
State Mindfulness Scale (SMS)	Awareness of mental events	5-point Likert scale from 1=Strongly disagree to 5=Strongly agree	.91-.96(.91)	17(5)
State Mindfulness Scale (SMS)	Awareness of physical sensations	5-point Likert scale from 1=Strongly disagree to 5=Strongly agree	.85-.89(.89)	5(5)
Youth Value of Mindful Living	Youth value of mindful living	5-point Likert scale from 1=Strongly	(.93)	5(5)*

disagree to  
5=Strongly agree

\*note: these items were developed by the authors.

The Pennsylvania State University Institutional Review Board approved this study. A recruitment message and study consent form for parents were sent out with 4-H camp registration packets. Parents completed and signed a paper consent form. Before the program, study participants were informed about the study and that their participation was voluntary. Participants completed and signed paper assent forms. An adult witness observed the assent process and signed the forms. At the conclusion of the program, youth completed the survey.

Collected data were transferred into the Statistical Product and Service Solution (SPSS®) software version 24 for statistical analysis. The non-judgment of emotional experience construct used reversed coding.

The study population was analyzed using descriptive statistics. Frequencies were used for categorical variables, including gender, religiosity, and prior experience with mindfulness. Independent construct variables and the dependent variable were treated as interval data.

Pearson's correlation test was applied to examine the relationship between youth value of mindful living and non-judgment of emotional experience, awareness of physical sensations, and awareness of mental events. Davis' (1971) conventions determined the magnitude of the relationships between variables, which are presented in Table 6.

**Table 2.** *Davis' (1971) magnitude of correlation conventions*

<i>Magnitude of Correlation Coefficient</i>	<i>Description</i>
1.00	Perfect association
0.70 or higher	Very strong association
0.50 to 0.69	Substantial association
0.30 to 0.49	Moderate association
0.10 to 0.29	Low association
0.01 to 0.09	Negligible association

adapted from Davis, J.A. (1971). "Elementary survey analysis" Englewood, NJ: Prentice-Hall.

A chi square test was used to determine the difference between youth value of mindful living and various demographic variables. These variables included religiosity, prior experience with mindfulness, and gender.

## Results

### *Objective #1*

The study population included 65 4-H members who participated in the program and completed the research instrument. A summary of demographic variables can be viewed in Table 3.

**Table 3.** *Summary of demographic variables*

<i>Item</i>		<i>n</i>	<i>%</i>
Religiosity	Yes	44	68.8
	No	20	31.3
	Total	64	100.0
Previous mindfulness workshop	Yes	6	9.2
	No	59	90.8
	Total	65	100.0
Gender	Male	28	43.1
	Female	36	55.4
	Other	1	1.5
	Total	65	100.0

On average, participants value mindful living. Participants scored near average for their abilities to be aware of mental events, aware of physical sensations, and to not judge their emotional experience. See Table 4.

**Table 4.** Descriptive statistics for factors of state mindfulness

<i>Variable</i>	<i>M</i>	<i>SD</i>
Awareness of mental events	3.68	.97
Awareness of physical sensations	3.71	.96
Nonjudgment of emotional experience	2.84	1.05
Youth value of mindful living	4.14	.89

#### *Objective #2*

The results of the Pearson correlation coefficient test showed a very strong significant association between youth value of mindful living and awareness of mental and awareness of physical sensations. A moderate significant association was identified between youth value of mindful living and nonjudgement of emotional experience. See table 5.

**Table 5.** Bivariate correlation among youth value of mindful living and factors of state mindfulness

<i>Measure</i>	Awareness of mental events	Awareness of physical sensations	Nonjudgment of emotional experience	Youth Value of Mindful Living
Awareness of mental events	-	-	-	.787*
Awareness of physical sensations	-	-	-	.807*

Nonjudgment of emotional experience	-	-	-	.423*
Youth Value of Mindful Living	.787*	.807*	.423*	-

\*correlation is significant at the 0.01 level (2-tailed).

### Objective #3

Descriptive statistics for youth value of mindful living, in relation to youth religiosity, prior experience with mindfulness, and gender are shown in Table 6.

**Table 6.** Descriptive statistics for youth value of mindful living by demographics

Variable	Category	N	M	SD	STD. Error
Religiosity	Yes	43	4.26	.67	.10
	No	19	3.86	1.23	.28
Prior experience with mindfulness	Yes	6	4.50	.28	.11
	No	56	4.11	.92	.12
Gender	Male	26	3.75	.87	.17
	Female	36	4.42	.80	.13
	Other	*			

There are no valid cases for you value of mindful living when gender = other (3.00) Statistics could not be computed for this level.

Chi square tests were conducted to determine the significance of the relationship between youth value of mindful living and demographic variables. The chi square test indicated that there was a significant relationship between youth value of mindful living and gender. However, the chi square test showed that there was not a significant relationship between youth value of mindful living and religion and prior experience with. Table 7 provides the results of chi square analysis.

**Table 7.** Chi-square analysis on association between youth value of mindful living and demographic variables

Demographic Factors	n	$\chi^2$	df	P*
Religion	62	13.710	11	.249
Gender	63	23.975	11	.013
Experience	63	15.124	11	.177

## Discussion, Recommendations, and Implications

In our study, we adapted the state mindfulness model to youth populations in 4-H educational settings by adding assessment of non-judgement of emotional events into program participants' conceptualization of state mindfulness. Our study examined factors contributing to youth value of mindful living, including factors of state mindfulness and selected demographic variables. Study participants included youth ages 10-18 who attended the *Mindfulness Moments: Today and 4-Life* 4-H mindfulness program in summer 2019.

Our study found significant relationships between youth value of mindful living and each of the factors of state mindfulness, namely awareness of physical sensations, awareness of mental events, and non-judgement of emotional experience. There was not a significant relationship between youth value of mindful living and religiosity and prior experience with mindfulness. There was a significant relationship between youth value of mindful living and gender.

Our results supported several studies that found a significant relationship between gender and mindfulness (Abujaradeh et. al, 2020; Carsley & Heath, 2018; Dhandra & Park, 2018; Lyvers, Makin, Toms, Thorberg, & Samios, 2014; Snowden et. al, 2015, Zamir, Gewirtz, & Zhang, 2017). Previous youth studies supported our findings, showing females experienced higher levels of mindfulness than males (Bluth, Roberson, & Girdler, 2017; Carsley & Heath, 2018). Several studies examined religiosity and mindfulness and found a significant relationship, refuting our findings (Greeson, et. al., 2015; Heaven & Ciarrochi, 2010; Lo et. al, 2018). However, these studies examined mindfulness abilities rather than value of mindful living. Young and Shipley (2004) support our findings; youth reported they were not religious and were practicing mindfulness. Studies were conducted with adult populations demonstrating the relationship between prior experience with mindfulness and mindfulness ability, refuting our findings (Droit-Volet & Heros, 2017; Thompson & Waltz, 2007).

However, all of these studies examined how demographics influenced mindfulness ability rather than youth value of mindful living. More studies should replicate our measurement of youth value of mindful living and how this related to gender, religiosity, and prior experience with mindfulness. Moreover, scholars should investigate how other demographic variables relate to youth value of mindful living in an Extension education context. This would help deepen the Extension education literature and help us better understand what influences youth value of mindful living in a mindfulness program context.

There was a program evaluation component to this study, and lessons were learned for mindfulness program practitioners. The program evaluation did find that mindfulness program knowledge did increase and that youth intended to apply what they learned in the future. However, replication and longitudinal studies among program participants would need to be conducted to confirm or refute this study's findings. In concert, a significant relationship was identified between desire to continue mindfulness practice and intention to apply what one has learned. Program practitioners should first focus on fostering excitement about mindfulness before expecting youth to apply it.

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## Turnover Intention among 4-H Volunteer Leaders

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### Introduction

Volunteers play a major role in the delivery and functioning of Cooperative Extension's 4-H Youth Development program. 4-H volunteer leaders serve in various capacities (Radhakrishna & Ewing, 2011), including running 4-H clubs, organizing educational clinics for youth members on various topics, and assisting with educational events and camps. In spite of volunteers' integral role in maintaining the 4-H program, we learned that [University] Extension has not recently examined 4-H volunteer leaders' satisfaction, reasons for volunteering, and turnover intention. Results of this study will help improve Penn State Extension's 4-H program's service for volunteers and enhance volunteers' effectiveness in Penn State Extension 4-H program and clientele satisfaction.

### Literature Review

In this study, existing volunteer management models were reviewed from the perspective of 4-H volunteer satisfaction, reason for volunteering, and volunteer turnover intention. Among models that have been most cited in the literature were: ISOTURE (Boyce, 1971), L-O-O-P (Penrod, 1991), GEMS (Culp, et al., 1998), PEP (Safrit, et al., 2005), and the 4-H Volunteer Program Model (Arnold, et al., 2009). The dependent variable in this study was volunteer leader's turnover intention, and the two independent variables were reasons for volunteering and satisfaction with volunteer leader's experience.

Satisfaction with volunteer experience.

Scholars have examined factors that influence satisfaction among volunteers. Positive organizational climate and task assignments impact volunteer satisfaction (Nencini, et al., 2006; Hobson & Heler, 2007). Volunteers who are more satisfied are more likely to continue contributing to the organization (Adams et al., 2016; Breslin, 2013; Janisse & Weese, 2010). Volunteer satisfaction is linked with youth success in the 4-H program (Anderson, et al., 2017).

Reasons for volunteering

Reasons for volunteering have been highlighted in the literature. Based on Jung's (1978) definition of motivations, "the causes or reasons that underlie a given behavior," we found both "motivations" and "reasons" for volunteering used interchangeably in the literature. Saitgalina (2018) found that volunteers volunteer in order to socialize and to work with a team toward a common goal. Volunteering can also be motivated by a desire to help marginalized groups and to gain knowledge (Jones, 2016). Flynn and Feldheim (2003) identified enjoyment working with people as a top reason for volunteering.

Turnover intention

Turnover intention has been a variable of interest for past volunteer management studies. Positive staff and volunteer interactions are critical to foster volunteer retention (Hobson & Heler, 2007; Nencini, et al., 2015). In a 4-H setting, White and Arnold (2003) found the top three reasons of volunteers' turnover intention were: volunteers' children no longer involved in 4-H club activities, volunteering requires more time, and other responsibilities demand more time.

#### Purpose and Research Objectives

The purpose of this study was to investigate the satisfaction with volunteer leader experience, reasons for volunteering, and turnover intention among Penn State Extension 4-H volunteer leaders. Four research questions guided this study:

1. What is the level of satisfaction with 4-H volunteer leaders' experience?
2. What is the level of turnover intention among 4-H volunteer leaders?
3. What is the relationship between 4-H volunteer leaders' satisfaction with experience and turnover intention?

#### Methods

This study utilized a descriptive correlation research design, where dependent and independent variables were clearly identified. This research design helps determine relationships between variables of interests. This study used a convenience sample to collect data. Convenience sampling is a specific type of non-probability sampling method that relies on population members who are conveniently available to participate in the study (Patton, 2002). According to Cresswell and Plano Clark (2011), convenience sampling is a widely used technique for the identification and selection of individuals that are especially knowledgeable about or experienced with a phenomenon of interest, for example volunteers in this study. However, we suggest caution be used in interpreting the findings because of bias and generalizability limitations. The research was approved by the Penn State University's Behavioral and Social Sciences Review Board.

Participants

The sample for this study was Penn State Extension 4-H volunteer leaders who attended the Penn State Extension Annual 4-H Leader Forum on March 9, 2019 in State College, PA. The

researchers distributed 180 questionnaires during the event lunch. After removing responses with missing data, the final data set included responses from 147 volunteer leaders for a participation rate of 81.6%. Findings apply only to those who completed the survey questions. A study limitation is inability to generalize findings to the entire population of 4-H volunteers in Pennsylvania.

### Instrumentation

We developed a questionnaire using three existing instruments that had been used in previous research. We also included five demographic questions. We adapted Arnold et al., (2009) and White and Arnold's (2003) studies to develop the satisfaction with volunteer leader experience scale. The *Satisfaction with Volunteer Leader Experience* scale was comprised of 18 items and measured using a 5-point Likert-type scale: from 1 (strongly *disagree*) to 5 (strongly *agree*). The reliability coefficient of the overall *Satisfaction with Volunteer Leader Experience* scale in this study was .922. We utilized Terry et al., (2013) turnover intention scale from their volunteer retention study. The three-item *Volunteer Leaders Turnover Intention* scale was measured using a 5-point Likert-type scale: from 1 (strongly *disagree*) to 5 (strongly *agree*). The reliability coefficient of the overall *Volunteer Leaders Turnover Intention* scale in this study was .823. We adopted Radhakrishna and Ewing's (2011) scale to assess reasons for volunteering. Reason for volunteering was measured with one question "What caused you to become a 4-H community volunteer leader in your county?", where participants could select more than one reason for volunteering for 4-H Extension. We offered six choices for selection. A panel of seven Extension educators, volunteers, and academic faculty members with expertise in survey methodology reviewed the instrument for face and content validity.

### Data Collection and Analysis

We used survey methodology to collect data for the study. Specifically, we used a paper and pencil questionnaire to collect data. The SPSS® v.24 (2016) software was used for statistical analysis. In this study, independent and dependent variables were treated as interval data. Descriptive statistics were utilized to describe the first and second research objectives. Pearson correlation coefficient was used to identify the relationship between volunteer leaders' satisfaction with their experience and their turnover intention.

## Results

### Demographic Profile

Most volunteer leaders were female (86.1%), the average age of participants varied between 35-54 (51.4%), and 48.9% had a university degree. 4-H volunteer leaders worked across different 4-H project areas, namely, agronomy and natural resources, 4-H youth development, animal systems, community development, food, family, and health, food safety, and horticulture.

Research question 1: What is the level of satisfaction with 4-H volunteer leaders' experience?

The overall mean summative score for satisfaction with experience was 4.09 ( $SD = .57$ ,  $n = 147$ ). Results for this objective are shown in Table 4. Higher scores indicate greater satisfaction of 4-H volunteer leaders with their experience while leading 4-H clubs. The items scoring the highest mean values were (a) Volunteer service was worthwhile ( $M = 4.56$ ;  $SD = .60$ ), (b) County staff are friendly ( $M = 4.53$ ;  $SD = .66$ ), (c) Learn new things because of being a volunteer ( $M = 4.34$ ;  $SD = .74$ ), and (d) Feel valued by program participants ( $M = 4.27$ ;  $SD =$

.73). The items with mean values under 4 were (a) Information for leaders is clear ( $M = 3.68$ ;  $SD = 1.03$ ), (b) Information for leaders is up-to-date ( $M = 3.86$ ;  $SD = 0.93$ ), (c) Volunteers are included in program planning ( $M = 3.83$ ;  $SD = 1.04$ ), and (d) County educator provides adequate training for leaders ( $M = 3.84$ ;  $SD = 1.04$ ). Overall, 4-H volunteer leaders were satisfied with their volunteer experience.

Research question 2: What is the level of turnover intention among 4-H volunteer leaders?

The mean summative score for turnover intention was 4.40 ( $SD = .77$ ,  $n = 143$ ), which indicated that participants like to remain or continue as volunteer leaders of 4-H clubs. Results are shown in Table 1

Table 1. 4-H Leaders Turnover Intention

Item	<i>n</i>	<i>M</i>	<i>SD</i>
It is likely that I will be a volunteer in 12 months	142	4.67	.72
It is likely that I will be a volunteer in 3 years	141	4.42	.89
If I move to another state, I will become a volunteer	131	4.05	1.09
Overall Turnover Intention	143	4.40	.77

Note: 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 =strongly agree.

Research question 3: What is the relationship between volunteer leaders’ satisfaction with experience and turnover intention?

Results of the Pearson correlation indicated that there was a significant low positive association between volunteer leaders’ satisfaction with their experience and turnover intention ( $r(143) = .167$ ,  $p = .048$ ).

#### Conclusions and Recommendations

Results indicate that [State] 4-H administrators may want to re-examine the quality of 4-H educational materials for 4-H volunteer leaders. Results of this study align with previous findings that identify how volunteer leaders are educated as a source of volunteer satisfaction (Culp & Bullock, 2017; Gay, et al., 2015). As findings from these studies implied, a more professional development approach to volunteer training (Culp & Bullock, 2017) and incorporating opportunities for critical thinking (Gay et al., 2015) may help volunteer administrators improve programming. Quality of shared information and method of communication had a higher standard deviation, implying that there are various experiences among Penn State Extension 4-H volunteer leaders. This may be explained due to county differences, where different educators may communicate with volunteer leaders in different ways. It may be useful for 4-H administrators and volunteer resource managers to explore communication methods preferred by county or region to determine whether an organizational or local communication infrastructure issue is causing the spread. A need exists for developing a volunteer recruitment strategy to further enhance the 4-H program. A marketing strategy highlighting the many benefits of volunteering in 4-H programs should be developed and distributed to all stakeholders at counties, states, and regional events. Such a strategy will help recruit a diverse group of volunteers into the 4-H program. This study showed that the majority of 4-H volunteer leaders intend to remain as volunteers. 4-H administrators should consider how to sustain this attitude among volunteers. As the literature suggests, it is important to consider

how volunteers can be retained after the program is over, ensure volunteers have ample time to perform tasks, maintain a positive leadership climate, and emphasize volunteer benefits of being involved in the program (Terry, et al., 2013; White & Arnold, 2003). Providing professional development opportunities for volunteers can help maintain their involvement in the program (Culp & Bullock, 2017). Finally, our findings show that satisfaction with volunteer leader's experience lowers the level of turnover, which is supported by previous 4-H volunteer research (Terry et al., 2013). Extension administration should consider developing a feedback strategy to continuously review how volunteers are doing and what their needs are so volunteers can better contribute to the 4-H program.

#### Implications

The results of this study can have implications for other 4-H and similar organizations looking to investigate volunteers' satisfaction and intention to remain in 4-H. Providing professional development for 4-H volunteer leaders is essential in order for the 4-H program to continue to have educational impact. Often times, 4-H youth spend the majority of their 4-H careers with volunteers rather than paid staff. Further studies of volunteer experience are vital to ensure 4-H youth have a positive learning environment. Understanding how to maintain volunteer satisfaction will better inform volunteer management trainings and materials for 4-H county volunteer resource managers to perpetuate successful 4-H programming. The instruments used in this study can serve as a tool for youth volunteer resource managers in programs beyond 4-H. However, other types of programs within volunteer management should first review the literature specific to their area to develop more relevant instruments specific to their organizational contexts. It is important to study other factors that might affect 4-H volunteer leaders' turnover intention. Again, in the case of national organizations, assessments should be conducted on a state-by-state basis to ensure relevance as well.

