

**SOUTHERN REGION CONFERENCE
OF THE**



2021 PROGRAM



February 8 – February 10, 2021 – Virtual Conference

**Southern Association of Agricultural Scientists (SAAS)
Agricultural Education Division Officers**

Conference Co-Chairs: Donna Graham and Christopher Estepp, University of Arkansas
Research Chair: Richie Roberts, Louisiana State University
Past President: Travis Park, NC State University

American Association for Agricultural Education (AAAE) Southern Region Officers

President: Tracy Rutherford, Virginia Tech
Vice-President/President Elect: Stacy Vincent, University of Kentucky
Virginia Tech Secretary: Laura Greenhaw, University of Florida

2021 SR-AAAE Concurrent Research Sessions

Wednesday, February 10, 2021, 1:00-2:15 EST

Group 1: Teacher Based (Discussant: Kelly Holler)

- [Beginning \[STATE\] Agriculture Teachers Motivation for Teaching Agriculture](#) by Sallie McHugh and James Lindner
- [Communication Patterns of \[State\] High School Educators](#) by Shaylee Wallace, Jessica Wesson, Jill Rucker, Casandra Cox, and Jefferson Miller
- [Advocating for Agricultural Education: The Lived Experiences of Secondary Teachers](#) by Rexanna Powers, Morgan A. Richardson, Richie Roberts, Kristin Stair, and J. Joey Blackburn
- [Professional Development Needs of \[State\] School-Based Agricultural Education Instructors When Working with Students with Special Needs: A Pilot Study](#) by Raegan Ramage, Tyler Granberry, J. Joey Blackburn, Kristin S. Stair, and Richie Roberts
- [Teacher Leadership: An Analysis of Secondary Teachers Perspectives on Enhancing Advocacy Efforts for Agricultural Education](#) by Morgan A. Richardson, Baylee Jankowski, Richie Roberts, Kristin S. Stair, Cade LeJeune, and J. Joey Blackburn
- [21st Century Perceptions of Supportive Administration in Agriculture Education](#) by Christian Stanley, Chris Clemons, and James Lindner
- [A Comparison of Preservice Teachers Perceptions of Important Elements of the Student Teaching Experience Before and After a 14-Week Field Experience](#) by Peyton E. Sweet Moore, Heather L. Young, Bradley M. Coleman, Carla B. Jagger, and J.C. Bunch,

Group 2: COVID (Discussant: Jason McKibben)

- [Awareness and Competence of \[State\] Master Gardeners in Synchronous Online Instruction During the COVID-19 Pandemic](#) by Jacqueline K. Jordan, K. Dale Layfield, Christopher J. Eck, Catherine A DiBenedetto, Michelle Parsi, and Thomas R. Dobbins
- [Assessing Awareness and Competence of Best Practices in Synchronous Online Instruction During the COVID-19 Pandemic for Cooperative Extension Agents](#) by Sarah O. Scott, Weatherly Thomas, K. Dale Layfield, Christopher J. Eck, Catherine A. DiBenedetto, Thomas R. Dobbins, and Michelle Parisi
- [School-Based Agricultural Education Teachers Awareness of Synchronous Online Instruction Tools During the COVID-19 Pandemic](#) by Jason D. Gore, K. Dale Layfield, Christopher J. Eck, Catherine A. DiBenedetto, Kirby W. Player, and Thomas R. Dobbins
- [Teaching During the COVID-19 Global Pandemic: A Case Study of Early Career Teachers Experiences in Secondary Agricultural Education](#) by Raegan Ramage, Janiece Pigg, Savannah M. Kennedy, Richie Roberts, and Kristin S. Stair

Group 3: Extension (Discussant: Kiki Gyamfi)

- [Determining the Professional Competencies of 4-H Extension Agents Using the Access, Equity, and Opportunity PRKC](#) by Mickey Hughes, Matt Bengé, and Sydney Whitehurst
- [Extension Professionals Perceptions of Curriculum and Professional Development Priorities for Extension Education](#) by Joseph L. Donaldson, Donna L. Graham, Shannon Arnold, Lisa K. Taylor, and K.S.U. Jayaratne
- [Juicy YouTube Videos: Why Some Extension Blackberry Breeding Video Shorts Just Seem Sweeter](#) by Anika Parks and Jefferson D. Miller
- [Trends Impacting the Future of \[State\] Extension](#) by Olivia Caillouet and Amy Harder
- [Assessing the 4-H Volunteerism PRKC of National Association of Extension 4-H Association Members](#) by Sydney Whitehurst, Matt Bengé, and Mikey Hughes
- [Assessment of Emotional Intelligence in \[Blinded\] Extension Agents](#) by Brant Poe, J. Chris Haynes, Rudy Tarpley, and Chandra Andrew

Group 4: Science (Discussant: Makeda Nurridan)

- [Evaluation of a Virtual Plant Science Program for Agriscience Teachers](#) by Natalie K. Ferand, Catherine A. DiBenedetto, and Brian E. Myers
- [Interactions between the Protein Industry and Blogs: An Analysis of Content and Perceptions](#) by Karli Stringer, Kylie Hackworth, Jefferson D. Miller, Jill Rucker, and Cassandra Cox
- [Youth's Connectedness to Water Through a Manatee-Focused Electronic Field Trip](#) by Caroline P. Barnett, Teresa E. Suits, Tredina D. Sheppard, Peyton N. Beattie, Jamie L. Loizzo, Laura A. Warner, John M. Diaz, AJ Reisinger, and Adam C. Siders
- [Assessing the Environment for Environmental Education: Agriculture Teachers Perceptions and Barriers to Implementing Environmental Education in Louisiana Schools](#) by Olivia Soler, Kristin S. Stair, J. Joey Blackburn, and Michael D. Kaller

Group 5: General Interest (Discussant: Tracy James)

- [Developing Rural Scholars for Conducting Research and Service in Rural Communities: The Effects of a High-Impact Learning Opportunity](#) by Audrey E. H. King, J. Shane Robinson, Tyson Ochsner, Paul Weckler, and Mark Woodring
- [An Examination of School-Based Agricultural Education Teacher Job Demand in Texas](#) by Evelyn Starich, William Doss, and John Rayfield
- [State of the Field: An Analysis of Qualitative Work in JAE from 2015-2019](#) by Katrina Alford and Grady Roberts
- [The Perceptions of Professionals, Faculty, and Students Regarding the Implementation of an Agricultural Communications Degree Program in the United Kingdom](#) by Abby Taylor, Alex Mcleod, Jefferson Miller, Casandra Cox, and Jill Rucker
- [\[State\] Agriculture in the Classroom Summer Institute Program Evaluation](#) by Kaena E. Wallace, Catherine A. DiBenedetto, and Susan T. Guynn
- [Women Undergraduates Leadership and Career Development in a Summer Agricultural Research Program](#) by Joseph L. Donaldson, Kimberly D. Gwinn, Carrie Ann Stephens, Melissa Cregger, Scott Emrich, Becky Trout Fryxell, Jamie Greig, Denita Hadziabdic, Sarah Lebeis, Bode A. Olukolu, Bonnie H. Ownley, and Margaret Staton

Beginning Georgia Agriculture Teachers Motivation for Teaching Agriculture

Sallie K. McHugh
Assistant Professor
smchugh@abac.edu
Department of Agricultural Education and Communication
Abraham Baldwin Agricultural College
ABAC 8, 2802 Moore Hwy
Tifton, Ga 31793

James Lindner
Professor
jrl0039@auburn.edu
College of Education
Auburn University
3084 Haley Center
Auburn, Alabama 36849-5218

Beginning Georgia Agriculture Teachers Motivation for Teaching Agriculture

Introduction/Need for Research

Each fall new secondary school agriculture teachers enter the classroom. No matter their certification path, these teachers have been hired to accomplish the same task; run a successful school-based agricultural education (SBAE) program and survive. Currently, there is a national shortage of agricultural educators at the secondary school level. According to the *National Agricultural Education Supply and Demand* study there is a teacher shortage of over 250 teachers annually (Smith et al., 2018). Further, it is estimated that there will be hundreds of unfilled positions across the United States annually, simply because not enough students are choosing to be agricultural educators (National Association of Agricultural Educators, 2017). The question then becomes: why are students not choosing a career in agriculture education? To fill these teaching vacancies and reduce the amount of turnover rate, agriculture education supervisors must find out what makes beginning teachers remain in the profession by determining what they enjoy about their job (Rice et al., 2011). Being able to understand what motivates new teachers to have a job in this profession and identify the experiences and practices deemed valuable in their job can be further examined and built upon to help prepare our future agriculture educators and encourage them to remain in the profession.

Theoretical Framework

To identify what brings joy and motivation to beginning school-based agriculture teachers we must determine what tasks motivate them to be in and remain in the profession. Applying process motivational theory, SBAE supervisors can determine what external factors motivate current beginning agriculture teachers to enter the profession and increase their chances to remain. The four main process theories are reinforcement, expectancy, equity, and goal setting (Stotz & Bolger, 2017). Due to the nature of the job of a SBAE teacher, involving numerous daily tasks and roles, these daily teacher tasks require motivation from the teacher to complete. Tasks producing low motivation in an agriculture educator, could be a potential factor for leaving the profession due to decreased motivation in job related responsibilities. Tasks producing higher motivation in an agriculture teacher, could be a potential factor for the teacher to remain in the profession. Determination of external driving factors in tasks related to the agriculture education profession will help to control whether a current agriculture teacher may remain in the profession. Determination of tasks teachers view as motivators for the profession will allow state leadership and teacher preparation programs to capitalize on recruitment.

Methodology

The design for this research was descriptive, correlational, and utilized a standard-based instrument based upon the seven National Quality Program Standards. Participants were asked to rank the standards from one to seven, with one being their highest motivator. This instrument was researcher-developed and was examined for face validity and construct validity by university faculty and current Georgia Agricultural Education teachers. Statistical validity was checked using covariance at a specific alpha level and lack of homogeneity (Drost, 2012). Alpha for all statistical test was set *a priori* at .05. Once a relationship was determined, focus was turned to the internal validity of the instrument. Cronbach's alpha was calculated for each standard within research instrument to determine reliability. The results of each standard produced were as follows: standard 1 ($r=.93$), standard 2 ($r=.99$), standard 3 ($r=.89$), standard 4 ($r=.91$), standard 5 ($r=.16$), standard 6 ($r=.86$), and standard 7 ($r=.84$).

The population for this study included all beginning Georgia SBAE teachers (N=45). Participants were contacted via email requesting participation, initially. Data was collected via Qualtrics survey and at the new agriculture teachers meeting during the Georgia Vocational Agriculture Teachers Association winter meeting. New teachers were asked to complete survey voluntarily and anonymity remained.

Results/Findings

Overall, 40 Georgia beginning agricultural education teachers responded to the questionnaire, which produced a response rate of 88.9%. The results of motivation level for overall ranking of the seven National Quality Program Standards and is part of a larger study. Participants ranked the seven standards from most important (score=1) to least important (score=7). The ranking of most important, participants ranked Standard 3: Leadership and personal development through FFA ($f=10$, 25.0%). The next standard ranked following most important was standard 4: School and community partnerships ($f=9$, 25.0%). Standard 2: Experiential and project, and work-based learning through SAE ranked their ($f=9$, 22.5%). Fourth ranked, was standard 6: Certified agriculture teachers and professional growth ($f=11$, 27.5%). Standard 1: Program design and instruction ranked fifth ($f=7$, 17.5%). Standard 7: Program planning and evaluation ($f=9$, 22.5%) ranked sixth, and the least important standard was Standard 5: Marketing ($f=14$, 35.0%).

Conclusions

Based on the seven National Quality Program Standards the highest overall standard ranked was standard 3; leadership and personal development through FFA. Teachers understand the importance of this part of the total program. FFA allows a student to bring the other two parts, class/lab and SAE, into the leadership program of FFA. This is also the area where teachers get to see their students succeed through Career Development Events, obtaining leadership positions, winning proficiency awards, and the list goes on. Perhaps the ability for teachers to see their students succeed and grow personally motivates teachers. The least important standard was standard 5 marketing. Teachers see the importance of marketing based on the need to implement a strategic plan based on the ranking of standard 5 quality indicators, but in general teachers are least motivated by marketing. The to do list for an agriculture teacher is always long and marketing can sometimes be the last item on this list and perhaps is the area that teachers are least prepared.

Implications/Recommendations/Impact on Profession

This study found the least motivating standard for beginning agriculture teachers is marketing. SBAE teachers must share their story of their program. Without a strategic marketing plan, this may only be a vision. Teachers must involve chapter officers in this effort, or a potential class project focused on agriculture communications or marketing. The ability to share with the community the events occurring in your chapter helps to build support. It also allows stakeholders to see how the program is utilizing funding and providing opportunities to students. For teacher preparation recommendations the focused is also based on marketing. Teachers understand the importance of having a program marketing plan, but it was the least important motivator among the seven quality standards. Marketing could be just another job on an agriculture education teacher's to-do list. Teacher preparation programs must provide instruction to show the ease of marketing and provide students a marketing packet of materials prior to leaving program. The focus of the marketing should also be based on technology today using social media. Future research should be conducted to determine specifically why marketing the least motivating and ways teacher educators and state staff can help teachers with this task.

References

- Drost, E. A. (2012). Validity and reliability in social science research. *Education Research and Perspectives*, 38(1), 105-123. <http://www.erpjournal.net/wp-content/uploads/2012/07/ERP38-1.-Drost-E.-2011.-Validity-and-Reliability-in-Social-Science-Research.pdf>
- National Association of Agricultural Educator. (2017). *Teaching agriculture*. <http://www.naae.org/teachag/agriculture.cfm>
- Rice, J. E., LaVergne, D. D., & Gartin, S. A. (2011). Agricultural teacher perceptions of school components as motivational factors to continue teaching and demotivational factors to discontinue teaching. *Journal of Career and Technical Education*, 26(2), 105-115. <https://files.eric.ed.gov/fulltext/EJ974470.pdf>
- Smith, A. R., Lawver, R. G., & Foster, D. D. (2018). National agricultural education supply and demand study, 2017 executive summary. <http://aaaeonline.org/Teacher-Supply-and-Demand>
- Stotz, R. & Bolger, B. (2017). Content and process theories of motivation. *Incentive Marketing Association*. <http://c.ymcdn.com/sites/www.incentivemarketing.org/resource/resmgr/imported/Sec%201.4.pdf>

Communication Patterns of Arkansas High School Educators

Shaylee E. Wallace, Jessica L. Wesson, Casandra Cox, K. Jill Rucker & Jefferson D. Miller

University of Arkansas

1120 W. Maple St.

Fayetteville, AR 72701

kjrucker@uark.edu

Communication Patterns of Arkansas High School Educators

Introduction/need for research

As the distance between producer and consumer widens, strategic communication will be key in the success of the agricultural industry (Doerfert, 2011). As technology is implemented into everyday use, such changes have been witnessed in the communication strategies of both agriculturalists and educators. These two occupations might seem unrelated to some; however, high school agricultural educators are in a unique position as they fill both the role of educator and communicator, all while striving to prepare their students with vital career skills for success after graduation (The National Council for Agricultural Education, 2018). Educators have been challenged to equip students with skills not only for job fulfillment, but also for effective communication with diverse audiences and about complex issues in agriculture (Roberts, et al., 2016). The American Association for Agricultural Education's (AAAE) current National Research Agenda research priority areas (RPAs) explore what effective methods prepare individuals to address diverse audiences and complex problems involving agriculture and natural resources. RPA 2 addresses new technology including educational programming, distance education technology, FFA and diversity and social media (Roberts, et al., 2016). Research regarding educators' use of communication channels and resources is 10 – 20 years old. Therefore, the objective of this study was to determine the various communication channels currently utilized by agricultural educators in Arkansas and their audiences.

Conceptual or theoretical framework

Research involving Roger's diffusion of innovation theory examines how practices, ideas or beliefs are spread and adopted among groups of people. The theory goes beyond adoption of ideology and centers on the conditions and circumstances that increase or decrease the likelihood of an innovation being put into practice (Rogers, 2003). The mechanism of diffusion is the process through which innovation is communicated over time via specific channels to a social system. As a social system recognizes decisions are not made authoritatively, collectively, or via group think, each individual must make his/her own decision regarding the innovation (Buć & Divjak, 2015). With the varying communication channels, audiences have numerous ways to receive information, and effective communication requires engagement, confidence, and established relationships with an audience (Nisbet & Scheufele, 2009). The need for connection in communication has led to the implementation of diffusion of innovation and opinion leaders, who have been recognized as essential in the solution to communicating with audiences about innovations. The opinion leader's ability to receive and then share information with their various publics of influence helps connect reliable sources with audiences (Nisbet & Scheufele, 2009).

Methodology

The purpose of this study was to determine communication channels used by Arkansas agricultural educators to understand how they communicate with constituents about agriculture and their FFA programs. This study followed a quantitative research design consisting of a researcher developed survey dispersed electronically via email list by the Arkansas Department of Higher Education. The instrument was reviewed by experts in the agricultural communications field and FFA state officer team members, who were most familiar with chapter communication channels. Participants for this study were identified using the Arkansas agricultural education directory, which includes contact information for all current agricultural educators in the state. Of the 288 teachers listed in the directory, five educators had non-functioning emails, with a failed delivery status. The researcher sent the survey to the 283 instructors with functioning emails, with a response rate of 40%. Of the 114 teachers who responded 93 completed the entire survey instrument. Survey

participants were contacted in three rounds of recruitment emails. Emails were sent every seven days until no significant response was received to warrant further contact of participants (Millar & Dillman, 2011). Data was collected using Qualtrics and descriptive statistical analysis was conducted using SAS© 9.4.

Results/findings

Communication channels are defined as the media/medium through which a message is sent such as email, social media, news station, etc. (Telg & Irani, 2012). Participants ($n=93$) were asked what forms of communication channels they had access to and used to communicate with audiences. Participants responded that 84.9% ($f=79$) had access to a local newspaper, and 66.7% ($f=62$) utilized their local newspaper as a communication channel. Local radio stations were available to 67.7% ($f=63$) of participants, and 27.9 ($f=26$) participants utilized their local radio stations as a communication channel. Lastly, 25.8% ($f=24$) had access to a local television station, with 4.3% ($f=4$) utilizing their local television station as a communication channel. Participants ($n=93$) were then asked what forms of social media they utilized. They responded 91.4% ($f=85$) used Facebook, 47.3% ($f=44$) used Instagram, 11.8% ($f=11$) used Twitter, 4.3% ($f=4$) used YouTube, 5.4% ($f=5$) used Snapchat, 1.1% ($f=1$) used LinkedIn, and 1.1% ($f=1$) used a blog. Results indicate educators use consistent communication channels for their audiences. Of the audiences identified alumni/boosters and Arkansas State FFA staff are engaged with less than the other audiences. Parents, administration and students/members are the primary audiences educators engage with.

Conclusions/ recommendations

As the literature reflected, communication has largely shifted from print to digital, television still ranks first as the leading news source for adults, followed by radio and social media, with newspapers dropping below social media in 2018 (Shearer). The results reflected this shift as educators largely utilize social media for their communication efforts. While educators do still utilize traditional media (television, radio and newspapers) not all educators indicated they had access to these communication channels. Educators also indicated they largely use email and text to communicate with their audiences, but still Facebook was the largest used platform with all audiences. Further research should be done to investigate the relationship between access to communication channels, and preferred communication channels for use, as well as the comparison between direct, private communication channels, and social media communication channels.

Educators indicated the least amount of communication (throughout all platforms) with their communities, alumni/boosters and State FFA directors. Their communication efforts are largely aimed at parents, students/members and other education counterparts. The results do not indicate investment in local engagement programs as outlined by the National FFA (2020). The results also pull away from the competencies for agricultural educators including community engagement, maintaining an effective public relations program and working closely with alumni and advisory groups (Roberts et. Al, 2007).

The researcher recommends further exploration of necessary competencies of agricultural educators in relation to communication efforts. The new research could then be used to identify more specifically which competencies Arkansas agricultural educators are not meeting, and provide resources and training for those specific areas.

These results serve as awareness of the need for reaching educators on the platforms they use. It also provides an indicator of where professional development in digital learning and communications is needed. Future work to improve adoption of innovations are the initial steps in the conceptual model of diffusion of innovation in higher education (Buć & Divjak, 2015). The results of this study imply Arkansas agricultural educators need further preparation to engage and utilize communication channels to improve communication with constituents.

References

- Buč, S., & Divjak, B. (2015). Innovation diffusion model in higher education: Case study. Retrieved from <https://files.eric.ed.gov/fulltext/ED562467.pdf>
- Doerfert, D. L. (Ed.) (2011). *National research agenda: American Association for Agricultural Education's research priority areas for 2011-2015*. Lubbock, TX: Texas Tech University, Department of Agricultural Education and Communications. Retrieved from [http://aaaeonline.org/files/research_agenda/AAE_National_Research_Agenda_\(2011-15\).pdf](http://aaaeonline.org/files/research_agenda/AAE_National_Research_Agenda_(2011-15).pdf)
- Millar, M. M., & Dillman, D. A. (2011). Improving response to web and mixed-mode surveys. *Public Opinion Quarterly*, 75(2), 249-269. doi:10.1093/poq/nfr003
- Nisbet, M. C., & Scheufele, D. A. (2009). Whats next for science communication? Promising directions and lingering distractions. *American Journal of Botany*, 96(10), 1767-1778. doi:10.3732/ajb.0900041
- Orr, G. (2003, March 18). Diffusion of innovations. Retrieved from [https://web.stanford.edu/class/symbysys205/Diffusion of Innovations.htm](https://web.stanford.edu/class/symbysys205/Diffusion%20of%20Innovations.htm)
- Perrin, A. & Anderson, M. (2019). Share of U.S. adults using social media, including Facebook, is mostly unchanged since 2018. Retrieved from <https://www.pewresearch.org/fact-tank/2019/04/10/share-of-u-s-adults-using-social-media-including-facebook-is-mostly-unchanged-since-2018/>
- Roberts, T. G., Harder, A. & Brashears, M. T. (Eds). (2016). American Association for Agricultural Education national research agenda: 2016-2020. Gainesville, FL: Department of Agricultural Education and Communication.
- Rogers, E. (2003). *The Diffusion of Innovations*. 5th ed. New York: The Free Press.
- Shearer, E. (2018, December 10). Social media outpaces print newspapers in the U.S. as a news source. Retrieved from <https://www.pewresearch.org/fact-tank/2018/12/10/social-media-outpaces-print-newspapers-in-the-u-s-as-a-news-source/>
- Telg, R., & Irani, T. A. (2012). *Agricultural communications in action a hands-on approach*. Clifton Park, NY: Delmar.
- The National Council for Agricultural Education. (2018, August 27). Agricultural education. Retrieved from <https://thecouncil.ffa.org/ageducation/>

Advocating for Agricultural Education: The Lived Experiences of Secondary Teachers

Authors

Rexanna Powers

Louisiana State University, LA 70803

936-462-3277

RRPowers@agcenter.lsu.edu

Morgan Richardson Gilley

Louisiana State University, LA 70803

225-337-3703

mcric165@lsu.edu

Richie Roberts, Ph.D.

Louisiana State University, LA 70803

336-314-7191

roberts3@lsu.edu

Dr. Kristin S. Stair, Ph.D.,

Louisiana State University, LA 70803

919-649-7019

kstair@lsu.edu

Cade LeJeune

Louisiana State University AgCenter, LA 70803

225-578-5749

cekejeune@agcenter.lsu.edu

J. Joey Blackburn, Ph.D.

Louisiana State University, LA 70803

573-220-8881

jjblackburn@lsu.edu

Advocating for Agricultural Education: The Lived Experiences of Secondary Teachers

Introduction

Advocacy has been defined as the ability to work with a range of individuals to bring awareness to complex problems (Berke et al., 2010). As such, the underlying principle of advocacy is a desire to make a difference by improving the behaviors, policies, and practices that exist in society (Ezell, 2001). In agricultural education, advocacy efforts have become more critical in recent years because less than 2% of the U.S. population is now directly involved in agriculture (American Farm Bureau Federation, 2018). As a result, U.S. citizens are now less likely to support programs and policies that affect agricultural education (Kovar & Ball, 2013). Through advocacy, agricultural educators can seek to change attitudes, behaviors, the political process, and power imbalances in a variety of contexts (National Association of Agricultural Education [NAAE], 2020). To achieve this, however, requires that educators embrace advocacy as a professional responsibility and become *leaders* for their profession (LeJeune & Roberts, 2020).

Theoretical Framework

Bond's (2011) theory of teacher leadership served as the theoretical framework used to guide this investigation. Through this lens, teachers seek to be proactive at the local, state, and national levels to drive positive educational change. In particular, teacher leaders use various approaches of advocacy to demonstrate support for a cause or policy. As a result, teacher leaders can influence change regarding: (a) institutional policy and practice, (b) public attitudes and behaviors, (c) the political process, and (d) power imbalances for marginalized groups (Bond, 2016). Because the issues and problems that affect agricultural education are ever-evolving, teacher leaders must be prepared to adapt and respond to various forces that could negatively impact the profession.

Statement of Purpose

The purpose of this study was to understand secondary agricultural education teachers' lived experiences in regard to advocating for agricultural education. This investigation was based on the premise that if decision-makers do not see value in the discipline, they would be unlikely to support agricultural education in the future. As such, this investigation supported the American Association for Agricultural Education's National Research Priority 7: *Addressing Complex Problems* (Andenero et al., 2016). One research question guided the study: *What were the lived experiences of secondary agricultural education teachers in [State].*

Methodology

An interpretive qualitative approach was used to conduct this investigation (Merriam & Tisdell, 2015). We also built Tracy's (2010) standards for qualitative quality into the design of this study to ensure rigor and trustworthiness. To collect data, we gathered written narrative responses from 113 participants, including 61 females and 52 males. Data were also triangulated using: (a) demographic questionnaires, (b) quantitative instruments using a Likert-type scale, and (c) other supporting documents.

In our analysis of the data, we employed Saldaña's (2016) analytic strategies by which we coded our data through two distinct phases of analysis. In our first cycle of coding, we used the

following coding approaches: (1) in vivo, (2) descriptive, and (3) values. Thereafter, we utilized axial coding to distill categories from our initial analysis and interpret our findings using Bond's (2011) theory of teacher leadership. As a result of our analysis of the data, four themes emerged.

Findings

From an analysis of the data, four themes emerged that represent secondary agricultural education teachers' lived experiences in regard to advocating for agricultural education: (1) agricultural education-based events, (2) involvement in political meetings and conversations, (3) advocating to and through students, and (4) community-based events.

