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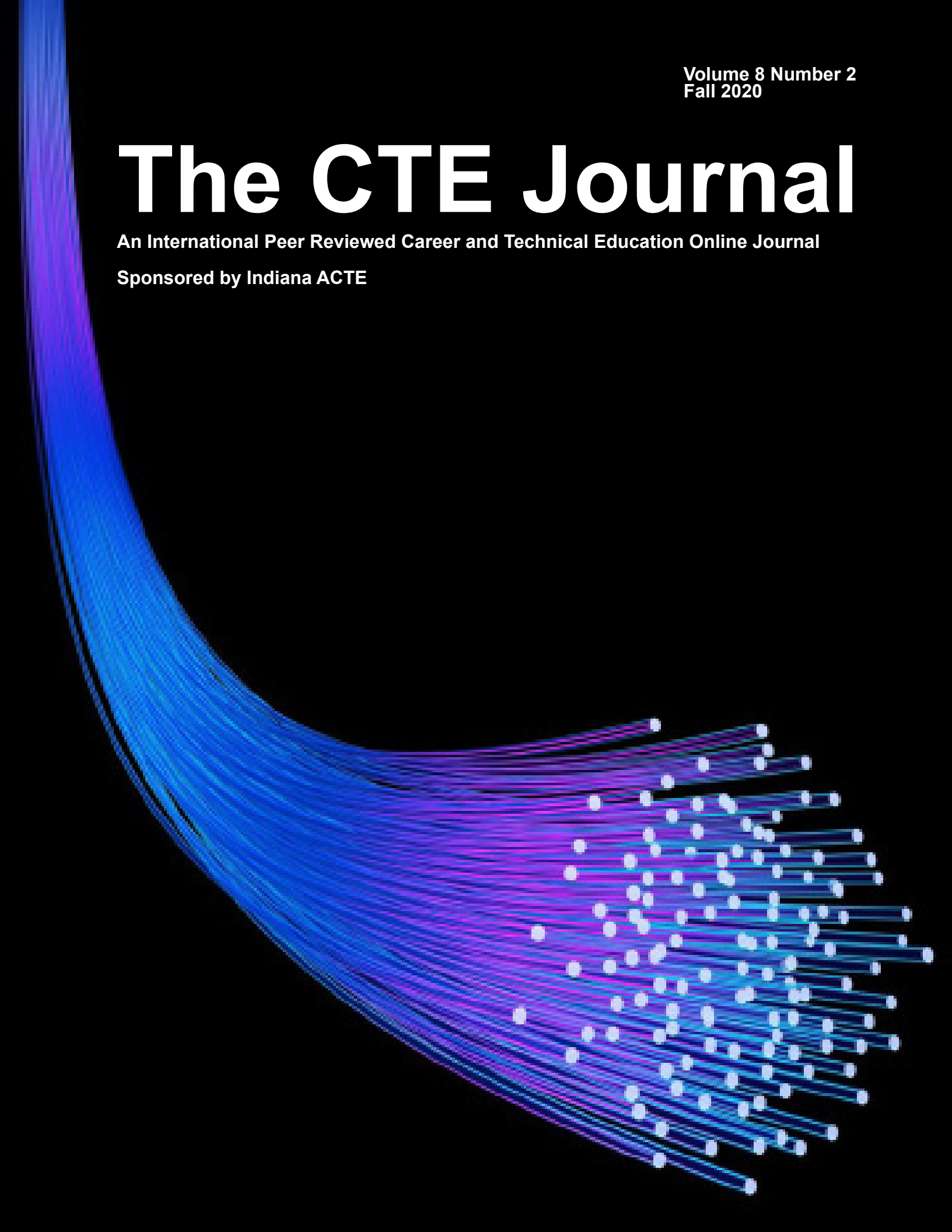

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Servant-Leadership during the COVID-19 Crisis: Implications for CTE

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Abstract
This article focusses on selected fundamental characteristics of servant-leadership (listening, empathy, healing, awareness, stewardship, persuasion, foresight), and their importance to CTE leaders and practitioners during the COVID-19 Pandemic. Challenges facing CTE during the COVID-19 crisis are addressed, as well as implications for policy and practice.
Keywords: career and technical education; COVID-19 pandemic; crisis; servant –leader; servant-leadership

Introduction

Today's CTE leaders must invest in our students, teachers, and stakeholders so as to produce a pipeline with a robust workforce for our nation. According to Wilson (2017) "in today's rapidly changing world, perhaps now more than ever we will need courageous and bold leadership in our workplaces, our communities and our schools to navigate the challenges of the 21st century" (p.6). Green and Wilson (2020) stated that:

> While we do not yet know the long-term impact this pandemic will have on our nation, what we do know is that education, especially CTE, will be at the center of rebuilding our economy and the lives of Americans. (para. 5)

Empirical evidence based on 138 servant -leadership studies published from 2004 to 2019, revealed positive influence on the characteristics of servant-leadership that promote effective organizational change (Roberts, 2020). The primary purpose of this paper is to explore and discuss selected fundamental characteristics of servant- leadership that maybe applicable to CTE leaders and practitioners. A secondary purpose is to describe the challenges impacting CTE amid the COVID-19 Pandemic.