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## **Are You Smarter Than an Agriculture Student? Teacher Attitudes and Preparation to Teach Gifted Students**

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### **Introduction**

The third priority for the American Association for Agricultural Education 2016-2020 research agenda states the importance of developing a “sufficient scientific and professional workforce that addresses the challenges of the 21<sup>st</sup> century” (Stripling & Ricketts, 2016, p. 29). The diversity of individuals required to address those challenges necessitates school-based agricultural education (SBAE) teachers educate students with a wide variety of learning needs, some of whom may be gifted and talented. However, there exists a dearth of research studying gifted education in SBAE programs in the United States. Critical questions related to gifted education in SBAE (e.g., do preservice teachers receive adequate training to teach gifted and talented students) remain unanswered. This study sought to address this gap in the literature by exploring preservice SBAE teacher preparation and attitudes related to student giftedness.

### **Literature Review**

Existing literature clearly indicates the importance of teacher training focused on working with gifted students (Berman et al., 2012; Hansen & Feldhusen, 1994). However, only two states require coursework in gifted education for teachers (Plucker, et al., 2015). While research indicates teachers have varying views of gifted students (Berman et al., 2012; Carman, 2011; Greake & Gross, 2008; Megay-Nespoli, 2001), the predominate perspective is that gifted students are social misfits, antisocial leaders, and possess high cognitive abilities (Geake & Gross, 2008). Related to the perception teachers hold of gifted students, literature suggests teaching gifted students can be challenging, especially when student needs go unmet (Clark, 2013; VanTassel-Baska & Stambaugh, 2005). Beyond differentiating instruction, common teaching strategies and characteristics used to meet the needs of gifted students include using advanced curriculum, encouraging critical thinking, providing opportunities for problem solving, using project and problem-based learning, and allowing for student autonomy (Gentry et al., 2007; VanTassel-Baska & Hubbard, 2016).

### **Theoretical Framework**

The theoretical framework for this study was Gagné’s (2010) differentiated model of giftedness and talent (DMGT). The DMGT model distinguishes between the terms *gifted* and *talented*. Gifts are natural abilities (i.e., intellectual, creative, social, etc.) that are then developed into talents (Gagné, 2010). Teachers are individuals that influence the developmental process, as well as the curriculum, pedagogy, grouping, and acceleration implemented in the classroom (Gagné, 2010).

## Purpose and Research Questions

This study describes SBAE teachers' preparation and attitudes toward working with gifted students in their classrooms. The following research questions guided this study: (1) What is the preservice preparation of SBAE teachers to work with gifted students (i.e., teacher licensure, perceived percent of gifted students in agriculture program, time spent addressing gifted education, adequate preparation)? (2) What are the attitudes of SBAE teachers regarding the education of gifted students?

## Methods

This quantitative study was part of a larger research project utilizing survey methodology. A national random sample of 740 SBAE teachers was obtained from the National FFA Organization. To be representative of the sample population, 370 responses were needed (Cochran, 1977; Vaske, 2008). Oversampling was utilized to account for a potential low response rate to web-based surveys (Roberts & Allen, 2015; Saleh & Bista, 2017; Shih & Fan, 2008). The contact information provided in the frame was self-reported to the National FFA Organization; therefore, frame error could be a limitation to this study.

The questionnaire was distributed in the spring of the 2018-2019 school year through Qualtrics. To encourage participation, four emails with survey links were sent over the course of two weeks (Dillman et al., 2014). After being readjusted (e.g., bounced emails, non-SBAE teachers, etc.), the sample frame consisted of 687 potential respondents. There were 117 usable surveys collected, producing a 17% response rate ( $n = 117$ ). Gift cards were utilized to incentivize participation. Due to the low response rate, we encourage caution when contextualizing these findings to individual programs, as participation did not meet the requirements for generalizability. To address nonresponse bias, we compared on-time and late responses using an independent samples *t*-test with a Bonferroni correction (Armstrong, 2014; Lindner et al., 2001). On-time responses were from the first two survey emails ( $n = 66$ ) and late responses were from the last two email reminders ( $n = 51$ ). No significant differences were found.

## Instrumentation

The survey instrument consisted of three major sections, (a) preservice teacher education, (b) attitudes toward teaching gifted students, and (c) participant demographic information. The survey was reviewed by a panel of experts which included two professors specializing in SBAE and one professor specializing in gifted education. Pilot tests were conducted among SBAE teachers in North Carolina and Utah to uncover any issues associated with survey flow and response time. No issues were identified through the pilot testing process. The pilot study contact lists were cross referenced with the random sample and any duplicate emails were removed.

In the first section of the instrument, participants were asked about their teacher licensure and teacher preparation program (i.e., topical coverage, perceived preparation, and time spent). Participants were also asked what percentage of students they perceived as gifted. For respondents answering with a range, the median was used for their answer. Responses that

included “less than...,” “unknown,” or “don’t know” were omitted from the analysis, as well as one response identifying 100% of students as gifted.

The second section of the instrument focused on participant attitudes. The twelve attitude items measured different aspects of teaching gifted students (e.g., teaching practices, social value, teacher-student relationship) that were derived primarily from the gifted education literature and previously utilized surveys (e.g., Caldwell, 2012, Gagné & Nadeau, 1991; Tomlinson et al., 1995). Participants rated each of the 12 items on a six-point scale from 1 (*strongly disagree*) to 6 (*strongly agree*). The final section of the instrument focused on participant demographic information. Participants were asked general demographic questions including their gender, number of years they had been teaching, and in what type of community they taught (i.e., metro urban area: population greater than 200,000; urban: population between 50,000 and 199,999; urban cluster: population between 2,500 and 49,999, and rural: population less than 2,500).

## Results

Of respondents, 59.61% were female and 40.38% were male. There was an average of 13.54 years ( $SD = 10.35$ ; Range = 1 to 40) of teaching experience among respondents. Regarding community type, 44.20% taught in rural, 41.30% in urban cluster, and 14.4% in urban or metro urban communities. The majority of respondents completed a licensed undergraduate (70.10%,  $f = 82$ ) or graduate (16.20%,  $f = 19$ ) teacher preparation program with the remaining teachers being alternatively certified (13.70%,  $f = 16$ ).

Corresponding to research question one, respondents completing a traditional teacher preparation program were asked to what degree their preparation addressed working with gifted students and if they felt adequately prepared to meet the needs of gifted students. Respondents had mixed perceptions, varying from strongly agree to strongly disagree, regarding the topical coverage and perceived preparation to teach gifted students (see Table 1). In addition to the data presented in Table 1, the amount of time spent addressing gifted education within their teacher preparation program was analyzed using a categorical variable. The largest proportion of teachers received training as “a small amount in more than one class” (30.00%); however, 17.00% reported that “no time” was spent.

Table 1

*Teacher Preparation Program and Educating Gifted Students (n=99)*

	<u>Strongly Disagree</u>	<u>Disagree</u>	<u>Somewhat Disagree</u>	<u>Somewhat Agree</u>	<u>Agree</u>	<u>Strongly Agree</u>
Teacher preparation	<i>f</i> / <i>%</i>	<i>f</i> / <i>%</i>	<i>f</i> / <i>%</i>	<i>f</i> / <i>%</i>	<i>f</i> / <i>%</i>	<i>f</i> / <i>%</i>
Topical coverage	6/6.0	19/19.0	13/23.0	33/33.0	26/26.0	3/3.0
Perceived preparation	7/7.1	20/20.2	18/18.2	29/29.3	23/23.2	2/2.0

In the second research question, focus shifted to the attitudes of SBAE teachers regarding teaching gifted students (see Table 2). The three attitude statements receiving the most

agreement (i.e., those responding somewhat agree, agree, or strongly agree) were: “All students should be challenged to the level they are capable” ( $f = 113$ ; 98.70%), “I believe gifted students are a valuable part of my classroom” ( $f = 113$ ; 98.30%), and “I believe it is important to differentiate instruction to meet the needs of gifted students” ( $f = 111$ ; 96.5%). The attitude statements receiving the least agreement were: “I feel threatened by the intelligence of gifted students in my class” ( $f = 8$ ; 6.90%), “Gifted students are bored in my classroom” ( $f = 35$ ; 30.5%), and “Gifted students challenge my understanding of the content in the classroom” ( $f = 66$ ; 57.40%). When asked about their students’ giftedness, respondents perceived 9.82% ( $SD = 12.44$ ; Range = 0.00 to 75.00) of their students as gifted.

Table 2

*SBAE Teacher Attitudes Toward Gifted Students, (n = 114)*

	<u>Strongly Disagree</u>	<u>Disagree</u>	<u>Somewhat Disagree</u>	<u>Somewhat Agree</u>	<u>Agree</u>	<u>Strongly Agree</u>
	<i>f/%</i>	<i>f/%</i>	<i>f/%</i>	<i>f/%</i>	<i>f/%</i>	<i>f/%</i>
All students should be challenged to the level they are capable	1/0.9	0/0	0/0	6/5.3	60/52.2	47/41.2
I believe gifted students are a valuable part of my classroom	1/0.9	0/0	1/0.9	4/3.5	39/33.9	70/60.9
I believe it is important to differentiate instruction to meet the needs of gifted students	3/2.6	0/0	1/0.9	13/11.3	55/47.8	43/37.4
I think the needs of gifted students should be addressed in the classroom	1/0.9	1/0.9	2/1.7	15/13.0	61/53.0	35/30.4
Agricultural education supports gifted learners	2/1.7	0/0	7/6.1	34/29.6	49/42.6	23/20.0
My teaching takes gifted students into account	1/0.9	0/0	7/6.1	24/20.9	60/52.2	23/18.5
I differentiate instruction to meet the needs of gifted students	1/0.9	3/2.6	7/6.1	37/32.2	50/43.5	17/14.8
I believe gifted students are valuable to the agriculture industry	1/0.9	2/1.7	1/0.9	2/1.7	34/27.4	75/60.5
Agricultural education classes do a better job meeting the needs of gifted students than other classes in the school	1/0.9	8/7.0	17/14.8	47/40.9	27/23.5	15/13.0
Gifted students challenge my understanding of the content in the classroom	11/9.6	26/22.6	12/10.4	27/23.5	26/22.6	13/11.3

Gifted students are bored in my classroom	16/14.0	37/32.5	26/22.8	27/23.7	5/4.4	3/2.4
I feel threatened by the intelligence of gifted students in my class	56/48.7	42/36.5	9/7.8	5/4.3	2/1.7	1/0.9

## Discussion and Conclusions

Meeting the needs of *all* students is essential to offering inclusive educational opportunities in SBAE. Therefore, the current research sought to better understand the preparation and attitudes of SBAE teachers toward gifted students. Limited research exists on this important topic; therefore, the current study should be viewed as a starting point to continued efforts. Continued work in this area is compelled by our finding that, among SBAE teacher respondents licensed through a teacher preparation program, approximately half felt inadequately prepared to teach gifted students.

Consistent with the DMGT model, participants perceived approximately 10% of students in their classes as gifted (Gagné, 2010). This is higher than the national percentage of 7% (National Center for Education Statistics, 2018) but less than the 22% previously perceived by SBAE teachers in Utah (Overstreet & Straquadine, 2001). The wide range in percentages could be attributed to varying definitions and interpretations of what it means to be gifted. Developing a universal definition for giftedness within the context of SBAE classrooms would be beneficial to the discipline.

Transitioning to the attitudes of SBAE teachers toward gifted students, most agreed that agricultural education supports gifted learners (92.2% agreement), but less felt SBAE does a better job meeting needs than other classes in the school (77.4% agreement). Overall, these data suggest SBAE teachers perceive the profession is doing a good job meeting the needs of gifted students. However, it is important to note, over half of respondents were challenged by gifted students in their content understanding. Gagné (2010) highlights curriculum and pedagogy as influencers of talent development for gifted students. This suggests respondents would benefit from increased awareness of pedagogy that supports student-led content acquisition or teachers deepening their own content understanding.

## Recommendations

Teacher education programs should evaluate their curriculum to identify opportunities to offer new, or enhance existing instruction on teaching gifted students within the context of SBAE. In addition, researchers should explore which topics related to gifted education (e.g., differentiation, challenging curriculum, etc.) are most impactful in SBAE to inform empirically-grounded professional development and preservice education curriculum. Importantly, however, professional development should not be structured to improve the attitudes of SBAE teachers toward gifted students, as the current research suggests teacher attitudes toward gifted students have reached a ceiling. Finally, researchers should further develop the survey instrument and replicate this study with a larger group of teachers to determine if results are similar or different.

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## **Gifted Students in the Agriculture Classroom: A Needs Assessment**

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### **Introduction**

The fifth research priority for the American Association for Agricultural Education 2016-2020 calls for research in “efficient and effective agricultural education programs” (Thoron et al., 2016, p. 41). School-based agricultural education (SBAE) is an important part in preparing students for careers in agriculture. Despite some negative attitudes toward agricultural work among gifted students (Cannon et al., 2006), shortages of a talented agricultural workforce may be mitigated if more gifted and talented students entered the agricultural workforce. Therefore, Career and Technical Education (CTE), specifically SBAE, should be promoted as a viable option for gifted students (Gentry et al., 2008). However, the ability of in-service teachers to work with gifted and talented students is unclear. More research is needed to understand SBAE teachers’ needs in teaching gifted students, a area addressed by the current study.

### **Literature Review**

For both in-service and preservice teachers, professional development training specific to gifted education has been shown to increase teacher effectiveness in working with gifted students. For example, Megay-Nespoli (2001) found ability and confidence in identifying, assessing, adapting and individualizing instruction for academically talented learners increased after professional development training, whereas the confidence and perceived ability decreased for teachers who did not receive training. Despite the various studies in SBAE related to working with special needs populations, most are vague or relate explicitly to students with learning disabilities (e.g., Elbert & Baggett, 2003; Pense et al., 2010); none of these studies have specifically addressed gifted students. Research exploring SBAE teachers’ professional development needs related specifically to gifted students is, therefore, both relevant and timely.

### **Theoretical Framework**

The differentiated model of giftedness and talent (DMGT) was utilized as the theoretical foundation for this study (Gagné, 2010). The model is known for differentiating the terms *gifted* and *talented* and separating the two with a *developmental process*. Environmental catalysts involve all influences outside of the individual and impact the development of gifts into talents. Curriculum, pedagogy, grouping, and acceleration are provisions influencing the development of gifted students (Gagné, 2010). To operationalize the environmental catalysts within SBAE specifically, *individuals* were defined as SBAE teachers and *provisions* were defined broadly as SBAE programs.

## Purpose and Research Objectives

Gifted students are an important subpopulation with unique needs in SBAE classrooms; therefore, this study identified the professional development needs SBAE teachers perceive related to teaching gifted students. The research question guiding this study was: What are the professional development needs of inservice agriculture teachers related to the education of gifted students?

## Methods

As part of a larger research inquiry, this quantitative descriptive study utilized survey research methodology. The initial population for this study consisted of approximately 13,000 secondary school agriculture teachers in the United States (National FFA Organization, 2019b). A national random sample of SBAE teachers was utilized for this study, proportional to each of the National FFA regions (i.e., western, eastern, southern, central), so that one region was not oversampled when compared to other regions (National FFA Organization, 2018). Accordingly, we determined 370 participants were needed for a representative sample of the population (Cochran, 1977; Vaske, 2008). Oversampling was used to mitigate a lower response rate common in web-based surveys (Roberts & Allen, 2015; Saleh & Bista, 2017; Shih & Fan, 2008). Therefore, a sample of 740 agriculture teachers was obtained by the National FFA Organization, which consisted only of email addresses.

The questionnaire was distributed to participants using Qualtrics in the spring of the 2018-2019 school year. Emails were sent with a link to the questionnaire to encourage teachers to participate. Four survey emails were sent over the course of two weeks (Dillman et al., 2014). The sample frame was readjusted to 687 accessible and viable sample participants (e.g., bounced emails, non-SBAE teachers, etc.). Additionally, gift card incentives were utilized to try to increase response rate. In total, 117 usable surveys were collected from the possible 687 accessible participants, yielding a response rate of 17% ( $n = 117$ ). Because the response rate did not meet the requirement for generalizability to the entire population of SBAE teachers in the country, the findings and recommendations are not intended beyond the scope of the participants in this study, despite the potentially useful conclusions and recommendations. As researchers, we argue this study is a useful and important first step toward addressing the gap in the literature regarding gifted students in SBAE, despite the limitation of national generalizability.

With our inability to achieve a high response rate, it was important to address nonresponse bias in this study (Lindner et al., 2001). We compared early to late respondents as recommended by Lindner et al., (2001), with early respondents being identified as participants in the first two survey emails ( $n = 66$ ) and late respondents as those in the last two email reminders of the survey ( $n = 51$ ). Using an independent samples *t*-test with a Bonferroni correction, we found no statistically significant differences for instrument items between early and late responders (Armstrong, 2014). The data were downloaded into the Statistical Package for the Social Sciences (SPSS) and coded for analysis.

## **Instrumentation**

Professional development needs were assessed using the Borich (1980) needs assessment model. A total of 17 needs-assessment items were included in the questionnaire. Participants were asked to rate their perceived importance and ability for each item on a 4-point scale from 1 (*no importance*) to 4 (*very high importance*), and 1 (*no ability*) to 4 (*very high ability*). Items utilized in the questionnaire were derived from previous needs assessment literature in agricultural education and gifted education and adapted for this study (e.g., Caldwell, 2012; Garton & Chung, 1997; Layfield & Dobbins, 2003; Sorensen et al., 2010). We divided each of the professional development items into the three programmatic areas of agricultural education: classroom (eight items), SAE (four items), and FFA (five items). The final section of the instrument focused on participant demographic information. Participants were asked general demographic questions including their gender; number of years they had been teaching; and in what type of community they taught.

A panel of experts consisting of three professors—one specializing in gifted education and two specializing in agricultural education and survey research methodology—evaluated the instrument for face and content validity. As part of the larger study, pilot tests of SBAE teachers in North Carolina and Utah were conducted to establish construct and instrument reliability. The list of contact information for the pilot study was cross-referenced with the random sample provided by the National FFA Organization to ensure teachers were not in both samples.

## **Data Analysis**

The Borich (1980) needs assessment model was utilized to evaluate professional development needs. Participants scored items based on importance and ability related to teaching gifted students and based on the three-component model (McKim & Saucier, 2011). Discrepancy scores were calculated (see Borich 1980) and we ranked each item from highest to lowest need. The higher the Mean Weighted Discrepancy Score (MWDS), the higher the perceived need for professional development. Data were imported into the MWDS Calculator, a pre-programmed Excel document developed by McKim and Saucier (2011) to calculate MWDS. We ranked and organized each professional development need accordingly based on the MWDS of each item.