In the first theme, participants reported specific events connected to agricultural student organizations, such as the FFA. These events included FFA Day at Capitol and The National FFA Convention. In particular, Participant #69 explained he brought his students to the state capitol and "to see them experience the legislative process in real life was rewarding for me." In the second theme, participants explained that their advocacy experiences were often as a result of participating in political meetings and conversations with elected officials. For instance, multiple participants mentioned they had previously met with the governor, local decision-makers, city council members, and other elected officials. At these events, they were able to talk "with legislators about program funding for agricultural education" (Participant #82) and "show...the importance of the FFA and how it produces well-rounded students" (Participant #12).

In addition to advocating to political officials, in the third theme, many secondary agricultural education teachers asserted that their most memorable experiences advocating involved interactions with their students. Participant #108 explained she "promote[d] ag daily in my classes to help students realize the importance of agriculture in our daily lives." In the final theme, participants mentioned that community awareness events were some of the most memorable experiences regarding the phenomenon of interest. Some of these experiences included "writing to newspapers" (Participant #80) about agricultural literacy as well as being able to advocate to "local industries, farmers, and business owners" (Participant #56).

Conclusions/Implications/Recommendations/Impact on the Profession

When analyzing this investigation's findings through Bond's (2011) theory of teacher leadership, four themes emerged. The themes provided a unique insight into the lived experiences of secondary agricultural education teachers in regard to advocating for agricultural education in [State]. Therefore, we conclude that participants' experiences could be explained through four primary sources: (1) agricultural education-based events, (2) involvement in political meetings and conversations, (3) advocating to and through students, and (4) community-based events. Going forward, we recommend that state agricultural education leaders and teacher educators create professional development opportunities focused on improving agricultural education teachers' ability to advocate for their profession. We also recommend that future research examine the various approaches that teachers use to effectively champion various issues and causes that may affect their local programs. Finally, we call for greater emphasis to be placed on helping teachers learn how to tell agricultural education's story in ways that motivate decision-makers to become allies for the profession.

References

- American Farm Bureau Federation. (2018). *Fast facts about agriculture*. Author. <https://www.fb.org/newsroom/fast-facts>
- Andenero, A. C., Baker, M., & Stedman, N. L. P., Pennington Weeks, P. (2016). Research priority 7: Addressing complex problems. In T. G. Roberts, A. Harder, & M. T. Brashears (Eds.), *American Association for Agricultural Education national research agenda: 2016-2020* (pp. 57-66). Department of Agricultural Education and Communication, University of Florida.
- Berke, D. L., Boyd-Soisson, E. F., Voorhees, A., & Reininga, E. W. (2010). Advocacy as service-learning. *Family Science Review*, 15(1), 13-30. <https://pdfs.semanticscholar.org/5437/d1da1513ccf9f24cd5c5408bbaf4985eef7f.pdf>
- Bond, N. (2011). Preparing preservice teachers to become teacher leaders. *The Educational Forum*, 75(4), 280-297. <https://doi.org/10.1080/00131725.2011.602578>
- Bond, N., (2016). Preservice teacher leaders learn to advocate legislatively through professional organizations. *Journal of Curriculum and Teaching*, 5(2), 25-36. <https://files.eric.ed.gov/fulltext/EJ1157576.pdf>
- Ezell, M. (2001). *Advocacy in the human sciences*. Brooks/Cole.
- Kovar, K. A., & Ball, A. L., (2013). Two decades of agricultural literacy research: A synthesis of the literature. *Journal of Agricultural Education*, 54(1), 167-178. <https://www.jae-online.org/attachments/article/1728/54.1.14.Kovar.pdf>
- LeJeune, C. A., & Roberts, R. (2020). Reflections on reform: A historical narrative of the relocation of the Louisiana FFA Office. *Journal of Agricultural Education*, 61(3), 276-293. <https://doi.org/10.5032/jae.2020.03276>
- Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation*. John Wiley & Sons.
- National Association of Agricultural Education [NAAE]. (2020). *How do I become an advocate for agricultural education?* Author. <https://www.naae.org/advocacy/educated.cfm>
- Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). Sage.
- Tracy, S. J. (2010). Qualitative quality: Eight a "big-tent" criteria for excellent qualitative research. *Qualitative Inquiry*, 16(10), 837–851. <https://doi.org/10.1177/1077800410383121>

**Professional Development Needs of Mississippi School-Based Agricultural Education
Instructors When Working with Students with Special Needs: A Pilot Study**

Raegan Ramage

225 J. C. Miller Hall, Baton Rouge, LA, 70803

(662) 832-8117

rramag1@lsu.edu

Tyler Granberry

225 J. C. Miller Hall, Baton Rouge, LA, 70803

(903) 748-2565

tgranb1@lsu.edu

Dr. Joey Blackburn

129 J.C. Miller Hall, Baton Rouge, LA, 70803

(225) 578-7892

jjblackburn@lsu.edu

Dr. Kristin Stair

135 J. C. Miller Hall, Baton Rouge, LA, 70803

(225) 578-6128

kstair@lsu.edu

Introduction

In 2018-2019, 14% of public education students were identified as having a special learning need (National Center for Education Statistics, 2020). Such an increase is especially relevant to School-based Agricultural Education (SBAE) classrooms as they are often seen as highly effective in serving students with special needs (Casale-Giannola, 2012). However, despite the fact that SBAE teachers may commonly serve students with special needs, they often report low confidence when working with this diverse population. This can be compounded by the lack of special education training included in many SBAE teacher preparation programs (Stair et al., 2010). In terms of professional development (PD) training once employed, Hoerst and Whittington (2009) found that 80% of agriculture teachers indicated the need for more training to implement teaching techniques related to inclusion. PD opportunities play a crucial role in teacher success when working with students with special needs (Alquarani & Gut, 2012). Teixeira and Edwards (2020) found that more needs to be done for special education students enrolled in SBAE and that PD programs may bridge the gap in teacher experience and training needs. However, in order for PD to be implemented effectively, it is essential to understand SBAE teacher's unique needs and develop targeted opportunities.

Theoretical Framework

The Borich needs assessment model (1980) served as the framework for this study which presents a method to collect data surrounding educators' training while revealing areas of additional training needs. The Borich model includes a series of two-step responses, in which participants rank their perceived relevance and their perceived competency in specific need areas. Within the model, training needs are identified through "a discrepancy between an educational goal and trainee performance in relation to this goal" (Borich, 1980, p. 39). Understanding the discrepancy between relevance and competence can frame professional development needs within a specific content area and allow targeted programs to be developed that can meet specific training goals.

Statement of Purpose

The purpose of this study was to identify which disability types were perceived as having the highest need for professional development training among SBAE instructors in Mississippi who responded to the online survey. In order to accomplish this purpose, the following objectives guided this study: (1) Identify the levels of perceived competence of Agriculture teachers in Mississippi related to teaching students with specific learning needs; (2) Identify the levels of perceived importance of Agriculture teachers in Mississippi related to teaching students with specific learning needs; (3) Describe the discrepancy between competence and importance of agriculture teachers in Mississippi when teaching students with specific learning needs.

Methodology

Data for this study were collected as part of the pilot study component to a larger study being conducted to determine the PD needs of SBAE instructors in Louisiana when working with the

categories of disabilities identified by the Individuals with Disabilities in Education Act (2004). As part of the electronic survey, participants identified their perceived importance and competence when working with students who possess the following disability types: attention deficit disorder (ADHD), autism spectrum disorder, blindness or visually impaired, deaf or hearing impaired, emotional or behavioral disorders, intellectual disabilities, orthopedic impairments, other health impairments (i.e. epilepsy, anemia, diabetes, heart conditions, etc.), specific learning disabilities (i.e. dyslexia, dysgraphia, etc.), speech or language disabilities, and traumatic brain injury (TBI). Data were collected electronically using a Qualtrics survey instrument through a series of email solicitations to 139 SBAE instructors in Mississippi. Of those solicitations, 25 respondents completed the instrument for a response rate of 18%. Data were analyzed using SPSS version 26 and Microsoft Excel (McKim & Saucier, 2011) to determine the Mean Weight Discrepancy Score (MWDS) for each item.

Findings

Overall, all special needs types were found to have at least some discrepancy. Table 1 depicts the five categories these teachers perceived to have the greatest need for PD. Working with students who are blind or visually impaired had a MWDS of 5.71, followed by working with deaf/hearing impaired students ($MWDS = 5.43$), Autism spectrum ($MWDS = 4.86$), TBI ($MWDS = 4.84$), and finally emotional or behavioral disorders ($MWDS = 4.51$).

Table 1

Mean Weighted Discrepancy Scores for Professional Development Needs for Working with Students with Special Needs

Rank	Type of Special Need	MWDS	Importance		Competence	
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1	Blindness/Visual Impairment	5.71	3.48	.92	1.84	.99
2	Deaf/Hearing Impairment	5.43	3.48	.87	1.92	.86
3	Autism Spectrum	4.86	3.68	.56	2.36	.76
4	Traumatic Brain Injury (TBI)	4.84	3.64	.64	1.92	.91
5	Emotional or Behavioral Disorder	4.51	3.36	.91	2.40	.82

Conclusion/Implications/Recommendations

Based on the analysis of the MWDS, SBAE study participants indicated a high need for PD opportunities across many disability types. Providing targeted PD focused on the methods of creating inclusive classrooms and presenting accommodations for students with the highest rated disabilities may serve as a starting point for professionals within Mississippi to provide training in areas that teachers need. The results of this study echo previous research that has identified the need for additional PD opportunities for SBAE instructors when working with students with special needs (Alquarani & Gut, 2012; Kessell et al., 2009; Stair et al., 2016; Stair et al., 2010). However, because this study was conducted with a small number of participants, it is recommended that a larger study be conducted to better understand the needs of teachers in Mississippi. Further research may allow for the development of targeted PD workshops and teacher trainings to increase teacher success within SBAE classroom.

References

- Alquraini, T., & Gut, D. (2012). Critical components of successful inclusion of students with severe disabilities: literature review. *In International Journal of Special Education*, 27(1), 42-59. <https://eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=EJ979712>
- Borich, G. D. (1980). A needs assessment model for conducting follow-up studies. *Journal of Teacher Education*, 31(3), 39-42. <https://doi.org/10.1177%2F002248718003100310>
- Casale-Giannola, D. (2012). Comparing inclusion in the secondary vocational and academic classrooms: strengths, needs, and recommendations. *American Secondary Education*, 40(2), 26-42.
<http://libezp.lib.lsu.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=edsjsr&AN=edsjsr.43694128&site=eds-live&scope=site&profile=eds-main>
- Hoerst, C., & Whittington, S. (2009). The current status of classroom inclusion activities of secondary agriculture teachers. *Journal of Agricultural Education*, 50(2), 38–51. <https://doi.org/10.5032/jae.2009.02038>
- Individuals with Disabilities Education Act, Pub. L. No. 101-476, § 104 Stat. 1142 (2004). <https://www.congress.gov/bill/108th-congress/house-bill/1350/text>
- Kessell, J., Wingenbach, G. J., Lawver, D. (2009) Relationships between special education confidence, knowledge, and selected demographics for agriculture education student teachers. *Journal of Agriculture Education*, 50(2), 52-61. <https://doi.org/10.5032/jae.2009.02052>
- McKim, B. R., & Saucier, P. R. (2011). An Excel-based mean weighted discrepancy score calculator. *Journal of Extension*, 49(2). <http://www.joe.org/joe/2011april/tt8.php>
- National Center for Education Statistics. (2020). *Students with disabilities*. Institute for Education Sciences. U.S. Department of Education. <http://nces.ed.gov/pubs/2000/2000154.pdf>.
- Stair, K. S., Blackburn, J. J., Bunch, J. C., Blanchard, L., Cater, M., & Fox, J. (2016). Perceptions and educational strategies of Louisiana agriculture education teachers when working with students with special needs. *Journal of Youth Development*, 11(1). <https://jyd.pitt.edu/ojs/jyd/article/view/433/417>
- Stair, K. S., Moore, G. E., Wilson. B., & Croom. B. (2010). Identifying confidence levels and instructional strategies of high school agriculture education teachers when working with students with special needs. *Journal of Agriculture Education*. 51(2), 90-101. <https://doi.org/10.5032/jae.2010.02090>
- Teixeira, K. L., & Edwards, M. C., (2020). Teaching students with special needs in school-based agricultural education: A historical inquiry. *Journal of Research in Technical Careers*. 4(1), 75-91. <https://digitalscholarship.unlv.edu/jrtc/vol/iss1/6>

**Teacher Leadership: An Analysis of Secondary Teachers' Perspectives on Enhancing
Advocacy Efforts for Agricultural Education**

Authors

Morgan Richardson Gilley

Louisiana State University, LA 70803

225-337-3703

mcric165@lsu.edu

Baylee Jankowski

Louisiana State University, LA 70803

225-337-3703

mcric165@lsu.edu

bjanko2@lsu.edu

Richie Roberts, Ph.D.

Louisiana State University, LA 70803

336-314-7191

roberts3@lsu.edu

Dr. Kristin S. Stair, Ph.D.

Louisiana State University, LA 70803

919-649-7019

kstair@lsu.edu

Cade LeJeune

Louisiana State University AgCenter, LA 70803

225-578-5749

cekejeune@agcenter.lsu.edu

J. Joey Blackburn, Ph.D.

Louisiana State University, LA 70803

573-220-8881

jjblackburn@lsu.edu

Teacher Leadership: An Analysis of Secondary Teachers' Perspectives on Enhancing Advocacy Efforts for Agricultural Education

Introduction

Individuals who are agriculturally literate can observe and communicate, to some extent, how agriculture affects the economy, environment and natural resources, and society (Frick et al. 1991). With the rise of urbanization and the decline of individuals being directly involved in agriculture, fewer U.S. citizens are agriculturally literate. However, individuals should be able to make informed and educated decisions about agriculture (Kovar & Ball, 2013). One way this can be achieved is by ensuring that agriculture teachers become leaders in their schools and communities. In response, LeJeune and Roberts (2020) called for a greater understanding of how secondary agricultural education teachers can step forward, lead beyond their classrooms, and advocate for agricultural education.

Theoretical Framework

We grounded this investigation in Bond's (2011) theory of teacher leadership. Through this lens, teachers use both political and non-political processes to improve the quality of life for individuals in a given context. As such, teacher leadership is viewed as a developmental process by which individuals mature regarding their motives, skills, and values. Through this growth, a greater understanding of how power imbalances can mediate progress can be achieved and, perhaps, change can be advanced. Therefore, effective teacher leaders not only serve as role models for students in their classrooms, but they also *advocate* for positive change at local, state, and national levels (Bond, 2016). In the current investigation, we used this theory to examine how teacher leadership manifested in secondary agricultural education.

Statement of Purpose

This study sought to describe secondary teachers' views on how teacher leadership and advocacy efforts could be enhanced for Louisiana agricultural education. A key assumption of the study was that if the majority of decision-makers do not understand the importance of agricultural education, then the likelihood of them addressing the issue in the future was unlikely. Therefore, the study aligned with the American Association for Agricultural Education's National Research Priority 7: *Addressing Complex Problems* (Andenero et al., 2016). One research question framed the investigation: *In what ways could the advocacy efforts of secondary agricultural education teachers in Louisiana be improved?*

Methods and Data Sources

We framed this investigation as an interpretive qualitative approach (Merriam & Tisdell, 2015). To ensure rigor, we also embedded Lincoln's and Guba's (1985) standards for rigor throughout the investigation: (a) dependability, (b) confirmability, (c) credibility, (d) and transferability. Our primary source of data was written narrative responses from 113 participants, including 61 females and 52 males. However, we also triangulated our findings using: (a) demographic questionnaires, (b) quantitative instruments assessing participants' perspectives on advocacy using a Likert-type scale, and (c) other supporting documents. To analyze the data, we used Saldaña's (2016) coding strategies, which facilitated our use of the following first cycle coding approaches: (1) *in vivo*, (2) descriptive, and (3) values. Then, we used axial coding to reduce the

data into categories and interpret our emergent findings through Bond's (2011) theory of teacher leadership. Through this process of analysis and data reduction, the findings of the investigation emerged through four themes.

Findings

Four distinct themes emerged from an analysis regarding the improvements that secondary agricultural education teachers desired to better advocate for agricultural education: (1) increased political involvement, (2) need for more training and resources, (3) lack of organization and communication, and (4) frustration with fellow teachers. In the first theme, the participants suggested that more focus should be placed on political involvement. For example, the teachers called for "more open talk to legislators" (Participant #7) and being "more involved in the legislative process" (Participant #14). Further, Participant #65 stated that agricultural educators "need to be more connected with their elected officials." Overall, a connection to and communication with the relevant legislators was an important focal point mentioned by many of the secondary agricultural education teachers. In regard to training and resources, the second theme, the participants discussed the need for additional "knowledge" and "training" on advocacy because many of them felt unprepared to have critical conversations with elected officials. Participant #98 explained: "...today's new Ag Teacher is intimidated or does not know how to reach out to these elected [officials] for help."

In addition to needing more training and resources, participants felt that there was an overall lack of organization and communication within the agricultural education community. They felt that a more organized, focused, and proactive professional organization would help them be better prepared to advocate for their profession and students. Many participants also expressed that their concerns went unheard and that "they (the professional organization) simply want my money and not my opinion" (Participant #87). The final theme focused on the participants' frustrations with fellow educators in the agricultural education community. Many of the attitudes emerging from our analysis involved negative views of other educators. Some of the participants felt that their fellow educators "don't do their job" (Participant #6) and should "be more positive" (Participant #38). Further, Participant #45 stated: "we will do a much better job being an advocate by remaining positive about how the issues can be resolved." Overall, the attitudes held by these participants appeared to stem from a lack of communication between educators.

Conclusions/Implications/Recommendations/Impact on the Profession

This investigation provided greater insight into secondary agricultural education teachers' perspectives on teacher leadership and advocacy. We conclude that participants desired improvement in the following areas to better advocate for agricultural education: (1) increased political involvement, (2) more training and resources, (3) lack of organization and communication, and (4) frustration with fellow educators. Moving forward, we recommend that future research explore ways to address these concerns. Further, additional research should also be conducted to examine how secondary agricultural education teachers can better communicate the importance of the profession to decision-makers at the local, state, and national levels.

References

- Andenero, A. C., Baker, M., & Stedman, N. L. P., Pennington Weeks, P. (2016). Research priority 7: Addressing complex problems. In T. G. Roberts, A. Harder, & M. T. Brashears (Eds.), *American Association for Agricultural Education national research agenda: 2016-2020* (pp. 57-66). Department of Agricultural Education and Communication, University of Florida.
- Bond, N. (2011). Preparing preservice teachers to become teacher leaders. In *The Educational Forum*, 75(4), 280-297. <https://doi.org/10.1080/00131725.2011.602578>
- Bond, N., (2016). Preservice teacher leaders learn to advocate legislatively through professional organizations. *Journal of Curriculum and Teaching*, 5(2), 25-36. <https://files.eric.ed.gov/fulltext/EJ1157576.pdf>
- Frick, M. J., Kahler, A. A., & Miller, W. W., (1991). A definition and the concepts of agricultural literacy. *Journal of Agriculture Education*, 32(2), 49-57. https://www.jae-online.org/attachments/article/758/Frick,%20M_Vol32_2_49-57.pdf
- Kovar, K. A., & Ball, A. L., (2013). Two decades of agricultural literacy research: A synthesis of the literature. *Journal of Agricultural Education*, 54(1), 167-178. <https://www.jae-online.org/attachments/article/1728/54.1.14.Kovar.pdf>
- LeJeune, C. A., & Roberts, R. (2020). Reflections on reform: A historical narrative of the relocation of the Louisiana FFA Office. *Journal of Agricultural Education*, 61(3), 276-293. <https://doi.org/10.5032/jae.2020.03276>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.
- Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation*. John Wiley & Sons.
- Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). Sage.

21st Century Perceptions of Supportive Administration in Agriculture Education

Christian L. Stanley¹, Christopher A. Clemons², James R. Lindner³

Christian L. Stanley, <https://orcid.org/0000-0003-4955-9668>

Christopher A. Clemons, <https://orcid.org/0000-0001-9879-0888>

James R. Lindner, <https://orcid.org/0000-0002-1448-3846>

¹Christian L. Stanley is a secondary agriscience education teacher at Beulah High School, 4848 Lee RD, Valley, AL 36854, stanley.christian@lee.k12.al.us

²Christopher A. Clemons is an Assistant Professor of Agriscience Education of Curriculum and Teaching at Auburn University, 5070 Haley Center, Auburn, AL 36849, cac0132@auburn.edu

³James Lindner is a Professor of Agriscience Education in the Department of Curriculum and Teaching at Auburn University, Haley Center, Auburn, AL 36849, jrl0039@auburn.edu

21st Century Perceptions of Supportive Administration in Agriculture Education

Supportive and reliable administration have been identified as a contributing factor in the satisfaction of teachers of secondary agricultural education. The purpose of this qualitative study was to investigate Alabama secondary school agriscience teacher's perceptions of supportive school administrators. Administrators manage the daily operations of school, oversee curricula development and implementation (Starrett, 2003), maintain a robust disciplinary program, evaluate certified and paraprofessional staff and foster a positive social environment. Robinson, et al. (2012) reported "understanding the perceptions of the principal regarding the agriculture program and its teacher(s) is important because the principal's perceptions influence whether or not an agricultural education program exists" (p. 152). Cantrell et al. (2004) stated that content area knowledge was reported to be the characteristic most preferred by administrators when hiring an agriculture teacher.

Theoretical Framework

The theoretical framework for this study was grounded using Organizational Support Theory (Eisenberger et al., 1986). Organizational support theory (1986) suggests that the employee perceives the extent which the organization supports them and their work as an important marker within their work life. Eisenberger et al. (1986) reported that considering how employees tend to personify organizations, the actions of the agents within the organization toward the employee, and how these actions effect the perceived support of the employee. For employees to feel supported by the organization they would anticipate the same support as they receive within social relationships. Those who are more social tend to respond positively to the amount of organizational support received. Kurtessis et al. (2017) reported a positive relationship between increased performance and perceived organizational support on behalf of the employee.

Purpose and Research Questions

The purpose of this study was to investigate secondary school agriscience teacher perceptions of supportive secondary administration. To better understand these perceptions two research questions guided this investigation: (1) what characteristics do supportive administrators demonstrate for classroom and FFA success, and (2) what are your perceptions of building positive relationships with administration? This research study aligns closely with research priority three of the American Association of Agriculture Education's research area, question two: "what methods, models, and practices are effective in recruiting agricultural leadership, education, and communication practitioners (teachers, extension agents, etc.) and supporting their success at all stages of their careers?" (Stripling & Ricketts, 2016, p. 31).

Methods

Grounded Theory (Corbin & Strauss, 2008) was used to frame this qualitative study. Grounded theory is characterized by constant adjustment based on analysis of the data in order to construct a theory (Corbin & Strauss, 2015) and is useful when attempting to understand novel issues which have not been investigated thoroughly (Saldaña, 2013). Five semi-structured interview questions were developed based on prior research, expert panel suggestions, and content expert analysis. Design and validation of the semi-structured research questions were confirmed through the use of content area experts: current secondary agriculture educators, graduate students and university faculty. Potential study participants were identified from a publicly available list of practicing agriculture teachers in Alabama. Consideration for inclusion in the study included being a member of NAAE and previous participation in studies conducted by Auburn University Agriscience Education. Participants ($n = 10$) were contacted electronically to explain the research and risks associated with the study. Participants were assigned a date, time,

pseudonym, and contacted by telephone for up to two hours. Data were coded for organization of findings and theme development. Open coding as a part of qualitative data analysis was used as a constant comparative method to discover the potential for consistent themes within the data. Independent analysis of participant comments were evaluated and organized using each of the two research questions producing 36 unique codes across 214 coded objects. Trustworthiness of participant comments was accomplished using member check. Coding was reconciled between three researchers using inductive processes between codes and coded objects. A total of 22 reconciled codes were synthesized into six emergent themes.

Findings

Analysis of the 22 coded themes were generated into six emerging themes across the research questions of this study for organizing respondent data. The emergent themes describe secondary school agriscience teacher's perceptions of supportive administrators. Emerging themes included: administrative awareness of local agricultural education program, agriscience education teacher relationships with administration, teacher perceptions of in-classroom administrative support, teacher perceptions of out-of-classroom program support, and perceptions of measured administrative involvement. The participants presented a positive affect during the interviews regarding their role as a teacher. [Janice], an agriscience education teacher with 9 years of experience stated "[A supportive administrator is] someone who will say good morning. Someone who will come into your classroom just to see what you have going on. Not to critique or say "hey, what are you doing?" or "you're not doing this correctly. The findings support that teachers may view their principal as a high-quality administrator while not enjoying their personality as an individual. Participants noted the administrator having an awareness of the agricultural education program and its place within the community creates a zone which allows teachers to be able to discuss items with administrators without the having to explain superfluous pieces. Participants were inclined to discuss that a supportive administration was one which allowed them to do their job well. Teachers expressed the differences between classroom support and out of classroom (FFA) activities as equally important to classroom instruction. This perception reinforced the role administrators have in classroom expectations and support for the larger program.

Conclusions

Research question one addressed teachers' perceptions of their administration as an agriscience education teacher. Findings indicated that agriscience teachers who remained in the classroom felt supported by their administration. The perception of administrative support is supported within Eisenberger et al. (1986) Organizational Support Theory. Administrative support enabled participants to teach the content necessary and was vital to the teacher's perception of classroom instructional objectives. Participants reported feelings of support and security while others were more apprehensive regarding administrative interactions. Research question two investigated perceptions of building positive relationships with administration? Participants reported administrative support contributed to choosing to remain in the classroom. Lack of FFA support was found to be detrimental to the satisfaction of agriculture teachers. If administrators do not feel FFA and SAE are the most important areas of an agriscience education program, why is this the area that the teachers appear to care equally about? Further studies should be conducted as to the role of administrators in secondary agriscience education teacher longevity. A survey of administrators should be conducted as to their perceptions of agriscience educators within their district and their local agriscience education program. This will allow researchers to evaluate the perceptions of the teachers in conjunction with feelings of administrators.