## **Description of Respondents**

Of the responding teachers, 59.61% were female and 40.38% were male. Responding agriculture teachers had an average of 13.54 years of teaching experience ( $SD = 10.35$ ) with years of teaching ranging from 1 to 40. Community type was reported as a categorical variable with population ranges for each category given to participants in the survey. A majority of the participants (44.20%) taught in a rural (less than 2,500) or urban cluster (41.30%, between 2,500 – 49,999) community type, while only 14.4% reported teaching in urban (between 50,000 – 199,999) or metro urban (greater than 2000,000) communities.

## Results

The following table lists the mean weighted discrepancy scores in order of need with the associated importance and ability items rated.

Table 1

*Ranked Mean Weighted Discrepancy Scores for the Needs Assessment*

Items related to teaching gifted students	Importance <i>M/SD</i>	Ability <i>M/SD</i>	<i>MWDS</i>
Providing challenging agriculture curriculum for gifted students	3.39/.63	2.92/.67	1.61
Differentiating instruction for gifted students in agriculture classes	3.30/.70	2.89/.71	1.34
Teaching gifted students problem-solving skills	3.48/.54	3.11/.65	1.25
Motivating gifted students in agriculture classes	3.37/.64	3.03/.57	1.10
Helping gifted students identify agricultural interests	3.42/.59	3.10/.56	1.08
Providing additional content in the in the curriculum for gifted students	3.24/.72	2.92/.75	1.00
Motivating gifted students to join the FFA	3.38/.67	3.11/.74	0.91
Utilizing technology with gifted students	3.34/.67	3.15/.72	0.64
Helping gifted students choose an SAE project	3.31/.69	3.12/.67	0.59
Helping gifted students apply for proficiency awards	3.12/.77	2.94/.79	0.53
Helping gifted students complete SAE projects	3.26/.64	3.10/.64	0.52
Helping gifted students apply for FFA degrees	3.35/.68	3.20/.75	0.47
Working with gifted students in leadership roles	3.41/.62	3.27/.68	0.45
Teaching gifted students record keeping skills	3.29/.70	3.16/.66	0.43
Working with gifted students in CDE teams	3.45/.61	3.32/.65	0.41
Working with gifted FFA members in the FFA chapter	3.35/.62	3.28/.59	0.24
Managing the behavior of gifted students	3.10/.92	3.18/.76	-0.22

*Note.* Real limits: 1.0-1.5 = No importance; 1.5-2.5 = Moderately low importance; 2.5-3.5 = Moderately high importance; 3.5-4.0 = Very high importance. 1.0-1.5 = No ability; 1.5-2.5 = Moderately low ability; 2.5-3.5 = Moderately high ability; 3.5-4.0 = Very high ability

## Discussion and Conclusions

Sixteen needs assessment items had positive MWDS, which indicates an opportunity for professional growth. One item related to behavior management received a negative MWDS and does not need professional development. This is in contrast with Berman et al. (2012), who

found preservice teachers perceived gifted students as a problem in the classroom, even following professional development. The results differed from needs assessments previously in agricultural education that did not address working with gifted students specifically (Layfield & Dobbins, 2003; Garton and Chung, 1997; Sorensen et al., 2010). This fluctuation could indicate that there are differences in inservice professional development needs when the context involves working with gifted students.

Participants perceived themselves as more able to work with gifted students outside of the classroom, in the FFA and on CDE teams, but not as able in the classroom through challenging content, additional content, and differentiated instruction. This could be due to the more individualized nature of the FFA, where teachers are more easily able to differentiate tasks and match students with tasks according to their ability level. Perhaps if FFA is integrated into the classroom curriculum, agriculture teachers could more easily differentiate instruction with students. Alternatively, gifted students may not be extending their engagement to FFA and SAE; further research is warranted to determine level of participation.

Providing challenging curriculum for gifted students was the largest identified need. Differentiating instruction for gifted students in agriculture classes is the second highest need. Differentiation is a teaching tool used with students of all ability levels, including gifted students. This would not only aid in teaching gifted students in a heterogeneous classroom but would improve teaching overall within the SBAE program.

This study informs teacher educators about in-service and preservice professional development needs, to better meet the needs of gifted agriculture students and ultimately direct more students toward agricultural careers. It is also a starting point for future research regarding SBAE teacher attitudes and their professional development needs when teaching gifted students.

### **Recommendations**

Researchers should survey gifted students who participated in SBAE to identify how their experiences could have better met their needs, comparing what is found amongs teachers to what is found amongs students. Agricultural teacher education faculty should develop challenging agriculture curriculum through grants, communities of practice, and agriculture teacher educators for SBAE teachers to utilize with gifted students. Lastly, professional development should be implemented for inservice teachers by agriculture teacher education faculty, the National Association of Agricultural Educators (NAAE), and state teachers' associations based on creating challenging curriculum, differentiating instruction, and teaching problem solving skills.

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# **A Comparative Analysis of Agriculture and Science Teachers' Perceived Approach and Efficacy Teaching Problem-Solving**

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## **Introduction**

The need for STEM employees is on the rise in direct relation with the changing needs of the global workforce (Jang, 2015). There are gaps to be filled not only in the workforce and industry, but also by academia and government (Jang, 2015). K-12 STEM education is called out to help fulfill the future STEM workforce pipelines (NRC, 2014). Particularly, K-12 STEM education is considered as a critical step to prepare students to join the STEM workforce by developing their 21<sup>st</sup> century skills. These skills are divided into 3 categories: *Learning and Innovation Skills, Digital Literacy Skills, and Career and Life Skills* (Trilling & Fadel, 2009). Problem-solving is one of the 21<sup>st</sup> century skills that is identified to promote critical thinking (NRC, 2014). Students need to develop their problem-solving skills to be able to solve complex real-world problems, and properly collaborate on teams as real-world scientists and engineers.

Problem-solving is thought of as being the most important cognitive goal of education in every educational context: formal, informal, public schools, universities, and everything in between (Jonassen, 2010). Student experiences and real-life settings are vital, and the way in which students are problem-solving, relates directly to their knowledge and experience. Historically, problem-solving has been an integral component to both agricultural and science education, though it has evolved over the years. Problem-solving approach is one of the key pedagogies that has often been used in agricultural education (Crunkilton & Krebs, 1982; Newcomb, McCracken, & Warmbrod, 1986; Phipps & Osborne, 1988), and it shows a higher retention of knowledge in comparison to other hands-on techniques (Flowers & Osborne, 1987). Problem-solving instruction has a practical aspect in agriculture education, which students tend to solve technical problems and have a final product. On the contrary, problem-solving in science education has students practicing scientific inquiry through scientific methods (NRC, 1996). It aims to help students explore a phenomenon, develop a hypothesis, and find an answer to explain a phenomenon (NRC, 1996). Although problem-solving teaching strategies are used both in the science and agriculture education, it has philosophical differences in terms of the end goal.

As problem-solving skills are one of the most important cognitive goals, teachers need to be efficacious in their teaching of these skills. Their knowledge of problem-solving and their self-efficacy towards problem-solving are good indicators of their performance and motivation (Bandura, 1994) towards teaching problem-solving. Findings from the study could support literature related to teachers professional development and pre-service teacher education.

## **Theoretical Framework**

Bandura's Social Cognitive Theory and Self-Efficacy (1994) was the theoretical framework that guided this study. According to Bandura, self-efficacy beliefs are the strongest predictors of motivation and performance, therefore higher self-efficacy of teaching may lead to high performance of teaching problem-solving skills. As both problem-solving and teaching efficacy are related to one's self efficacy or belief in their own skill set and abilities, Bandura's

theory of self-efficacy is an appropriate fit for this study. As this study was survey-based, teachers will be responded to questions regarding their perceived self-efficacy and skills. Bandura (1994) defined perceived self-efficacy as “people’s beliefs about their capabilities to produce designated levels of performance that exercise influence over event that affect their lives” (Bandura, 1994, p. 71). Bandura further asserted that self-efficacy beliefs not only determine how people motivate themselves, but how they think, feel, and behave as well.

### **Purpose and Research Questions**

The purpose of this study was to explore and describe agricultural educators’ and science educators’ perceived problem-solving approaches as their knowledge to solve a problem, and their self-efficacy towards teaching problem-solving to students, and to identify how they relate to each other. This study was guided by two research questions with the goal of determining how science and agriculture teachers approach problem-solving, how they differ, and how their perceived self-efficacy towards teaching problem-solving.

1. What approaches do agricultural teachers and science teachers have towards problem-solving?
2. What levels of self-efficacy do agricultural teachers and science teachers hold towards teaching problem-solving?

### **Conceptual Framework**

To be successful as a practitioner, both a cognitive and practical apprenticeship must be fulfilled, as Bandura (1994) stated that a person needs to master skills to have high self-efficacy in said skill. Therefore, in the process to become a teacher, many practical apprenticeships are completed, including student teaching and pre-service teacher development. Following this, in-service teachers continue their development by attending in-services and professional development events. Heppner and Petersen (1982) created a problem-solving inventory (PSI) with the intent to measure three constructs within problem solving: problem-solving confidence (PSC), approach-avoidance style (AAS), and personal control (PS). PSC represents one’s personal beliefs, self-efficacy, and trust in their own problem-solving abilities. AAS is a person’s general tendency to approach or avoid problem-solving. PS is the extent to which individuals believe they are in control of their emotions and behavior while solving real-life problems. Attitudes and knowledge towards a problem, such as being an expert or novice problem solver when run into a problem, are measured and interpreted by the variables problem-solving confidence, approach-avoidance style, and personal control (Heppner & Peterson, 1982).

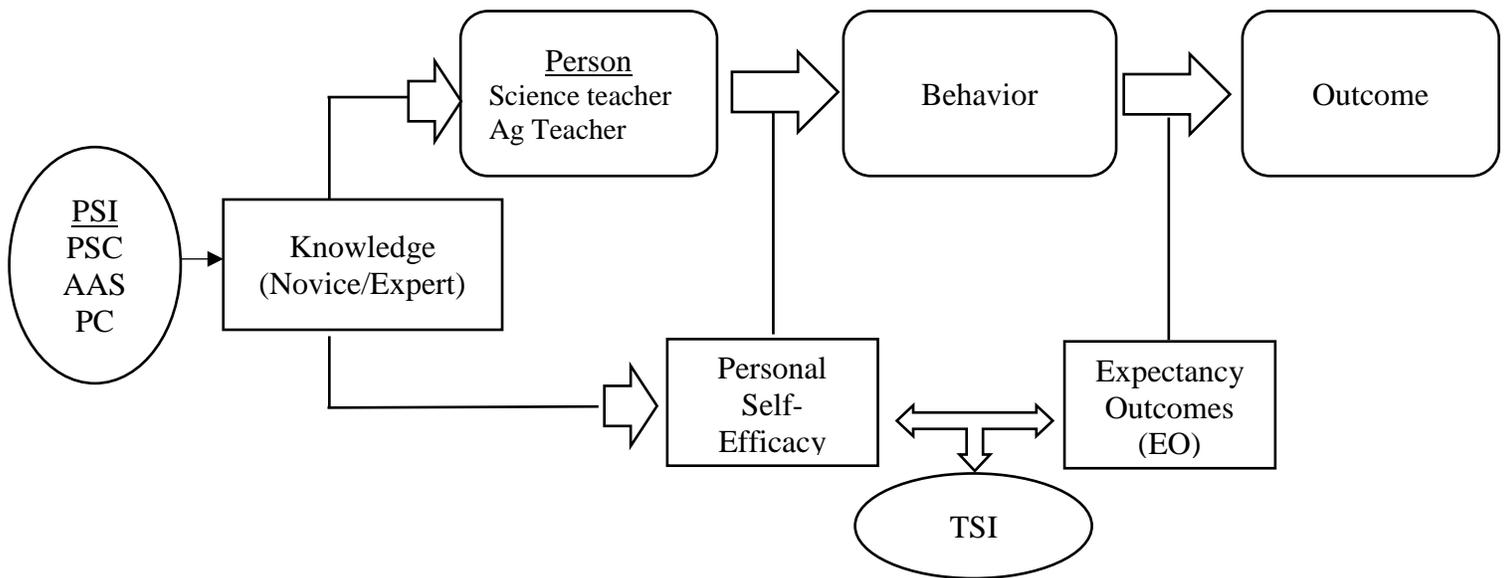
In addition to teachers’ problem-solving style as expert or novice problem-solvers, it is also important to determine teachers’ self-efficacy towards teaching problem-solving. To measure this, a modified version of Smolleck’s *Teaching Science as Inquiry* (TSI) Instrument (2004) was used to explore self-efficacy teaching problem-solving. The instrument measured teachers’ abilities to teach problem-solving in science disciplines, including agriculture. The instrument measured teachers’ personal self-efficacy and outcome expectancies.

As Bandura (1977) outlined a person’s self-efficacy influences behavior, the variables PSC, AAS, and PC encompass those behaviors, the behaviors inform their expectancy outcomes, and in turn outcomes. The variables from the Problem Solving Inventory are directly tied to

Bandura's (1977) self-efficacy theory as seen in figure 1. The figure represents the connections between the theoretical and conceptual frameworks and how it supports the study.

**Figure 1.**

Modification of Bandura's diagrammatic model of differences between expectations, outcome and efficacy to include variables from the conceptual framework.



### Methods/Procedures

To address the research questions, an online Qualtrics questionnaire was developed to describe these phenomena quantitatively. The intent of the survey was to explore potential relationships, not to make generalizable claims, resulting in a focused distribution across three states. The survey was divided into three major sections: (1) Problem Solving Inventory (PSI) (32 questions), (2) Teaching Science as Inquiry (TSI) (69 questions), and (3) Demographics (13 questions). Demographics was placed at the end of the survey following recommendations from Dillman et al. (2014).

Both instruments were modified to better fit the study. The TSI instrument (Smolleck, 2004) was modified to fit problem-solving vocabulary, and the PSI (Hepper & Petersen, 1982) was changed to be a 5-point confidence scale to match the TSI. Following the modifications, both instruments were reviewed by content experts and pilot tested to determine validity. All constructs from the instrument met the threshold for Cronbach's alpha test for reliability of  $\alpha = .70$  and above. The survey was pilot tested with undergraduate and graduate students in science and agricultural education, and current science and agriculture teacher in states that were not surveyed.

Participants for the survey were convenience samples from three states, Iowa, Indiana, and Ohio. The participants were current high school science and agricultural teachers. For this

study, science included biology, chemistry, physics, earth and space science, and environmental science.

### Findings/Results

The final response rate for the survey was 9.04% for agriculture teachers and 13.4% for science teachers, a total of 22.44% ( $n = 504$ ). After data cleaning there is a total of 4.3% of useable responses from agriculture and 5.58% for science resulting in a usable response rate of 9.88% ( $n = 205$ ). A little more than half of the participants were female (59%) with the remainder being male (39.5%). The largest population that responded to the survey were between the ages of 44 and 54 (43.1%) and teaching for 21-25 years (19%).

RQ1. The survey found that teachers, regardless of discipline, thought of themselves as being confident problem-solvers but used a more avoidance-style. Teachers also felt they had less control or negative feelings in regard to problem-solving (table 1). Overall, teachers viewed themselves as being moderate to high problem-solvers in general. The instrument was not intended to measure problem-solving relating to the classroom, but general problem-solving. ANOVA tests were conducted between the two groups to determine if there were differences in their responses and no statistically significant differences were found.

**Table 1.** Sum Scores for Problem Solving Inventory ( $n = 204$ )

Category	Average Sum Score	SD	Min	Max
PSC	40.74	2.62	33.00	47.00
AAS	47.72	3.99	36.00	64.00
PC	11.65	2.43	5.00	18.00
Overall	100.11	5.35	84.00	118.00

*Note:* Scores interpretations, PSC: 11-27 (low confidence), 28-38 (moderate confidence) and 39-55 (high confidence), AAS: 16-40 (avoidance), 41-56 (neither approach or avoid), 57-80 (approach), PC: 5-12 (negative feelings of control), 13-18 (moderate feelings of control), 19-25 (positive feelings of control), Overall: 32-80 (less functional), 81-112 (moderate function), 113-160 (more functional)

RQ2. The second instrument, TSI, measured how efficacious they felt teaching problem-solving. Teachers from both science and agriculture perceived themselves as being very self-efficacious and had high expectancy outcomes (table 2). ANOVA tests were conducted between the two groups to determine if there were differences in their responses and no statistically significant differences were found.

**Table 2.** Group Scores for TSI ( $n = 204$ )

Factor	Mean	SD	Min	Max
PSE	3.87	0.45	2.73	5.00
EO	3.73	0.44	2.54	4.94
Overall	3.80	0.43	2.64	4.97

*Note:* Score interpretation, 1 (never), 2 (seldom), 3 (sometimes), 4 (quite-a-bit), 5 (always)

## **Conclusions/Implications**

There were several major conclusions to this study. The first major conclusions were, agriculture teachers and science teachers approached problem-solving in a similar manner. Both science and agriculture teachers reported feeling confident in problem-solving, with no differences between the disciplines. Teachers reported more negative feelings of personal control over problem-solving situations. Teachers also felt a more avoidance style rather than approach when problem solving. Again, as this was about problem-solving in general, they may feel comfortable problem-solving when teaching, but not when problem-solving elsewhere or vice versa. As the survey was in regard to problem-solving in general, it could suggest that teachers need more assistance feeling in control, or when approaching a problem.

Agriculture teachers and science teachers indicated they felt self-efficacious when teaching problem solving. Both agriculture and science teachers also had a higher level of certain expectancy outcomes when teaching problem-solving. As self-efficacy is developed through vicarious experiences, mastery experiences, and social persuasion, this could indicate that teachers feel they have had these experiences to develop self-efficacy teaching this skill to students. Despite being trained differently, both groups of teachers feel self-efficacious enough to teach students problem solving.

Teacher professional development and curriculum development were two major areas in which this study was significant to. Based on the findings of this study, teachers (science and agriculture) struggled with approaching problems and did not have a strong footing in problem-solving confidence. Current teacher professional development events are offered based on teacher interest, preferences, administration preferences or are potentially mandatory trainings. The findings of this study introduce the idea of potentially offering professional development trainings based on cognitive preferences of the teacher. In addition to teacher professional development events, there is also potential for collaborations among science and agriculture teachers. As the study found few differences between the two groups, successful collaborations could be conducted within these groups. One major area science and agriculture teachers could collaborate in is STEM education and developing 21<sup>st</sup> century skills as it relies heavily on problem-solving.

## **Limitations/Future Studies**

As this study was conducted using only three states and a very limited number of participants (n = 205), this study could be replicated in the future to provide a more in-depth analysis and perhaps even generalize about science and agriculture teachers. Time of year (early January) may have contributed to the non-response rate from the participants. Despite several follow-ups, many teachers did not complete the entire questionnaire. The length of the survey may have contributed to the low survey response rate. Future studies should attempt to reduce the number of questions, optimizing it for participants.

Future studies should capture applied problem-solving abilities of teachers through classroom observations or simulations. Through classroom observations, and more extensive studies, generalizability could be achieved. Future studies should also extend the teachers and examine student's problem-solving. As problem-solving is a vital 21<sup>st</sup> Century skill, knowing whether or not teachers are effectively aiding in the development is necessary.

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## **Expanding the Agricultural Educator's Toolkit: Identifying Challenges in Digital Media Production Technology**

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### **Introduction**

The increased use of digital screens in the American classroom is undeniable. As Covid-19 gripped the world in spring 2020 these screens became the essential portal for the transfer of knowledge in K-12 school systems. This included the delivery of school-based agricultural education (SBAE) and posed many challenges during this time. The collective knowledge in regard to educational practices that evolved during the global pandemic has not yet been realized. However, the lessons learned by faculty will have a lasting impression on how content is delivered in the future. These events have highlighted the need to understand how to use technology to our advantage as 21<sup>st</sup> century educators. Additionally, research priority area two of the research agenda for the American Association for Agricultural Education calls for research into technologies within agriculture, including SBAE (Roberts, et al., 2017).

The rapid advance in technology has opened the door to new ways of work in the field of education. As technology advances, barriers and challenges to classroom implementation are inevitable. However, offering a 21<sup>st</sup> century education requires navigating these challenges to produce students with relevant skill sets. A 21<sup>st</sup> century education can be defined as exposing students to crucial skills and processes necessary to become productive members of society, as well as meeting the needs of the current workforce (National Commission on the Future of Higher Education, 2006). Media literacy, coupled with critical thinking skills and the ability to problem solve, are areas that strengthen a student's ability to function when entering this phase of life (Hu, et al. 2008). Engaging students with hands-on experiential learning opportunities offer ways to increase a student's knowledge of the lesson's content, as well as communicate results (Hilton, 2007; Merten, 2011). Thus, offering a way to sharpen student competencies in a variety of areas.

One way this type of instruction is happening in the classroom is the use of digital media production as a learning tool for a variety of subjects (Allam, 2008; Hilton, 2007; Hu, et al. 2008; Merten, 2011; Sharkey, 2006). Instead of designing traditional assignments, educators are using digital media production concepts to create new outputs (McDonald, 2009; Reeder, 2005; Tatebe, 2011; Theodosakis, 2002). These outputs include videos, podcasts, vlogs, infographic, and photo essays just to name a few. These strategies are beginning to be found in SBAE as well. This digital endeavor is not void of barriers and frustrations of learning to work with new technologies. "In order for agricultural education teachers to adapt to an ever-changing educational environment, they must possess the skills necessary to integrate technology into their classrooms" (Williams et al. 2014). In addition, Kotrlik and Redmann (2009) found:

The availability of technology and gender are predictors of the extent to which agriscience teachers had adopted technology in their teaching, with female teachers and

teachers with higher levels of available technology being more likely to adopting technology for use in instruction. (p. 71)

Nonetheless, agricultural educators are pushing forward and working to improve their professional practice for student learning (Esterly & Myers, 2019) making a focused examination of this type of work a worthwhile endeavor.

The primary goal of this study was to examine the lived experiences of agriculture educators in the state of Minnesota as they use digital media production as a learning tool. The objective of this inquiry was to begin to organize the experiences of these practitioners. The intention of this research was to yield a greater understanding of the motivations, challenges, successes, and appropriate support areas needed to foster improved instruction in this context.

### **Community of Practice as a Conceptual Framework**

Due to the nature of the population being studied and the infancy of this educational practice, the theory of Community of Practice (CoP) was used as the study's conceptual framework (Wegner, 1998). CoP lends itself to examining group learning. "Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better" (Wegner-Trayner, 2015, p.1). The study's focus on teacher learning coincides with the use of this theory. "Etienne's (Wegner) study of learning in contexts other than formal educational contexts has helped many of us working in education to think differently about learning" (Farnsworth et al, 2016, p. 2).

CoP is made up of three specific components: *The Domain*, *The Community*, and *The Practice*. *The Domain* refers to a shared domain of interest where there is a shared competency separating members from those outside the domain. In pursuing their interest in the domain, members engage in joint activities and discussions, help each other, and share information. This interaction creates the second component of CoP, *The Community*. It is important to point out that in a CoP members do not just share a common interest, rather they interact and learn together creating a community. Without this interaction a CoP does not exist. The third and final component of a CoP is *The Practice*. This refers to members being engaged in common activities that create the basis of group learning. "Members of a community of practice are practitioners. They develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short a shared practice. This takes time and sustained interaction," (Wegner-Trayner, 2015, p. 1).

### **Purpose and Research Question**

The study was framed as a starting point to learn from those familiar using digital media production as a learning tool in SBAE within the state of Minnesota. The overarching research question that guided this study was:

RQ1. How do agricultural educators describe the experience of using digital media production concepts as learning tools in the classroom?

### Method

In order to achieve the goal of this project, a qualitative study was employed. In a qualitative study the “researchers try to understand the social processes in context” (Esterberg, 2002, p. 2). A deeper understanding of the processes and barriers practitioners face when framing their instruction was key to this study. A case study was chosen as the mode to examine the experiences of ten agricultural educators within Minnesota. Creswell (2013) classified this as a *collective case study*. “In a collective case study (or multiple case study), the one issue or concern is again selected, but the inquirer selects multiple case studies to illustrate the issue,” (Creswell, 2013, p. 99).

Potential participants for this study were contacted via a recruitment email that was sent out through a state wide listserv of current agricultural educators in Minnesota. Ten respondents to the recruitment inquiry were randomly selected to participate in the interview process. Based on the overarching research question for this study, the interview script focused on four subset areas of inquiry into the participant’s experiences. These areas were participant motivation, educational experience, implementation, and future goals. The intention of these subsets were to focus the questioning on areas informed by the conceptual framework. For example, a clear understanding of a person’s motivations to engage in this type of work may clarify how or why the person enters the *Domain* component of CoP. A focus on past educational experiences and/or implementation strategies can help understand gaps and area to progress within the *Community* component of CoP. Examining future goals can potentially align with where the component of *Practice* is headed in the CoP.

Interviews were recorded via a digital recorder. The researchers then employed an outside contractor, *Temi.com*, to transcribe the interviews. Once the transcriptions were completed, they were read in a first pass. Multiple reviews of the transcripts were conducted to eliminate potential bias from the researchers. The intention in the first read was to investigate the materials to determine if viewing the written words produced a new perspective on the data. Next, the recordings were listened to again with the same purpose in mind. Following this step, the transcripts were read a second time. During this pass, the initial coding process began. Esterberg (2002) referred to this process as *open coding*. In this phase, Esterberg suggested, “...you work intensively with your data, line by line, identifying themes and categories that seem of interest” (p. 158). The data were dissected by the researchers by underlining any statement, topics or words that the researchers believed may lead to something of interest.

Additional review of the data was conducted with the intention of identifying emerging themes. Once the open coding produced initial themes and categories of interest, *focused coding* was enacted. Esterberg (2002) stated, “...focused coding entails going through your data line by line, but this time you focus on those key themes you identified during open coding” (p. 161). A color-coding system was used to categorize themes by using a variety of highlighter markers. Specific notes and descriptions produced by the researchers were taken into account as well. Emergent themes were organized in relation to the study’s conceptual framework. The participants were then contacted for a member check which produced a second data set. In this follow up, participants were given the chance to comment on the emergent themes and offer more description or clarification. Field notes of the interviews were taken by the researchers as a third data point. These three data sets were used for triangulation to ensure trustworthiness.

## Findings

### The Domain

Participants share a clear understanding of the importance of this type of instructional design for the development of their students. Participant 4 offered the following:

I think it's a great way for them to research and find information and filter it out. What's good and what's not so good, but also as a platform to create and hopefully inspire other people who are watching or reading the content that they're creating. Whether it be through a podcast that they create or an infographic or a blog post or something that they write up, not only how to develop their communication abilities, but also their ability to think critically.

This was reinforced by Participant 6:

They're also working on skill sets, that as we are learning this week with COVID-19, may become more valuable as time goes on. Because they're learning... learning zoom, learning all kinds of additional software right now. And video production has been something I wish I had a stronger background in right now.

The practitioners expressed the need for their students to hone digital communication skills focusing on agriculture. Participant 7 stated:

One of the big reasons I became an AG teacher was to encourage students to be advocates and to tell their story of agriculture... I think there's value in encouraging them to get their message out there, teaching them ways to get their message out there.

When working with this type of technology in the classroom, participants found engagement levels are heightened. Participant 3 explained:

I think when we produce videos in our classes, it actually engages the kids a lot more because it's not something they're necessarily used to. It's something that they engage with a lot outside of school in a more fun setting like YouTube.

A thematic strategy that emerged was using this technology to explore agricultural careers. Participants stressed the increased engagement should be best capitalized upon by focusing on the agricultural content itself and not the technology. Participant 10 stated:

I really try to tell, especially my upperclassmen, just all the endless job opportunities that are out there. I really think that with the world of communications and marketing, you know, there's so many opportunities available, whether it be print media, social media, marketing, advertising that, a career like that is possible.

### The Community

The participants expressed pitfalls to using this technology in the time it takes to learn the applications. This tends to take time away from the content areas they are tasked to focus on and

stands in the way of full embracement of this learning activity. In addition, wide ranges of technology and cost benefit of the equipment comes into play as barriers for implementation. Participant 3 explained:

Every kid has a different kind of cell phone, Apple, Android, no cell phone at all. Kids have access to Chromebooks here. We have access to a Mac computer lab and we have access to a PC computer lab and the different software, the editing software is different on all of them. It feels like...that's one of the biggest challenges.

Participants expressed learning with their students is something that may be necessary for success. A higher confidence level with this technology is a desire for effective teaching as well. Participant 7 explained:

It is really intimidating to look at a program that you've literally never looked at before and trying to figure out how it works before your kids get in there and do it. Cause you have to be able to answer questions.

Participants explained they lean heavily on peers in their field when it comes to assignments, technologies, strategies, and other resources. Participant 10 reflected:

I have collaborated or asked other agricultural teachers in my content area, outside my school. We have some different resource groups within the agricultural education profession. We have some Facebook groups, we have some online platforms where people share resources.

Participant 7 outlined peer interactions as a key when learning within the community in the following:

I don't really contact technical support when I have an issue. I talked to other teachers because usually the tools that I use have been recommended to me by other teachers. And the other part of it is making sure that whatever I'm using is compatible with the devices that my students have access to.

### **The Practice**

In order for this type of group learning to be effective, participants expressed the desire to streamline resources that have been tested in the field. This included best practices, examples of work, and assessment strategies. Due to the nature of schools districts geographic dispersion across Minnesota, the members lack great discussion within the community on these topics. The desire to have an ongoing structured conversation was expressed to have positive effects and increase their aptitude. Participant 3 stated:

Having easy YouTube videos or like online things that I could use as a teaching tool would be super awesome. So maybe I don't have to be the expert, but I can take a video of someone who is an expert and share that. That would be really helpful...What would be super useful would be somebody else who is an expert knowing this is going to students and teaching students about it and me being able to share that.

### **Conclusions, Recommendations, and Implications**

Participants in this study offered a variety of key insights into the use of digital media production as an instructional tool in SBAE. This phenomenon is in its infancy as a practice within this group. Framing the group as a CoP gave emphasis on this group's process of learning and sharing resources to strengthen the community as they work to refine instructional techniques.

The first conclusion of this study is that the participants found value in this type of work. Student engagement is found to be heightened when working with digital media, however many of the teachers are left to develop materials, lessons and resources on their own. The time involved in planning the lessons is a barrier to full embracement of the community.

The second conclusion of this study is there is a desire from the participants to receive more professional development in this area to alleviate some of the barriers found in the first conclusion. It was found that there is a desire to streamline professional development resources specific to *The Community* to strengthen instruction and design.

The third conclusion of this study is the participants' desire for an intentional structure to support group learning and interactions within *The Practice* of this bounded unit. This includes the need for a format to encourage conversations with their peers in order to foster a more robust dialogue on this topic. Currently these types of interactions are less formal and usually happen out of necessity and catalyzed by urgency. Formal channels of dialogue may include actionable items, solutions and other types of resources for classroom instruction in this area.

In order to build upon the conclusions, a more comprehensive quantitative survey study including a larger population of agriculture teachers in Minnesota and/or the national level would provide a rich data set for future studies. In addition, student learning in both secondary and higher education is prime for this type of inquiry. Exploring recent graduates and early-career professionals in a variety of agricultural careers may highlight the practical applications of digital media technologies. This would clarify the role digital media production and media literacy play in a student's education. Finally, a study that includes digital artifacts as a data point may produce a baseline analysis of how these types of outputs reflect the relationship between student learning and lesson design.

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## **Influence of Commodity Supported CASE Training on Agriculture Education Teachers**

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### **Introduction**

The Curriculum for Agricultural Science Education (CASE) program and concept was launched in 2007 and grew to its first pilot in 2009 (CASE, 2010). Throughout the years CASE has revolutionized how we look at agricultural education curriculum and has grown across 46 states. CASE curriculum is built off a general idea that the average School Based Agricultural Education (SBAE) student should be exposed and educated in four different pathways of Agriculture, Food and Natural Resources (AFNR) (CASE, 2010). These pathways all stem from the initial CASE AFNR Course and then proceed deeper into the critical content and standards of each pathway provided through CASE. Currently CASE offers teacher certifications and a comprehensive pathway for Animal Science, Plant Science, Agricultural Engineering and Natural Resources (CASE, 2010). With these four pathways in mind, specialized courses were created throughout the curriculum to allow an SBAE student to customize their agricultural education experience.

The CASE curriculum has served well for agriculture teachers across the nation as it has brought new structure and national standard aligned content into agriculture classrooms daily. Through careful design and creation, each CASE course scaffolds a student's understanding and comprehension into the higher orders of thinking and inquiry-based learning methods that both challenge and strengthen the students engaged through the curriculum (Lambert, Velez, & Elliot, 2014). Teachers can utilize the curriculum in their classrooms after attending institute training where they are taught the details of the curriculum and the pedagogical skills to assist in successful delivery. Since the pilot of CASE in 2009, all course certifications have been held this way and teachers who do not receive the training are not allowed teach the curriculum (CASE, 2010).

By certifying teachers in the curriculum course areas, the curriculum and its content are taught in a way that will ensure its integrity and structure. This also ensures that CASE curriculum and CASE as an organization are well represented and can maintain a positive reputation in the eyes of administrators and curriculum coordinators alike. Overall, the structure and the certification process safeguards the curriculum but can be a deterrent for teachers in areas where they might lack the funding for certification or lack the support for attending an institute during the summer (Lambert, Velez, & Elliot, 2014).

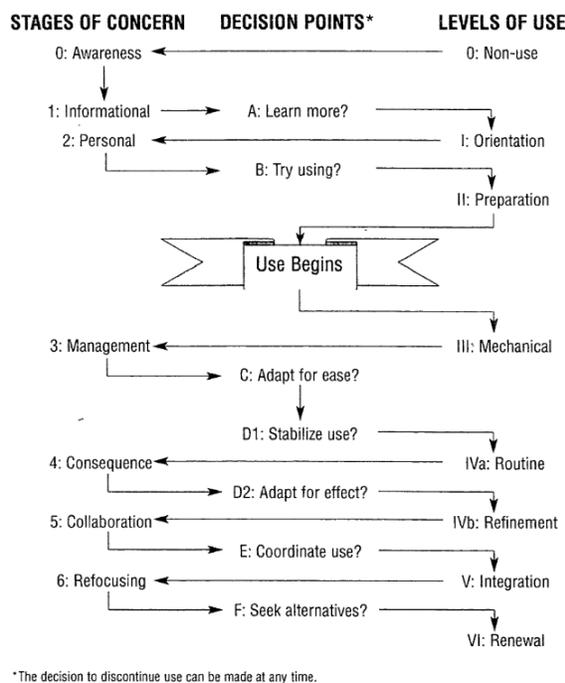
### **Theoretical Framework**

This study uses the Concerns-Based Adoption Model (CBAM; Hall, 1974) to measure the process by which the teachers adopt the CASE labs. Within CBAM, adoption is defined as a developmental process that individuals move through as they select, install, and institutionalize

the use of an innovation. The model begins with identifying an institution as a user system of individuals, each of whom has their own role (see Figure 1). The user system becomes involved in adopting an innovation and a resource system serves as expert in the use of the innovation (Hall, 1974). In this study, the StS program would serve as the resource system as well as those CASE lead teachers helping instruct the workshops.

The use of the CBAM encourages the analysis of findings for clues to the stages of concern, levels of use, and implementation configurations (Hall & Hord, 2015). Placement of individuals into stages, levels, and configurations can be done through the analysis of interviews within this study. Participants will be evaluated on their implementation of the labs using this framework.

**Figure 1.**  
Relationship Between Stages of Concern and Levels of Use Dimensions 1992 Bailey and Palsha Study (Ellsworth, 2000)



## Purpose

In 2016 the Kansas Corn Commission (KCC) began Seed to STEM (StS), to promote corn ethanol education and STEM education methods in science and agriculture classrooms (KCC, 2018). Through this program, they partnered with CASE to utilize labs from the CASE AFNR curriculum as well as the Principles of Agricultural Science - Animal (ASA) curriculum. Labs were introduced as sponsored lessons in Kansas secondary and elementary education programs (KCC, 2018). This partnership has played host to positive representation for CASE and the promotion of ethanol education while growing to become widely known in the state. Agriculture teachers without CASE certifications are still able to utilize the labs provided to them through the StS program and some funding has been allocated to supply the materials and classroom tools needed (KCC, 2018).

Since the program's launch it has grown and has become a more prevalent presentation at the meetings and conferences of the Kansas Association of Agricultural Educators (KAAE). StS workshops were offered with CASE AFNR "Clean Smoke" and ASA "Energy in Feed" labs at the 2018 KAAE Summer Conference. Workshops were sponsored by the StS project as was funding and supplies for the participants. CASE certified lead teachers guided participants through each lab in an hour and fifteen minutes. By immersing participants as students in the labs, the participants were able to attain similar training, in the specific labs as to a CASE institute, thus enabling them to teach the lab for which they attended. At the end of the workshop, participants were given the supplies necessary to instruct the lab in their own classroom.