References

- Cantrell, J., & Weeks, B. (2004). Criteria public school administrators consider when hiring first-year agricultural education teachers. *Journal of Southern Agricultural Education Research*, 54(1), 267–279.
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Sage.
- Corbin, J., & Strauss, A. (2015). *Basics of qualitative research: Techniques and procedures for developing ground theory* (4th ed.). Sage.
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71, 500-507.
- Kurtessis, J. N., Eisenberger, R., Ford, M. T., Buffardi, L. C., Stewart, K. A., Adis, C. S. (2017). Perceived organizational support: A meta-analytic evaluation of organizational support theory. *Journal of Management*. 43(6), 1854-1884
<https://doi:10.1177/01492063155575554>
- Robinson, J. S., & Baker, M. A. (2013). The effect of human capital on principals' decisions to interview candidates in agricultural education: Implications for pre-service teachers. *Journal of Agricultural Education*, 54(1), 139-152. [https://doi: 10.5032/jae.2013.01139](https://doi:10.5032/jae.2013.01139)
- Saldaña, J. (2013). *The coding manual for qualitative researchers*. SAGE.
- Smith, A. G., & Myers, B. E. (2012). Perceptions of Florida secondary school principals toward agricultural education. *Journal of Agricultural Education*, 43(4), 154-165.
<https://doi:10.5032/jae.2012.03154>
- Starrett, R. J. (2003). *Centering educational administration: Cultivating meaning, community, responsibility*. Lawrence Erlbaum Associates.
- Stripling, C. T., & Ricketts, J. C. (2016). Sufficient scientific and professional workforce that addresses the challenges of the 21st century. In T. G. Roberts, A. Harder, & M. T. Brashears (Eds.), (2016). *American Association for Agricultural Education national research agenda: 2016-2020*, 40-49. Gainesville, FL: Department of Agricultural Education and Communication.

A Comparison of Preservice Teachers' Perceptions of Important Elements of the Student Teaching Experience Before and After a 14-Week Field Experience

Peyton E. Sweet Moore, Heather L. Young, Bradley M. Coleman, Carla B. Jagger, and J.C. Bunch

Department of Agricultural Education and Communication, University of Florida
PO Box 110540
Gainesville, FL 32611
352-392-0502
psweetmoore@ufl.edu

Introduction and Conceptual Framework

The student teaching experience is one of the most impactful components of any teacher preparatory program (Miller & Wilson, 2010). Deeds et al. (1991) claimed student teaching is one of the most critical components in the development of future agriculture teachers. Therefore, it is crucial that the student teaching experience is constructive as well as advantageous. Typically, the student teaching experience is completed over the course of only one semester in agricultural education. As such, it is beneficial to ensure the most important elements are taken into consideration and incorporated when planning for the student teaching experience. For teacher preparatory programs to provide effective student teaching opportunities, and adequately place student teachers with cooperating teachers, it is necessary to study the student teachers' perceptions of what elements are most important before and after the student teaching experience. It has been found the student teachers' perceived level of importance for each element of student teaching changes over the experience (Harlin et al., 2002; Young & Edwards, 2006). Young and Edwards (2006), recommended continued research on the important elements of the student teaching experience be conducted. This study aims to further previous research through replication with a population of pre-service teachers at the University of Florida. This study is framed using experiential learning (Kolb, 1984; Roberts, 2006), which suggests learning is a process and "ideas are formed and re-formed through experience" (Kolb, 1984, p. 26).

Methodology

The purpose of this descriptive study was to determine preservice teachers' perceptions of important elements of the student teaching experience both before and after the student teaching experience. This study aligns with research priority 4 of the national research agenda (Stripling & Ricketts, 2016). This study was a census ($N = 19$) of the preservice teachers in agricultural education at University of Florida in the spring of 2020. This census study consisted of 18 females and one male. The population was 94.7% White and 5.3% Hispanic. The size of student teaching placement sites ranged from 553 to 3,300 students with a mean of 1,537 students. The number of agricultural education teachers at each site ranged from one to four teachers with a mean of two teachers. The instrument used in this study, initially developed by Harlin et al. (2002), was divided into two main parts. The first part consisted of 35 items within five core elements of the student teaching experience, including (a) classroom and laboratory instruction (5 items), (b) student leadership development (FFA activities; 7 items), (c) cooperating teacher/student teacher relationships (9 items), (d) school and community relationships/resources (10 items), and (e) supervised agricultural experience programs (4 items). The students were asked to rate their perceived level of importance for each item using the following five-point Likert scale: 1 = *no importance*, 2 = *low importance*, 3 = *medium importance*, 4 = *much importance*, and 5 = *high importance*. The second part of the instrument consisted of items to determine the selected personal and professional demographics of the preservice teachers.

Findings

After analyzing the data, the items within the element of cooperating teacher/student teacher relationships had the highest means, with pretest means ranging from 4.00 to 5.00 and posttest means ranging from 4.05 to 5.00. In total, eight items displayed change in perceived importance from the pretest to posttest, including (a) a discipline management plan is used in a structured environment, (b) creative teaching methods as a basis for daily instruction (i.e., use of multimedia and varied teaching techniques), (c) opportunities for student teacher to

judge/monitor district/state CDEs, (d) recognized integrity of cooperating teacher, (e) availability of facilities (i.e., computer labs, shops, horticultural lab, land labs, school farm), (f) all students have an SAE requirement with accurate record books, (g) diversity within students' SAEs, and (h) student participation in advanced awards and degrees on all levels (see Table 1).

Table 1
Important Elements of the Student Teaching Experience

Elements	Pre-test		Post-test	
	<i>M^a</i>	<i>SD^a</i>	<i>M^b</i>	<i>SD^b</i>
<u>Classroom and Laboratory Instruction</u>				
A discipline management plan is used in a structured environment	4.53	.77	4.47	.70
Creative teaching methods as a basis for daily instruction	4.32	.82	4.68	.58
<u>Student Leadership Development (FFA Activities)</u>				
Opportunities for student teacher to judge/monitor district/state CDEs	3.47	1.02	3.79	.71
<u>School and Community Relationships/Resources</u>				
Recognized integrity of cooperating teacher	4.68	.48	4.42	.69
Availability of facilities	4.58	.51	4.63	.60
<u>Supervised Agricultural Experience Programs</u>				
All students have an SAE requirement, with accurate record books	3.95	.78	3.37	.76
Diversity within the students' SAEs	3.84	.83	3.47	.84
Student participation in advanced awards and degrees on all levels	3.42	1.07	3.68	.75

Conclusions

The preservice teachers perceived the most important element of the student teaching experience was the cooperating teacher/student teacher relationship, which is congruent with findings of Harlin et al. (2002) and Young and Edwards (2006). There was a negative change in the perceived level of importance of a discipline management plan is used in a structured environment and recognized integrity of the cooperating teacher from *high importance* to *much importance*. There was a positive change in the perceived level of importance of creative teaching methods as a basis for daily instruction and availability of facilities from *much importance* to *high importance*. Additionally, there was a negative change in the perceived level of importance of all students have an SAE requirement, with accurate record books and diversity within the students' SAEs from *much importance* to *medium importance*. Lastly, there was a positive change in the perceived level of importance of opportunities for student teacher to judge/monitor district/state CDEs and student participation in advanced awards and degrees on all levels from *medium importance* to *much importance*.

Recommendations for Practice and Research

When placing preservice teachers for the student teaching internship, teacher educators might consider placing a higher emphasis on the cooperating teacher/student teacher relationships. Secondly, teacher educators could provide additional opportunities for preservice teachers to judge or monitor CDEs. Further, when placing preservice teachers for the student teaching internship, teacher educators could choose internship sites with diverse facilities. Finally, we recommend future research could be done to further explore the role of the cooperating teacher and the important aspects of the cooperating teacher/student teacher relationship.

References

- Deeds, J. P., Flowers, J., & Arrington, L. A. (1991). Cooperating teacher attitudes and opinions regarding agricultural education student teaching expectations and policies. *Journal of Agricultural Education, 32*(2), 2-9. <https://doi.org/10.5032/jae.1991.02002>
- Harlin, J. F., Edwards, M. C., & Briers, G.E. (2002). A comparison of student teachers' perceptions of important elements of the student teaching experience before and after an 11-week field experience. *Journal of Agricultural Education, 43*(3), 72-83. <https://doi.org/10.5032/jae.2002.03072>
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development* (1st ed.). Prentice Hall.
- Miller, G., & Wilson, E. B. (2010). Designing field-based and experiential education for preservice teachers in agriculture. In Torres, R. M., Kitchell, T., & Ball, A. L. (Eds.), *Preparing and Advancing Teachers in Agricultural Education* (pp. 131-141). Curriculum Material Service, The Ohio State University.
- Roberts, T. G. (2006). A philosophical examination of experiential learning theory for agricultural educators. *Journal of Agricultural Education, 47*(1), 17-29. <https://doi.org/10.5032/jae.2006.01017>
- Stripling, C. T., & Ricketts, J. C. (2016). Sufficient scientific and professional workforce that addresses the challenges of the 21st century. In Roberts, T. G., Harder, A., & Brashears, M. T. (Eds.), *American Association for Agricultural Education national research agenda: 2016-2020* (pp. 29-33). University of Florida, Department of Agricultural Education and Communication.
- Young, R. B., & Edwards, M. C. (2006). A comparison of student teachers' perceptions of important elements of the student teaching experience before and after a 12-week field experience. *Journal of Agricultural Education, 47*(3), 45-57. <https://doi.org/10.5032/jae.2006.03045>

Awareness and Competence of South Carolina Master Gardeners in Synchronous Online Instruction During the COVID-19 Pandemic

Jacqueline K. Jordan
Clemson University
jkopack@clemson.edu

K. Dale Layfield
Clemson University
dlayfie@clemson.edu

Christopher J. Eck
Clemson University
eck@clemson.edu

Catherine A. DiBenedetto
Clemson University
cdibene@clemson.edu

Michelle Parisi
Clemson University
mparisi@clemson.edu

Thomas Dobbins
Clemson University
tdbbns@clemson.edu

Awareness and Competence of South Carolina Master Gardeners in Synchronous Online Instruction During the COVID-19 Pandemic

Introduction

In March 2020 the COVID-19 pandemic forced many schools, businesses and government agencies to move normal operations online to limit in-person contact (CDC, 2020). An immediate reliance was placed on synchronous web-based platforms to facilitate business and education. Although multiple programs for video web conferencing have been in existence for years, many people experienced a learning curve when adapting to the new normal. (Fawcett, et al., 2020)

Following the mission of Cooperative Extension, Master Gardeners (MG) in South Carolina (SC) earn certification through providing 40 hours of educational service through volunteer activities (Clemson University Cooperative Extension, n.d.). However, due to COVID-19, all SC MG in-person volunteer activities were suspended (Clemson University Cooperative Extension, n.d.). The Greenville Master Gardeners continued their service activities by initiating the Online Speakers Bureau in October 2020, allowing the certified volunteers to share their expertise through Zoom with an extensive catalog of free online presentations, many of which had multiple sessions (GGMGA, n.d.). Additionally, due to ADA 508 standards training to use accessibility tools for documents and presentations for online instruction is needed (U.S. General Services Administration, 2020) for the volunteers use of synchronous delivery features.

The purpose of this study was to assess the knowledge, and self-perceived competence levels of Master Gardeners using synchronous online instruction platform features used to enhance formal/informal instruction as well as their application of accessibility tools allowing all learners equal access to content. The objectives guiding this study were to: 1) identify MG knowledge and self-perceived competence levels of synchronous learning features related to effective instruction, and 2) identify MG knowledge and self-perceived competence levels of best practices for assuring ADA compliant Microsoft PowerPoint and Word files.

Theoretical Framework

This study was guided by the Human Capital Theory, which posited individuals and society derive economic benefits from investments in people (Sweetland, 1996). Scheneman (1993), suggested that public organizations with professionals delivering services impacting clients' lives should engage in continuing education. Acquiring knowledge and skills with economic value accounts for much of the success of technically advanced countries (Schultz, 1961). MGs assist in training sessions for programming as in-service moves online (Greater Greenville Master Gardeners, n.d.). Many MGs need to develop their knowledge of synchronous learning platforms and accessibility tools through continuing education to meet the needs of all clientele. Therefore, this study aimed to identify the primary synchronous learning platform used by MGs, their knowledge and competence related to the platform, and understanding of online accessibility features in Microsoft Word and PowerPoint.

Methodology

The population for this study consisted of SC MGs participating in a Monday Webinar Series in Fall 2020. A total of 122 participants were invited to participate in the study. MGs were provided with a URL and a scannable QR code leading to the researcher-developed survey in Qualtrics. Five faculty members in agricultural education at Clemson University and two extension

specialists in SC evaluated the survey prior to distribution for face and content validity (Privitera, 2017). The survey was developed and delivered following recommendations from the Tailored Design Method (Dillman et al., 2014). Participants were asked to identify which web-based tool they used most: Zoom, Microsoft Teams, WebEx or Goggle Meet, of which, skip logic in Qualtrics directed them to a series of questions that asked about their competence levels of selected synchronous platform features. Additionally, accessibility features available in Microsoft Word and PowerPoint were assessed for online delivery. Pertinent demographic questions completed the survey.

Results/Findings

Data were analyzed using SPSS version 27 for descriptive statistics, including frequencies and percentages. A 45% response rate was achieved with 55 respondents ranging from 39 to 80 years of age. The respondents were primarily female (67%) with a variety of degrees earned, i.e., bachelor's degree 18%, master's degree 29%, and doctoral degree 9%. A total of 27% used synchronous learning technology prior to the pandemic. Zoom was the most commonly used software by 96%. MGs reported being 13% competent at scheduling a meeting in Zoom while 29% were somewhat competent, 25% were not competent and 7% were unaware of the feature. A total of 18% stated they were competent at inviting participants to a Zoom meeting, while 18% reported they were competent at screen sharing. Less than 2% reported competence utilizing the white board feature in Zoom with 44% reporting competence at utilizing polling during Zoom meetings. Only 2% rated themselves as competent at using break out rooms and 38% were unaware of the feature. An average of 40% of respondents were unaware of accessibility tools in Microsoft Word and PowerPoint.

Conclusions/Implications/Recommendations

Zoom was the most popular web-based synchronous platform among MGs in SC. Although the technology was being used for web conferencing, MGs reported lack of comfort with common platform features, such as inviting others to a meeting, sharing a screen, host's ability to mute, and ability to remove participants from a meeting. While the chat feature and hand raising are commonly used, polling, break out rooms, white boards and file sharing were not commonly used. This suggests that MGs had developed some competency within Zoom. MGs in this study were largely unaware of best practices for assuring accessibility related to ADA 508 standards.

While respondents represented a varied demographic, of whom were a valid representation of MGs in SC additional research using qualitative measures is warranted to further understand the needs of this audience. Additional research should be conducted to examine the popularity of various synchronous web-based programs to determine the best platform for extension outreach programs nationwide. We recommend training for MGs in SC on Zoom features and best practices for using accessibility in Microsoft Word and PowerPoint in order to ensure effective delivery of instruction via synchronous web-based applications. Clemson University faculty should consider the development and delivery of programming opportunities or fact sheets for extension agents and MGs to increase awareness of ADA 508 standards and usability of various synchronous web-based platform features. Extension preparation courses in SC should also focus on modeling effective online synchronous program delivery because Extension Agents are the primary trainers of MGs.

References

- Centers for Disease Control and Prevention (CDC). (2020). *Situation summary*.
<https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/summary.html>
- Clemson University Cooperative Extension. (n.d.). Volunteering.
<https://www.clemson.edu/extension/mn/volunteering.html>
- Clemson University Cooperative Extension. (n.d.). South Carolina Master Gardener Program.
<https://www.clemson.edu/extension/mg/>
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method* (4th ed.). Wiley.
- Fawcett, J. E., Parajuli, R., Bardon, R., Bobby, L., Kays, L., & Strnad, R. (2020). Tools for Quickly Adapting During Pandemics, Disasters, and Other Unique Events. *Journal of Extension*, 58(2), Article v58-2tt1.
- Greater Greenville Master Gardeners (GGMGA). (n.d.). GGMGA Speakers Bureau.
<https://www.ggmga.org/speakers-bureau.html>
- Privitera, G. J. (2017). *Research methods for the behavioral sciences (2nd Ed.)*. Sage.
- Scheneman, S. (1993). Continuing Professional Development: Education and Learning. *Adult Learning*, 4(6), 6–6. <https://doi.org/10.1177/104515959300400603>
- Schultz, T. W. (1961). Investment in human capital. *The American Economic Review*, 51(1), 1–17. www.jstor.org/stable/1818907.
- Sweetland, S. (1996). Human Capital Theory: Foundations of a Field of Inquiry. *Review of Educational Research*, 66(3), 341–359. <http://www.jstor.org/stable/1170527>
- U.S. General Services Administration. (2020). *Create accessible products*.
<https://www.section508.gov/create>

**Assessing Awareness and Competence of Best Practices in Synchronous Online Instruction
During the COVID-19 Pandemic for Cooperative Extension Agents**

Sarah O. Scott
Clemson University
oswald@clemson.edu

Weatherly Thomas
Clemson University
marjort@clemson.edu

K. Dale Layfield
Clemson University
dlayfie@clemson.edu

Christopher J. Eck
Clemson University
eck@clemson.edu

Catherine A. DiBenedetto
Clemson University
cdibene@clemson.edu

Thomas Dobbins
Clemson University
tdbbns@clemson.edu

Michelle Parisi
Clemson University
mparisi@clemson.edu

Assessing Awareness and Competence of Best Practices in Synchronous Online Instruction During the COVID-19 Pandemic for Cooperative Extension Agents

Introduction

The outbreak of COVID-19 suddenly put the world on lockdown in 2020 (Centers for Disease Control and Prevention, 2020). On March 11, 2020, the International Health Regulations Emergency Committee of the World Health Organization (2020) declared the outbreak a pandemic. This situation challenged education systems across the world and forced educators to shift to an online mode of teaching overnight (Dhawan, 2020), asking them to become both designers and tutors, using tools which few have fluently mastered (Rapanta et al., 2020). Synchronous online teaching sessions, where everyone joins a meeting at a scheduled time, is one way to create engagement when participants are remote (Harvard University, 2020). Cooperative Extension is an education system that provides practical education designed to help people solve problems and develop skills. The success of Extension programming is often based on in-person events that are scheduled well in advance of the anticipated programming date (Stokes et al., 2020). Since March, Extension county offices in South Carolina have had modified operations making them inaccessible to the public per protocols set by Clemson University and public health officials. Many agents transitioned to digital platforms to continue providing valuable resources and educational programs (Newsstand, 2020). Rapidly developing technology has facilitated distance education in all disciplines, proving to be popular among students for various reasons including convenience by the format (McBrien, 2009). To meet the needs of all constituents, the revised ADA 508 standards require extension agents to provide equal opportunities related to accessibility through accommodations for those with disabilities for viewing documents and presentations during online instruction (U.S. General Services Administration, 2020).

The purpose of this study was to assess Cooperative Extension Agents knowledge and self-perceived competence levels of Zoom features that enhance formal and informal instruction, as well as the application of accessibility tools allowing all learners equal access to content. The objectives supporting this purpose were to: 1) Identify extension agent's knowledge and self-perceived competence levels of synchronous learning features related to effective instruction, and 2) Identify extension agent's knowledge and self-perceived competence levels of best practices for assuring accessible Microsoft PowerPoint and Word files.

Theoretical Framework

This study was framed by the human capital theory, aiming to evaluate the current knowledge and skills (Schultz, 1961) specific to the human capital development (Smith, 2010) of Extension Agents. Human capital considers expenditures on human capital as investments, opposed to consumption (Schultz, 1961). Furthermore, Smith (1952) noted that not all labor inputs into an economy are quantitative, as they include "the acquired and useful abilities of all inhabitants or members of the society" (p. 119). Schultz (1961) noted that one of the forms of education in human capital theory included on-the-job training, of which, is purposeful knowledge development for furthering an individual's job specific abilities. Therefore, assessing Extension Agents' needs in online delivery technology and accessibility skills will inform stakeholders, allowing for specified human capital development opportunities essential during the COVID-19 pandemic.

Methods

This study employed descriptive survey research of Clemson University Extension professionals, including 155 agents and specialists in South Carolina. The survey was distributed via email with a Qualtrics Survey link following the recommendations of Dillman et al. (2014). The researcher-developed survey evaluated participants knowledge and self-perceived competence in using Zoom and accessibility aspects of Microsoft Word and PowerPoint. Additionally, demographic questions were used to gather pertinent information, i.e., age, gender, use of synchronous learning prior to the COVID-19 pandemic, access to equipment and Internet availability. Proficiency and accessibility questions were asked to assess awareness and competency levels in meeting tools. The survey was evaluated for face and content validity by five faculty members in agricultural and extension education and two extension specialists before being distributed. After the initial email, two reminder emails were sent to non-respondents to increase participation per Dillman et al. (2014). Data analysis evaluated descriptive statistics using SPSS version 27.

Results

Extension agents ($n = 71$) and extension specialists ($n = 17$) spanning 40 counties across South Carolina responded resulting in a 23% ($n = 88$) response rate for this study. The participants spanned from 23 to 69 years of age, with some having nearly 40 years of experience. Prior to the COVID-19 pandemic 53% ($n = 46$) of participants used synchronous learning technology. A total of 85.3% ($n = 75$) of participants were currently working from a home office rather than their assigned county office/duty station. Of the 88 respondents, 75% ($n = 66$) felt competent in their ability to schedule meetings in Zoom. Although the respondents felt competent in using features within Zoom to hold meetings, the majority of other features (i.e., annotation tools, file transfer, broadcast, polling, and breakout rooms) were commonly unknown or seldomly used. Additionally, respondents were not aware of accessibility features available in Microsoft Office Word or PowerPoint to make documents accessible for their constituents, with only 19% ($n = 17$) and 27% ($n = 24$), respectfully, expressing they felt competent in this skill.

Conclusions, Implications and Recommendations

The findings suggest that Extension professionals are actively using synchronous online learning tools available in Zoom during COVID-19 but they are not completely comfortable with or aware of all available features. There was a lack of competency reported in features that would enhance instruction, such as use of polling, file transfer, and live-streaming media platforms, including YouTube. Furthermore, Extension Agents lacked knowledge and ability related to accessibility features available for virtual delivery within Microsoft Word and PowerPoint.

Recommendations for practice include in-service activities specifically addressing the knowledge deficit areas of accessibility tools in Microsoft products and Zoom features to promote best practices in using online synchronous delivery skills for those in Cooperative Extension in South Carolina. To best serve the target audience further investigation is recommended in South Carolina to further evaluate the need and determine if the needs are specialization area and/or region specific for targeted professional development. Additionally, this study should be replicated on a nationwide level with Extension personnel to better understand the needs of Extension Professionals in other states. Agricultural education, communications, and leadership programs preparing future Extension Professionals should also consider the results of this study when preparing and evaluating course content.

References

- Centers for Disease Control and Prevention. (2020). *Situation summary*.
<https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/summary.html>
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, 49(1), 5–22. <https://doi.org/10.1177/004723952093401>
- Harvard University. (2020). *In-depth Guide: using Zoom to teach online class sessions*.
https://harvard.service-now.com/ithelp?id=kb_article&sys_id=4c3290f6db5b845430ed1dca4896197f
- McBrien, J., Cheng, R. & Jones, P. (2009). Virtual spaces: Employing a synchronous online classroom to facilitate student engagement in online learning. *International Review of Research in Open and Distributed Learning*, 10(3).
<https://doi.org/10.19173/irrodl.v10i3.605>
- Newsstand. (2020). *Increasing engagement: Clemson University Extension is answering citizens' needs during pandemic*. <https://newsstand.clemson.edu/mediarelations/increasing-engagement-clemson-extension-is-answering-citizens-need-during-pandemic/>
- Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online University Teaching During and After the Covid-19 Crisis: Refocusing Teacher Presence and Learning Activity. *Postdigital Science and Education*, 2(3), 923–945.
<https://doi.org/10.1007/s42438-020-00155-y>
- Schultz, T. W. (1961). Investment in human capital. *The American Economic Review*, 51(1), 1–17. https://www.jstor.org/stable/1818907?seq=3#metadata_info_tab_contents
- Smith, E. (2010). Sector-specific human capital and the distribution of earnings. *Journal of Human Capital*, 4(1), 35–61. <https://doi.org/10.1086/655467>
- Smith, A. (1952). An inquiry into the nature and causes of the wealth of nations. In R. M. Hutchins & M. J. Adler (Eds.), *Great books of the western world: Vol. 39. Adam Smith*. Chicago: Encyclopaedia Britannica. (Original work published 1776)
- Stokes, B., Lynn, E., & Belt, T. (2020). Adapting to provide innovative in-person extension programming during a pandemic. *Journal of Extension*, 58(5), V58-5iw1.
<https://joe.org/joe/2020october/iw1.php>
- U.S. General Services Administration. (2020). *Create accessible products*.
<https://www.section508.gov/create>
- World Health Organization. (2020). *Coronavirus disease 2019 (COVID-19) situation report–51*. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200311-sitrep-51-covid-19.pdf?sfvrsn=1ba62e57_10

**School-Based Agricultural Education Teachers Awareness of Synchronous Online
Instruction Tools During the COVID-19 Pandemic**

Jason D. Gore
Clemson University
jdgore@clemson.edu

K. Dale Layfield
Clemson University
dlayfie@clemson.edu

Christopher J. Eck
Clemson University
eck@clemson.edu

Catherine A. DiBenedetto
Clemson University
cdibene@clemson.edu

Kirby W. Player
Clemson University
kplayer@clemson.edu

Thomas Dobbins
Clemson University
tdbbns@clemson.edu

School-Based Agricultural Education Teachers Awareness of Synchronous Online Instruction Tools During the COVID-19 Pandemic

Introduction

In response to the global COVID-19 pandemic, teachers across all grade levels and subject areas were forced to rapidly adapt their classrooms and teaching practices to utilize virtual platforms (Daniel, 2020). Most school districts throughout the U.S. were unprepared for a large-scale shift in learning in such a short amount of time and struggled to provide adequate teacher training or support. In fact, many districts were forced to adapt in a manner of days or weeks what would normally be introduced over months or years (Daniel, 2020). The sudden shift to online-based learning exposed numerous issues with both teacher preparedness and technological capabilities, with one study finding “teachers were devoting what would have been instructional time to tackling technology challenges, whether struggling to get up to speed learning the intricacies of a learning management system or fixing access problems on Zoom calls” (Bushweller, 2020, para. 19). While the pandemic response laid bare the problems facing educators utilizing online instructional platforms, even before COVID-19 educators were generally unprepared to engage in online learning and lacked awareness of methods best suited to virtual learning (Price, 2018).