### **Objectives**

1. Investigate the influence of StS workshops on non-CASE certified agriculture teachers.
2. Determine the level of satisfaction and benefits from using activities and materials within the StS labs.
3. Explore a connection between StS workshops and future pursuit of professional development sponsored by commodity groups.

### **Methods**

A qualitative method approach was chosen to investigate this case study. Qualitative research can allow the researcher to understand how people make sense of their world (Merriam, 2009). In this collective case study, we will address one issue and utilize multiple cases to illustrate the issue at hand. The size of qualitative case studies is relatively small, averaging from one to twenty participants (Creswell, 2018). Four teachers were selected through criterion-based sampling as the focus of this study. Each of the teachers received CASE ethanol education activities through the Kansas StS program at which time they were not CASE certified.

Qualitative researchers make use of non-probabilistic sampling procedures to focus the study from its inception, identifying cases that demonstrate the specific characteristics of interest (Patton, 2015). Permission was granted through the individual and the Institutional Review Board. Data was collected through one semi-structured interview, a focus group and a journal of email submissions regarding the time they taught and implemented the CASE activity. Questions were planned prior to the investigation of the central question and were meant to capture teacher experiences with the CASE activities and their effects on their classroom and student engagement.

The coding process included a review and re-read for each individual teacher. An attempt was made at open coding looking for significant comments and reflections which helped a reader understand the individual as clearly as possible while remembering the goal of the study. Data for each teacher was compiled and compared for overlapping information. For reporting purposes pseudonyms were used. After the cases were cross-referenced, the researcher determined different stages of concern, levels of use and configurations for each teacher.

Qualitative research uses measures of validation created through credibility, transferability, dependability, and confirmability achieved through the methods (Lincoln & Guba, 1985). Credibility relates to the level of confidence in the researcher, design, and findings to accurately

represent and interpret the data. (Ary, 2019). First, audio interviews were recorded, and transcribed word for word. Transcripts are translations of the live interview experience into the text format and are interpreted differently as a result (Kvale, 1996). Henceforth, transcripts were made available to each participant to allow them to check for accuracy of statements. Each participant had the chance to read their case to ensure that they felt represented.

By purpose and design, qualitative research, focuses on a smaller number of participants in greater depth. While potentially transferrable to other settings, the findings from this study are limited to the context of the four teachers in Kansas who participated. Within qualitative research, the concept of generalizability is referred to as transferability. Lincoln and Guba (1985) argue the decisions regarding transferability lie with those seeking to make application, not the researcher of origin. Detailed descriptions are used to help support future studies and the transferability of results.

### **Participants**

**Debbie**, non-traditionally certified, 2A school. Program is funded using class fees and general budget. Does face financial struggles and does not allow FFA funds or supplies to support classroom. Professional development is partially funded, but district “strongly encourages” teachers to find external funding.

**Harley**, traditionally certified, 1A school. Program is funded through class fees and some Title 1 funding. Does use FFA funding and supplies for classroom. District pays professional development for bi-annual conferences, anything more is handled on individual basis.

**Katelyn**, traditionally certified, 3A school. Program does not face many financial struggles. Does not allow FFA funds or supplies to crossover to classroom. Perkins funds are used for professional development opportunities, anything beyond is from the district.

**Mitch**, traditionally certified, 4A school. Does not really have a classroom budget, hit or miss on supply requests. Does allow for crossover of FFA funds and supplies for classroom. School allows teachers to attend regular conferences but has grown cautious of other additional opportunities.

### **Findings**

Throughout this study there were several strong themes that presented themselves. Most participants acknowledged that the program was well advertised and visible, were aware that they would be receiving supplies, and were motivated by the hands-on aspect of the training at the time they decided to attend. Also, most participants noted that the curriculum incorporated science in the classroom and enhanced their classroom instruction.

All participants viewed the workshop and training as a positive influence on their decision to pursue CASE certification in the future. Likewise, all participants have considered or have pursued CASE certification following the workshop. Most participants are using the labs that they were trained to instruct as well as using the supplies efficiently and throughout their other classes to get the most out of them. Most participants were also appreciative of the industry education programs and support. Furthermore, most participants had little to no constructive

criticisms but encouraged the idea of more workshops in partnership with CASE and their other pathways.

### **Marketing**

All four teachers received emails and newsletters pertaining to the KCC workshop prior to the conference. In addition, Mitch felt that he was also exposed through personal contacts with members of the KCC program and his student teacher. Harvey was also strongly encouraged to attend the workshops by fellow agriculture teachers and CASE Lead Teachers. Debbie and her husband are also members of the Kansas Corn Growers Association and were aware of the Seed to STEM projects.

When receiving information about the training most of the participants were aware that they would be receiving all the materials and CASE lab plans when they attended the workshop. Harvey was the only participant surprised that he would be receiving the required supplies. All the teachers were surprised at the total amount of supplies and materials they were able to receive and get refills of each year after attending the workshop.

### **Motivators**

Each of the teachers were attracted to the workshop because of its hands-on training. Debbie, Harvey, and Mitch all recognized that the workshops would enhance their curriculum and knowledge in the classroom.

### **Impacts**

All teachers agreed that afterward they were positively influenced to attend future CASE trainings and workshops. Debbie has attended CASE AFNR and is planning to attend either Ag Power and Technology or Mechanical Systems of Agriculture this summer. Harvey showed interest to attend an institute but has recently moved schools and wants to build up to attending a CASE institute. Mitch expressed that while the workshop positively influenced him, he acknowledged that being close to retirement a CASE institute may not be in his future but if he were younger, he would pursue them.

### **Implementation**

Most of the teachers are using the labs that they were given at the training. Katelyn is the only participant that has not used her lab but is working to find where it will fit in her classes. Debbie is using both labs as they were written. While Harvey and Mitch have made some adjustments to the labs to make them more specific to their classrooms and students. Harvey has customized *Energy in Feeds* to allow students to bring in their own animal feed samples. Mitch teaches *Clean Smoke* in his Ag Mechanics classes and uses *Energy in Feeds* with adjustment to limit some of the variables and as a demonstration.

As far as material use goes, Katelyn has not utilized her materials yet but again hopes to find a place for them. Debbie uses the temperature probes in multiple classes and activities as well as in their program's hydroponic unit. Mitch uses the electronic balances and scales all the time in his Food Science class and some other materials when completing titration labs for Milk Quality.

Harvey uses his materials throughout his program especially during student labs and experiments.

### **Programmatic**

All the teachers would encourage future workshops for CASE labs through outside sponsorship. Debbie mentioned that workshops in CASE AFNR and Food Science would be most helpful for her. Harvey appreciated the training and has been promoting their StS program to fellow teachers. Katelyn was appreciative of the workshop exposing her to new information and science-based principals within the labs themselves. Mitch spoke specifically to say that it was positive seeing commodity groups supporting Agricultural Education and sharing that he wished other groups would “hop on board” to do something similar.

### **Conclusions, Implications, and Recommendations**

This study lends itself to the exploration of KCC StS implementation by four different teachers. Each teacher was a participant of at least one of the two CASE lab training workshops at the KAAE Summer Conference, but their programs and funding all differed. While each teacher, situation, and case are different, there were several overlapping themes identified in the findings.

Evaluating the Concerns Based Adoption Model (Hall & Hord, 2015) stages of concern, Debbie, Harley, and Mitch, had developed active strategies for implementing and improving the use of the KCC StS and CASE labs in their classroom. They were in the refocusing stage of concern. Katelyn remained in the management stage as she was still working to plan and fit the labs into her classes and curriculum that she was teaching.

Applying the CBAM framework (Hall & Hord, 2015) to the participants, they varied in their levels of use. Debbie was experiencing the routine use level as she had fit the labs and activities into her curriculum and classroom and found a way to resupply her materials without change or modification. Harley and Mitch were both working at a refinement level as they had both found modifications and were working to utilize the labs and activities more as they taught them in their classes. Katelyn was at the orientation level as she was aware of the lab and training, she gained but is working to implement it sometime in the future.

The participants came into the program from similar backgrounds but varied district sizes. Most of the teachers experienced some funding difficulties when acquiring classroom supplies and felt highly motivated to seek alternative funding through grants and programs. All participants however were looking for engaging, science-based curriculum that would engage their students and help strengthen their curriculum. After being involved with the program, most teachers agreed that having opportunities such as the workshop made pursuing professional development such as a CASE certification more desirable. Also, teachers agreed they were looking forward to opportunities with KCC and StS and would be interested in CASE course labs as well as other commodity and industry education programs.

Based on the participants’ experiences with KCC StS, the researcher recommends teachers look for engaging and STEM-based education about ethanol production seek future opportunities with the Kansas Corn Commission and the CASE curriculum. As a group, participants recommended the Seed to STEM program and voiced appreciation for the Kansas Corn Commission for

creating a program and funding opportunity to help expand their classrooms and classroom supplies.

Further research should compare and evaluate, the effectiveness of CASE certified teachers as a data set and non-CASE certified teachers who use the Seed to STEM labs and activities in their classrooms. Both populations, trained in the same workshop and labs, will need to be evaluated individually to get a comprehensive look at the improvements that should be made without the discretion of the difference of data sets. This will allow a greater applicability and aid the KCC in improving their Seed to STEM project.

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**Adjusting, Appeasing, and Rearranging: How Agriculture Teachers Reconcile the Demands of the Profession**

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## Introduction and Literature Review

*A Nationwide shortage of agriculture teachers has been a fact of life for the past several years...Teacher educators and supervisors are reluctant to speak out on behalf of improvement of the position of the teacher. They are more concerned with improving the teacher so he can presumably do everything regardless of conditions.*

In this excerpt from the *Agricultural Education Magazine* (February, 1974), editor Martin B. McMillion implored his readers to critically address the position description and demands of agriculture teachers as the source of the agriculture teacher shortage problem. Forty-six years later, this is a continuing problem with consistent shortages in the number of agriculture teachers entering the profession relative to those leaving (Foster et al., 2015; Kantrovich, 2010; Smith et al., 2016, 2017, 2019). Despite McMillion's call to reduce the workload of agriculture teachers, the position description has only expanded since 1974 (Talbert et al., 2014; The National Council, 2017). These expanding position descriptions are coupled with studies concluding agriculture teachers must possess 30+, 40+, or 50+ characteristics or qualities in order to be considered effective (Easterly, et al., 2017; Eck et al., 2019; Roberts & Dyer, 2004; Roberts et al., 2006). We argue these expanding position descriptions and growing lists of "effective" characteristics pose a significant hurdle to the successful retention of SBAE teachers.

Like McMillion, scholars have questioned how these expectations effect the agriculture teacher. Extant research shows the intense workload and multiple expectations of agriculture teachers result in numerous challenges for the teacher, including the decision to leave the profession (Dyer, & Washburn, 2005; Mundt & Connors, 1999; Rocca & Washburn, 2006; Torres et al, 2009). While literature has revealed much about the state of the profession, scholars' recommendations have implied "improving the teacher," as McMillion (1974) put it, through professional development and enhanced pre-service training as the solution to the aforementioned problems.

Recent scholars, however, heeded McMillion's call to change the focus from improving the teacher to identifying other contextual factors contributing to the retention issue, aiming to better understand how agriculture teachers interact with the SBAE system. Traini, Claflin, et al.'s (2019) study revealed early career agriculture teachers in Oregon experienced tension as they strived to be both a successful and balanced agriculture teacher. Their replication study found Louisiana SBAE teachers experienced a success trap; once they experienced initial success as a result of attending to the multiple expectations of the job, they felt it difficult to rethink their workload and find success in other areas of life (Traini, Yopp, et al., 2020). A separate study by Traini, Stewart, et al. (2020) found agriculture teachers encountered challenges as they attended to the different expectations of multiple accountability partners (e.g., school administrators, community members). Navigating the competing demands of the profession was fraught with struggle and self-consciousness (Traini, Stewart, et al., 2020). They recommended additional exploration into how agriculture teachers reconcile the competing demands and expectations of their work.

What is clear from existing research is agriculture teachers encounter tensions as they navigate their work and professional expectations. Yet, without further exploration into how agriculture teachers interact with the SBAE system and its challenges, we are unable to make definitive

recommendations for change at the systems level or the position description, as McMillion (1974) put it.

### **Theoretical Framework**

Wenger-Trayner and Wenger-Trayner's (2015) *Landscapes of Practice* situates learning in the context of our lived experiences, where learning is a component of our human nature and individuals construct identities as they participate in multiple communities of practice. The theorists postulate identity combines multiple forms of membership in different communities of practices, or a nexus of multimembership. This process requires reconciliation, which is challenging and often problematic identity work. For example, a young woman who is both a parent and agriculture teacher must reconcile different aspects of her identity if she has an evening FFA meeting. She must reconcile her multimembership by choosing which regime of competence (i.e., a good mother or good agriculture teacher) she feels most accountable to at that moment. As we acknowledge agriculture teachers are engaged in multiple communities, each with different expectations and regimes of competence, there may be many circumstances in which reconciliation is required. Given these theoretical concepts, *Landscapes of Practice* offered a way of thinking that acknowledges the difficult work professionals undertake in navigating multiple communities, and the boundaries between them.

### **Purpose of the Study**

This study sought to explore how agriculture teachers reconcile the demands of the profession, addressing National Research Priority six which calls for research to explore the resiliency of agricultural educators (Roberts et al., 2016). The research question guiding our study was, *in what ways do agriculture teachers reconcile the demands of the profession?*

### **Methods**

We utilized a hermeneutic phenomenological approach, rooted in the personal knowledge and subjectivity of the participants, and focused on their perspectives and interpretations of their own lived experiences (Creswell, 2013). A hermeneutic phenomenology accepts that researchers cannot ignore their own experiences with the phenomenon (bracketing) and allows the phenomenon to be explored through the experiences in which the individuals were engaged in everyday life (Sloan & Bowe, 2014). The phenomenon for this study was *reconciliation*. Given the expansive number of duties and responsibilities required of agriculture teachers, we operated under the assumption all secondary agriculture teachers in the U.S. engage in reconciliation; having experienced the phenomenon was necessary to participate in the study (van Manen, 1990). The population consisted of participants who held positions in secondary agriculture programs across the country during the 2018-2019 academic year. Participants were recruited via email using names and contact information collected from teacher educators across the country. Recruitment resulted in 12 participants (six male, six female) who taught in seven states including Oklahoma, Oregon, North Carolina, Washington, Idaho, California, and Utah. Semi-structured interviews via telephone were the primary data. The interview protocol allowed participants to share their experiences about navigating the multiple demands and expectations of

their jobs. Interviews lasting 45 – 75 minutes were transcribed verbatim and imported into Dedoose for analysis.

The tenets of hermeneutic phenomenology support the interpretation of meanings in relation to the phenomenon under investigation. We utilized Lindseth and Norberg's (2004) method for interpreting hermeneutic interview text and Emerson et al.'s (2011) method for specific coding and memoing guidelines. We drew from van Manen's (1990) conceptualization of *theme* in phenomenological research and used Lincoln and Guba's (1988) criteria of *transferability*, *credibility*, and *dependability* to ensure a rigorous, scientific study. We utilized member checking by asking participants to review transcripts and initial drafts of the analysis, and offer additional stories related to the research question.

## Findings

As agriculture teachers navigate the SBAE landscape, they reconcile the competing demands and expectations while striving to be good, successful, or competent. Participants discussed reconciling as *adjusting*, *rearranging*, and *appeasing*, specifically in relation to powerful individuals and dynamics in the SBAE landscape.

### Adjusting

Adjusting reconciles one's power *against* others' power. Participants did this by moving things around, thus retaining some of their own agency. This resembled adjusting expectations and putting things on the "back burner". Participants recognized the inability to do everything all the time. To reconcile, they prioritized. While all twelve participants discussed the difficulty of attending to all aspects of their job, many commented on the importance and high priority of lesson design and delivery. These teachers also built conceptualizations of success equated to winning awards. However, many of them wanted to be more competitive. To reconcile, they adjusted expectations, lowered standards, and tried to convince themselves winning and competition did not align with their students' or community needs. This was the case for six participants, all of whom were in their first five years of teaching. A few participants seemed content with adjusting, but others were still grappling with this adjustment and did it as a coping mechanism.

### Rearranging

Rearranging reconciles one's power *with* others' power (individual, institutional, or otherwise) as a compromised retention of power for both parties. Participants endeavored to create boundaries, leverage responsibilities to "kill two birds with one stone"; delegate; and mold their family to the job. Participants leveraged existing resources and networks, embedded multiple activities into one event, and integrated FFA activities into classroom curriculum as a strategy for reconciliation. These teachers also recognized the importance of creating boundaries between their work and home lives or, as Eddie put it, knowing when to "turn the teacher off." They discussed goals of leaving work "early," devoting time for activities and relationships outside work, or purposefully leaving weekends or evenings open when planning the year's events. Participants often molded their families to their job, bringing work home instead of staying at

school, bringing family to work-related activities, working excessive hours because their spouse did the same, or choosing work over family.

### **Appeasing**

Appeasing reconciles one's power *for* others' power, yielding agency to the powers in place (e.g., appeasing those in power or leaving the school or profession). Participants were engaged but not aligned, and simply "checked boxes" or followed rules to appease those in power. Appeasement acknowledges the political nature of teaching and SBAE; teachers must "play the game" to keep their jobs, maintain student numbers, and receive financial and material support. Participants discussed making people happy as necessary for survival, especially in regards to powerful community members and groups who have leverage. To reconcile these competing demands, two participants left previous positions due to conflicts and misaligned expectations. Four participants left or considered leaving the profession at the time of this study.

## **Discussion, Conclusions, and Recommendations**

### **Discussion of Power, Privilege, & Systemic Change**

Any discussion of power warrants a discussion of privilege. Nine participants shared about their love of staying busy, just "pushing through" the work, or identified the excessive work as something "natural." Adjusting, rearranging, and appeasing power all imply a recognition of power existing within the current paradigm and social landscape (Wenger-Trayner & Wenger-Trayner, 2015). However, if this power remains unacknowledged, and teachers reconcile the competing demands to situate themselves as good, successful, or competent, they may not see a need for reconciliation. A "privilege" exists in maintaining the status quo "for the love of the game." While some excel at meeting these conceptions of power, those who engage with reconciliations to power must constantly question the norms they establish for the profession and the idealization of exceptional as normal (Wenger-Trayner & Wenger-Trayner, 2015). Perhaps it is time to acknowledge this job may simply be too much for one person (Hainline et al., 2015 & Lemons et al., 2015).

### **Recommendations for Practice & Future Research**

Participants were aware of the power dynamics and the necessity to maintain favor with influential members in their community of practice. Additionally, administrative support keeps agriculture teachers in the profession (Clark et al., 2014) and satisfied with their jobs (Hasselquist et al., 2017). Continued work to aid SBAE teachers in understanding these dynamics may help uncover challenges of community-program relations, as well as strategies to ensure alignment between powerful accountability partners and the agriculture teachers.

Several recommendations exist for future research. Namely, exploring community-SBAE teacher relationships to understand navigational challenges; understanding the "box checking" that modulates teacher identity; illumination of power dynamics within SBAE; attention to justification of prioritization activities; and work-life balance among those who mold their family to their job. Navigating the landscape of SBAE is a nuanced and unnecessarily arduous journey

(Traini, Stewart, et al., 2020). Those willing to examine this landscape more closely lend to a clearer map to guide the practice of those in secondary classrooms.

## **Conclusions**

We conclude with the call to others to bring these invisible forces to light. While this research was exploratory in nature, it offers significant contributions to the ongoing discussion related to agriculture teacher retention. We uncovered a few unspoken, invisible forces influencing the SBAE landscape to give voice to individual agriculture teachers. However, this work is only the beginning of mapping the terrain SBAE teachers must traverse, and we invite you to join us on this journey.

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## **Beyond Dialogue: Social Identity Development of Agriculture, Food and Natural Resources Educators**

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### **Introduction**

Social identity is an understanding of how one's self fits into historically constructed social categories such as race, ethnicity, sexuality, gender identity, religion, ability, socioeconomic status and/or nationality (Tafjel & Turner, 1979). Many of these identities take on an emotional significance and become tied to one's self-esteem (Tafjel & Turner, 1979; McLeod, 2019). This is significant in the case of dominant groups who do not have privilege in their social identity and thus place themselves at odds with other social identities to maintain their own self-esteem (Wirth 1945; Knowles & Peng, 2005; McLeod, 2019). Current agricultural education literature lacks an analysis of the subjective positionality of dominant identities and their power relationship with marginalized individuals and communities.

Literature on diversity and inclusion conversations often focuses on non-dominant<sup>1</sup> identities such as female-identifying students, students of color, students with different abilities or socioeconomically poor students. It is common for research to covertly mask the social identity of the dominant ruling group whether it is being white, male, Christian, heterosexual or socioeconomically stable. Because of this, relations of power are implicitly hidden within the research, and dominant identities often become the normative lens through which all other identities are seen through. Diversity and inclusion are therefore framed in a way that assumes an action must be taken to include marginalized identities without understanding one's own subjective social identity. Ahmed (2004) argues the importance of understanding dominant identities by starting with the experiences of the marginalized who are most harmed when power relationships are perpetuated.

Current research does not examine the self-development of AFNR teachers' social identities. Past research has examined the preparation of teacher candidates to work in a diverse classroom (Talbert & Edwin, 2008). Elliot and Lambert (2018) specifically address the presence of "rural privilege" and other dominant identities that privilege certain groups of AFNR students over others. They found that students from non-rural backgrounds experienced fewer opportunities and greater barriers in AFNR education. In a case study of students' perceptions of their teachers' multicultural competency, teachers with at least 30 percent "ethnic minority" enrollment were

<sup>1</sup> We use "non-dominant" to acknowledge the critique that "minority" has largely been used as a coded term for "Black" or "African-American" without addressing the violence of systemic racism (Berbrier, 2002). Our use of "non-dominant" is intended to establish a social and economic relationship of power with the "dominant" group.

perceived as more multiculturally competent than teachers with enrollment less than this threshold (Vincent & Torres, 2015). Some literature addresses AFNR teacher perceptions and attitudes toward diversity and inclusion (LaVergne, Jones & Elbert, 2012). Warren and Alston (2007) found two barriers to diversity and inclusion among North Carolina teachers were prejudicial issues and stereotypes and recommended preservice and inservice multicultural training.

### **Theoretical Framework**

The conversation around diversity and inclusion within agricultural education has often fallen within a “market-based approach” to diversity. This argument frames diversity as “good for business.” When diversity is present, there is more creativity, a broader base of students, and certain ideas or solutions are contributed that wouldn’t otherwise be contributed (Wilkins, 2004). While diversity may serve these purposes, this framework often reduces diversity and inclusion to a utilitarian ethic that continues to center the interests of those with dominant identities. Our research framework is a *justice-based approach*, in which we seek to create more accessible spaces that center the experiences of marginalized people while also interrogating the role of dominant identities. This includes an intentional reflection on how power is perpetuated even within our own conversations of diversity and inclusion.

### **Purpose/Objectives**

This research was conducted in conjunction with Beyond, a dialogue group facilitated by the University of Minnesota agricultural education academic department with Minnesota AFNR instructors. The original objectives of the program were to: (1) create a brave space for Minnesota AFNR instructors to move forward in their journey of facilitating inclusive classroom environments; (2) provide instructors an opportunity to ask challenging and unknown questions related to social identity; (3) support instructors in lifelong journeys of social identity development.

In research specific to this manuscript, researchers sought to understand: (a) how Minnesota AFNR instructors understand their own social identity and navigate power dynamics associated with it; (b) how well AFNR instructors understand the social identity development of students and communities and how to navigate power dynamics associated with it; and (c) how facilitated learning affects AFNR instructors’ ability to further develop understanding of social identity. The purpose of the research specific to this manuscript is to allow other agricultural education organizations to explore the efficacy of this program and potentially replicate similar programming utilizing a justice-based approach to diversity and inclusion.

### **Methods and Procedures**

As framers of a discussion focused on social identity, we would be negligent to not acknowledge our own. Dr. Amy Smith (she/her) identifies as white, cisgender female, heterosexual, European American, Christian and from a rural, farming background. Brandon Roiger (he/him) identifies as white, queer, of central European ethnic ancestry, Christian and from a rural, working class background. Harley Braun (she/her) identifies as white, female, heterosexual, European American, Christian and from a rural, farming background. Each of us recognize the ways in which dominant and non-dominant identities have informed and potentially

misled our design, methodology and discussion of this research, and we recognize the most marginalized possess ways of knowing and being that must be centered in all conversations. This is a valid critique worth critical analysis and engagement.

Beyond was marketed to all AFNR instructors as a dialogue group to explore social identity self-development and how that translates to creating an inclusive classroom environment for all students. Dialogue groups were held monthly in February, March, April, May and June for approximately one hour. Twelve Minnesota AFNR instructors were selected to participate in the dialogue group, and exactly 12 instructors applied. This amount was determined by limited funding to purchase books. “Active participants” were defined as individuals who participated in at least three of the five dialogue sessions. At the conclusion of the final dialogue group, ten Minnesota AFNR instructors were qualified as active participants, since the other two did not attend enough dialogue group sessions. All findings reported are from the ten participants deemed active, unless otherwise notated.

Researchers administered the program using *A Good Time for the Truth* edited by Minnesota-based author Sun Yung Shin to facilitate conversation, and each participant was given a book sponsored by the State Teach Ag Results (STAR) initiative through the National Teach Ag Campaign. This book was chosen because it is an anthology of 16 different authors of color who write about their varied experiences with race in Minnesota. This was an important characteristic in order to move toward centering voices of color in our conversation. Each participant individually completed a pre-interview and post-interview. One-on-one pre- and post-interviews were facilitated using a semi-structured framework, and then recorded and transcribed (Given, 2008). Book chapters were selected each session as focal points: an introduction; power, class and race; gender, sexuality and race; nationality and race; and language, voices and race. Each session began with a mindfulness exercise, included introductions or a check-in/reflection, and moved into a semi-structured, facilitated dialogue (Given, 2008). The end of the session included a Q&A period and/or a check-in evaluation of the discussion. Following each dialogue group session, the facilitators engaged in reflection that shaped facilitation for the next session. The first dialogue session also included the setting of “community norms” with participants. Analytic notes were captured throughout each dialogue group session, and each session was recorded and transcribed.

This research employed (1) a grounded theory approach, which discovers theory from data primarily obtained through social research, and (2) a modified ethnomethodological approach, which examines social norms as they play out in the status quo. The traditional ethnomethodological study does not give consideration to social standpoint or identity framework, which is the primary modification in this analysis approach (Glaser & Strauss, 2009; Garfinkel, 1967). These approaches were employed to generate theory that is relevant to our praxis. Researchers transcribed all conversations and analyzed them using open coding, field notes and analytic notes. These results were interpreted and analyzed to integrate with existing, relevant literature. Qualitative data sources were analyzed through an iterative process of inductive coding from the data for comprehensive thematic analyses (Corbin & Strauss, 2014; Miles et al., 2014). Qualitative coding was completed by two researchers to increase intercoder reliability, and recommendations were developed collaboratively by the research team (Lincoln & Guba, 1986). Two researchers completed case analyses with differences reconciled. Findings are presented as themes with supporting statements and codes to provide thick, rich descriptions.

## Findings

All ten active participants described their ethnic ancestry as white or European American. Nine participants identified as female and one participant identified as male. Nine of the ten active participants were between the ages of 24 and 33. When participants were asked if they identify as marginalized in relation to the LGBTQIA+ community, race or ethnicity, socioeconomic status, physical or mental disability, nationality or religion, only one participant indicated they held a marginalized identity of socioeconomic status.

When asked in pre-interviews to define social identity, participants were hesitant to respond. We used Tajfel and Turner's (1979) previously mentioned definition of social identity as a starting point. One participant was able to articulate a definition that closely matched this understanding in their pre-interview. Three participants shared a definition that was different from this understanding, and the remaining six participants were able to use context clues to identify pieces of the definition. Most participants were not able to articulate how social identity connects between individuals and a larger social construct. In the post-interviews, participants were able to articulate this nuanced view of social identity. Every participant was able to share a definition that aligned closely with Tajfel and Turner's (1979) definition.

In post-interviews, all participants indicated they had seen their critical thinking skills develop to some degree over the course of the dialogue or were able to practice their critical thinking skills in making broader connections. All participants also expressed an ability to see the ways in which oppressive systems are interrelated, and several were able to contextualize the dialogue group to their own classroom curriculum. One teacher specifically noted how the history of agriculture as it is currently taught is inaccurate.

Especially with a large group of Native American students and looking at the history of agriculture that we teach them, it's so skewed. If you just look at it, you don't really necessarily know that it's skewed in that position until you really dig into it and realize what was actually happening with our Native American groups and what [white people] actually took away from [Native people].

Several participants felt encouraged to have conversations related to social identity with their students, particularly those who identify as underrepresented, after feeling empowered by their own discussions. The aforementioned participant also shared:

It really opened up my relationships with the kids, and they were able to share so much with me about aspects of their identities that aren't necessarily the same as mine, and we were able to share and to grow. Watching that classroom culture grow in that way was so incredible these last couple months.

In pre-interviews, every white participant gave a memory involving an interaction with a person of color when asked about their first memories regarding race. No participants outlined race in regard to whiteness or a self-understanding of racial identity. One participant who struggled to identify a specific personal memory said, "I should be looking for something, but I'm not 100 percent sure what I'm looking for." This participant's first memory traced back to an animated video about Harriet Tubman and learning about key people during Black History Month.

As participants recalled initial recognitions of race, they were invited to notice what physical feelings and sensations were arising in their body. Only one participant was unable to notice any sort of shift in their body. The feelings that were reported were in the throat, neck, between the eyes and forehead, tingling throughout the body, and a wave across the chest. Several individuals shared a tension in their shoulders or arms. One individual described a faster heartbeat with shaky hands, and another individual shared they were teary-eyed and hunched after recalling the memory. Some individuals were surprised to notice this response from their physical body. The observation of a physiological response might indicate that racism is an experience that occurs at a somatic level and is not fully addressed by equity professional development that focuses exclusively on the cognitive, thinking brain.

Participants found reading *A Good Time for the Truth* while having intentional dialogue to discuss the book as a good combination to facilitate deeper learning. One teacher noted the following about her own learning style in combination with the program.

I learn really well through stories, and the stories that we read coupled with other teachers' experiences, stories and thoughts was really beneficial. [...] Being able to get a little glimpse into some of the different stories that people have or situations that people have encountered and how that has impacted them, how it's made them feel, how it has changed their lives –  
– it was really powerful to learn.

Several teachers remarked the dialogue group built community among other teachers in Minnesota who were willing to have conversations about these topics.

### **Discussion and Recommendations**

Many participants acknowledged preservice teacher curriculum did not fully prepare them for the interactions they would have with non-dominant identities and understanding their own social identities. While curriculum exists related to diversity and inclusion in preservice teacher programs, there needs to be clearer content that engages preservice teachers in a justice-based curriculum.

Some participants reflected in post-interviews that they thought about themselves and their own social identities less or about the same as before because they were mostly focused on their students and how certain injustices affect them. This was demonstrated by participants' first memories around race always centered in a relation to a person of color. We recommend that future programming simultaneously focuses on addressing one's own dominant identities while reflecting on how those affect students' social identities.

Some participants expressed that language and vocabulary were a stumbling block in fully reflecting on the content, as evidenced by the lack of ability to define social identity at the program's beginning. While building language and vocabulary is certainly a challenge, it is also a necessity for examining one's own place within power relations of social identities. We recommend considerable effort be given in future programming to empowering participants with tools to develop unfamiliar vocabulary and language regarding a justice-based framework.

There is a necessity within AFNR (and other fields of study) to develop a construct of whiteness and other dominant identities that does not assume a normative standard for other non-dominant identities to be held in relation to. Diversity and inclusion programming, research and

content should both address the effects of systemic oppression on marginalized groups of people, and it should also address how dominant identities can perpetuate these harmful effects. This is evident by the participants who tended to shift the focus away from learning about their own social identities and instead toward learning about “other” social identities.

Participants found it helpful to read chapters written directly from marginalized voices. While we recommend centering the voices of marginalized individuals in social identity programming, we recommend doing so in a way that gives fair compensation to marginalized individuals and attention to power relations, including an examination of how these voices implicate one’s own social identities, especially dominant identities.

## Conclusion

This study raised many questions not previously addressed within agricultural education academic research, particularly related to a justice-based approach in diversity, equity and inclusion. One of the challenges of this study is the limited amount of justice-based research available in agricultural education related to diversity and inclusion to help inform and guide it. The national research agenda of the American Association for Agricultural Education consists of 25 ranked research priorities determined by the Delphi method (Roberts et al., 2016). While all of the priorities could infuse a justice-based framework or include elements of diversity and inclusion, only three of the questions directly address these topics.

3. What strategies are effective in recruiting diverse populations into agriculture and natural resources?
6. What methods, models and programs are effective in communicating with diverse audiences?
11. What are the most effective models for delivering agricultural teacher education programs to reach nontraditional audiences?

While it is important that diversity and inclusion questions are prioritized in the national research agenda and approached with a national emphasis, these questions are limited within a market-based framework. For example, diverse populations do not need to be “recruited” into agriculture and natural resources careers, “diverse” populations need access due to systemic and historical barriers. While racially and ethnically diverse groups of people may be more effective and lead to more productive outputs, marginalized people deserve access to the same opportunities of people with dominant identities without a market-based qualifier. Future natural resource agendas must instead consider a justice-based framework with questions that might include: *What are the historical and current barriers to participation for marginalized people? How does agricultural education create access for marginalized people? What sacrifices do people in positions of power have to make so that marginalized people can be in decision-making and leadership roles? What are the covert patterns of white supremacy and colonization underlying this research? What decolonized forms of agricultural education already exist, and how can underlying norms shift to center decolonization?*

We recommend future national research agendas (1) include justice-based questions related to diversity and inclusion, in place of market-based questions; (2) encourage a critical analysis of social inequities related to every research question, no matter the topic. Individual scholars,

particular Black scholars, within agricultural education already give consideration to this critical analysis, which is why it is of paramount importance for a more uniform approach to these research areas among the larger profession. Because of the unestablished uniform nature of this topic in agricultural education and based on our own study, there are many research opportunities, which may include program replication and expansion; the intentional infusion of justice-based instruction in teacher preparation programs; examining barriers to teacher participation; lack of teacher engagement; and the contextualization of this program to different groups of participants.

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## **Positions of Influence: How SBAE Influencers Position Mobile Teachers**

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### **Introduction**

Within School-Based Agricultural Education (SBAE) and internationally, work has already been dedicated to understanding how teachers identify success when making career decisions that move them between schools (Haddad et al., 2019; Ochs, 2012; Rudder, 2012). Resoundingly, teachers identified community support as integral to reflecting on their program move as a good choice (Haddad et al., 2019; Rudder, 2012). However, little research exists to recognize the interplay between SBAE teachers and their community to understand their respective roles as teachers enter and exit programs.

Those studying teacher migration internationally have recognized the necessity of considering teacher migration and mobility as a system made of up actors (e.g. teachers, departments of education, schools, and school administrators) and contexts (e.g. school districts, unions, educational policy, and broader politics) (Ochs, 2012). Considering teacher mobility as a system better enabled the evaluation of best practice in recruiting and retaining mobile teachers, particularly as it shed light on the various influencers at play (Ochs, 2012). It also furthers the credibility of taking a profession wide (SBAE) view of migration and migratory contexts. Notably, the majority of current education literature focuses on the school (Atterbury et al., 2017; Feng & Sass, 2012; Gary et al., 2015; Goldring et al., 2014; Ingersoll, 2001; Ronfeldt et al., 2012; Ross et al., 1999; West & Chingos, 2009).

Such explication of the larger systems at play allowed discussion of the migrator in the context of a broader education system. Therefore, the research question guiding the current study was: How do community influencers position themselves and SBAE migrators within their co-constructed context? Our purpose was to understand the discursive positions of community influencers relative to their SBAE counterparts. The study question and purpose align with AAAE Research Priority 3, Question 2: “What methods, models, and practices are effective in recruiting agricultural leadership, education, and communication practitioners and supporting their success at all stages of their careers?” (Roberts et al., 2016).

### **Purpose & Significance**

The purpose of this study was to unfold the discursive positions of community influencers relative to their SBAE counterparts. We sought an outcome of better understanding the support and challenge imposed by communities as teachers enter and exit SBAE programs. To date, the literature has focused on student impact and relationships almost exclusively (Atterbury et al., 2017; Borrero et al., 2012; Davies, 1989; Harris & Sass, 2007; Hazari et al., 2015; Turner et al., 2013) and left relationships with colleagues, administration, and others to the fate of anecdote. It bears noting that communities are the ones who must recover from the exit of a migrating teacher (Barnes et al., 2007; Bond, 2012; Boyd et al., 2011; Grissom, 2011; Hanushek & Rivkin, 2010; Keesler & Schneider, 2010). Our study is significant in its scope and approach as it undertakes an examination of migration holistically, including various influencers:

state staff, colleagues, administrators, and program alumni. To account for multiplicity, our study took up a positioning approach to discourse (Davies, 2000).