The need for technological awareness and proficiency among educators will not subside following the COVID-19 crisis, instead researchers predict a new normal in education that will engage technology to expand educational opportunities to students (Sintema, 2020) and will further emphasize educational preparedness for response to natural disasters and health emergencies (Cahapay, 2020), including federal regulations protecting individuals with disabilities through electronic media, which gained greater awareness as courses moved online. The U.S. Access Board (n.d.) states that Section 508 includes documents such as presentations. The U.S. General Services Administration (2020) highlights the need for accessible Microsoft Word and PowerPoint documents on their Website titled Create Accessible Digital Products.

Theoretical Framework

This research of current awareness and competence among School-based Agricultural Education (SBAE) teachers is grounded in human capital theory. Human capital holds that as an individual increases their knowledge or skills, their productivity can be equally increased (Goldin, 2016). Therefore, it becomes increasingly important to accurately identify areas of need related to human capital development through cost-benefit analysis before investing finite resources (Van Loo, 2004). This study aimed to identify the human capital capacity of SBAE teachers in South Carolina (SC).

Methodology

SBAE teachers in SC (N = 155) were contacted by electronic mail requesting their participation in a researcher developed survey evaluating awareness of and perceived competence in utilizing common virtual learning platform features and accessibility features included in Microsoft Word and PowerPoint. Participants identified which virtual meeting platforms they most commonly used between Zoom, Google Meet, Microsoft Teams, and WebEx, and based on their response, completed specific questions relevant to their experiences. Pertinent demographics gathered SBAE teachers age, gender, career tenure, geographic location within SC, Title I school status, access to internet and technology, and previous exposure to synchronous learning technologies.

The survey was developed following the recommendations of Dillman et al. (2014) and was evaluated for face and content validity by five Agricultural Education faculty members at Clemson University and the SC Agricultural Education Director before distribution. SPSS version 27 was used to analyze descriptive statistics.

Results/Findings

SBAE teachers ($n = 57$), responded resulting in a 37% response rate, of which, 59% were female, 39% male, and 2% preferred to not identify. A majority of participants (61%) were under 40 years of age and the overall population ranged from 22 to 63 years of age. More than one-half of the respondents reported being in their current position for less than ten years (65%). Additionally, 63% of respondents reported having a master's degree or higher, with 56% reporting their highest degree in agricultural education. A majority of participants indicated they used Google Meet (60%) followed by Zoom (20%), Microsoft Teams (14%), and Cisco WebEx (5%). Due to varying responses from question to question based on respondents selected synchronous learning platform, all data discussed below will be given as valid percentages for the responses received.

SBAE teachers utilized mostly reported using Google Meet (60%), although their ability to share files (27%), to use the mobile application to start meetings (36%), and to use virtual backgrounds (42%) was lacking. Similarly, those using Zoom lacked proficiency in the ability to live-stream a meeting through social media platforms (70%), to access a meeting recording transcription (71%), and to utilize a practice room for panelist preparation (73%). Additionally, respondents indicated low awareness of accessibility features and practices in Microsoft Word and PowerPoint. Rates of awareness ranged from 27% (proper use of hyperlinks in Word) to 54% (ability to use the accessibility checker in PowerPoint) and a majority of respondents indicated perceived competence in only two of the fifteen features and skills identified in the survey.

Conclusions/Implications/Recommendations

The majority of SBAE teachers in SC utilized Google Meets, with respondents reporting a general perception to be competent in the use of their preferred meeting platform. Although general competence was reported, room for improvement among SBAE teachers in SC still exists. Further, very low awareness and competence of features and best practices to make electronic documents accessible to all audiences regardless of ability level in Microsoft existed.

Continued professional development is needed for SBAE teachers in SC regarding (1) use of accessibility features and practices and (2) use of synchronous learning platform features beyond basic meeting creation and use. Professional development opportunities should be platform specific to ensure full usage of unique features for student engagement. Additionally, SBAE teachers should be made aware of accessibility resources within their schools to help meet the needs of all learners, without increasing teacher workload. This study should be replicated to determine if these areas of awareness and competence are SC specific or found throughout the region and/or nation. Additional findings would allow for the coordination of regional and national resources to foster the development of skills necessary for SBAE teachers to effectively and efficiently educate students through virtual and hybrid learning environments. SBAE teacher educators should consider the findings of this study as they prepare and evaluate relevant curriculum and develop resources for SBAE teacher candidates.

References

- Bushweller, K. (2020). How COVID-19 is shaping tech use. What that means when schools reopen. *Education Week*. <https://www.edweek.org/ew/articles/2020/06/03/howcovid-19-is-shaping-tech-usewhat.html>
- Cahapay, M. B. (2020). Rethinking education in the new normal post-COVID-19 era: A curriculum studies perspective. *Aquademia*, 4(2), ep20018. <https://doi.org/10.29333/aquademia/8315>
- Daniel, S. J. (2020). Education and the COVID-19 pandemic. *Prospects*, 1-6. <https://doi.org/10.1007/s11125-020-09464-3>
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method* (4th ed.). Wiley.
- Goldin, C. (2016). Human Capital. In: *Handbook of Cliometrics*. Springer Verlag.
- Price, E. Y. (2018). Exploring teachers' perception of professional development for a blended learning environment: A qualitative case study (Order No. 10934226). ProQuest Dissertations & Theses Global. (2116168448). <https://www.proquest.com/docview/2116168448>
- Sintema, E. J. (2020). E-Learning and smart revision portal for Zambian primary and secondary school learners: A digitalized virtual classroom in the COVID-19 era and beyond. *Aquademia*, 4(2), ep20017. <https://doi.org/10.29333/aquademia/8253>
- U.S. Access Board. (n.d.). *Text of the Standards and Guidelines*. <https://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-ict-refresh/final-rule/text-of-the-standards-and-guidelines>
- U.S. General Services Administration. (2020). *Create accessible products*. <https://www.section508.gov/create>
- Van Loo, J. B., & Rocco, T. S. (2004). *Continuing professional education and human capital theory*. <https://files.eric.ed.gov/fulltext/ED492127.pdf>

Teaching During the COVID-19 Global Pandemic: A Case Study of Early Career Teachers' Experiences in Secondary Agricultural Education

Raegan Ramage

Louisiana State University, LA 70803
336-314-7191
rramag1@lsu.edu

Janiece Pigg

Louisiana State University, LA 70803
336-314-7191
jpigg1@lsu.edu

Richie Roberts, Ph.D.

Louisiana State University, LA 70803
336-314-7191
roberts3@lsu.edu

Dr. Kristin S. Stair, Ph.D.

Louisiana State University, LA 70803
919-649-7019
kstair@lsu.edu

J. Joey Blackburn, Ph.D.

Louisiana State University, LA 70803
573-220-8881
jjblackburn@lsu.edu

Teaching During the COVID-19 Global Pandemic: A Case Study of Early Career Teachers' Experiences in Secondary Agricultural Education

Introduction

The year 2020 marked an era of change and necessitated that educators across the globe adapt in new and innovative ways. For example, during the COVID-19 pandemic, educators' responsibilities were forced to evolve due to stay-at-home orders, decreased household incomes, sickness, and increased stress (Keels, 2020). These changes have been especially difficult for early career teachers who require additional support during this phase of their professional development (Roberts et al., 2020). For example, during the 2018-2019 school year, 1,020 school-based, agricultural education (SBAE) instructors entered the workforce, which created an influx of new teachers (Foster et al., 2019). Therefore, a need emerged to understand the transitions of early career teachers as they adapted instruction during the global pandemic.

Theoretical Framework

Schlossberg's (2011) transition model grounded this investigation. The model seeks to describe the evolution that an individual undergoes as they adapt to a professional transition. The transition model is composed of three primary phases: (a) understanding transitions, (b) coping with transitions, and (c) applying the model to work and life (Schlossberg, 2011). Schlossberg's (2011) lens was appropriate in the current investigation because the COVID-19 global pandemic presented many unanticipated transitions for teachers. In particular, we focused on the second phase, coping with transitions, of Schlossberg's (2011) model to better understand how participants actively applied coping mechanisms during this era of change.

Purpose

This study's purpose was to explore the transitions that early-career SBAE teachers in Louisiana experienced during to the COVID-19 pandemic. One research question guided this investigation: *What influences do early career teachers in Louisiana identify as a result of their transitional experience to teaching virtually during the COVID-19 pandemic?*

Methodology

The study used an instrumental case study approach, as participants were bounded by time and place (Stake, 1995). We also built Lincoln's and Guba's (1985) four standards for qualitative quality into the design of this investigation. Following the Institutional Review Board (IRB) approval, data were collected purposefully from early-career SBAE instructors ($n = 12$) in [STATE]. For this purpose of this investigation, early career teachers were defined as having five years or less of teaching experience. Data were collected through a 45-minute, semi-structured focus group interview ($n = 7$), and written narratives composed by five participants. Data were transcribed verbatim to ensure accuracy. Data were then coded using in-vivo, emotion, and description coding approaches during our initial analysis (Saldaña, 2016). Thereafter, we used an axial coding approach to create themes and theoretical coding to interpret our findings through Schlossberg's (2011) model. Through the process, four themes emerged.

Findings

Our findings were interpreted using Schlossberg (2011) coping strategies using four themes: (1) situation, (2) self, (3) supports, and (4) strategies. In the first theme, situation, Julia and John explained how their unique circumstances during the pandemic resulted in them feeling more “stress[ed], unsure, and uncertain.” Julia, who teaches at the Louisiana School of the Deaf and Blind, where students live on campus, stated: “my school actually sent home all of our students...we have a lot of accommodations...it was really stressful.” Matt shared his experience working to establish agriculture classes virtually by explaining: “[I] just threw my hands up in the air and said I'm going to try this again next year.” The second theme, self, represented how the participants used coping mechanisms to influence their transitions during the pandemic. For example, John explained: “as an early career teacher, one of the things that [was] stressed... is adaptability... I firmly believe that this [the pandemic] was more of a confidence booster.” Sarah also expressed: “just do the best you can with the cards you've been dealt, and we've been dealt COVID-19 cards.”

The next emergent theme, supports, reflected the external support systems available to participants during their time of transition into a virtual teaching format. Participants indicated that support was offered by their school systems through providing resources such as Chromebooks so they could provide resources and distribute work to students. The largest source of support articulated by the early career teachers was the Louisiana Agriculture Teacher's Association. Julia explained: “our state has done a great job of [adapting agricultural education] events the best way they can.” The last theme, strategies, indicated the approaches that participants used to address and reduce the negative effects of the pandemic on their teaching. The early career teachers shared that they used new software to engage students such as: (a) Blackboard, (b) Google Classroom, (c) Remind101 messaging, and (d) Zoom. Participants also shared their strategies of maintaining the three-circle model while at a distance. In particular, Supervised Agricultural Experiences (SAE) emerged as a component that many teachers expressed improved due to the pandemic. Emily shared, “I feel that this pandemic g[ave] the SAE component a chance to grow.”

Conclusions/Implications/Recommendations/Impact on the Profession

In this investigation, we provided insight into how early career teachers coped with transitions during the COVID-19 global pandemic. We concluded that such could be interpreted using Schlossberg's (2011) transition model through four themes of meaning: (1) situation, (2) self, (3) supports, and (4) strategies. Although the challenges introduced in 2020 were unprecedented, the early career teachers reported they drew upon various coping mechanisms to successfully facilitate student learning during the pandemic. Moving forward, we recommend that additional research seek to explore the most successful delivery strategies for teaching secondary agricultural education students at a distance. Because the early career teachers in this study reported they placed a greater focus on SAEs during this period, future research should also examine the best practices for supervising these projects virtually.

References

- Foster, D. D., Lawver, R. G., & Smith, A. R. (2020). *National agricultural education supply and demand study, 2019 executive summary*. <http://aaaeonline.org/Resources/Documents/NSD2019Summary.pdf>
- Keels, M. (2020). Preparing educators for the challenge ahead. *ASCD Education Update*, 62(8), 1-24. <http://www.ascd.org/publications/newsletters/education-update/aug20/vol62/num08/Preparing-Educators-for-the-Challenge-Ahead.aspx>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.
- Roberts, R., Wittie, B., Stair, K., Blackburn, J., and Smith, E. (2020). The dimensions of professional development needs for secondary agricultural education teachers across career stages: A multiple case study comparison. *Journal of Agricultural Education*, 61(3), 128-143. <https://doi.org/10.5032/jae.2020.03128>
- Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). Sage.
- Schlossberg, N. K. (2011). The challenge of change: The transition model and its applications. *Journal of Employment Counseling*, 48(4), 159-162. <https://eric.ed.gov/?id=EJ948505>
- Stake, R. (1995). *The art of case study research*. Sage.

**Determining the Professional Competencies of 4-H Extension Agents using the Access,
Equity, and Opportunity PRKC**

Mikey Hughes

Graduate Student
University of Florida
408 Rolfs Hall
P.O. Box 110540
Gainesville, FL 32611
hughesm@ufl.edu

Dr. Matt Bengé

Extension Assistant Professor
University of Florida
126B Bryant Hall
P.O. Box 112060
Gainesville, FL 32611
mattbenge@ufl.edu

Sydney Whitehurst

Graduate Student
University of Florida
408 Rolfs Hall
P.O. Box 110540
Gainesville, FL 32611
swhitehurst@ufl.edu

Determining the Professional Competencies of 4-H Extension Agents using the Access, Equity, and Opportunity PRKC

Introduction / Need for Research

The 4-H program was founded over 100 years ago and is the largest youth development organization in the United States, seeking to enrich the lives of youth through positive youth development (National 4-H Council, 2020). The 4-H program aims to provide opportunities for all youth to thrive, and creating an atmosphere of inclusion is critical to the 4-H mission. Allowing youth from diverse backgrounds to work together builds life skills such as respect and empathy (Open Society Foundations, 2019). Historically, 4-H has struggled to connect with diverse audiences, as demographics of 4-H youth have not reflected those of the United States (LaVergne, 2013). 4-H Extension professionals lead the volunteer-delivered program (M. Gutter, personal communication, March 5, 2020), and must be competent to provide educational programs to all youth within their local communities. It is critically important to ensure 4-H professionals are trained and competent in working with diverse audiences as the 4-H mission mandates.

Conceptual Framework

The 4-H Professional Research, Knowledge and Competencies (PRKC) is a professional development framework that can be used to identify competency gaps and training needs of 4-H Extension professionals (National 4-H Headquarters, 2017). The 4-H PRKC has been used previously in California (Heck et al., 2009) and the western 4-H region (Varrella et al., 2016) to guide professional development efforts of 4-H Extension professionals. The PRKC consists of six competency domains: (a) youth development, (b) youth program development, (c) volunteerism, (d) equity, access, and opportunity, (e) partnerships, and (f) organizational systems. For our study, we chose the 4-H PRKC domain of equity, access, and opportunity, which consists of 74 competencies.

Purpose & Objectives

The purpose of the study was to assess the professional development needs of National Association of Extension 4-H Association (NAE4-HA) members using the access, equity, and opportunity 4-H PRKC. The study's objectives were to (a) describe NAE4-HA members' perceptions of their ability levels and importance of access, equity, and opportunity competencies, and (b) compare ability and importance level for each access, equity, and opportunity competency to determine priority-training needs for NAE4-HA members. This study aligns with priority three of the 2016-2020 National Research Agenda – Sufficient Scientific and Professional Workforce which Addresses the Challenges of the 21st Century (Roberts et al., 2016).

Methods

We used quantitative methodology to satisfy the objectives of our study. At the time of our study there were 3,316 NAE4-HA members. We used a systematic sampling procedure to decrease

survey fatigue of NAE4-HA membership (Dillman, 2009), as our study is part of a larger professional development assessment. We separated NAE4-HA members into two distinct groups of 1,658 members each, and we assigned one group to our study, yielding a total response rate of 25%. We used the Borich model design, which is commonly used to assess competencies and professional development needs (Hall & Broyles, 2016; Harder & Narine, 2019), to assess the volunteerism competencies of NAE4-HA members. We used an online survey and asked participants to rate their perceived ability levels and their perceived importance of each volunteerism competency statement using a five-point Likert scale. The Cronbach's alpha for the 74 items assessing volunteerism competencies was 0.86, which indicated acceptable internal consistency (Cronbach, 1951). We calculated a mean weighted discrepancy score (MWDS) (Borich 1980) to identify the difference between how important a respondent believed a competency to be and how able the respondent perceived him/herself to be at performing that competency.

Results

Results indicated the professional development needs of highest priority are “Actively recruits, supports and retains volunteers, advisory members, and partners who reflect the diversity of the community” (MWDS = 4.76), “Engages local, diverse, community-based individuals in advisory committees, volunteer opportunities, etc.” (MWDS = 4.57), “Engages the community in designing the learning opportunities” (MWDS = 4.34), “Collaborates with diverse communities/individuals to assess their needs” (MWDS = 4.27), and “Gains sufficient, meaningful input from diverse communities/individuals to design programs” (MWDS = 4.24). The professional development competencies with the lowest priority are “Demonstrates awareness of one's own cultural beliefs and practices” (MWDS = 0.72), “Understands one's own cultural heritage and acknowledges how it affects their values and assumptions” (MWDS = 1.29), and “Seeks new knowledge regarding cultural beliefs and practices” (MWDS = 1.81). There were no negative MWDS.

Conclusions, Implications, & Recommendations

Extension professionals must be competent and have strong technical subject-matter expertise in their specific programmatic area (Harder & Narine, 2019). The results of this study created a priority ranking for competencies most needed for NAE4-HA members regarding the equity, access, and opportunity 4-H PRKC. Unfortunately, the results of this study are not comparable to other published studies, as Heck et al. (2009) did not provide a priority ranking of needed competencies, and Varrella et al. (2016) used only five of the 4-H PRKC omitted the equity, access, and opportunity PRKC in their research. NAE4-HA can use the results of this study to create targeted and intentional professional development for its association members. State 4-H programs could also use the results to professional development for both new and seasoned professionals. The research is sparse regarding whether or not the 4-H PRKC is being used at the state level beyond the two studies cited. More research is needed to ensure the PRKC is current and holistic, as well as to measure the impact of the PRKC framework has on the 4-H program.

References

- Borich, G. D. (1980). A needs assessment model for conducting follow-up studies. *Journal of Teacher Education, 31*(3), 39-42.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297-334. doi:10.1007/BF02310555
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method* (3rd ed.). John Wiley & Sons, Inc.
- Hall, J. L., & Broyles, T. W. (2016). Leadership competencies of Tennessee Extension agents: Implications for professional development. *Journal of Leadership Education, 15*(3), 187-200. doi: 1012806/V15/I3/R8
- Harder, A., & Narine, L. K. (2019). Interpersonal leadership competencies of Extension agents in Florida. *Journal of Agricultural Education, 60*(1), 224-233. doi: 10:5032/jae.2019.01224
- Heck, K., Subramaniam, A., & Carlos, R. (2009). Use of the PRKC tool in assessment of staff development needs: Experiences from California. *Journal of Extension, 47*(3).
<https://www.joe.org/joe/2009june/a7.php>
- LaVergne, D. D. (2013). Diversity inclusion in 4-H youth programs: Examining the perceptions among West Virginia 4-H youth professionals. *Journal of Extension, 51*(4).
<https://joe.org/joe/2013august/a1.php>
- National 4-H. (2020). 4-H is a community for all kids. <https://4-h.org>
- National 4-H Headquarters. (2017). *Growing together: 4-H professional, research, knowledge and competencies 2017*. <https://nifa.usda.gov/sites/default/files/resources/4-H%20PRKC%202017%20Guide.pdf>
- National 4-H Learning Priorities 2007-2012. (2008). *Equity, access and opportunity*.
http://www.national4-hheadquarters.gov/comm/NLP_Diversity.pdf
- Roberts, T. G., Harder, A., & Brashears, M. T. (Eds). (2016). *American Association for Agricultural Education national research agenda: 2016-2020*. Gainesville, FL: Department of Agricultural Education and Communication.
- Open Society Foundations. (2019, May). *The value of inclusive education*.
<https://www.opensocietyfoundations.org/explainers/value-inclusive-education>
- Varrella, G. F., Luckey, B. P., Baca, J. S., & Peters, C. (2016). Growing our own: A longitudinal evaluation of a professional development program for early career 4-H professionals. *Journal of Extension, 54*(5). <https://www.joe.org/joe/2016october/a2.php>

**Extension Professionals' Perceptions of Curriculum and Professional Development
Priorities for Extension Education**

Joseph L. Donaldson, Ph.D.
North Carolina State University

Donna L. Graham, Ph.D.
University of Arkansas

Shannon Arnold, Ph.D.
Montana State University

Lisa K. Taylor, Ph.D.
University of Nevada, Reno

K.S.U. Jayaratne, Ph.D.
North Carolina State University

1 Lampe Drive, 202 Ricks Hall
Campus Box 7607
Raleigh, NC 27695-7607
(919-515-1758)
joseph_donaldson@ncsu.edu

Extension Professionals' Perceptions of Curriculum and Professional Development Priorities for Extension Education

Introduction/Need for Research

While previous research had identified competencies for Extension Agents including subject matter expertise and organizational knowledge, Laki et al. (2014) found that additional competencies, including emotional intelligence and interpersonal skills were important for Extension professionals. Likewise, Harder et al. (2010) found two major groups of competencies – program development processes and interpersonal skills – essential for Extension professionals' success. The results of the competencies studies have been applied to professional development for Extension professionals and college curriculum (Harder et al., 2009). The Ohio State University faculty aligned Extension Education core competencies (i.e., communications; technology; and Extension knowledge and management) with Extension Education college courses that included internships (Scheer et al., 2006). Despite these previous efforts, we have limited, current research on Extension professionals' curriculum and professional development needs. Such an understanding is important for University Departments of Agricultural and Extension Education (AEE) in setting priorities for curriculum and professional development that meets the needs of current and future Extension professionals.

Theoretical Framework

The educational needs assessment framework identified by Stufflebeam et al. (1985) includes different views of needs assessments: discrepancy view, democratic view, analytic view, and diagnostic view. We took an analytic view of needs assessment whereby skilled respondents consider needs and opportunities. This view was selected to guide the study as it is the most future-focused needs assessment view and emphasizes "critical thinking about trends and problems...[and] informed judgments" (Stufflebeam, et al., 1985, p.8).

Methodology

The two questions that guided this research were specific to Departments of AEE:

1. What do Extension professionals perceive as AEE curriculum priorities for preparing students for Extension careers?
2. What do Extension professionals perceive as AEE professional development priorities for current Extension professionals?

The researchers created an online questionnaire composed of six open-ended questions regarding trends affecting Extension as well as priorities for Extension Education in AEE Departments. The questionnaire advised respondents that AEE was being used to refer to departments with varied official names including Department of Agricultural Education, Technology & Innovation; Department of Agricultural Education, Communications, and Technology; Department of Agricultural and Human Sciences; and Department of Agricultural Leadership, Education, and Communications. The online survey was conducted over a four-week period in fall, 2020, consistent with the Total Design Method (Dillman et al., 2006). Researchers used Qualtrics Research Suite for formatting and deploying the questionnaire. The population were the 21 members of the 2020 board of the Joint Council of Extension Professionals, an advocacy group composed of the past president, president, and president-elect of the seven Extension professional associations. Of the 21 members, 10 completed the questionnaire for a 47.6% usable response rate.

Results/Findings

Regarding college curriculum, respondents referred to the “core qualities and competencies” needed for Extension career success (Participant 4). Specifically, Extension Education’s core curriculum priorities were described as (a) program development, inclusive of all aspects of program planning, delivery, and evaluation; and (b) teaching and learning. One respondent underscored the importance of formal coursework in program development: “For sure, for me, I took a course specifically on program development which touched on the planning, delivery and evaluation of programming and [I] strongly believe without this course I would not be nearly as effective as an Extension professional as I am” (Participant 2). Teaching and learning included understanding how people learn as well as pedagogy and andragogy. Other prioritized competencies were leadership, technology, and communication. Respondents felt that AEE Departments should prioritize practical experiences in Extension careers with the goal to lessen the timeline for a new Extension professional to understand how to effectively do their job. Respondents expressed that AEE faculty should prioritize program planning and evaluation competencies for current Extension professionals’ professional development. Additionally, respondents expressed a need for Extension credentialing to demonstrate expertise in Extension education. Participant 1 described “Extension credentials” as on par with medical professional board certification whereby doctors demonstrate their competencies as lifelong learners with specialized knowledge and skills. Furthermore, it was suggested that the credentialing be linked to the Extension professionals’ promotion. Additional professional development needs noted were leadership, communications, technology, and teaching.

Conclusions

The leaders of Extension’s professional associations expressed clear preferences for both AEE college curriculum and AEE efforts to provide professional development to Extension professionals. Curriculum should be responsive to the identified core competencies with more attention to hands-on, career experiences.

Implications/Recommendations/Impact on Profession

AEE Departments have an important role in developing the next generation of Extension professionals. Therefore, internships, externships, job shadowing, and other career development activities are recommended to provide students with Extension job-related experiences (consistent with Scheer et al., 2006; and Stripling & Ricketts, 2016). To bolster the competency development of college students preparing for Extension education careers, internships have been widely adopted (Angima & Gaebel, 2018; Grotta & McGrath, 2013; Johnson et al., 2019; Wilken et al., 2008). Yet, AEE Departments must also provide for the professional development needs of today’s Extension personnel. Research is recommended to provide a framework for Extension credentialing. AEE Departments should share curriculum and professional development resources, particularly in the areas of program development; teaching and learning; leadership; technology; and communication so that best practices and lessons learned may permeate to current and future Extension professionals.