Positioning theory (Davies & Harré, 1990) exposes and challenges the positions into which societal norms place people as speakers. We hypothesize new members of communities necessarily position themselves, push against positioning by others, and in turn, position others in hopes of finding support and navigating challenges. Positionality is inherent to migrators as they enter a community, examine it, and make choices regarding adopting normalized values.

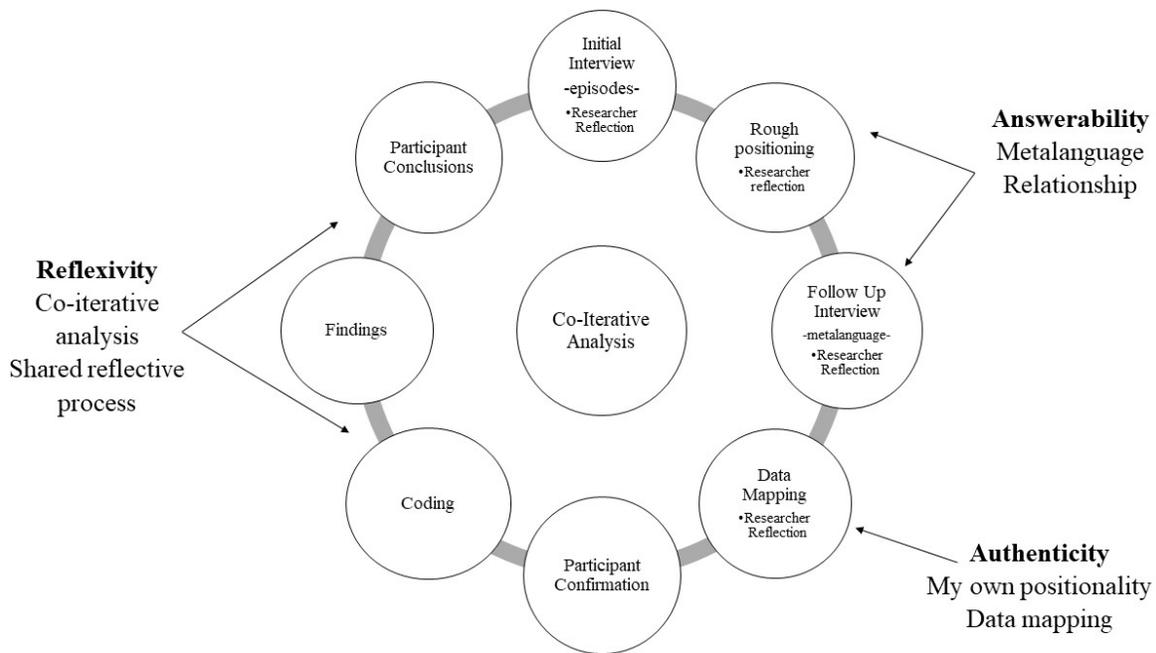
### **Theoretical Framework & Methods**

While teacher mobility has been examined from an organizational perspective, few studies have focused on migration from the perspective of an individual in a profession. Employing positioning theory as an approach to discourse analysis shed light on SBAE teachers' positioning of members of their new community and the members' positioning of the SBAE migrator (a teacher moving between programs). We conceptualized community broadly, reaching from traditional definitions of people inside a geographical location to also include administrators, colleagues, former teachers, alumni leaders, and others, such as "Team Ag Ed" at the state level. All references to the Oakville community and its members use pseudonyms as discussed with participants during recruitment and when securing verbal consent.

We focused on migration in one Agricultural Education program with consistent SBAE churn (i.e. a new teacher every five years for the last 30). Having taught in the district for five years, Becky was better able to situate community knowledge and engage speakers in an accounting of the social and "cultural" factors influencing people's positioning of themselves and others. The familiar site of her former school district (North Plains Consolidated High School, NPC, Oakville, NA) balanced the need for understanding social and cultural factors with operationalizing the assumptions of the theoretical framework. The community influencers included two former industrial technology teachers, the FFA alumni president, current assistant principal, and State FFA Advisor. Most of the data captured from the state supervisor was contextual. As such, his data are used throughout the study to situate participant experiences in the state context of Agricultural Education. We confirmed this use of the data generated from his interview during member checking.

We involved influencers in a reflective, autobiographical interview process to establish a more holistic presentation of the discursive context in which SBAE migrators are positioned for the NPC district. We operationalized Positioning Theory (Davies, 2000) with the methods of this study (Patel Stevens, 2004) in terms of reflexivity, answerability, and authenticity. Notably, multiple phases of the co-iterative analysis account for reflexivity, not fully represented in Figure 1.

Figure 1. Operationalizing Positioning Theory (credibility & trustworthiness)



Becky's position and embeddedness in the research site were salient to this study as components of answerability and authenticity. We recognize, however, the interpretations of the context were her own, informed by her experience (Harré & van Langenhove, 1999). As such, the interpretations are limited in their broader applicability relative to others' experience based on their own positionality, their positioning of others, and others' positioning of them. With reflexivity in mind, we produced findings discursively with participants. We engaged participants in an iterative process to co-construct our navigation of positions imposed by others and taken up by those on whom they are imposed.

### Findings/Results

Four themes emerged to describe the ways SBAE influencers positioned themselves and others in their co-constructed discursive context. Influencers, for the sake of this study, are those with close connections to the success of a SBAE teacher or program. We drew on tellings from co-teachers in industrial technology, an administrator, and the alumni chapter president to answer our research question. Positionings emerged as SBAE influencers recounted their experience. The positions identified reflect how SBAE influencers accounted for their experience in describing it back to a researcher.

*We're All Doing the Best We Can* recognized the ways influencers see the job of agriculture teacher as doing hard work in challenging situations. While influencers recognized SBAE teachers' job as difficult, it does not excuse agriculture teachers from rising to the challenge. Ben put it this way:

I think we were just self-absorbed into what we had to do for the next few days that we didn't pay attention to [making connections]. I'm sure the administrators didn't. It's a little bit of the sink or swim kind of thing...if they don't have the people skills to get there, they kind of sink for a while.

*We're All Doing the Best We Can* captured recognizing the work, but also sees the challenge as part of the job for which an agriculture teacher must be prepared. Additionally, influencers identified successful agriculture teachers as *overwhelmed* and up against significant *challenges*. SBAE teachers positioned as less successful were seen as *imposters*; not up for the task and underqualified to address the needs of the community surrounding NPC.

*You Gotta Want It* encapsulated ideas of influencers positioning themselves as able to provide substantial support if support is received appropriately from the agriculture teacher. This theme recognizes how others, particularly administrators, may be perceived as unsupportive. However, the recounting influencer never described himself as unsupportive. Influencers sought connection and ways to provide support, but had strong resentment around missed opportunities from those they are trying to help. As John said:

It's up to each individual. Who we have right now, there's no time to talk about anything. They're going to do it their way. We attempted to give them a heads up of how things had moved forward or some successful things they maybe want to take a look at and it was just like, "Fine, but I'm doing it this way."

Contrary to anecdotal ideas of support being material (resources, money, etc.), these community members specifically discussed *support* as time, attention, mentoring, and friendship.

*Double Standards* captured the variety of expectations from SBAE influencers relative to the expected job and involvement of the agriculture teacher. Overall, expectations suggested agriculture teachers should be in a continuous state of development while leaning on the community for program expectations and support. At the same time, teachers should operate autonomously as individuals. Aaron discussed his vision for the agriculture program here:

If it's your program, Becky, I want you to have vision, keeping in mind what the community needs and wants, what your strengths and weaknesses are...I want you to grow the program...But that teacher...[has] to be the champion, trying to develop their vision is of their ag program.

Competing demands and expectations comprise a difficult landscape to navigate, as a brand-new teacher or as a veteran teacher making a program move. Explicating expectations before going into a job is nearly impossible, due to the multiple influencers holding them and the varied ways in which they unfold.

*All or Nothing* recognized an "all in" approach to reciprocal investment. For our purposes, reciprocal investment is an equal or greater display of commitment from those invested in those investing. Ben discussed investment in terms of where teachers live:

In a town the size of Oakville, they really appreciate the teachers that live in town, go to their churches, are there for other activities, and they see go downtown to the parade, and all that stuff...People really appreciate if you're living in the town you work in, but it just can't work that so way much anymore.

Influencers positioned themselves as invested in the success of the SBAE program as a reflection of the community and the community as a reflection of the program. Communities take reciprocal investment as a serious charge issued to the teachers with whom they have entrusted

the care of their students. *Investment* is the pinnacle of the *All or Nothing* theme as *luck*, *responsibility*, and *continued growth* capitulated to identify how community influencers' position themselves and others as *invested*.

### **Conclusions, Recommendations, Discussion/Implications**

Across this migratory context, community members position themselves and the SBAE teachers with whom they work. *We're All Doing the Best We Can, You Gotta Want It, Double Standards*, and *All or Nothing* come together to describe how community members seek to be understanding and supportive of their SBAE teachers, but base the providing support on their own experience. Community influencers position SBAE migrators based on their interaction with support and understanding. If a community member offered support, an expectation of support being used follows. Using support is a means of conveying investment in the community for the SBAE teacher. Support is a reciprocal process of engagement for community influencers in their interactions with SBAE teachers. With this definition of support in mind, we propose the following recommendations for the influencers represented in this study.

Administrators must be clear in their desires and expectations for total program management to maintain program growth and align available resources to grow a SBAE program. Clarity in expectations is essential to avoid misalignment in vision between administrators and SBAE teachers, as a lack of alignment in available resources challenged the opportunity to carry out the "ideal" vision.

By seeking belonging and connection, co-teachers center their SBAE counterparts. For migrators, establishing connections is equivalent to identifying and maintaining realistic program expectations with the broader community. Co-teachers also hold key insight regarding expectations and afford much needed reality checks, preventing their co-workers from taking on too much.

FFA alumni chapters are encouraged to provide a community liaison (e.g. former teachers, co-teachers, administrators, or community members) who can acquaint the new teacher with key influencers in the community. Alumni expressed being more than a SBAE program resource, acknowledging the job is too big for just the agriculture teacher. Identifying approachable opportunities for new teachers to receive support is essential. SBAE teachers already had a high logistical load to manage, as do other SBAE teachers (Traini et al., 2019). Sharing the load of an integrated program is a key reason for the existence of alumni chapters. Therefore, presenting assistance to reduce SBAE teachers' decision load is essential to accepting offers for help.

The four purposes of agricultural education, currently comprising the broader professional discourse, include SBAE being for agricultural literacy, career exploration, career preparation, and preparation for further study in agriculture (Phipps et al., 2008). These present a specific challenge for the SBAE migrator related to positioning. A SBAE teacher's vision of enacting a purpose of agricultural education must align with their community influencers' if it is to be positioned as supported. State directors are strongly encouraged to communicate a clear, single purpose of agricultural education and structure messaging, policy advocacy, and program implementation around the key purpose for the state to ease the learning curve.

Notably, community influencers recognized the difficult role a SBAE teacher occupies. They also offered substantial help and support to aid in managing the workload, and in fact, positioned themselves as rejected if the assistance was not accepted. The assumption underlying this implication, based on the data presented here, is community members seek engagement. Despite being busy survivors themselves, they are eager to be involved. Community influencers were willing and able to provide much greater leverage to a total SBAE program including financial stability, institutional knowledge, content expertise, facilitation of community connectedness, support for challenging students, and input and visioning for forward progress of the program.

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# **Agricultural Educators and the Pandemic: An Evaluation of Work and Life Variables**

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## **Introduction**

The novel coronavirus disease (COVID-19) has rapidly spread around the world. In light of the rising concern about the pandemic, several state-wide regulations were imposed that included social distancing, self-isolation, and quarantine. By April 2020, more than 150 countries had closed educational institutions, impacting over 80% of the world's student population (Sahu, 2020; Van Lancker & Parolin, 2020). Teachers with household and caretaking responsibilities have been particularly affected by the pandemic. Literature shows that individuals experiencing strain as a result of managing multiple life roles often experience a decrease in job satisfaction and increased intention to quit (Allen et al., 2000; Bruck et al., 2002; Sorensen et al., 2016; Sorensen et al., 2017). With an ongoing shortage of qualified SBAE teachers nationwide, SBAE teacher retention is extremely important. Therefore, exploring the antecedents of job satisfaction (e.g., role conflict) among SBAE teachers is critical, especially amidst the changing dynamics of the COVID-19 pandemic. This study seeks to explore changes in the work-family interface among SBAE teachers in relation to the COVID-19 pandemic.

## **Theoretical Framework**

We framed this research using the role conflict theory (Greenhaus & Beutell, 1985) and conservation of resources theory. The role conflict theory suggests individuals engage in various life roles, and role conflict occurs when individuals are unsuccessful at balancing commitments in each of those roles. The most common type of role conflict is time-based work-family conflict (Greenhaus & Beutell, 1985) which can take the form of work interference with family (WIF) or family interference with work (FIW). COVID-19 forced teachers across the country to combine their work and non-work (e.g., family) domains. According to the theory, combining domains should enable individuals to more easily meet the demands of various life roles and, therefore, reduce the amount of role conflict.

Conservation of resources theory suggests individuals seek to build and protect resources such as time, conditions, and personal characteristics within their life roles (Grandey & Cropanzano, 1999). Time in one role has the potential to be lost or threatened, especially when increased obligations alter the time commitment in other life roles (Grandey & Cropanzano, 1999). As a result, individuals often seek to protect resources in order to avoid stress, dissatisfaction, and life role attrition (Grandey & Cropanzano, 1999). The demanding nature of the SBAE teaching profession (Murray et al., 2011; Torres et al., 2008) coupled with the pandemic may have threatened teachers' time, causing career dissatisfaction.

## **Purpose and Objectives**

The purpose of this study was to explore work and life-related variables before and after COVID-19 among SBAE teachers. To achieve this purpose, the following objectives were

established: (a) compare WIF and FIW among SBAE teachers before and during COVID-19, (b) compare work hours among SBAE teachers before and during COVID-19, and (c) compare job and life satisfaction among SBAE teachers before and during COVID-19.

## Methods

This exploratory analysis utilized survey research methods. Data are part of a larger research project analyzing COVID-19 and the work experiences of SBAE teachers.

### Population, Sampling, and Data Collection

All SBAE teachers during the 2019-2020 school year were included in the study population (approximate  $N = 13,500$ ). A simple random sample of 790 SBAE teachers was obtained from the National FFA Organization. In accordance with Dillman (2007), up to five email invitations were sent to potential respondents. Throughout distribution, 23 emails bounced, resulting in a revised sample frame of 767. Emails were sent in May and June of 2020, during the height of COVID-19-based restrictions. A total of 142 SBAE teachers provided useable responses to the survey, a 18.51% response rate ( $n = 142$ ). Non-response bias was checked by comparing the work and life variables of the final 30 respondents ( $n = 30$ ) to those who answered earlier ( $n = 112$ ) using an independent samples  $t$ -test. Results indicated no statistically significant differences (i.e.,  $p$ -values ranged from .112 to .799); therefore, non-response bias was not considered an issue (Lindner et al., 2001; Miller & Smith, 1983).

### Instrumentation

The survey was structured so each item was analyzed retrospectively (i.e., before COVID-19) and at the time of data collection (i.e., during COVID-19). All of the constructs were measured on a five-point scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The WIF construct included three questions evaluating time-based conflict arising from the work domain and negatively impacting the family domain. Similarly, the FIW construct included three questions measuring time-based conflict arising from the family domain. WIF and FIW constructs originated in research by Carlson et al. (2000) and have been used in SBAE research (Crutchfield et al., 2013). Job satisfaction was measured using five questions targeting the level of enjoyment individuals experience as SBAE teachers. Life satisfaction included 10 questions foregrounding perceptions of life and/or family role(s). The job and life satisfaction constructs were adopted from previous research outside (Judge et al., 2000) and within SBAE (Blackburn et al., 2017; Sorensen et al., 2016). In addition, work hours were measured for both the work week (i.e., per week) and weekend hours (i.e., per month) before and during COVID-19. This method of measuring work hours mirrors an established approach (Sorensen et al., 2016).

### Pilot Testing and Reliability

The instrument was pilot tested in April 2020 among 47 SBAE teachers in Michigan and Utah who were not included in the study sample. Results suggested the constructs were reliable with Cronbach's alpha estimates ranging from .71 to .89. Post-hoc reliability analyses also supported construct reliability, with Cronbach's alpha estimates ranging from .78 to .88 (Fraenkel & Wallen, 2000; Nunnally & Bernstein, 1994).

## Data Analysis and Limitations

To complete objectives one, two, and three, a paired-sample *t*-test was conducted comparing *before COVID-19* responses to *during COVID-19* responses. Construct averages, standard deviations, *t*-test results, and effect sizes are reported in the Findings section. For this analysis, effect size thresholds were established as “small effect,” Cohen’s *d* = .20; “medium effect,” Cohen’s *d* = .50; and “large effect,” Cohen’s *d* = .80 (Cohen, 1988).

This study includes two relevant limitations. First, the retrospective nature of the *before COVID-19* data may not be as accurate as actually surveying respondents before COVID-19 restrictions occurred. The second limitation is the relatively low response rate (i.e., 18.51%) obtained for the survey, possibly due to “screen fatigue,” brought about by SBAE teachers working entirely online during COVID-19.

## Description of Respondents

On average, respondents had taught SBAE for 12.91 (*SD* = 10.47) years. Respondents included SBAE teachers from 40 states and Puerto Rico. The majority of respondents were married (73.60%). In total, 77.60% of respondents had a spouse or partner who worked full or part-time. In addition, respondents averaged 1.56 (*SD* = 1.57) individuals (e.g., children, elderly) in which they had caregiving responsibilities.

## Findings

Respondent perceptions of WIF were 0.79 points lower during the pandemic when compared to before COVID-19, a statistically significant ( $t = 7.52$ ;  $p$ -value < .001) difference, suggesting COVID-19 had a “large” effect (Cohen, 1988) on the perceived WIF of teachers (see Table 1). Alternatively, FIW was 0.09 points lower during COVID-19 than before the pandemic, a difference that was not statistically significant ( $t = 1.34$ ;  $p$ -value = .183)

Table 1

### *WIF and FIW Before and During COVID-19*

Compared Variables	Before COVID		During COVID		<i>t</i>	<i>p</i> -value	Cohen’s <i>d</i>
	Mean	<i>SD</i>	Mean	<i>SD</i>			
WIF	3.62	0.83	2.83	1.00	7.52	< .001	0.86
FIW	2.71	0.80	2.62	0.87	1.34	.183	0.11

On average, respondents reported working 20.89 fewer weekday hours per week during COVID-19 than before the pandemic (see Table 2). The difference in weekday work hours was a statistically significant ( $t = 14.85$ ;  $p$ -value < .001), “large” difference (Cohen, 1988). Respondents reported doing work-related tasks 5.15 fewer weekend hours per month during the pandemic than before COVID-19. The difference in weekend work hours was a statistically significant ( $t = 5.32$ ;  $p$ -value < .001), “medium” difference (Cohen, 1988).