References

- Angima, S. & Gaebel, K. (2018). Collaborative community engagement: Experiential learning opportunities for college students via Extension. *Journal of Extension*, 56(7).
<https://www.joe.org/joe/2018december/iw1.php>
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method*. John Wiley & Sons, Inc.
- Grotta, A. & McGrath, D. (2013). The role of internships in raising undergraduates' awareness and perception of Extension. *Journal of Extension*, 51(4).
<https://joe.org/joe/2013august/rb2.php>
- Harder, A., Mashburn, D., & Benge, M. (2009). An assessment of extension education curriculum at land-grant universities. *Journal of Agricultural Education*, 50(3), 22–32.
10.5032/jae.2009.03022
- Harder, A., Place, N. & Scheer, S.D. (2010). Towards a competency-based Extension Education curriculum: A Delphi study. *Journal of Agricultural Education*, 51(3), 44 –52. 10.5032/jae.2010.03044
- Johnson, T., Vera, T.D., Irvin, V., & Elliott, K. (2019). Engaging college students in experiential learning opportunities within Extension. *Journal of Extension*, 57(2).
<https://www.joe.org/joe/2019april/iw1.php>
- Laki, D., Jayarante, K.S.U., Moore, G.E., & Kistler, M.J. (2014). Identification of current proficiency level of Extension competencies and the competencies needed for Extension agents to be successful in the 21st Century. *Journal of Extension and Human Sciences*, 2(1). <https://www.jhseonline.com/article/view/584>
- Scheer, S.D., Ferrari, T.M., Earnest, G.W., & Conners, J.J. (2006). Preparing Extension professionals: The Ohio State University's model of Extension education. *Journal of Extension*, 44(4). <https://www.joe.org/joe/2006august/a1.php>
- Stripling, C. T., & Ricketts, J. C. (2016). Research Priority 3: Sufficient scientific and professional workforce that addresses the challenges of the 21st century. In T. G. Roberts, A. Harder, & M. T. Brashears (Eds.), *American Association for Agricultural Education National Research Agenda: 2016-2020*. Gainesville, FL: Department of Agricultural Education and Communication.
- Stufflebeam, D.L., McCormick, C.H., Brinkerhoff, R.O., & Nelson, C.O. (1985). *Conducting educational needs assessments*. Kluwer-Nijhoff Publishing.
- Wilken, C.S., Williams, B.C., Cadavieco, N., Walker, D.K. (2008). Student internships in Extension: Strategies for success for the agent and the student. *Journal of Extension*, 46(4). <https://www.joe.org/joe/2008august/tt3.php>

Juicy YouTube videos: Why some Extension blackberry breeding video shorts just seem sweeter

Anika Parks
University of Arkansas
AFLS E-108
Fayetteville, AR 72701

Jefferson D. Miller
University of Arkansas
AFLS E-108
Fayetteville, AR 72701

Introduction/Need for Research

YouTube videos have become a staple in the Extension communications toolkit. YouTube video shorts have become especially useful because of the short form's "higher levels of audience retention" (Langworthy, 2017, par. 5). In fact, it's as though this relatively new medium has nearly replaced the ultimate Extension staple, the Extension fact sheet. The [name of institution] Division of Agriculture has recently had some success at educating clientele about blackberry varieties patented by the [name of institution] Fruit Breeding Program. Some videos had significantly more views than others, so an effort to identify the characteristics of the more successful videos was conceptualized to identify the most impactful features of successful videos for incorporation into future efforts. The objective was to analyze the characteristics of selected [name of institution] blackberry videos in terms of YouTube viewership statistics as well as in term of themes from previous literature regarding the use of YouTube in Extension education.

Conceptual Framework

One evaluation of Extension water conservation digital outreach resources demonstrated that YouTube video efforts generated more than ten times more views than a website dedicated to the same topic (Sutherlin et al., 2015). Another showed a preference for 1-5 minute videos, which "allowed [audiences] to conceptualize the information, especially due to the combination of auditory and visual components" (Ramsay et al., 2012). Two important Extension-related research articles containing advice that has been frequently cited include Case and Hino's (2010) advice for self-producing Extension videos and Kinsey and Henneman's (2011) guidelines for developing viral online videos. The literature also frequently emphasizes the value of using YouTube's built-in analytics tool and user comments features to evaluate video efforts (Case & Hino, 2010; Kinsey, 2012; Langworthy, 2017; Parish & Karisch, 2013; Topps et al., 2013). As more Extension YouTube video producers share their empirical evaluations, the most effective practices for extension video producers will surely become clearer.

Methods

The study focused on eight blackberry variety YouTube videos, as that category had a wide disparity in the numbers of views, despite apparent similarities among the videos, and despite the fact that most of the videos had been online for a similar amount of time. The code book for the content analysis was developed from previous literature published on the use of videos and/or YouTube in educational or training situations. Codes categorizing characteristics of the videos were pre-identified from the following concepts occurring in the related literature: *length* (Ramsay et al., 2012; Kinsey & Henneman, 2011), *setting* (Ramsay et al., 2012; Kinsey & Henneman, 2011), *content* (Case & Hino, 2010; Ramsay et al., 2012; Kinsey & Henneman, 2011; Level, 2008; Mathiasen et al., 2012), *YouTube conventions* (Kinsey & Henneman, 2011; Parker et al., 2011; Topps et al., 2013), *sharing and driving traffic* (Kinsey & Henneman, 2011; Case & Hino, 2010), and *comments and qualitative evaluation* (Langworthy, 2017; Topps et al., 2013). A single-coder approach was employed using the code book (Liebrecht, 2021).

Analysis

Researchers used a hand-coded axial coding system (Strauss & Corbin, 1990) to organize the codes and used frequency counts to help identify the most heavily coded themes occurring in the blackberry variety videos. The coding frequencies were then compared to the viewership counts, and this comparison constituted the main findings of the study.

Results

Five videos were posted within 16 days of each other in July 2013, while the other three videos were published in August 2015, August 2017, and October 2019. Views range from 4,360

to 50,773 views, and length of video ranges from 1:13 minutes to 2:39 minutes.

The video with the highest number of views was the fourth out of five videos published in July 2013, and it is the third longest video in the group. This video contained an auditory distraction, but it had zero instances of jargon, and it had the highest number of comments at 25. The channel responded to five comments on this video, which is the highest number of times it had responded to user's questions and concerns.

The video with the least number of views was published in August 2017, making it the second youngest video, and it was the fifth longest video. This video contained an auditory distraction in the form of overlapping voices, it had the second highest number of phrases classified as jargon, was not embedded or linked to any obvious locations, and received only three comments. The channel had only responded to one of those comments.

Conclusions/Discussion

It can be concluded that educational videos on YouTube benefit, in terms of views, from defining jargon or avoiding its use altogether, and from embedding them (or links to them) in at least one location on social media or a related website.

Previous literature on the use of YouTube in Extension has several suggestions for increasing the number of Extension constituents who view videos. These suggestions include keeping the video under five minutes in length, avoiding distractions, using real scenarios, discussing a maximum of three to four concepts per video, limit the use of jargon, and including an interesting title that potential viewers will be searching for (Ramsay et al., 2012; Kinsey & Henneman, 2011; Mathiasen et al., 2012; Case & Hino, 2010).

The blackberry variety videos analyzed tended to follow the above recommendations, with the exception being that video distractions or jargon appeared in even the more frequently viewed videos. Case & Hino (2010) suggest planning for access by posting the link to the video (or embedding it) in multiple places, which all but two videos follow, including the most frequently viewed videos. In this collection of blackberry videos, it appears that those with more recommended elements, such as no jargon and more comments, had a higher number of views without being embedded or linked. However, the process of embedding or linking the video clearly can increase views even if a video does not possess as many recommended elements.

Videos with less use of jargon and more comments had more views, and the use of jargon was linked with decreased views, likely due to viewers' preferences for videos with less technical terminology. Additionally, the number of comments can influence a video's ranking in the internal YouTube algorithm, which in turn affects whether a video's likelihood of showing up as a result of a user's YouTube search (Cooper, 2020); some of the more frequently viewed videos had more engagement in the content.

Recommendations

Avoiding technical jargon and making efforts to drive traffic to the videos through external linking and embedding are important practices. Responding to comments on videos might have an effect on views as well because it may increase the video's ranking. To further support strategic planning of Extension video efforts, more research on improving engagement through comments on the YouTube channel is warranted as well. Concepts that appeared important but were outside the focus of this study included the influence of preparation and analyzing the analytics available to the channel owner on the number of views. Further studies exploring how different styles of preparation influence Extension education video views are recommended as well.

References

- Case, P., & Hino, J. (2010). A powerful teaching tool: Self-produced videos. *Journal of Extension*, 48(1). <https://www.joe.org/joe/2010february/tt3.php>
- Cooper, P. (2020, August 18). How does the YouTube algorithm work? A guide to getting more views. *Hootsuite*. <https://blog.hootsuite.com/how-the-youtube-algorithm-works/>
- Kinsey, J., & Henneman, A. C. (2011). Making your online video go viral. *Journal of Extension*, 49(4). <https://www.joe.org/joe/2011august/tt3.php>
- Kinsey, J. (2012). Tracking online data with YouTube's insight tracking tool. *Journal of Extension*, 50(3). <https://joe.org/joe/2012june/tt6.php>
- Langworthy, S. (2017). Do you YouTube? The power of brief educational videos for extension. *Journal of Extension*, 55(2). <https://www.joe.org/joe/2017april/iw1.php>
- Level, A. V. (2008). Tapping technology: Creating web-based tutorials for master gardeners. *Journal of Agricultural & Food Information*, 9(4). <https://doi.org/10.1080/10496500802483171>
- Liebrecht, C. (2021). The one-coder reliability. Vrije Universiteit Amsterdam. <https://fsw.vu.nl/en/departments/communication-science/news-and-activities/intercoder-reliability/the-one-coder-reliability/index.aspx>
- Mathiasen, L., Morley, K., Chapman, B., & Powell, D. (2012). Using a training video to improve agricultural workers knowledge of on-farm safety. *Journal of Extension*, 50(1). <https://www.joe.org/joe/2012february/a6.php>
- Parish, J. A., & Karisch, B. B. (2013). Determining interest in YouTube topics for extension-authored video development. *Journal of Extension*, 51(6). <https://www.joe.org/joe/2013december/tt6.php>
- Parker, S., Powell, L., Hermann, J., Phelps, J., & Brown, B. (2011). Preferred educational delivery strategies among limited income older adults enrolled in community nutrition education programs. *Journal of Extension*, 49(1). <https://www.joe.org/joe/2011february/a8.php>
- Ramsay, S. A., Holyoke, L., Branen, L. J., & Fletcher, J. (2012). Six characteristics of nutrition education videos that support learning and motivation to learn. *Journal of Nutrition Education and Behavior*, 44(6). <http://dx.doi.org/10.1016/j.jneb.2011.10.010>
- Strauss, A. L., & Corbin, J. M. (1990). *Basics of qualitative research: grounded theory procedures and techniques*. Sage.
- Sutherlin, Topps, D., Helmer, J., & Ellaway, R. (2013). YouTube as a platform for publishing clinical skills training videos. *Academic Medicine*, 88(2), 192-197. <https://doi.org/10.1097/ACM.0b013e31827c5352>

Trends Impacting the Future of Florida Extension

Olivia C. Caillouet, University of Florida
Amy Harder, University of Florida

305 Rof's Hall P.O. Box 110540
Gainesville, FL 32611-0540

501-993-1060

Olivia.caillouet@ufl.edu
Amharder@ufl.edu

Trends Impacting the Future of Florida Extension

Introduction

Planning to address the needs of the future requires understanding today's trends (Witkin & Altschuld, 1995). Along the same lines, Henning et al. (2014) described seven "grand societal challenges" ("Introduction," para. 1) that they anticipated would have an impact on the United States' (U.S.) future, such as food safety, mitigating a national health crisis, and improving the resiliency of the environment. Similarly, Fox et al. (2017) stated "Extension must become better equipped to efficiently and effectively address complex urban priorities" ("Introduction," para. 3). Despite known national trends, Extension remains an organization largely influenced by local contexts. We sought to assess the applicability of several national trends to our local context so our organization can more accurately plan to meet our state's future needs.

Theoretical Framework

Social constructivism was used to frame this research because relationships between Extension and the public are dynamic and ever changing. Additionally, we found during the data analysis that the emerging themes shared similarities with Burke and Litwin's (1992) causal model of organizational performance and change and so used it as a guide for discussing the findings. The Burke and Litwin change model emphasized a feedback loop that reflects numerous forces (external and internal) impacting organizations. The model was described using 12 key drivers for change which were divided into four main areas: (a) input (external environment), (b) throughput: transformational drivers (mission and strategy, leadership, and organizational culture), (c) throughput: transactional drivers (structure, systems, management practices, work climate, task requirements and individual skills, individual needs and values, and motivation), and (d) output (individual and organizational performance) (Robinson, 2019). Transformational drivers were defined as the primary catalyst for organizational change whereas transactional drivers were defined as short-term, mutually beneficial exchanges (Burke & Litwin, 1992). Together, transformational and transactional drivers contribute to a holistic understanding of organizational systems. Conceptualizing emerging themes within the Burke and Litwin change model can provide a theory-driven approach for addressing Extension's challenges in the future.

Methodology

The purpose of this study was to explore the future of the Florida Cooperative Extension Service (CES) and to identify the perceived impacts from numerous factors such as rapid population growth, natural disasters, and funding. A basic qualitative study was conducted to focus on how participants interpret their experiences, construct their worldview, and give meaning to their experiences (Merriam & Tisdell, 2016). The target population was key individuals within the Florida CES who had sufficient institutional knowledge to be qualified to speculate about the future of Extension. A literature review that examined challenges and threats to Extension guided the development of the interview protocol which was approved as exempt by the University of Florida Institutional Review Board. A purposive sample targeted individuals representing a variety of roles in the organization. Participants were included from the 1862 and 1890 land-grant universities (LGUs) that partner to create Florida CES. Eight participants were

interviewed: two county agents, a state specialist, a state specialized agent, two regional specialized agents, and two state-level administrators. One-on-one, semi-structured interviews were conducted October-November 2019. The interviews were transcribed, double checked, and the constant comparative method was used with open coding to identify the initial codes (Saldaña, 2016). Thick descriptions, member checking, and an internal audit process were done to establish trustworthiness as recommended by Lincoln and Guba (1985).

Results

Ultimately, five themes emerged from the interviews: (a) external environment, (b) mission and strategies, (c) structure, (d) systems, and (e) task requirements and individual skills. Participants agreed that the rising population in Florida has resulted in a loss of valuable agricultural land and the divide between urban and rural clientele has increased tension for Extension's attention. Extension remaining grounded in science-based information, and stakeholders trusting that the research is unbiased, were identified as important by several participants. However, maintaining stakeholder trust is challenging because of long-standing relationships between University of Florida Extension and industry groups. Additionally, participants explained how Extension is challenged to capture the attention of stakeholders who increasingly live in urban communities offering a plethora of services. Participants believed face-to-face interaction will continue to be important while simultaneously Extension will need to conduct education with online technology. The participants widely recognized clientele diversity in their state, considering the racial, ethnic, and socio-economic, and language characteristics. However, some participants expressed concern regarding Extension's ability to attract and serve diverse clientele demographics.

Conclusions

The research purpose was to identify challenging trends facing the future of Florida Extension. Similar factors that were found in this research, such as the need to address health, resource resiliency, and serving urban clientele were identified in the literature (e.g. Fox et al., 2017; Gregg & Irani, 2004; Scheer et al. 2011), suggesting Florida is not entirely unique in terms of impactful trends. However, Florida differed from national trends regarding the rapid increase in the state's racial and ethnic diversity (U.S. Census, 2015). The transformational factors challenging Extension were the external environment and mission and strategy. The challenging transactional factors were structure, systems, and task requirements and individual skills.

Implications and Recommendations

Transformational factors were identified as the primary catalyst for change (Burke & Litwin, 1992), so Extension could focus efforts towards those areas to overcome future challenges. Florida may also benefit from stronger collaborations with other Extension systems with similar growth patterns. Our findings indicated that Extension faculty had a limited understanding of several critical areas that are vital to addressing future challenges facing Florida Extension. Therefore, specialized training could be valuable. Lastly, Florida Extension could conduct research that prioritizes the future challenges identified in this research, which may be used to guide long-term organizational planning (Witkin & Altschuld, 1995).

References

- Burke, W. W., & Litwin, G. H. (1992). A causal model of organizational performance and change. *Journal of Management*, 18(3), 523–545.
- Fox, J. M., Ruemenapp, M. A., Proden, P., & Gaolach, B. (2017). A national framework for urban Extension. *Journal of Extension*, 55(5).
<https://www.joe.org/joe/2017october/a2.php>
- Gregg, J. A., & Irani, T. A. (2004). Use of information technology by county Extension agents of Florida Cooperative Extension Service. *Journal of Extension*, 42(3).
<https://www.joe.org/joe/2004june/rb2.php>
- Henning, J., Buchholz, D., Steele, D., & Ramaswamy, S. (2014). Milestones and the future for Cooperative Extension. *Journal of Extension*, 52(6).
<https://joe.org/joe/2014december/comm1.php>
- King, D. (2018). Hey Siri, what is the future of Extension? *Journal of Extension*, 56(5).
<https://www.joe.org/joe/2018september/comm1.php>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.
- Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research* (4th ed.). Jossey-Bass.
- Robinson, J. (2019). *Burke-Litwin change model: Today's most influential model on organizational change*. <https://flevy.com/blog/the-burke-litwin-change-model-todays-most-influential-model-on-organizational-change/#:~:text=Readers%20are%20also%20interested%20in%20these%20resources%20,%20Change%20Enablement%20Workshop%20Presentation%20%20...%20>
- Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). SAGE Publications.
- Scheer, S. D., Cochran, G. R., Harder, A., & Place, N. T. (2011). Competency modeling in extension education integrating an academic extension education model with an extension human resources management model. *Journal of Agricultural Education*, 52(3), 64–74. <https://doi.org/10.5032/jae.2011.03064>
- U.S. Census. (2015). *Detailed languages spoken at home and ability to speak English for the population 5 years and over: 2009-2013*.
<https://www.census.gov/data/tables/2013/demo/2009-2013-lang-tables.html>
- Witkin, B. R., & Altschuld, J. W. (1995). *Planning and conducting needs assessments: A practical guide*. SAGE Publications.

**Assessing the 4-H Volunteerism PRKC of National Association of Extension 4-H
Association Members**

Sydney Whitehurst

Graduate Student
University of Florida
408 Rolfs Hall
P.O. Box 110540
Gainesville, FL 32611
swhitehurst@ufl.edu

Dr. Matt Bengé
Extension Assistant Professor

University of Florida
126B Bryant Hall
P.O. Box 112060
Gainesville, FL 32611
mattbenge@ufl.edu

Mikey Hughes

Graduate Student
University of Florida
408 Rolfs Hall
P.O. Box 110540
Gainesville, FL 32611
hughesm@ufl.edu

Assessing the 4-H Volunteerism PRKC of National Association of Extension 4-H Association Members

Introduction / Need for Research

The 4-H youth development programs seeks to develop life skills in children and youth ages 5-18 (National 4-H Council, 2020). The 4-H program has a storied history dating back to over 100 years, and is the youth development program of the land-grant university system (National 4-H Headquarters, 2017). Volunteers play an integral role in both the leadership and outreach of local 4-H programs, as 4-H volunteers help others learn by delivering educational programs, and gain satisfaction from doing so (White & Arnold, 2003). In fact, 4-H nationally has a network of over 500,00 volunteers (National 4-H Council, 2020). Volunteers are vital to the success of the 4-H program, and it is important that youth professionals understand the roles and responsibilities of professional volunteerism (Culp et al., 2007). Harder et al. (2010) identified volunteer development as a core competency that 4-H Extension agents need to be understand in order to be successful. It is critically important to ensure 4-H youth development professionals are knowledgeable and competent in volunteerism in order to advance the mission of the 4-H youth program.

Conceptual Framework

The 4-H Professional Research, Knowledge and Competencies (PRKC) is a professional development framework that can be used to identify competency gaps and training needs of 4-H Extension professionals (National 4-H Headquarters, 2017). The 4-H PRKC has been used previously in California (Heck et al., 2009) and the western 4-H region (Varrella et al., 2016) to guide professional development efforts of 4-H Extension professionals. The PRKC consists of six competency domains: (a) youth development, (b) youth program development, (c) volunteerism, (d) equity, access, and opportunity, (e) partnerships, and (f) organizational systems. For our study, we chose the 4-H PRKC domain of volunteerism, which consists of 43 competencies.

Purpose & Objectives

The purpose of our study was to assess the professional development needs of NAE4-HA members using the volunteerism 4-H PRKC. Our study's objectives were to: (a) describe NAE4-HA members' perceptions of their ability levels and importance of volunteerism competencies, and (b) compare ability and importance level for each volunteerism competency to determine priority training needs for NAE4-HA members. Ours study is part of a larger professional development assessment, and aligns with priority three of the 2016-2020 National Research Agenda – Sufficient Scientific and Professional Workforce which Addresses the Challenges of the 21st Century (Roberts et al., 2016).

Methods

We used quantitative methodology to satisfy the objectives of our study. At the time of our study there were 3,316 NAE4-HA members. We used a systematic sampling procedure to decrease

survey fatigue of NAE4-HA membership (Dillman, 2009), as our study is part of a larger professional development assessment. We separated NAE4-HA members into two distinct groups of 1,658 members each, and we assigned one group to our study. We used the Borich model design, which is commonly used to assess competencies and professional development needs (Hall & Broyles, 2016; Harder & Narine, 2019), to assess the volunteerism competencies of NAE4-HA members. We used an online survey and asked participants to rate their perceived ability levels and their perceived importance of each volunteerism competency statement using a five-point Likert scale. The Cronbach's alpha for the 43 items assessing volunteerism competencies was 0.88, which indicated acceptable internal consistency (Cronbach, 1951). We calculated a mean weighted discrepancy score (MWDS) (Borich 1980) to identify the difference between how important a respondent believed a competency to be and how able the respondent perceived him/herself to be at performing that competency.

Results

Results indicated the top five professional development needs of highest priority were “Understands best practices for engaging first generation volunteers” (MWDS = 4.99), “Identifies and engages expanded, diverse audiences as volunteers” (MWDS = 4.90), “Implements disciplinary strategies as needed including remediation, counseling, probation and dismissal” (MWDS = 4.88), “Understands and implements multiple recruitment strategies based upon role responsibilities and community demographics” (MWDS = 4.57), and “Provides educational opportunities for volunteers on expansion and outreach to new and diverse audiences” (MWDS = 4.54). The lowest priority needs were “Develops and demonstrates personal philosophy of volunteerism in congruence with professional ethics” (MWDS = 1.94), “Understands various volunteer roles and value to the organization” (MWDS = 2.16), and “Understand fundamentals of human motivation as related to volunteerism” (MWDS = 2.17). There were no negative MWDS.

Conclusions / Implications / Recommendations

Harder et al. (2010) explain that Extension professionals that are not competent in their specific programmatic area will not be able to be successful in their Extension job. The results of this study provide a priority ranking of competency needs for NAE4-HA members. The results of this study provide a different snapshot of professional development needs compared to the study by Heck et al. (2009). This could be due to the eleven-year difference between studies, or the fact that this study was conducted on a national scale rather than Heck et al.'s study that was conducted in California. NAE4-HA leadership, as well as state 4-H programs, can use the results of this study to create professional development and training programs for both new and seasoned 4-H Extension professionals. Due to the importance of understanding volunteerism within the 4-H program, NAE4-HA and state 4-H programs should create onboarding training specifically targeted towards the volunteerism PRKC. Though there is much research surrounding volunteerism, the Extension literature is scant related to the volunteerism training needs, as well as training success, of volunteerism professional development programs. More research is needed to understand the impact of the 4-H PRKC on county 4-H programs.

References

- Borich, G. D. (1980). A needs assessment model for conducting follow-up studies. *Journal of Teacher Education*, 31(3), 39-42.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334. doi:10.1007/BF02310555
- Culp, K., McKee, R. K., & Nestor, P. (2007). Identifying volunteer core competencies: Regional Differences. *Journal of Extension* [On-line] 45(6). Article 6FEA3. Available at: <http://www.joe.org/joe/2007december/a3.php>
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method* (3rd ed.). John Wiley & Sons, Inc.
- Hall, J. L., & Broyles, T. W. (2016). Leadership competencies of Tennessee Extension agents: Implications for professional development. *Journal of Leadership Education*, 15(3), 187-200. doi: 1012806/V15/I3/R8
- Harder, A., & Narine, L. K. (2019). Interpersonal leadership competencies of Extension agents in Florida. *Journal of Agricultural Education*, 60(1), 224-233. doi: 10:5032/jae.2019.01224
- Harder, A., Place, N. T., & Scheer, S. D. (2010). Towards a competency-based Extension education curriculum: A Delphi Study. *Journal of Agricultural Education*, 51(3), 44-52. <https://doi.org/10.5032/jae.2010.03044>
- Heck, K., Subramaniam, A., & Carlos, R. (2009). Use of the PRKC tool in assessment of staff development needs: Experiences from California. *Journal of Extension*, 47(3). <https://www.joe.org/joe/2009june/a7.php>
- National 4-H Council. (2020). Learn about volunteering. <https://4-h.org/about/volunteer/>
- National 4-H Headquarters. (2017). *Growing together: 4-H professional, research, knowledge and competencies 2017*. <https://nifa.usda.gov/sites/default/files/resources/4-H%20PRKC%202017%20Guide.pdf>
- Roberts, T. G., Harder, A., & Brashears, M. T. (Eds). (2016). *American Association for Agricultural Education national research agenda: 2016-2020*. Gainesville, FL: Department of Agricultural Education and Communication.
- Varrella, G. F., Luckey, B. P., Baca, J. S., & Peters, C. (2016). Growing our own: A longitudinal evaluation of a professional development program for early career 4-H professionals. *Journal of Extension*, 54(5). <https://www.joe.org/joe/2016october/a2.php>
- White, D. J., & Arnold, M. E. (2003). Why they come, why they go, and why they stay: Factors affecting volunteerism in 4-H programs. *Journal of Extension* [On-line], 41(4) Article 4RIB5. Available at: <http://www.joe.org/joe/2003august/rb5.php>

Assessment of Emotional Intelligence in Texas A&M AgriLife Extension Agents.

**A. Brant Poe, Assistant Professor
Tarleton State University
T-0040
Stephenville, TX 76402
254-968-0580
bpoe@tarleton.edu**

**J. Chris Haynes, Assistant Professor
Tarleton State University
T-0040
Stephenville, TX 76402
254-968-0595
chaynes@tarleton.edu**

**Rudy Tarpley, Professor
Tarleton State University
T-0040
Stephenville, TX 76402
254-968-9201
tarpley@tarleton.edu**

**Chandra Andrew, Assistant Professor
Tarleton State University
T-0040
Stephenville, TX 76402
254-968-1641
candrew@tarleton.edu**

Assessment of Emotional Intelligence in Texas Agrilife Extension Agents

Introduction/Need for Research

The use of emotional intelligence (EI) for employee selection and training has increased (Argabright et al., 2013; Livingstone & Day, 2005). Research indicates EI development in the workforce strengthens commerce and develops that human capital inherent to success (Goleman, 1995). The Cooperative Extension Service has provided resources and education to families and agriculturalists since the Smith-Lever Act was enacted in 1914 providing for a national system focused on practical, research-based information about agriculture, home economics, and energy to the people (Andrews, 2014). Emotional intelligence is defined, as the “ability to monitor one’s own and others’ feelings and emotions, to guide one’s own thinking and actions” (Salovey & Mayer, 1990, p. 189), becoming a prominent and recognizable analysis of intelligence by educators, employers, and the informed public (Livingstone & Day, 2005).

Theoretical /Conceptual Framework

The study was viewed through the theory of Human Capital (HCT), Human Capital encompasses the investment that is made in a population, which in turn will give back to the local economy (Longley, 2019). In the workplace, employers invest in their employees for the benefit of the company. Feeding into employees’ Human Capital with opportunities such as family assistance, professional development, and other types of training and education will have a lasting impact on the success of the company (Longley, 2019). This study aligns with the American Association of Agricultural Education’s (AAAE) National Research Agenda and addresses Research Priority 3, “Sufficient Scientific and Professional Workforce that Addresses the Challenges of the 21st Century” (Roberts et al., 2016).

Purpose and Objectives

The purpose of this study was to explore the importance and inclusion of emotional intelligence in Texas AgriLifecounty extension agents. To accomplish the purpose of this study, the following objectives were sought:

1. To identify demographic information (i.e. Gender, age, years of experience, etc.) of county extension agents in Texas;
2. To compare the Overall Emotional Intelligence (OEI) between County Extension Agents and School-Based Agricultural Educators in Texas.

Methodology

The population for this study included all county extension agents in Texas during the fall of 2019 (N = 508). Data were collected from 200 (39.3%) participants, meeting the sample size requirement for survey research (Dillman, Smyth, & Christian, 2009). This study utilized the Qualtrics survey platform and defined the sample through 14 demographic questions (i.e., Gender, Ethnicity, Age, etc.). The Genos™ Emotional Intelligence (EI) Inventory, an internationally validated assessment tool, assessed the EI of study participants in the following leadership areas: self-awareness, awareness of others, authenticity, emotional reasoning, self-management, and positive influence (Gignac, 2010). The 31 question Genos™ Emotional Intelligence (EI) model (Gignac, 2010) utilized a 5-point Likert-Scale for participant responses, with either a direct or inverse relationship (1 = Almost Never; 2 = Seldom; 3 = Sometimes; 4 =

Usually; 5 = Almost Always). Descriptive statistics were analyzed ($p = > .05$) utilizing SPSS 27.0.

Results/Findings

Research question one sought to determine the demographics of the sample. The average agent of this study was a married (61.0%) Caucasian (83.5%) female (57.0%), who was an AGNR agent (42.0%), that was 22 – 30 years old (27.5%), holding a Master's Degree as their highest degree (71.5%), with less than 10 years of experience (59.0%).

Research question two compared the EOI tendencies of Texas AgriLife County Extension Agents ($M = 112.33$, $SD = 35.32$), to Texas school-based Agriculture educators ($M = 120.11$, $SD = 19.09$) Frost (2019) the 3,000 Genos normative values ($M = 121.86$, $SD 13.84$) of Palmer et al. (2009). The normative sample put forth by Palmer et al. (2009) consisted of a sample of workplace individuals with varying ages above 18, varying nationalities, education levels, occupations, industries, and role/employment level.

Conclusions

EI is a growing option to those seeking success to improve upon themselves, those around them, and the companies for which they work for (Argabright et al., 2013; Goleman, 1995). Many employers are now focusing on EI as an option to select and improve upon employees in their company, without the sole reliance of cognitive intelligence (Mandell & Pherwani, 2003). In the present study, the total EOI mean of Texas Agrilife Extension Agents is 112.33, below the normative mean of 121.86 as set by Palmer et al. (2009). Similar literature (Frost, 2019) reported that SBAE showed an EOI mean of 120.11. Although Frost (2019) reports a higher SBAE mean EOI than extension agents, the participants from both populations fell below the normative mean as set by Palmer et al. (2009).

Implications / Recommendations / Impact on Profession

As emotional intelligence is defined as social intelligence with self-awareness according to Salovey and Mayer (1990), the overall mean of emotional intelligence speaks to the emotional intelligence core skills of those surveyed as a level of human capital that can be developed (Olaniyan & Okemakinde, 2008). As such, professional development in Texas Agrilife county extension agents targeting the improvement of emotional intelligence in current agents and in the onboarding process should be considered. Implications exist in the development of extension agents through higher education, as a correlation exists in the results of this study with the level of education and emotional intelligence. As such, courses designed to target emotional intelligence levels and how they influence others should be considered.

Implementing techniques and strategies to improve EI among agents, could potentially show beneficial to AgriLife moving forward. Analyzing the recent research of Argabright et al. (2013) with extension shows the success that the study saw by implementing a leadership institute. Aspects of this study show techniques such as one-on-one feedback, keeping content available to all participants, coaching sessions on enhancing EI, as well as group discussions on challenges faced and strategies used to improve personal EI. Future research should look at extending professional development into the sub-categories heavily effected by demographics of the participants in this study. Focusing time and resources toward the development of the heavily noted sub-categories, could possibly increase the EI of agents.

References

- Andrews, K. (2014, May 8) Smith-Lever centennial: Looking back at the history of Texas extension. *Texas A&M AgriLife Extension*. Retrieved from <https://agrilife.org/extension100/2014/05/08/smith-lever-centennial/>
- Argabright, K. J., King, J., Cochran, G. R., & Chen, C. Y. T. (2013). Leadership institute: Building leadership capacity through emotional intelligence. *Journal of Extension*, 51(2).
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, phone, mail, and mixed-mode surveys: the tailored design method*. John Wiley & Sons.
- Frost, C. N. (2019). A measure of emotional intelligence in Texas school-based agricultural educators (master's thesis). Retrieved from ProQuest Dissertations and Theses database.
- Gignac, G. E. (2010). *Genos emotional intelligence inventory. Technical Manual (2nd Ed.)*, Sydney, Waterloo, NSW, 10-36.
- Goleman, D. (1995). *Emotional intelligence: Why it can matter more than IQ*. Bloomsbury Publishing.
- Livingstone, H. A., & Day, A. L. (2005). Comparing the construct and criterion-related validity of ability-based and mixed-model measures of emotional intelligence. *Educational and Psychological measurement*, 65(5), 757-779.
- Longley, R. (2019, January 3) What is human capital? Definitions and examples. *ThoughtCo*. Retrieved from <https://www.thoughtco.com/human-capital-definition-examples-4582638>
- Mandell, B., & Pherwani, S. (2003). Relationship between emotional intelligence and transformational leadership style: A gender comparison. *Journal of business and psychology*, 17(3), 387-404.
- Olaniyan, D. A., & Okemakinde, T. (2008). Human capital theory: Implications for educational development. *Pakistan Journal of Social Sciences*, 5(5), 479-483.
- Palmer, B. R., Stough, C., Harmer, R., & Gignac, G. (2009). The genos emotional intelligence inventory: A measure designed specifically for workplace applications. *Assessing emotional intelligence* (pp. 103-117). 10.1007/978-0-387-88370-0_6
- Roberts, T.G., Harder, A., & Brashears, M.T. (Eds). (2016). American association for agricultural education national research agenda: 2016-2020. Gainesville, FL: Department of Agricultural Education and Communication.
- Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, cognition and personality*, 9(3), 185-211.

Evaluation of a Virtual Plant Science Program for Agriscience Teachers

Natalie K. Ferand

University of Florida
P.O. Box 110540
Gainesville, FL 32611
352-392-0502
nferand@ufl.edu

Catherine A. DiBenedetto

Clemson University
251 McAdams Hall
Clemson, SC 29634
864-656-0296
cdibene@clemson.edu

Brian E. Myers

University of Florida
P.O. Box 110540
Gainesville, FL 32611
352-392-0502
bmyers@ufl.edu

Evaluation of a Virtual Plant Science Program for Agriscience Teachers

Regardless of their future career path, students need sufficient knowledge of science to be functional members of society, and to continue learning and applying science concepts throughout their lives as informed consumers and decision-makers (National Research Council, 2012). School-based agricultural education (SBAE) programs contribute to students' science learning by providing opportunities to engage with science when used as a context for applying scientific core ideas (National Research Council, 2012). Furthermore, agriscience teachers must understand science concepts and ideas themselves to connect SBAE content to core disciplinary scientific ideas (McKim et al., 2017). Thus, the STEM-it Up: Everything You Need to Know to Get Your Floriculture Curriculum in Bloom program was created to train teachers on the science within the horticulture/floriculture curricula for them to illuminate these concepts in their instruction. The professional development (PD) began in June of 2019 to present the in-depth knowledge needed to teach science, technology, engineering, and mathematics (STEM) in the plant science career pathway. This study focused on the second iteration of the PD in the summer of 2020, which was delivered entirely online due to the COVID-19 pandemic. The purpose of this study was to describe participants' evaluations of the conference sessions to better inform future practice. This research addresses the American Association for Agricultural Education (AAAE) Research Priority 3, *"Sufficient Scientific and Professional Workforce that Addresses the Challenges of the 21st Century"* (Stripling & Ricketts, 2016, p.29).

Theoretical Framework

PD is a continuous process that happens both on and off the job and should provide teachers with the knowledge and skills needed to change their actions, beliefs, and attitudes (Greiman, 2010). Continuous PD is necessary for teachers to develop, grow, and change (Guskey, 2002). To be most effective, PD should be a gradual process, including time for feedback and reflection, while also providing support and social pressure (Guskey, 2002). Desimone (2009) provides a framework of five elements. These five core features were utilized for the planning and delivery of the PD program. Teacher PD should be grounded in academic content to impact instructional practices and, thus, student outcomes (Jeanpierre et al., 2005). Scientific core ideas found within the high school floriculture/horticulture curricula were the content focus for the program. Active learning was incorporated through live delivery, hands-on labs, and group discussions. Coherence was addressed by recruiting teachers who currently taught floriculture/horticulture, were supported by their districts, and were interested in illuminating science in their plant systems courses. The PD program duration was an initial 15-hour conference over three days, followed by six 90-minute follow-up sessions once a month from July to December. Lastly, collective participation was encouraged through group work, assignment of peer partners, social engagement sessions, and asynchronous discussions. Peer partner groups also allowed for planned time for discussion and idea-sharing, which has been shown to assist with a change in instructional practices (Jeanpierre et al., 2005).

Methodology

The purpose of this study was to evaluate the relevance and quality of the PD program sessions. The PD program goal was to help agriscience teachers illuminate the science embedded in SBAE horticulture and floriculture curricula. The PD program was designed to provide specific, deliberate, and systematic PD presented through experiential learning opportunities and inquiry-based instruction. An application was distributed nationwide through ListServes of

several professional organizations for agricultural education, resulting in 254 applications. Participants were selected based on their number of years teaching, agreement to participate in the program through December 2020, as well as their responses to two short-answer questions. Twenty-two teachers were selected and accepted the invitation to participate. This study's population was all agriscience teachers who participated in the initial three-day conference during the summer of 2020 ($N = 22$). Researcher created evaluations were sent to participants at the end of each of the three days of the PD program, and an overall evaluation was sent after the completion of the program. Each instrument used four-point, Likert-type scales and included items asking participants to rate both the relevance and the quality of each of the days' sessions (1 = not relevant/poor quality and 4 = very relevant/excellent quality). SPSS version 25 for PC and Microsoft Excel were employed to observe frequency, mean, and standard deviation to describe both the population and items.

Findings and Conclusions

The 22 agriscience teachers in the study represented 13 states and an estimated 4000 students in their SBAE programs. The participants were a majority female (77.3%), white (100%), and the average age of the participants was 39 years old. Participants taught for an average of 9.80 years, with nine (40.9%) having previously taught a subject besides agriculture. Twelve (54.5%) of the teachers taught at least one SBAE course for which students also received science credit. When evaluating the session types across all three days of the conference, inquiry-based lab sessions received a mean relevance score of 3.51 ($SD = 0.59$) and a mean quality score of 3.37 ($SD = 0.83$). Informational sessions, which were more lecture, discussion, or question-based, received a mean relevance score of 3.23 ($SD = 0.75$) and a mean quality score of 3.30 ($SD = 0.76$). Each day was evaluated independently for overall quality and relevance to participants. Participants assessed the overall quality of day one of the PD, which focused on photosynthesis and respiration, with a mean score of 3.28 ($SD = 0.72$) and the relevance as $M = 3.24$ ($SD = 0.77$). Day two received a mean relevance score of 3.36 ($SD = 0.70$) and a quality score of 3.44 ($SD = 0.77$) and concentrated on translocation. Lastly, participants scored the relevance of day three of the PD as $M = 3.31$ ($SD = 0.68$) and a mean quality score of 3.24 ($SD = 0.84$). Day three's core science content was cellular respiration and associated systems. Overall, the entire PD program received a relevance rating of relevant to very relevant and quality scores ranging between good to excellent.

Implications/Recommendations/Impact on Profession

It is encouraging to find that even during a pandemic, agriscience teachers were motivated to actively participate in an online PD program to learn about horticulture/floriculture concepts in a new way using inquiry-based instruction, problem-solving and focusing on connections to career opportunities in those industries. The PD program unintendedly provided strategies for teaching STEM concepts using somewhat unfamiliar technological tools and resources, such as Zoom and other online teaching tools. The agriscience teachers remained engaged and utilized the curricular resources and materials from the PD program to take back to their classrooms, whether face-to-face, synchronous online, or asynchronous online, to teach STEM concepts using inquiry during a time of uncertainty. High-quality PD can still be conducted from a distance with intentional planning, and when Desimone's (2009) framework for high-quality professional development is followed. When providing curriculum and specific content, it is recommended to model inquiry-based laboratory instruction through online learning platforms, which agriscience teachers can then replicate in their classrooms.

References

- Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, 38(3), 181-199. <http://dx.doi.org/10.3102/0013189X08331140>
- Greiman, B. C. (2010). Continuing Professional Development. In R. M. Torres, T. Kitchel, & A. Ball (Eds.), *Preparing and Advancing Teachers in Agricultural Education* (pp. 180–200). Curriculum Material Service - The Ohio State University.
- Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: theory and practice*, 8(3/4), 381-391. <http://dx.doi.org/10.1080/135406002100000512>
- Jeanpierre, B., Oberhauser, K., & Freeman, C. (2005). Characteristics of professional development that effect change in secondary science teachers' classroom practices. *Journal of Research in Science Teaching*. 42(6), 668-690. <http://dx.doi.org/10.1002/tea.20069>
- McKim, A. J., Velez, J. J., Lambert, M. D., & Balschweid, M. A. (2017). A philosophical review of science and society within agricultural education. *Journal of Agricultural Education*, 58(2), 98–110. <https://doi.org/10.5032/jae.2017.02098>
- National Research Council. (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*. National Academies Press. <https://doi.org/10.17226/13165>
- Stripling, T. C. & Ricketts, C. J. (2016). Research priority 3: Sufficient scientific and professional workforce that addresses the challenges of the 21st century. In T.G. Roberts, A. Harder, & M.T. Brashears (Eds.), *American Association for Agricultural Education national research agenda: 2016-2020*. Gainesville, FL: Department of Agricultural Education and Communication.

**Interactions between the Protein Industry and Blogs:
An Analysis of Content and Perceptions**

Karli Stringer
University of Arkansas
AFLS E-108
Fayetteville, AR 72701

Dr. Jefferson Miller
University of Arkansas
AFLS E-108
Fayetteville, AR 72701

Kylie Hackworth
University of Arkansas
AFLS E-108
Fayetteville, AR 72701

Dr. Jill Rucker
University of Arkansas
AFLS E-108
Fayetteville, AR 72701

Casandra Cox
University of Arkansas
AFLS E-108
Fayetteville, AR 72701

Need for Research

Animal agriculture (the protein industry) is facing new challenges in communications. Now more than ever, consumers are getting their information regarding their food through social media rather than from producers. Specifically, bloggers are perceived to be more trustworthy than the news media, and have become the communication industry's critics (Sweetser et al., 2008). Journalists are granting blogs more credibility and are beginning to reference more blogs in their reports (Sweetser et al., 2008). Transparency within the protein industry is necessary as consumers demand to know where their food was produced, what it was fed, how it was harvested, and if any supplements were used at any point within production (Beulens et al., 2005). Because of the increase in consumers trusting blogs, it is important for farmers to use these outlets to communicate about the industry well.

Theoretical & Conceptual Framework

Agenda setting (McCombs et al., 1997), framing (Bateson, 1972) and gatekeeping (Shoemaker & Vos, 2009) theories help explain the ways that journalistic media shape public perceptions. The theories collectively describe how news is mediated by journalists, and now bloggers. Moore (2015) and Morris (2018) were able to successfully study blogs and social media while conceptualizing the theories of framing and social media, as well as interactivity theory.

Methodology

This study employed a qualitative, interpretive research design consisting of content analysis of blogs pertaining to the protein industry or containing information about the protein industry as a whole. Due to a lack of research conducted on blogs in the United States concerning the agriculture industry, a qualitative study was the best approach. Qualitative research uses inductive reasoning to obtain a valid answer through the lens of the researcher (Wimmer & Dominick, 2003). A snowball sampling method (Patton, 1990), was used to identify bloggers and their blog posts containing information about or published by the protein industry. Each blog post was identified as a single unit of analysis, but words, quotations, and phrases within posts also became units of analysis as well. The instrument was an emergent codebook that included open codes that became obvious in the initial content analyses, which grew into axial codes as the analysis progressed. This inductive approach was described by DeCuir-Gunby et al. (2010). The study followed an observational protocol as follows:

1. What were common themes throughout the blog posts?
2. What tones were present throughout the blog posts?
3. Were multiple tones present within single blog posts?

Data analysis for this study involved the identification of themes and tones using guidance from the emergent codebook and operational definitions for the concepts of positive and negative tones. The constant-comparative method was used to ensure latent emergent themes were constant across all content. Thematic analysis was accomplished by using NVivo 11, a qualitative visual analysis software. The researcher used NVivo 11 to evaluate blog content, where themes were identified and annotated using the software. Once themes were identified, specific content that showed support for the themes was highlighted and recorded. When new themes were identified, constant-comparative analysis was used to identify emergent themes across all content. When identifying tone, the researcher examined the balance of negative tonal words and phrases versus positive tonal words and phrases.

References

- Beulens, A. J. M., Broens, D., Folstar, P., & Hofstede, G. J. (2005). Food safety and transparency in food chains and networks: Relationships and challenges [Abstract]. *Food Control*, *16*(6), 481-486. <https://doi.org/10.1016/j.foodcont.2003.10.010>
- Decuir-Gunby, J. T., Marshall, P. L., & McCulloch, A. W. (2010). Developing and using a code book for the analysis of interview data: An example from a professional development research project. *Field Methods*, *23*(2), 136-155. <https://doi.org/10.1177/1525822x10388468>
- McCombs, M., Shaw, D. L., & Weaver, D. (1997). *Communication and democracy: Exploring the intellectual frontiers in agenda-setting theory*. Lawrence Erlbaum Associates, Publishers.
- Morris, O. (2018). *Animal welfare frames: How social media messages bridge the gap between the protein industry and consumers* [Unpublished master's thesis]. University of Arkansas, Fayetteville, AR.
- Moore, M. L., Meyers, C., Irlbeck, E., & Burris, S. (2015). U.S. agricultural commodity organizations' use of blogs as a communications tool. *Journal of Applied Communications*, *99*(2). <https://doi.org/10.4148/1051-0834.1048>
- Patton, M. Q. (1990). *Qualitative evaluation and research methods*. Sage.
- Perloff, R. M. (2003). *The dynamics of persuasion: Communication and attitudes in the 21st century*. Lawrence Erlbaum Associates, Publishers.
- Shoemaker, P. J., & Vos, T. P. (2009). *Gatekeeping theory*. Routledge.
- Sweetser, K. D., Porter, L. V., Chung, D. S., & Kim, E. (2008). Credibility and the use of blogs among professionals in the communication industry. *Journalism & Mass Communication Quarterly*, *85*(1), 169-185. doi:10.1177/107769900808500111
- Wimmer, R. D., & Dominick, J. R. (2003). *Mass media research. An introduction*. Wadsworth/Thomson Learning.

Youth's Connectedness to Water Through a Manatee-focused Electronic Field Trip

Caroline P. Barnett

Graduate Student

Department of Agricultural Education and Communication

University of Florida

carolinepbarnett@ufl.edu

Teresa E. Suits

Strategic Communications Manager

College of Agriculture and Life Sciences

University of Florida

Tredina D. Sheppard

Secondary Science Instructor

PK Younge Middle School

Peyton N. Beattie, Doctoral Candidate

Jamie L. Loizzo, Assistant Professor

Laura A. Warner, Associate Professor

John M. Diaz, Assistant Professor

Department of Agricultural Education and Communication

University of Florida

AJ Reisinger, Assistant Professor

Adam C. Siders, Doctoral Student

Department of Soil and Water Sciences

University of Florida

Youth's Connectedness to Water Through a Manatee-focused Electronic Field Trip

Introduction and Conceptual Framework

Electronic field trips (EFTs) synchronously connect students to subject matter experts through multimedia technologies (Beattie et al., 2020; Loizzo et al., 2019). EFTs can vicariously expose youth to prevalent environmental issues through animal models, which can positively impact youth's attitudes and behaviors toward the environment (Morgan & Gramann, 1989). Exposure to marine megafauna (i.e., large charismatic marine animals) through movie viewings and aquarium visits has positively changed human perceptions of and conservation practices to protect marine life (Mazzoldi et al., 2019). The following study focused on *The Water Around Us* EFT. It connected individual classrooms to two university scientists to learn about water quality and nutrient cycling in aquatic environments, how aquatic megafauna (i.e., manatees) impact water quality, and how humans are connected to water ecosystems. Three graduate students and a faculty member developed and facilitated four 30-minute EFTs via Skype in the Classroom in early March 2020 and moved the EFT to Facebook Live for the remainder of March - April 2020 due to the COVID-19 pandemic. The conceptual framework of Connectedness to Water (CTW; Warner & Diaz, accepted) guided the study. CTW is the phenomenon that the more people feel connected to water, the more likely they are to protect it (Warner & Diaz, accepted).

Purpose and Objectives

The purpose of the study was to establish how participation in the *The Water Around Us* EFT affected youth's level of connectedness to and understanding of water. This study aligns with Research Priority 2: New Technologies, Practices, and Products Adoption Decisions of the AAAE National Research Agenda (Lindner et al., 2016). The following objectives guided the study: (a) document youth participants' connectedness to water through the CTW framework after completion of the EFT and (b) identify specific topics youth participants gained awareness of through the EFT.

Methods

All students participating in the EFT ($n = 60$) were the population, and non-probability, purposive sampling methods were used to choose the sample. Researchers selected an eighth-grade class at PK Younge as the sample because they were one of the two classes that were able to participate in the Skype in the Classroom version of the EFT (i.e., pre-COVID). There were 19 students in the sampled classroom, and all of the students completed the survey after the EFT for a 100% response rate. A cross-sectional, survey design was used to collect data to meet objective one. Researchers used the CTW instrument (Warner & Diaz, accepted) to examine student participants' feelings toward and their relationships with water after participating in one of the *The Water Around Us* EFTs. The students were asked to share their level of agreement or disagreement with 11 statements on a 5-point, Likert-type scale for the CTW instrument. Individual item means and standard deviations for the CTW statements are reported in the results section. Additionally, survey questions asked students to provide (the top three things they learned) from *The Water Around Us* EFT to address objective two. The frequency of the written responses to the prompt *provide the top three things the students learned* are also reported.

Results

The students' level of agreement with the CTW statements are reported in Table 1. The students most frequently responded to the free response prompt *provide the top three things the students learned* by reporting learning manatee poop provides food for other organisms ($n = 16$) and manatees are threatened, in danger, or killed as a common result of human and environmental impact ($n = 14$).

Table 1

Students' Level of Agreement with CTW Statements

	<i>M</i>	<i>SD</i>
I appreciate the plants and animals that live in the water around me	4.11	0.66
I have a deep understanding of how my actions affect the water around me	3.95	0.97
I think of humans as part of the water cycle	3.58	0.77
I feel a relationship with the animals and plants that live in the water around me	3.39	0.78
I often feel a sense of oneness with the water around me	3.32	0.82
I think of the water around me as a community to which I belong	3.26	0.73
I feel as though I belong to the water around me as equally as it belongs to me	3.21	0.71
Like a drop of water can be part of the ocean, I am connected to the water around me	3.21	0.86
I feel that everyone and everything connected to the water around me shares a common energy	3.16	0.60
I often feel part of the water cycle	3.16	0.69
I often feel like I am only a small part of the natural world around me, and that I am no more important than the water in the streams or the fish in the rivers	2.84	0.69

Note. Real limits of the scale: 1.00 -1.49 = *strongly disagree*, 1.50 -2.49 = *disagree*, 2.50 -3.49 = *neutral*, 3.50 -4.49 = *agree*, 4.50 -5.00 = *strongly agree*

Conclusions and Recommendations

The sample of students who were studied *agreed* with the CTW statements “I appreciate the plants and animals that live in the water around me”, “I have a deep understanding of how my actions affect the water around me”, and “I think of humans as part of the water cycle.” The students reported *neutral* sentiments for the remaining CTW statements. The CTW statements that the students' reported the highest levels of agreement with indicated more of a connection to the animals that inhabit water, rather than to the entire water ecosystem. This finding contradicts previous literature that stated there is a larger, positive impact on students' attitudes toward environmental issues when animal models are presented (Morgan & Gramann, 1989). While students reported learning about marine megafauna (i.e., manatees; Mazzoldi et al., 2019), extended exposure to or incorporating in-person experiences with the large marine life may be needed to increase students' connection to and attitudes toward the entire water ecosystem. Perhaps, providing additional educational experiences focused on the water ecosystem following the EFT could increase students' connection to water beyond their interest in marine megafauna (i.e., manatees). It is imperative students grasp broader water ecosystem concepts, in addition to specific animal concepts, to fully be connected to water. Thus, future experimental research could help identify if exposure to charismatic versus non-charismatic marine megafauna via an EFT has an impact on students' level of CTW and understanding of the entire water ecosystem and lead youth to changes in water behaviors.