Table 2

*Work Hours Before and During COVID-19*

Compared Variables	Before COVID		During COVID		<i>t</i>	<i>p</i> -value	Cohen's <i>d</i>
	Mean	<i>SD</i>	Mean	<i>SD</i>			
Weekday Work Hours ( <i>per Week</i> )	49.50	11.87	28.61	12.82	14.85	<.001	1.69
Weekend Work Hours ( <i>per Month</i> )	11.37	9.86	6.22	6.61	5.32	<.001	0.61

Respondents rated their job satisfaction 0.96 points lower during COVID-19 than before the pandemic (see Table 3). The difference observed in job satisfaction was a statistically significant ( $t = 11.13$ ;  $p$ -value < .001), “large” difference. Life satisfaction during COVID-19 was 0.26 points lower than prior to the pandemic, a statistically significant ( $t = 4.43$ ;  $p$ -value < .001), “medium” difference.

Table 3

*Job and Life Satisfaction Before and During COVID-19*

Compared Variables	Before COVID		During COVID		<i>t</i>	<i>p</i> -value	Cohen's <i>d</i>
	Mean	<i>SD</i>	Mean	<i>SD</i>			
Job Satisfaction	4.15	0.59	3.19	0.77	11.13	<.001	1.40
Life Satisfaction	3.98	0.58	3.72	0.67	4.43	<.001	0.41

### Conclusions, Discussion, and Recommendations

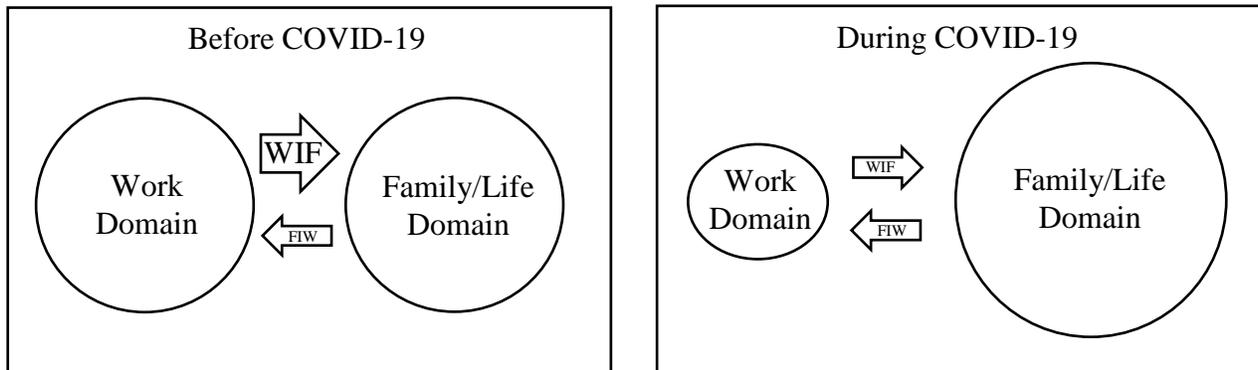
To organize this discussion, three key take-aways are highlighted: (a) Work Domain Decline, (b) Job Satisfaction Slump, and (c) Resources Reconsidered.

#### Work Domain Decline

The work domain of SBAE teachers includes a wide range of elements that influence job satisfaction (Sorensen et al., 2016). In the current study, we focused on work hours and WIF. Within these characteristics, a statistically significant decline was observed from before COVID-19 to during COVID-19. The decline in WIF is most likely caused by the decline in work hours, as time-based WIF is an indicator of time allocated in the work domain restricting time desired within the family domain (see Figure 1).

Figure 1

*Work and Life Domains Before and During COVID-19*



The work domain decline implies the need for continued research on the work domain of SBAE teachers in the post-COVID-19 era. The question being, will there be a return to pre-COVID-19 levels of WIF and work hours or has COVID-19 caused lasting changes in the work domain?

### **Job Satisfaction Slump**

Due to the unexpected changes brought about by COVID-19, it is not surprising to see job satisfaction decline. The decrease in job satisfaction is of the utmost concern as job satisfaction is closely linked to retention in the teaching profession (Allen et al., 2000; Bruck et al., 2002; Sorensen et al., 2016; Sorensen et al., 2017). The dramatic decline in job satisfaction suggests teachers value the elements of their job lost amidst the pandemic-based restrictions (e.g., in-person instruction, hands-on learning opportunities, FFA gatherings). These data suggest reducing work hours without attention to *what* is being eliminated or restructured is not a sustainable solution to SBAE teachers' challenging workload, given the expected decline in job satisfaction.

Research is needed exploring if job satisfaction will rebound after COVID-19. Additionally, it is expected that schools will slowly return to in-person instruction with early phases omitting some features of a "traditional" classroom. As these phases occur, evaluating the job satisfaction of teachers may help to uncover specific elements of the work role which relate to job satisfaction. Additionally, research is needed exploring if COVID-19 has caused a transition in the way teachers view their jobs (e.g., fear of getting sick due to exposure to students), leading to a sustained change in job satisfaction.

### **Resources Reconsidered**

Within the conservation of resources theory, individuals are thought to build and protect resources within the roles that make up their life (Grandey & Cropanzano, 1999). The findings from this study help to inform the theory by highlighting how a dramatic shift impacting work and life domains yields an opportunity for individuals to reallocate their time. Building upon the conservation of resources theory, the role-conflict theory suggests the unification of work and

life roles alleviates the potential for work-family conflict (Greenhaus & Beutell, 1985). The findings from this study support this hypothesis; specifically, as work and life roles were combined, evidence suggests WIF and FIW decreased. We recommend additional research exploring the preservation of energy, conditions, and personal characteristics in the post-COVID-19 era. Research is critical to understanding the diversity of factors which influence the satisfaction and retention of SBAE teachers.

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# Teachers Changing the Discipline: A Case Study of Participatory Professional Development

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## Introduction

Professional development (PD) is integral to teacher growth (Supovitz & Turner, 2000). Teacher learning, however, is a complex process (Avalos, 2011) and many professional development experiences are not beneficial for educators (National Research Council, 2000). Frequently, PD is pre-arranged and missing input from educators (National Research Council, 2000). A roadmap toward improved PD exists; successful PD includes: (a) content focus, (b) active learning, (c) coherence with what teachers know about learning, (d) duration, and (e) collective participation among teachers (Desimone, 2011). Similarly, Roseler and Dentzau (2013) posited old models of top-down, mandated PD are not effective and recommend, instead, to “allow [teachers] the opportunity to address the obstacles of reform and provide assistance when requested” (p. 619). In this view, all teachers are called to contribute their expertise during PD. Existing research in Agriculture, Food, and Natural Resources (AFNR) Education emphasizes teacher needs associated with PD, but few studies describe, or evaluate, an innovative model for teacher-engaged PD. Therefore, in the current case study, teachers’ experiences in an innovative, participatory professional development are explored.

## Theoretical Foundation

The background for this study draws on four key characteristics (see Table 1) of professional communities and PD proposed by Stoll et al. (2006).

Table 1

### *Characteristics of Professional Development*

Characteristic	Description
Shared Vision	Participants are focused on learning and have a culture where improvement is key.
Reflection	Valuing reflective practice, as well as research and inquiry informing practice.
Collective Responsibility	A joint responsibility for learning, as well as a pressure from peers to engage and do work.
Collaborative and Group Learning	Teamwork being present and participants taking responsibility for helping each other learn.

This case study foregrounds a professional development experience in Michigan designed using the four principles articulated in Table 1. The purpose of the PD was to create a state-wide resource that identifies and describes core ideas within all the state standards. For the PD, (a) participants were provided a clear vision, but were given the freedom to achieve that vision at

their own pace; (b) at several points, reflection was encouraged; (c) participants were placed into teams, and teams were encouraged to divide the work among members; and (d) teams were constructed heterogeneously based on experience, encouraging support and responsibility.

### **Purpose and Objectives**

The purpose of this study was to explore AFNR Educators' experiences when completing a unique PD opportunity. One research question guided the study: What are AFNR Educators' perceptions of their experience while undergoing a participatory professional development?

### **Methods**

To conduct this study, we employed a case study design. Case studies are “an intensive description and analysis of a phenomenon” (Merriam, 2002, p. 8) and focus on a bounded system.

### **The Case and Participants**

In this study, the bounded system was a three-day curriculum workshop hosted by faculty at Michigan State University during the summer of 2019. Michigan AFNR Educators were invited to participate in the workshop and were provided meals, lodging, and a stipend. Over the three days, participants (a) identified core ideas within AFNR Education curriculum, (b) in groups of four to six, arranged core ideas within specific state standards, (c) for each core idea, created a description, identified resources, and selected methods that could be used to teach the core idea. Participants, chosen through an application process, included 17 AFNR Educators ranging from first-year teachers to 20-year veteran teachers. The research team assigned participants to collaborative groups based on self-reported content expertise and years of teaching experience.

### **Data Collection**

Four types of data were collected, including focus group interviews with participants, a facilitator interview, researcher observations, and researcher reflections. Semi-structured focus groups were conducted with each curriculum team toward the end of the PD. The semi-structured facilitator interview was also conducted at the end of the PD. To ensure triangulation, researcher observational and reflection data were collected. Observational data was collected at specified intervals and involved both researchers separately observing teams. A total of three researcher reflections were also conducted at multiple points throughout the PD.

### **Data Analysis**

All interview data were transcribed verbatim and researcher observations were cataloged for review. Following transcription, the research team conducted a multi-stage analysis based on the constant comparative method (Glaser, 1965). First, the research team independently reviewed all the data for emergent themes. Researchers then met to review emergent themes, addressing disagreements until a consensus of 14 codes emerged. Next, each member of the research team analyzed one focus group transcript using the emergent codes. Researchers then met to review

the coding and address any discrepancies. Emergent codes were concatenated into four themes, (a) Professional Development, (b) Learning, (c) Perspective, and (d) School-based Agricultural Education (SBAE) Change. Following agreement, the lead researcher utilized the 14 emergent codes to code the remaining focus groups, interview, and reflections.

## Findings

### Professional Development Theme

One of the most profound findings was the professional development theme; specifically, how the participatory PD challenged teachers in new ways. Included in the theme are three codes: (a) traditional PD lacks challenge, (b) teacher expert, and (c) PD structure preference. *Traditional PD lacks challenge* focused on educators' feelings of existing PD being "boring," supported by quotes from participants expressing disinterest in many PD activities. One focus group participant offered, "there would be times [during state-wide PD] where I just go and hang in my room because I'm like, I don't really want to sit through another hour and a half workshop."

The next code was *teacher expert* and focused on participants meeting the high expectations of the participatory PD. Participants discussed two ideas: (a) faith in participants and (b) fellow participant expertise. Faith in participants was suggested by multiple participants, with one offering, "I mean, it just makes sense for us to be on the driving end because we're the ones using it. We are the ones that need to develop it for our use every day in the classroom." In an adjacent idea, participants cited fellow participants helped them gain knowledge, for example, "definitely being able to talk in small groups with people about exactly what we do in each of our classrooms is extremely helpful."

The final code within the professional development theme was *PD structure preference*, which highlighted participants' stated preferences for the participatory PD. Participants articulated the participatory PD was "interactive...engaging, it just gives me new energy to do new things." Researcher reflections supported this new atmosphere, "I would say the focus on being a creator and not just 'sit and receive' was definitely an outcome.... watching them work the last few days, it was a very different atmosphere than what you see at [traditional PD]."

### Learning Theme

The second theme was learning; specifically, how participants unpacked a complex system of standards by relying on their collective expertise. Four codes emerged, (a) desire to learn: social learning, (b) increased understanding: standards knowledge, and (c) increased understanding: social learning. *Desire to learn: social learning* focused on participants' desire to engage in the PD because they recognized the value of learning from peers. A representative thought was, "I like the opportunity to explore in depth the curriculum from the state, or the standards from the state, and talk to other teachers about...how we interpret the standards and think about those resources."

*Increased understanding: standards knowledge* explored participants' increased understanding of standards. The need to create a resource useable by others was the driving force, "the

challenge for me was to try and find ways to break those segments apart here and make them understandable not only for myself, but for someone else reading it.” Some suggested unpacking the standards was “intimidating,” but afterwards they felt “more comfortable” with the standards.

Shifting toward the *how* of learning was the code *increased understanding: social learning*. In this code, participants indicated collaboration with peer teachers resulted in knowledge gains. Common thoughts were reflected in the quote, “and even if it's just putting us together to conversate. This kind of thing is helpful.” Another common thread was interaction allowed participants to consider something they “never would’ve thought about” as there were “lots of different and diverse minds” working together.

### **Perspective Theme**

The third theme focused on the changed perspectives of participants. The first code focused on participants’ recognizing there are perspectives of SBAE that differ from their own. Providing a representative statement for the *different perspectives in SBAE* code, one teacher offered, “I see things being taught in the other schools...but they teach them differently.”

The second code, *expanded perspective of SBAE*, encompassed participants including previously unconsidered topics or content in their new perspective of SBAE. The expanded perspective may be as simple as recognizing another method or topic as better, as one participant suggested, “yeah that actually fits into that standard better than the way I'm doing it.” Researcher reflections included the changing perspectives, too, “[Participants] are willing to think a little bit outside of the box, look at a segment and look at standards and say...are we missing something?”

### **SBAE Change Theme**

The final theme, SBAE change, focused on how the participatory PD experience impacted participants’ energy and eagerness to learn. This theme included three codes: (a) energy, (b) curriculum struggle, and (c) strengthening members of the SBAE community. Among participants, *energy* was cited when discussing the impact of the PD experience. One veteran teacher suggested they were “reenergized,” with another participant stating “[the experience] makes me want to go through more [core ideas] with all my curriculum.”

The second code, *curriculum struggle*, emerged from participants describing difficulties previously navigating the curriculum. One transition-to-teaching participant provided a representative thought, “I really struggled with the idea of curriculum concepts and where they fit into specific standards.” Others remembered their early-career struggles, “I remember being a young teacher and not knowing where to start.”

Represented in the *strengthening members of the SBAE community* code, many participants highlighted improving the teacher community as a motivating force for their PD participation. A representative feeling was captured in this quote, “I could provide this for another teacher who is either new or coming in non-traditional, so that way they wouldn't have to feel like they're...treading water.”

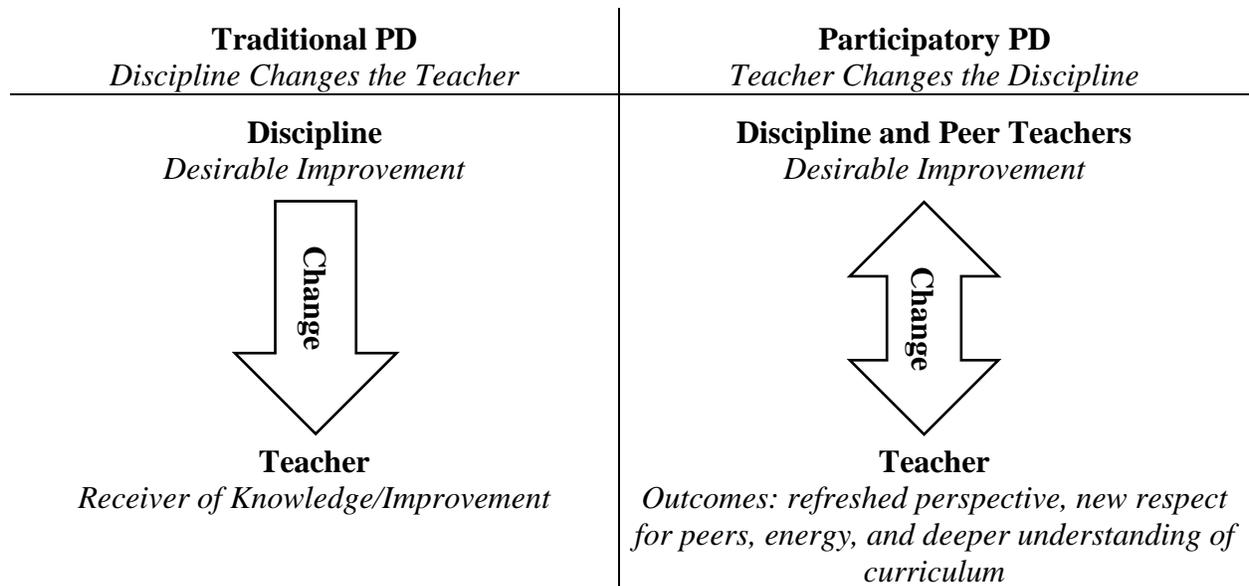
## Conclusions, Implications, and Recommendations

Findings from this study are consistent with research suggesting a new model of teacher PD is needed, one where teachers are recognized as experts and are expected to create and contribute to the knowledge being gained. In alignment, participants in this case study indicated an overwhelming preference for the participatory PD. Participants routinely indicated the participatory PD engaged them in new ways, unlike traditional PD. While the stated goal of the PD was to create a curriculum resource, participants highlighted many other outcomes in relation to the participatory nature, including (a) deeper understanding of standards, (b) eagerness to learn from peers, (c) rethinking existing paradigms of SBAE, and (d) renewed energy. Given the evidence of participant growth, participatory PD should be broadly considered in AFNR Education.

As a summary framework, we propose this participatory PD provided an opportunity for the teachers to change the discipline (i.e., participatory PD) instead of the discipline changing the teachers (i.e., traditional PD). The outcomes participants reached were due to their collaboration, collective vision, and active participation in the process. Participatory PD represents an exciting alternative to traditional PD. Traditional PD often assumes the teacher is not an expert whereas participatory PD utilizes the expertise of teachers as the essential foundation for growth (see Figure 1).

Figure 1

Comparison of PD Approaches



The main implication for practice is to critically analyze the structure of PD offered to SBAE teachers. PD structured as *discipline changes the teacher* is beneficial in certain contexts; however, participatory PD presents an exciting opportunity to deepen teacher community, create useful resources, and increase the collective expertise of SBAE teachers.

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