References

- Beattie, P. N., Loizzo, J. L., Kent, K. W., Krebs, C. L., Suits, T. E., & Bunch, J. C. (2020). Leveraging Skype in the Classroom for science communication: A Streaming Science – Scientists Online approach. *Journal of Applied Communication, 104*(3). <https://doi.org/10.4148/1051-0834.2328>
- Leopold, A. (1949). *A Sand County Almanac: With essays on conservation from Round River*. New York: Ballantine Books.
- Lindner, J. R., Rodriguez, M. T., Strong, R., Jones, D., & Layfield, D. (2016). New technologies, practices, and products adoption decisions. In T. G. Roberts, A. Harder, & M. T. Brashers (Eds.), *American Association for Agricultural Education National Research Agenda: 2016-2020*. Department of Agricultural Education and Communication. http://aaaeonline.org/resources/Documents/AAAE_National_Research_Agenda_2016-2020.pdf
- Loizzo, J. L., Harner, M. J., Weitzenkamp, D. J., & Kent, K. (2019). Electronic field trips for science engagement: The Streaming Science model. *Journal of Applied Communications, 103*(4). <https://doi.org/10.4148/1051-0834.2275>
- Mazzoldi, C., Bearzi, G., Brito, C., Carvalho, I., Desiderà, E., Endrizzi, L., Freitas, L., Giacomello, E., Giovos, I., Guidetti, P., Ressurreição, A., Tull, M., & MacDiarmid, A. (2019). From sea monsters to charismatic megafauna: Changes in perception and use of large marine animals. *PLoS ONE, 14*(12), 1–35. <https://doi.org/10.1371/journal.pone.0226810>
- Morgan, J., & Gramann, J. (1989). Predicting effectiveness of wildlife education programs: A study of students' attitudes and knowledge toward snakes. *Wildlife Society Bulletin, 17*(4), 501-509. <http://www.jstor.org/stable/3782720>
- Warner, L. A., & Diaz, J. M. (accepted). Amplifying the theory of planned behavior with connectedness to water to inform impactful water conservation extension program planning and evaluation. *Journal of Agricultural Education and Extension*.

Assessing the environment for environmental education: Agriculture teachers' perceptions and barriers to implementing environmental education in [state] schools

Introduction

Environmental Education (EE) focuses on educating learners on environmental issues and providing them with the necessary skills to become citizens who can make responsible and informed decisions (Athman & Monroe, 2001; Stapp et al., 1969). EE increases students' knowledge of environmental issues and topics leading to environmental literacy and ultimately entails changes in behavior (Hungerford & Volk, 1990). Within Agricultural Education, EE is an essential component to a well-rounded curriculum and makes up a significant part of the National Agricultural Forestry and Natural Resource (AFNR) content standards focused on soil and water quality, forestry, and wildlife and natural resources management (National Council for Agricultural Education, 2005).

Theoretical Framework

The initiative to develop and utilize environmental education curriculum is driven by the desire to ultimately encourage changes in behavior through increased environmental literacy (Hungerford & Volk, 1990). Because of this, Ajzen's (1991) Theory of Planned Behavior (TPB) was employed as the theoretical framework for this study. According to TPB, human behavior is guided by three considerations: (a) beliefs about the likely consequences or other attributes of the behavior, (b) beliefs about the normative expectations of other people, and (c) beliefs about the presence of factors that may further or hinder performance of the behavior (Ajzen, 2002, p. 665). As per TPB, if agriculture teachers are provided with proper professional development, are knowledgeable on environmental topics and pedagogy, believe that EE is beneficial for their students, and are not impeded by obstacles such as a lack of funding, time, or administrative support, they will have the intention to incorporate EE into their curriculum. Furthering the implementation of EE curriculum requires an understanding of teacher perceptions, an understanding of the availability of resources, knowledge of which barriers teachers face, and the normative expectations surrounding teachers within their programs.

Purpose & Objectives

The purpose of this exploratory study was to discover the extent in which EE is being implemented in high school agriculture classrooms in [state]. More specifically, this study aimed to discover perceived barriers to implementing EE, teachers' perceived benefits to implementation, and the EE resources that they have access to within their programs. To achieve this, the following research questions guided the study:

1. What do [state] high school XATA members who incorporate EE perceive to be barriers to implementing EE?
2. What are [state] high school XATA members' perceived benefits of EE implementation?
3. What resources are available to assist [state] high school XATA members in implementing EE?

Methodology

The target population of this study included all [state] agriculture teachers who were members of the [state] Agriscience Teacher Association (XATA) ($n = 200$). A total of 77 completed surveys yielded a response rate of 38.5%. However, the results of this study are not generalizable to the entire population of agriculture teachers in [state] because the study involved a census of XATA members and did not include a random sample of all [state] high school agriculture teachers. The survey was modified with permission from an instrument developed to analyze science teachers' perceptions regarding EE developed by Ernst (2009). The instrument was modified to be an online survey with recommendations from Dillman, Smyth, and Christian (2009), and the data were analyzed using SPSS Version 25 using descriptive statistics including frequencies, percentages, and measures of central tendency (i.e., mean, median, and mode).

Results

Survey respondents identified several barriers, benefits, and resources that exist in regard to EE implementation. On a 5-point Likert-type scale, respondents identified the following barriers to implementation: (a) lack of funding ($M = 3.13$; $SD = 1.22$), (b) lack of training or professional development opportunities ($M = 3.31$; $SD = 1.09$), (c) lack of planning time ($M = 3.39$; $SD = 1.27$), (d) lack of access to EE teaching materials ($M = 3.43$; $SD = 1.19$), and (e) emphasis on state testing ($M = 3.45$; $SD = 1.35$). In regards to the benefits to EE implementation, respondents indicated that they believe implementing EE (a) improved students' academic achievement in other areas ($M = 3.02$; $SD = 0.43$), (b) improved problem-solving skills ($M = 3.02$), (c) improved critical thinking skills ($M = 3.08$; $SD = 0.50$), (d) have increased interest in the environment ($M = 3.18$; $SD = .56$), and improved environmental literacy ($M = 3.21$; $SD = 0.52$). Teachers were also asked to identify the resources that were available to them to implement EE in their programs. The following three items were reported by respondents to be the most available: (a) EE teaching materials (41.6%), (b) a mentor or coach (another teacher) who uses EE (27.3%), and administrative support (28.6%). However, these items were only considered to be sometimes available. Most respondents indicated that they did not have access to professional development programs and educator resources (28.6%).

Conclusions & Recommendations

For agriculture teachers to incorporate EE, TPB requires teachers to be able to identify potential barriers, resources and benefits. XATA members reported a lack of funding and professional development as barriers to implementation, however, lack of funding was only a minor barrier. This is supported by a study conducted by Figland et al. (2018), where [state] agriculture teachers reported a need for environmental science professional development. A lack of access to EE materials and training opportunities may be a significant barrier for teachers who wish to incorporate EE since EE is inherently interdisciplinary and therefore more difficult to implement effectively (Kim & Fortner, 2006). When asked if EE is beneficial for their students, XATA members indicated a weak level of agreement. This suggests possibly conflicting opinions on whether or not EE is beneficial for students. Based on the results of this study, more funding opportunities (i.e. grants and scholarships) and in-service opportunities should be made available for teachers who wish to incorporate EE into their curriculum successfully.

References

- Athman, J. A. and Monroe, M. C. (2001). Elements of effective environmental education programs. <https://files.eric.ed.gov/fulltext/ED463936.pdf>
- Dillman, D. A., Smyth, J. D., and Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method*. Hoboken, NJ: John Wiley & Sons, Inc.
- Ernst, J. (2009). Influences on US middle school teachers' use of environment-based education. *Environmental Education Research*, 15(1), 71–92. 10.1080/13504620802710599
- Figland, W., Blackburn, J., Smith, E., & Stair, K. (2018). What do they need? Determining differences in the classroom-based professional development needs of Louisiana agriculture teachers by years of teaching experience. Proceedings from *The National Conference of American Association for Agricultural Education*.
- Francis, C. A., Jensen, E. S., Lieblein, G., and Breland, T. A. (2017). Agroecologist education for sustainable development of farming and food systems [Abstract]. *Agronomy Journal*, 109(1), 23–32. 10.2134/agronj2016.05.0267
- Hungerford, H. R. and Volk, T. L. (1990). Changing learner behavior through environmental education. *The Journal of Environmental Education*. 21(3). 8–21. 10.1080/00958960903206773
- Kim, C. and Fortner, R. W. (2006). Issue-specific barriers to addressing environmental issues in the classroom: An exploratory study. *The Journal of Environmental Education*, 37(3), 15–22. 10.3200/JOEE.37.3.15-22
- National Council for Agricultural Education. (2015). *ANFR Standards*. <https://thecouncil.ffa.org/afnr/>
- Riar, D. S., Norsworthy, J. K., Steckel, L. E., Stephenson IV, D. O., Eubank, T. W., Bond, J., and Scott, R. C. (2013). Adoption of best management practices for herbicide-resistant weeds in midsouthern United States cotton, rice, and soybean. *Weed Technology*, 27, 788–797. 10.1614/WT-D-13-00087.1
- Robertson, P. G. and Swinton, S. M. (2005). Reconciling agricultural productivity and environmental integrity: a grand challenge for agriculture. *Frontiers in Ecology and the Environment*, 3(1), 38–46. doi.org/10.1890/1540-9295(2005)003[0038:RAPAEI]2.0.CO;2
- Stapp, W. B., Bennet, D., Bryan, W., Fulton, J., Swan, J., Wall, R., and Havlick, S. (1969). The concept of environmental education. *The Journal of Environmental Education*, 1(1), 30–31. 10.1080/00139254.1969.10801479

**Developing Rural Scholars for Conducting Research and Service in Rural Communities:
The Effects of a High-Impact Learning Opportunity**

Audrey E. H. King
Oklahoma State University
457 Agriculture Hall
Stillwater, OK 74078
audrey.king@okstate.edu
620-253-3262

J. Shane Robinson
Oklahoma State University
304B PIO Building
Stillwater, OK 74078
shane.robinson@okstate.edu
405-744-3094

Tyson Ochsner
Oklahoma State University
371 Agriculture Hall
Stillwater, OK 74078
tyson.ochsner@okstate.edu

Mark Woodring
Oklahoma State University
1716 S. Phoenix Avenue
Tulsa, OK 74107
mark.woodring@okstate.edu
918-584-4310

Paul Weckler
Oklahoma State University
116 Agriculture Hall
Stillwater, OK 74078
paul.weckler@okstate.edu
405-744-8399

Developing Rural Scholars for Conducting Research and Service in Rural Communities: The Effects of a High-Impact Learning Opportunity

Students need high-impact learning (HIL) opportunities that expand their thinking and allow them to apply what they have learned in the classroom (Kuh, 2008). Such opportunities are especially needed in rural communities where positive change is critical to improving a community's resilience and vitality (Hastings et al., 2011; Mohamed & Wheeler, 2001). Modeled after a program of the University of Nebraska's Rural Futures Institute, the Rural Scholars program at Oklahoma State University is a research and community service experience, which combines concepts of academic service learning and internships (Rural Futures Institute, n.d.) for college students interested in rural people and places. The Rural Scholars Program allows undergraduate and graduate students to learn about the issues and challenges impacting rural communities by enrolling in a 16-week Rural Scholars course followed by a 10-week lived, research- and service-based experience in a rural community. Students receive firsthand experience working in communities to conduct research and provide service to improve the livelihoods of rural citizens. The course was designed and taught for the first time in Spring 2019 by faculty in the Rural Renewal Initiative. Students were then placed in one of two counties in rural Oklahoma where they partnered with scientists at Oklahoma State University to conduct research and assisted local civic leaders with service-related projects.

The Rural Scholars program aligns directly with Kuh's (2008) call for action on college campuses. HIL practices provide students with opportunities above and beyond what they might receive in a traditional plan of study (Kuh, 2008). Examples of HIL practices include learning communities, collaborative assignments and projects, undergraduate research, diversity and global learning, serviced and community-based learning, and internships, to name a few (Kuh & O'Donnell, 2013). When implemented intentionally by college faculty, HIL practices can have a positive and long-lasting impact on student engagement and success (Kuh, 2008).

Purpose and Research Questions

The purpose of the study was to assess the Rural Scholars program and its impact on the students who participated. The following research questions guided the study:

1. How did the 16-week course impact the Rural Scholars' 10-week research and community service experiences?
2. How did this immersive research experience influence students' interest in pursuing research in the future?

Methods

Eight semi-structured interviews were completed, via Zoom calls, during the Fall 2020 semester. A purposive sampling method was used. Each student ($N = 8$) who participated in the inaugural Rural Scholars program completed the interview. Questions were asked regarding program effectiveness, level of supervision, highlights of the experience, and level of preparedness for the program. At the end of each interview, the discussion was summarized, and participants confirmed its accuracy as a member check (Creswell, 2012). Each Zoom session was recorded for data collection purposes. Internal consistency was addressed by comparing the interviewer's field notes with participants' audio recorded responses. Names and identifying information were removed, and pseudonyms were assigned. Data were coded using Glaser's Constant Comparative method (1965). Codes were used to create themes, which encompass the major ideas that emerged in the data (Creswell 2012; Glaser, 1965).

Findings

To respond to research question one, students described the parallels they drew between course content and their experience, and the extent to which the course was helpful during their Rural Scholars experience. Of the eight Rural Scholar students, five were able to complete the 16-week course. The interview data yielded three major themes.

Theme 1: Theory to Practice. “I really enjoyed learning the background information [in the class] about the counties and organizations we would be working in,” said one Rural Scholar. Another student commented on the value of learning community-development theories prior to the experience by stating: “I felt like I could see the theories we learned about in action. As a graduate student, I really appreciate that.” Other scholars commented on the sense of belonging within the cohort during the 16-week course. “I really appreciated getting to know some of the people I’d be working with over the summer. I wish everyone could have been in the class and we would’ve continued meeting together more regularly throughout the summer.”

Theme 2: A Need for Additional Research Training. Although students were pleased with the course content overall, many felt they could have been better prepared to perform certain aspects of their research with additional training. “If we’re going to be dealing with human subjects, I think it is very beneficial to learn about the IRB process early and maybe have training on it offered one Rural Scholar. Another Rural Scholar mentioned her novice research status as very overwhelming, “I didn’t know anything about research going into the summer. If we could’ve talked about that more during the course, it would’ve been very helpful to me.”

Theme 3: Increased Desire for Research Experiences. Students desired to continue conducting research by pursuing graduate school or other undergraduate research opportunities. After the conclusion of the Rural Scholars experience, all eight students were interested in engaging in additional research projects. One Rural Scholar stated: “I was interested in graduate school before this experience, and I am still excited about it! I think I am more equipped than I was before.” Another Rural Scholar is now working in an on-campus research laboratory as a result of the 10-week experience. “I am working in a lab now. I just really want to find the answers to questions,” she stated. Another Rural Scholar admitted: “I have already talked to my advisor about doing my masters. This experience opened that door I had closed.”

Conclusions, Implications, and Recommendations

The 16-week course prepared students for action in rural communities. However, not every Rural Scholar was enrolled in the course. Therefore, additional preparation is needed for those students with their expected research and service-based tasks. Additional research training is needed for students regardless of whether or not they participated in the class. Fortunately, the entire experience appeared to whet students’ appetite for participating in and conducting research.

The Rural Development course should be continued as a forum for building community and preparing scholars for their 10-week research and service experience. Students interested in becoming Rural Scholars should enroll in the course. Regarding course content, the syllabus should be amended to include a greater emphasis on human subjects, the IRB process, data collection, and analysis. A database of Rural Scholars should be established to facilitate longitudinal data collection related to participant’s involvement in their communities and likelihood to live in rural places.

References

- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Pearson Education, Inc
- Glaser, B. G. (1965). The constant comparative method of qualitative analysis. *Social Problems*, 12(4), 436–445. <https://doi.org/10.2307/798843>
- Hastings, L. J., Barrett, L. A., Barbuto, J. E., Jr., & Bell, L. C. (2011). Developing a paradigm model of youth leadership development and community engagement: A grounded theory. *Journal of Agricultural Education*, 52(1), 19–29. <https://doi.org/10.5032/jae/2011.01019>
- Kuh, G. D. (2008). *High-impact educational practices: What they are, who has access to them, and why they matter*. AAC&U.
- Kuh, G. D., & O'Donnell, K. (2013). *Ensuring quality and taking high-impact practices to scale*. AAC&U.
- Mohamed, I., & Wheeler, W. (2001). *Broadening the bounds of youth development: Youth as engaged citizens*. The Innovation Center for Community and Youth Development and the Ford Foundation. <http://www.atthetable.org>

An Examination of School-Based Agricultural Education Teacher Job Demand in Texas

Evelyn Starich
Texas Tech University
Box 42131
Lubbock, TX 79409-2131
(806) 834-3475
evie.starich@ttu.edu

William Doss
Texas Tech University
Box 42131
Lubbock, TX 79409-2131
(806) 834-7097
william.doss@ttu.edu

John Rayfield
Texas Tech University
Box 42131
Lubbock, TX 79409-2131
(806) 834-1956
john.rayfield@ttu.edu

An Examination of School-Based Agricultural Education Teacher Job Demand in Texas

Introduction/Theoretical Framework

According to the latest national agricultural education supply and demand study, the number of school-based agricultural education (SBAE) teachers is increasing nationally, as is the number of positions that go unfilled each year (Foster et al., 2020). The SBAE teacher shortage has been documented since the 1960s and continues today (Eck & Edwards, 2019). On the supply side of the teacher shortage issue, studies have examined why teachers leave the field and why they fail to enter the field after college graduation (Doss et al., 2020). On the demand side of the issue, sparse research has been conducted on what is driving the increase in demand for SBAE teachers. This leads to the need for this study and directly addresses Research Priority 3: Sufficient Scientific and Professional Workforce That Addresses the Challenges of the 21st Century (Roberts et al., 2016). To prepare a workforce to meet the demand of SBAE teachers in Texas, an examination of current SBAE teacher vacancies is needed.

This study is grounded in the building teacher human capital framework proposed by the U.S. Department of Education (2017). Within the framework, four systems were outlined to achieve a stronger teacher workforce: acquire, develop, sustain, and evaluate (Myung et al., 2013). This study focuses on the acquire system in that schools need to hire educators with appropriate skill sets. To accomplish this, teacher preparation programs need to know what the needed skill sets are in order to more efficiently produce a supply of teachers to meet the demand. Previous studies have examined professional development needs and self-efficacy of early career SBAE teachers after they are already in the field (Langley et al., 2014). However, little work has been done to determine what skills current job openings are requiring. Recently in Texas, the legislature passed a reform on school finance expanding CTE funding from grades 9-12 to now include grades 7-8, increasing the possibility for schools to add agricultural education programs to middle schools (Career and Technical Association of Texas, 2019). New CTE programs of study were also updated for the Agriculture, Food, and Natural Resources CTE pathway, creating additional opportunities for new jobs (Texas Education Agency, 2020). Given the recent changes to agricultural education and the need to identify the current demand, the purpose of this study was to determine programs of study required for posted SBAE teaching job positions and grade levels for those positions.

Methods

To accomplish the purpose of this study, a quantitative content analysis was conducted for all SBAE teacher job positions posted to the Agriculture Teachers Association of Texas website from April 1, 2020 through August 30, 2020 (Ary et al., 2014). This data source was chosen because it is used most frequently by school districts in the state seeking a SBAE teacher. For each job posting, potential courses that would be taught are listed on the website. Courses were categorized under the corresponding program of study and recorded by the principal researcher, along with the grade levels to be taught. Two other researchers at Texas Tech University randomly checked information from 20 job postings to confirm reliability of the information originally recorded by the principal researcher (Potter & Levine-Donnerstein, 1999). All frequencies and percentages were calculated in Microsoft Excel for this data set.

Findings

There were 192 job vacancies posted to the website for the dates studied. Of those posted, 14 positions were for middle school only, five positions were shared between middle and high school, and 172 were for high school only. Introductory courses such as Principles of AFNR were listed most frequently ($f = 77$, 40.10%) in job postings, followed by animal science courses ($f = 75$, 39.06%) and applied agricultural engineering ($f = 61$, 31.77%). Courses outside of the agriculture pathway were also listed as part of the job responsibilities in the pathways of construction ($f = 14$, 7.29%) and manufacturing ($f = 8$, 4.17%). Table 1 breaks down the number of postings listing courses to be taught in each program of study.

Table 1

Programs of Study Listed to be Taught in Texas SBAE Teacher Job Postings (N = 192)

Pathway	<i>f</i>	%
Introductory Courses	77	40.10
Animal Science	75	39.06
Applied Agricultural Engineering	61	31.77
Plant Science	55	28.65
None Reported	34	17.71
Environmental and Natural Resources	19	9.90
Construction ^a	14	7.29
Manufacturing ^a	8	4.17
Agribusiness	7	3.65
Food Science and Technology	2	1.04

Note. Percentages expressed as a proportion of the total number of job postings where courses in multiple programs of study can be listed. ^aCourses are not in the agriculture pathway.

Conclusions/Implications/Recommendations

From the data collected in this study, it can be concluded that the demand for SBAE teachers is expanding beyond high school programs into middle schools in Texas. Job openings most commonly needed a teacher to teach introductory courses, animal science courses, applied agricultural engineering courses, and plant science courses. There are also several positions requiring the SBAE teacher to teach courses outside of agricultural education in construction and manufacturing. For school districts to build human teacher capital, they must acquire teachers with skills in the areas found in this study (Myung et al., 2013). An implication of this is that teacher preparation programs in Texas will need to expand their curriculum to include instruction at the middle school level. We recommend teacher preparation programs examine courses in their degree plan and adjust them to provide students with courses that will prepare them to teach introductory, animal science, applied agricultural engineering, and plant science courses. In order to supply a workforce to meet the demand for teachers of applied engineering that often has shared responsibilities in construction and manufacturing, courses in this area should be expanded at the college or university level. Additional research should be conducted to determine the success of newly hired college graduates in the areas of middle school SBAE programs and in specific programs of study to assess current teacher preparation programs.

References

- Ary, D., Jacobs, L. C., Sorensen, C. K., & Walker, D. A. (2014). *Introduction to research in education* (9th ed.). Wadsworth Cengage Learning.
- Career and Technical Association of Texas. (2019, May 24). *CTE and House Bill 3*. <https://www.ctat.org/page/CTEandHouseBill3>
- Doss, W., Frost, K., & Rayfield, J. (2020). The impact of time spent student teaching on the decision to enter the field: A longitudinal study. *Journal of Agricultural Education*, 61(2), 276-288. <https://doi.org/10.5032/jae.2020.02276>
- Eck, C. J., & Edwards, M. C. (2019). Teacher shortage in school-based, agricultural education (SBAE): A historical review. *Journal of Agricultural Education*, 60(4), 223-239. <https://doi.org/10.5032/jae.2019.04223>
- Foster, D. D., Lawver, R. G., & Smith, A. R. (2019). *National Agricultural Education Supply and Demand Study, 2019 Executive Summary*. <http://aaaeonline.org/Resources/Documents/NSD2016Summary.pdf>
- Langley, G. C., Martin, M., & Kitchel, T. (2014). Novice agriculture teachers' general self efficacy and sense of community connectedness. *Journal of Agricultural Education*, 55(4), 1-11. <https://doi.org/10.5032/jae.2014.04001>
- Myung, J., Martinez, K., & Nordstrum, L. (2013). *A human capital framework for a stronger teacher workforce* (pp. 1–44, Rep.). Carnegie Foundation for the Advancement of Teaching.
- Potter, W. J., & Levine-Donnerstein, D. (1999). Rethinking validity and reliability in content analysis. *Journal of Applied Communication Research*, 27(3), 258-284. <https://doi.org/10.1080/00909889909365539>
- Roberts, T. G., Harder, A., & Brashears, M. T. (Eds). (2016). *American Association for Agricultural Education national research agenda: 2016-2020*. Gainesville, FL: Department of Agricultural Education and Communication.
- Texas Education Agency. (2020). *Approved CTE programs of study*. <https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/approved-cte-programs-of-study>
- U.S. Department of Education. (2017). *Improving human capital*. <https://www.ed.gov/oii-news/improving-human-capital>

State of the Field: An Analysis of Qualitative Work in JAE from 2015-2019

Katrina Alford
305 Rolfs Hall PO Box 110540 Gainesville, FL 32611
305-965-8819
trini@ufl.edu

T. Grady Roberts
17C Bryant Hall PO Box 112060, Gainesville, FL 32611
352-273-2568
groberts@ufl.edu

Introduction

The post-positivist epistemology of the agricultural education field has long lent itself to quantitative research, as evidenced by the many research studies that use empirical observation and measurement (Creswell & Creswell, 2018). The *Journal of Agricultural Education* (JAE) philosophy of content focuses on philosophical considerations, current trends and issues in agricultural education, among other research items (JAE, 2018). Qualitative research is particularly useful in addressing the meaning of individuals/groups as they navigate problems (Creswell & Poth, 2018) and as such aligns with the philosophy of JAE. Dooley (2007) recommended that qualitative research programs should be taught in graduate programs and the discipline should focus on qualitative methods if it is appropriate for the research design. Cooper (2010) stated that to establish trustworthiness within the scientific community a review of past research is necessary. The data gathered from this analysis can be utilized to spark conversations among the professional community regarding how graduate programs should approach teaching qualitative research and determine if the professional is adopting best practices.

Conceptual Framework

While quantitative research has historically been the primary means for conducting research in JAE it would be remiss to not approach research issues from the lens of meaning making since many issues under exploration involve social and human problems (Creswell & Creswell, 2018). Lincoln and Guba (1985) argue that there can be multiple realities and Conger (1998) argued that qualitative studies are an optimum approach for understanding perceptions. This is echoed by Patton (2002) who stated that qualitative methods are important for developing more complex understandings of topics.

However, as Creswell (2013) stated, “those undertaking qualitative studies have a baffling number of choices or approaches” (p. 7). As a field who is primarily post-positivist in nature, qualitative research can be an unknown territory. Creswell and Poth (2018) identify five inquiry methods for qualitative research: phenomenology, ethnography, grounded theory, narrative, and case study. These five inquiry methods take basic qualitative research a step further by identifying the type of qualitative research being conducted based on the aims of the research (Merriam & Tisdell, 2016). Categorizing qualitative research from these approaches provides direction for researchers to identify and design studies as each method has distinct features. It is unknown though the amount of qualitative research being conducted within JAE and whether researchers have adopted standards to their qualitative approach.

Methodology

The purpose of this research was to conduct a qualitative state of the field of JAE from the years 2015-2019. The objectives of the study were to: (a) determine the number of qualitative articles published over the 5 year period, (b) determine the frequency of qualitative inquiry approaches being utilized over the 5 year period, and (c) identify qualitative methods utilized by researchers over the 5 year period.

To achieve objective one, all articles published by JAE between 2015-2020 were examined using the criteria that the methodology utilized strictly qualitative approaches. Delphi studies were excluded from this analysis due to the ambiguity of the approach (Sekayi & Kennedy, 2017). Once an article was identified as qualitative, the purpose statement and methodology of each article were examined to determine the qualitative inquiry approach. Creswell and Poth (2018) five approaches to qualitative research were used to operationalize the

inquiry approach, with a sixth category emerging that was identified as uncategorizable. Objective 3 focused on the qualitative methods identified by the authors. While there was some overlap with the five inquiry approaches, the primary focus was of the methods as described by the authors. Where there was ambiguity in the methods, a decision was made to place methods within categories that aligned most closely with the researchers' approach.

Findings

Objective 1: In total 115 articles were identified as qualitative out of 388 articles accepted by JAE from 2015-2019. The percent breakdown for each year is as follows: in 2015 34% of the articles were qualitative, in 2016 35% of the articles were qualitative, in 2017 33% of the articles were qualitative, in 2018 25% of the articles were qualitative, and in 2019 23% of the articles were qualitative. Overall, about 30% of the articles accepted were qualitative over the five years.

Objective 2: There were 22 articles that were categorized as phenomenological in their approach. Ethnography did not have any research studies using this inquiry method, while there were six articles identified as using grounded theory. Three articles used a narrative approach and 51 articles used a case study approach. Thirty-three articles were deemed uncategorizable because either the authors mentioned using several approaches in their research or they did not fit into any of the approaches (ex. historical research). Fifty-three articles did not mention the inquiry approach used within their research.

Objective 3: The seven categories of methods that emerged from the analysis were: phenomenological ($n = 12$), case study ($n = 28$), grounded theory ($n = 6$), content analysis ($n = 32$), photovoice analysis ($n = 4$), focus groups ($n = 12$), and basic qualitative design ($n = 21$). Articles that were categorized as content analysis included literary analysis, historical analysis, and document analysis. Basic qualitative design articles included articles whose primary data collection methods involved interviews, observations, and field notes and/or self-identified as a basic qualitative design. Content analysis and case studies are the methods used most often in the field which is a shift from a decade ago when basic research design was "the most common type of qualitative method used in agricultural education" (Dooley, 2007, p. 34).

Conclusions

JAE is primarily quantitative/mixed methods but there is a robust qualitative presence; however there has been a decrease in the number of qualitative articles accepted into JAE. There is a lack of articles that identified an inquiry approach and/or did not mention what approach was used. The lack on inclusion of this information may compromise the quality of research and it can be speculated that graduate programs are not adequately addressing what should be included in a qualitative article. There is also a shift in that qualitative methods being utilized, and graduate programs should consider expanding qualitative method instruction.

Recommendations

An analysis of years prior to 2015 should be conducted to determine if there has been a change in the number of qualitative articles over time. In addition, as a discipline the adoption of standardized descriptors for qualitative methods should be developed. A review of the quality of qualitative methodology should also be conducted to determine if researchers are following recommendations (ex. subjectivity statements, design matches stated inquiry approach etc.). Graduate programs should review what content is being taught in their qualitative classes and ensure that their students are well grounded in qualitative methodology.

References

- Conger, J. A. (1998). Qualitative research as the cornerstone methodology for understanding leadership. *The Leadership Quarterly*, 9(1), 107–121. [https://doi.org/10.1016/S1048-9843\(98\)90044-3](https://doi.org/10.1016/S1048-9843(98)90044-3)
- Cooper, H. M. (2015). *Research synthesis and meta-analysis: A step-by-step approach* (5th ed.). SAGE Publications, Inc.
- Creswell, J.W. (2013). *Qualitative inquiry & research design* (3rd ed.). SAGE Publications, Inc.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications, Inc.
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: choosing among five approaches* (4th ed.). SAGE Publications, Inc.
- Dooley, K. (2007). Viewing agricultural education research through a qualitative lens. *Journal of Agricultural Education*, 48(4), 32–42. <https://doi.org/10.5032/jae.2007.04032>
- JAE Philosophy. (2018). Retrieved from <http://jae-online.org/index.php/philosophy>
- Lincoln, Y. S. & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications, Inc.
- Merriam, S. B., & Tisdell, E. J. (2017). *Qualitative research: a guide to design and implementation*. Langara College.
- Patton, M. Q. (2002). Two decades of developments in qualitative inquiry: A personal, experiential perspective. *Qualitative Social Work*, 1(3), 261-283. <https://doi.org/10.1177/1473325002001003636>
- Sekayi, D., & Kennedy, A. (2017). Qualitative Delphi method: A four round process with a worked example. *The Qualitative Report*, 22(10), 2755-2763. <https://nsuworks.nova.edu/tqr/vol22/iss10/15>

RESEARCH

The Perceptions of Professionals, Faculty, and Students Regarding the Implementation of an
Agricultural Communications Degree Program in the United Kingdom

Abby Taylor, Alex McLeod, Jefferson Miller, Casandra Cox, & K. Jill Rucker

University of Arkansas

1120 W. Maple St.

Fayetteville, AR 72701

kjrucker@uark.edu

The Perceptions of Professionals, Faculty, and Students Regarding the Implementation of an Agricultural Communications Degree Program in the United Kingdom

Introduction/need for research

In the United Kingdom, agricultural studies are the fastest growing discipline at the university level (Truss, 2016). Agricultural communicators are important to agriculture and society as a whole because they are able to bridge the gap between farmer and consumer. Agricultural communications programs provide students the opportunity to study journalism, public relations, and graphic design with an emphasis on the agricultural industry (The Ohio State University, 2020). Therefore, agricultural communications graduates are equipped with the skills to communicate agricultural issues to the public.

The need to develop an agricultural communications degree program in the U.K. has already been established by research conducted by Maples (2018). Building on this study, further research needs to be conducted to determine what types of academic modules should be included in a degree plan. Understanding what competencies employers would expect from a recent graduate, as well as understanding what students expect to learn and what faculty might expect to teach are all important. Also, examining how an agricultural communications program might be structured in the U.K. as compared to what programs look like in the U.S. is important. Though some literature exists on these topics, especially literature focused on building academic programs in the U.S., little to no information exists to guide the development of agricultural communications academic programs in the U.K.

Conceptual or theoretical framework

Sprecker and Rudd's (1998) study on creating the agricultural communications curriculum for the University of Florida, found two themes. The first theme of the study was communications skills were, overall, more important than agricultural knowledge. "Oral and written skills need to be excellent. Students need to be versatile, able to do a variety of communication functions in both print and electronic media" (Sprecker & Rudd, 1998, p. 6). The second theme revealed a broad overview of Florida food, agricultural and natural resources was essential. The study's subjects, who were agricultural communications professionals in Florida, thought an overview of agriculture was more beneficial than specialized agriculture courses (Sprecker & Rudd, 1998). In more recent studies, it has been observed that agricultural communications students should be trained in all elements of communication, which supports Sprecker and Rudd's recommendation for students to be versatile (Morgan, 2010). Morgan and Rucker's (2013) comparison of skills industry professionals and faculty viewed as most important for agricultural communication graduates found the skills with the highest level of agreement among faculty and industry professionals included "oral communication and the correct use of grammar" (Morgan & Rucker, 2013, p. 61). The ability to understand the agricultural industry is still perceived as an important skill for graduates (Morgan & Rucker, 2013). In 2020, Leal et al. conducted a national study of agricultural communications faculty, recent graduates, and industry professionals. Among all three evaluation groups, the highest importance for technical skills was placed on "communicating in written form" (p. 7). The most important technical skills needed for students are found in courses that focus on visual communication, oral communication, professional development, and written communication (Leal et al., 2020).

Methodology

Qualitative field interviews were conducted with 14 U.K. industry professionals, academic faculty, and students. Of those 14, three were students, five were faculty members, and six were industry professionals. The pool of professional subjects in the agricultural communications sector was drawn from the Guild of Agricultural Journalists (GAJ) in Edinburgh. The pool of academic agriculture faculty subjects and agriculture students were drawn from the Scotland's Rural College in Edinburgh. Faculty members experienced in agricultural communications and qualitative research curated interview questions designed to provoke subject opinions. The interviews were conducted in person or by phone call. An introductory email was sent to inform participants of the study and recruit participants.

After the collection period, interviews were transcribed and stored on a password protected laptop. Transcribed interviews were coded by the researcher using NVivo qualitative data analysis software. Qualitative data analysis was documented in NVivo and was peer-reviewed by a panel of experts, constituting the type of audit proposed by Lincoln and Guba (1985). Concerning the analysis of qualitative data, an audit trail (in the form of an NVivo project file) exists to confirm the presence of themes that emerged among the qualitative responses.

Results/findings

Research objective one aimed to understand what skills potential employers would expect new graduates to possess after completing an agricultural communications degree. It also aimed to understand what students would expect to be learning as well as what faculty would expect to teach. According to Sprecker and Rudd (1998), agricultural communicators are not agriculturalists primarily, but rather specialized communicators. The data collected indicates that writing skills and interpersonal communications skills were crucial skills for graduates to possess after graduation.

Research objective two aimed to determine the agricultural and communication modules that should be included in the degree plan. Similar to a study conducted by Sprecker and Rudd (1998), respondents agreed that students should get a broad base of all areas in agriculture, so a generalist approach would be critical. The findings indicated that students would benefit most from generalized agriculture course modules. An overwhelming majority of subjects claimed that writing and journalistic skills were extremely important for students to learn. Another important finding was that students should learn soft skills, including public speaking and interpersonal communication skills, through their coursework.

Conclusions and Recommendations

In conclusion, an agricultural communications degree program in the UK should emphasize students gaining broad agricultural knowledge, writing skills, and interpersonal communications skills. Based on the results of the study, it is recommended the United Kingdom higher education system should use the following list of potential modules/classes as a starting point for an agricultural communications degree program. Agricultural modules including: introductory classes in animal science, horticulture, crop production, economics, or issues in agriculture; and, communications courses including: communicating agriculture to the public, agriculture reporting and feature writing, public speaking, crisis and risk communications, and electronic communications. The agricultural courses recommended are the type of general agriculture courses that are taught in the agricultural communications discipline in the United States (Large, 2014). The recommended communications courses mirror the capstone courses taught in the U.S. program with emphasis on writing courses (Large, 2014).

References

- Large, M. M. (2014). *Characteristics of Agricultural Communications Undergraduate Programs*. (Master's thesis, University of Arkansas]. Scholarworks@UARK. <https://scholarworks.uark.edu/cgi/viewcontent.cgi?article=3709&context=etd>
- Leal, A., Lawson, K. M., Telg, R. W., Rumble, J. N., Stedman, N. L., & Treise, D. (2020). Technically speaking: Technical skills needed for agricultural communication baccalaureate graduates. *Journal of Applied Communications*, 104(3), 1-19.
- Lincoln, Y., & Guba, E. G. (1985). *Naturalistic Inquiry*. Sage Publications, Inc.
- Maples, S. K. (2018). Introducing the Academic Discipline of Agricultural Communications to the United Kingdom: A Needs Analysis. (Master's thesis, University of Arkansas). Scholarworks@UARK. <https://scholarworks.uark.edu/cgi/viewcontent.cgi?article=4492&context=etd>
- Morgan, A. C. (2010). Competencies needed by agricultural communication undergraduates: An industry perspective. *Journal of Applied Communications*, 94(1), 19-32.
- Morgan, A. C., & Rucker, K. J. (2013). Competencies needed by agricultural communication undergraduates: An academic perspective. *Journal of Applied Communications*, 97(1), 50-65.
- Sprecker, K. J., & Rudd, R. D. (1998). Opinions of practitioners concerning curricular requirements of agricultural communication students at the University of Florida, *Journal of Applied Communications*, 82(1).
- The Ohio State University. (2020). Agricultural communications. Retrieved from OSU.EDU: <https://undergrad.osu.edu/majors-and-academics/majors/detail/7>
- Truss, E. (2016). Environment Minister addresses the National Farmers' Union Conferences. Retrieved from <https://www.gov.uk/government/speeches/environment-ministeraddresses-the-national-farmers-union-conference>

South Carolina Agriculture in the Classroom Summer Institute Program Evaluation

Kaena Wallace
Clemson University
A107 P&A Hall
Clemson, SC 29634
980-328-5176
kaenaw@g.clemson.edu

Catherine A. DiBenedetto
Clemson University
251 McAdams Hall
Clemson, SC 29634
864-656-0296
cdibene@clemson.edu

Susan T. Gynn
Clemson University
107A Barre Hall
Clemson, SC 29634
864-656-0606
sguynn@clemson.edu

South Carolina Agriculture in the Classroom Summer Institute Program Evaluation

Introduction

South Carolina (SC) Agriculture in the Classroom (AITC) Summer Institute Program (SIP) provides professional development workshops for educators to learn about agriculture and gain classroom resources to “promote awareness and recognition of the importance of the sources of our food and fiber” (National Agriculture in the Classroom, n.d., para. 2). Furthermore, participants receive 20 renewal credits approved by the SC Department of Education. Previously, the program was only taught through experiential learning and face-to-face instruction. Due to the COVID-19 pandemic, the workshops were re-designed for a virtual setting using ZOOM as the meeting platform and six workshops were offered in 2020. The workshops included virtual farm tours, group discussions, speakers, and question and answer sessions with farmers. Online education can cause difficulty to maximize learning outcomes because the resources that foster learning in face-to-face environments are lacking (Bejerano, 2008). Therefore, program evaluation was conducted at the end of the 2020 AITC SIP to answer the research question, what were participant perceptions of the online structure for the SC AITC SIP? The evaluation was used to determine participant perceptions of the online workshops, content, and structure of the overall program.

Theoretical Framework

Technology is advancing in all aspects of life including education and the field of agriculture. There is a process and science behind the reasons whether people decide to adopt new innovations or behaviors (Weigel et. al, 2014). The theory of planned behavior (TPB) (Ajzen, 1991) and the diffusion of innovations (DOI) model (Rogers, 2010) were the theoretical frameworks for our research. TPB suggests that behavioral intentions guide individual behaviors and are a part of the decision makers’ attitude towards the behavior and possible adoption (Weigel et. al, 2014). TPB was used to reveal participant perceptions of the online SC AITC SIP to determine if there were correlations between factors (e.g., age, gender) related to the adoption or rejection of the online structure. Furthermore, AITC SIP aligned with the five characteristics associated with DOI which were: a) no travel (relative advantage), b) online structure was compatible with all devices (compatibility), c) a professional to guide the technologically challenged (complexity), d) participants tested (trialability), and e) observed the online format (observability).

Methodology

Descriptive research was used for this study using open- and closed-ended questions. The link to a 21-item survey administered through Qualtrics© was provided to participants in an email from the SC AITC Director. The survey was designed by a team of researchers and reviewed by a panel of experts. The panel of experts had experience with the AITC SIP, survey design, program evaluation, and curriculum development. Participants were asked the benefits and pitfalls of online workshop participation, overall satisfaction with the workshops, adequate technological resources, level of technical difficulty, participation in future workshops online or only in-person, and AITC-SIP content alignment with state curriculum standards.

Data Analysis and Findings

Both quantitative and qualitative data were used to evaluate the structure and content of the AITC SIP, along with the effect online learning had on participants. There were 117 participants in the 2020 SC AITC SIP and 93 completed the program evaluation for a 79% response rate. In terms of satisfaction, 83% of participants were completely satisfied with the AITC SIP. About 92% indicated they had the necessary technological resources at home to learn efficiently online.

Participants reported their learning ability was impacted only “somewhat” to “very little” by the online structure of the workshops. When asked if the resources aligned with the SC teaching standards, 54% said they did align. When asked if participants would attend again if the program was online or in person, 83% said yes to online and 80% said yes to face-to-face, suggesting they would attend again in either instructional setting. We tested if there was a relationship between age or years of teaching experience with the preference for online and ease of online instruction. We found no significant difference between age or years of experience and the preference for online versus face-to-face structure. However, there was a significant difference between people who had participated in AITC before and preference to attend again if the program was face-to-face. Of the 66 participants that had not attended the SC AITC SIP before, 74% said they would attend again if it was held face-to-face. Of the 18 participants that had attended before, 100% said they would attend again if it was held face-to-face. Although there was no significant difference in age and online preference, 87% of the combined age groups of 32-41 and 42-51 reported they would attend again if the program was held online. When asked about the benefits and pitfalls of the online AITC SIP, the common benefit was convenience, as stated by one attendee, *“it allowed the opportunity for individuals to attend that may not have been able to travel.”* The common pitfall was missing out on the experience. One participant stated, *“I missed the hands-on experience and the atmosphere of actually touring the farms.”* Additional comments commonly indicated an overall great program. One participant stated, *“these workshops were so well-organized and modified for the online model.”*

Conclusions

The online format of the AITC SIP educated participants on the importance of agriculture and how to integrate concepts into their curriculum with little impact to their learning. Although there was no pre-test administered to determine participant’s attitudes before the AITC SIP, based on the TPB, we predicted there would be a correlation between years of experience, age, and preference for online. The data showed the predictions we made based on typical behaviors were not proven. The majority of respondents had the necessary technology and knowledge to adequately participate in the online program. The five stages of the diffusion of innovations model occurred, and based on the data, participants would be willing to adopt the online format. The majority of respondents who had not attended prior to the 2020 summer institute would prefer to participate again if the program is offered face-to-face. Experiential learning is preferred for agricultural topics, and it is difficult to achieve the program’s full potential in an online environment. Participants missed the experiential learning experiences and networking opportunities, but still appreciated the convenience of not having to travel. Overall, the participants felt the program was well-organized and informative in the online setting.

Recommendations

Although agriculture is typically taught with some type of experiential learning, the online format of the 2020 AITC SIP had little to no impact on the participant’s learning ability. More SC educators were able to participate in the AITC SIP due the online format in 2020. Therefore, we recommend use of online programs for AITC. Providing both online and face-to-face workshops can be beneficial for the SC AITC program by increasing the number of SC educators the program may potentially reach. We also recommend that online formats may be a better alternative for participants that have disabilities, family emergencies and responsibilities, or those who cannot afford the registration fee. Hybrid workshops including virtual farm tours could be the future of SC AITC SIP.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Bejerano, A. R. (2008, June 1). *Face-to-face or online instruction? face-to-face is better*. National Communication Association. <https://www.natcom.org/communication-currents/face-face-or-online-instruction-face-face-better>
- National Agriculture in the Classroom (n.d.). *About Agriculture in the Classroom*. <https://agclassroom.org/get/about/>
- Rogers, E. M. (2010). *Diffusion of innovations* (5th Edition). Simon and Schuster.
- Weigel, F. K., Hazen, B. T., Cegielski, C. G., & Hall, D. J. (2014). Diffusion of innovations and the theory of planned behavior in information systems research: A metaanalysis. *Communications of the Association for Information Systems*, 34(1), Article 31. <https://doi.org/10.17705/1CAIS.03431>

Women Undergraduates' Leadership and Career Development in a Summer Agricultural Research Program

Joseph L. Donaldson, PhD
North Carolina State University

Kimberly D. Gwinn, PhD
Carrie Ann Stephens, PhD
Melissa Cregger, PhD
Scott Emrich, PhD
R.T. Trout Fryxell, PhD
Jamie Greig, PhD
Denita Hadziabdic, PhD
Sarah Lebeis, PhD
Bode A. Olukolu, PhD
Bonnie H. Ownley, PhD
Margaret Staton, PhD
University of Tennessee, Knoxville

1 Lampe Drive, 202 Ricks Hall
Campus Box 7607
Raleigh, NC 27695-7607
(919-515-1758)
joseph_donaldson@ncsu.edu

Women Undergraduates' Leadership and Career Development in a Summer Agricultural Research Program

Introduction/Need for Research

Scientists working in the fields of genetics and genomics generate large amounts of data that require bioinformatics expertise for processing, analyses, and comprehension. Similarly, bioinformaticians require data generation for creation of improved computational models, new data pipelines, and enhanced machine learning abilities. Because demand for bioinformatics capabilities throughout the food and agricultural sciences greatly outweighs current supply, a critical need exists for a diverse, talented, and well trained workforce in Bioinformatics, Genetics, and Genomic Sciences (BiGG). Cole & Espinoza (2011) summarized the numerous barriers women undergraduates face in terms of STEM career pipelines and described it as a “leaky pipeline” (p. 51) while others have suggested that the pipeline is actually a filter (Blickenstaff, 2005). The discrepancy between the women undergraduate population compared to women’s critical underrepresentation in certain STEM fields such as computer science underscores the need for career development research among women undergraduates (Szelényi et al., 2013). Furthermore, women’s postbaccalaureate goals in STEM fields are not well understood (Cole & Espinoza, 2011). To address these equity and workforce related issues, researchers from the University of Tennessee and North Carolina State University launched the Explore BiGG Data program in the summer of 2020. This is an 8-week research experience targeting underrepresented and minority women in STEM disciplines. Explore BiGG Data’s eight participants, referred to as Scholars, were immersed in research labs alongside women scientists, faculty mentors, and graduate students to develop their research abilities, gain leadership skills, and learn about BiGG academic and career pathways. A leadership educator provided direct instruction, and the research team along with various women leaders shared career experiences with the Scholars in weekly “lunch and learn” sessions. Funded by the Agriculture and Food Research Initiative, Educational Literacy Initiative’s Research and Extension Experiences for Undergraduates (REEU) Grant no. 2018-05862 from the USDA National Institute of Food and Agriculture, this program was virtual due to COVID-19 limitations.

Theoretical Framework

The theoretical framework is social cognitive career theory – the interaction of self-efficacy, outcome expectations, and personal goals for influencing both career development and contextual factors that may affect careers (Lent et al., 1994; 2000). Self-efficacy describes an individual’s beliefs about their capabilities. Outcome expectations refer to the individual’s understanding of outcomes (i.e., a rewarding job) resulting from their career behaviors (i.e., earning a STEM degree). Personal goals, in the context of social cognitive career theory represent an individual’s objective to achieve an outcome (Cole & Espinoza, 2011). The purpose of this study was to understand to what extent, if at all, Scholars: (a) developed leadership skills, (b) changed their academic and career aspirations because of the Explore BiGG Program; and (c) benefited from the focus on women scientists and women in leadership.

Methodology

This convergent mixed methods study involved: (a) collecting and analyzing quantitative and qualitative data; (b) merging and comparing the results; and (c) interpreting the data (Creswell &

Plano Clark, 2018). On the last day of the program, individual phone conferences were held with each Scholar, and they completed a retrospective post-then-pre questionnaire that measured perceptions of leadership skill attainment. The interviews lasted approximately 20 minutes and a sample question was “Did your educational aspirations change because of this program? If yes, in what ways?” The project’s program evaluator created the leadership skills questionnaire as an existing instrument that represented the specific project outcomes could not be identified. The questionnaire had 14 questions measuring the extent, if at all, that participants improved leadership skills including project management. Respondents used the following scale to indicate how much they knew both after and before the program: 1 (*very little*), 2 (*little*), 3 (*some*), 4 (*much*), 5 (*very much*), and data were analyzed by comparing frequencies before and after.

Results/Findings

A comparison of the retrospective post-then-pre data showed that the Scholars reported gains in all seven leadership skills measured. Of the five Scholars who completed the questionnaire, the number of Scholars who reported they knew much or very much about project management increased from one pre-program to four post-program, effective and efficient work habits increased from three to five; and maintaining accountability to their team increased from three to five. The five Scholars all reported they were more likely to enroll in a doctoral program in science, mathematics, or engineering and four reported they were more likely to work in a science lab because of the program. The seven Scholars who agreed to be interviewed reported that being on women-led and predominately women research teams expanded their science skills; provided them with valuable mentoring, specifically about leadership, academic, and career success; and helped them navigate challenges precipitated from being women in STEM. A representative comment follows: “So I’ve learned a lot from the different women leaders that I was able to talk to. I saw that...we all...have some of the same issues...we are underestimated for what we can do. A lot of us suffer from imposter syndrome as women. We apologize, but I also have found strategies to get around those things [and] have found like a community of women who all believe in me and want the best for me” (Participant 4).

Conclusions

Merging and comparing the questionnaire and interview results was instructive because it highlighted the importance of Scholars being on women-led and predominately women research teams as keys for developing research skills, improving leadership skills, and expanding career and academic goals.

Implications/Recommendations/Impact on Profession

REEU projects typically measure research skillsets (Odera et al., 2015). In contrast, we specifically documented leadership development, academic, and career goals. Explore BiGG Data created conducive environments for women undergraduates to pursue their STEM and leadership potentials. It is recommended that follow-up interviews with BiGG Scholars occur on an annual basis to understand fully how this REEU may influence the Scholars’ postbaccalaureate experiences over time and demonstrate impact (Stripling & Ricketts, 2016). Consistent with social cognitive career theory studies outside of the food and agricultural sciences, results indicate that STEM undergraduates need community and opportunities to nourish their self-concepts as future scientists (Fouad & Santana, 2016).

References

- Blickenstaff, J.C. (2005). Women and science careers: leaky pipeline or gender filter? *Gender and Education, 17*(4), 369-386. <https://doi.org/10.1080/09540250500145072>
- Cole, D. and Espinoza, A. (2011), The postbaccalaureate goals of college women in STEM. *New Directions for Institutional Research, 2011*: 51-58. <https://doi.org/10.1002/ir.408>
- Creswell, J.W. & Plano Clark, V.L. (2018). *Designing and conducting mixed methods research* (3rd ed.). Thousand Oaks, CA: Sage.
- Fouad, N. A., & Santana, M. C. (2017). SCCT and Underrepresented Populations in STEM Fields: Moving the Needle. *Journal of Career Assessment, 25*(1), 24–39. <https://doi.org/10.1177/1069072716658324>
- Lent, R. W., Brown, S. D., Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45*, 79–122.
- Lent, R. W., Brown, S. D., Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology, 47*, 36.
- Odera, E., Lamm, A., Odera, L., Duryea, M., & Davis, J. (2015). Understanding how research experiences foster undergraduate research skill development and influence STEM career choice. *NACTA Journal, 59*(3), 180-188. <https://www.jstor.org/stable/nactajournal.59.3.180>
- Stripling, C. T., & Ricketts, J. C. (2016). Research Priority 3: Sufficient scientific and professional workforce that addresses the challenges of the 21st century. In T. G. Roberts, A. Harder, & M. T. Brashears (Eds.), *American Association for Agricultural Education National Research Agenda: 2016-2020*. Gainesville, FL: Department of Agricultural Education and Communication.
- Szelényi, K., Denson, N. & Inkelas, K.K. (2013). Women in STEM Majors and Professional Outcome Expectations: The Role of Living-Learning Programs and Other College Environments. *Research in Higher Education 54*, 851–873. <https://doi.org/10.1007/s11162-013-9299-2>