Servant-Leadership

The term 'servant-leadership' was coined by Robert K. Greenleaf (1904-1990) in '*The Servant as Leader*,' an essay that Greenleaf published in 1970 (McCann et al, 2014). Greenleaf developed the theory of servant- leadership while he was working in the capacity as an executive at AT& T (Brewer, 2010; Greenleaf, 1970). There is also evidence of servant-leadership as a philosophy and practice in selected religious texts (Chinomona et al, 2013). Peter (2018) noted that "servant-leadership is a theory with strong altruistic and moral overtones that require leaders to be attentive to the needs of others and empathize with them" (p.337). Elliot (2017) reported that:

> This kind of leadership ensures that the ones we are serving have their needs met before that of the leader, allowing the students to become invested in the work of the institution and the leader to become wiser, freer and more autonomous. (p.29)

Sipe and Frick (2015) argued that "a servant-leader is a *person of character* who puts people first. He or she is a *skilled communicator*, a *compassionate collaborator* who has *foresight*, is a *systems thinker*, and *leads with moral authority*" (p.4).

Selected Servant- Leadership Characteristics

As CTE organizational leaders face the current coronavirus (COVID-19) pandemic and other related disruptions in the workplace, the following fundamental characteristics of servant-leadership can provide ways to lead and adapt through a crisis.

1. *Listening*. Maxwell (2008, p.49) argues that the best leaders are listeners, and that leaders are more effective if they possess excellent listening skills. "Active mindful listening leverages several listening styles to ensure we are understanding the message being delivered. You must take time to prepare to listen and be 100 percent present" (Bramlett, 2018, p.59). "Listening coupled with periods of reflection, is essential to the growth and well-being of the servant - leader" (Spears, 2010, p.27). As an excellent reminder, always focus on listening when communicating with others.

2. *Empathy*. CTE leaders and practitioners can help navigate the crisis of COVID-19 by using empathy to help individuals in the workplace to heal. "Empathy is a vital competency of a servant-leader. You gain insights as to how an individual is subconsciously and emotionally reacting to an initiative or situation. Through empathy, you further support your relationship with the individual" (Bramlett, 2018, p.64). Spears (2010) noted that "the most successful servant leaders are those who have become skilled emphatic listeners" (p.27).

3. *Healing*. The potential for providing healing for one's self and one's relationship to others is considered as one of the greatest strengths of servant-leadership (Song, 2018; Spears, 2010). Also, healing is recognized as one of "the most needed characteristics of leaders today" (Ferch, 2012, p.xi). "The servant -leader is a force of transformation recognizing the human heart is fragile and life brings many tribulations into the work environment" (Brewer, 2010, p.5). CTE leaders and practitioners who are engaged in emotional healing may serve as support to the Millennial workforce facing selected health issues during the COVID-19 Pandemic.

4. *Awareness*. Both awareness and self-awareness are likely to strengthen today's servant-leaders (Song, 2018; Spears, 2010). As 21st century CTE servant-leaders, "we must surround ourselves with individuals different from us to compensate for our weaknesses. Leverage diversity in others to form a more well-rounded team" (Bramlett, 2018, p.32). It is necessary for a servant-leader to gain awareness to fulfil his or her leadership duties.

5. *Stewardship*. Through stewardship, servant-leaders help constituents grow both personally and professionally. Stewardship is the sense of responsibility leaders have with regard to the use of power they possess. A servant-leader should lead by example, thus being the accountable person when your team or organization fail to perform at a specified standard (Bramlett, 2018; Chan, 2015-2017; Ebbrecht & Martin, 2015-2017;

Spears, 2010). "It also emphasizes the use of openness and persuasion, rather than control" (Spears, 2010, p.29).

6. *Persuasion.* A bonafide servant -leader is more likely to use persuasion rather than authority (Chan, 2015-2017; Ebbretcht & Martin, 2015-2017; Paul et al, 2012; Song, 2018; Van Dierendonch, 2011). "Effective persuasion begins with knowing your team *members and their internal motivation" (Bramlett, 2019, p.51).*

7. *Foresight.* Researchers proclaimed that foresight involves using steps to mitigate issues that might arise in the future. A servant-leader should use past experiences and accurate information to plan for the future (Brewer, 2010; Chan, 2015-2017; Ebbretcht &Martin, 2015-2017; Paul et al, 2012; Song, 2018; Van Dierendonch, 2011).

Challenges Impacting CTE amid COVID-19 Pandemic

At the start of 2020, none of us could have predicted the challenging effects that COVID-19 pandemic was going to have on career and technical education.The major challenges impacting CTE due to the COVID-19 pandemic, are in the areas of work-based learning, industry recognized credentials, distance learning, and equity. (See Appendix A- COVID-19 preparedness questions).

Work-Based Leaning Challenges

- Disengagement of industry partners.
- Suspension of WBL programs by selected state and local CTE systems.
- Delivery of WBL virtually or remotely.
- Ensuring that virtual or remote WBL delivery does not increase inequities.
- Access, equity, and diversity.

(Robinson, 2020).

Industry Recognized Credentials *Attainment Challenges*

Estes (2020, para. 3) noted that industry-recognized credentials commonly require to satisfy one or a combination of the following:

- Contact hour requirements.
- Clinical practical experience.
- Assessments.

Thus, some of the current challenges are:

- Inability to complete industry recognized credentials in a timely manner.
- Proctoring issues.
- Limited or lack of access to testing facilities.
- Concerns about remote delivery.

(Estes, 2020).

Distance Learning Challenges

- Pedagogical challenges of how to deliver high quality CTE programs remotely (Flaherty, 2020; Hills, 2020; Ralph, 2020).

- Targeting of easily accessible resources for CTE learners and instructors.
- Lack of access to broad internet and selected devices for CTE students residing in rural and urban areas. This inequality access to broadband infrastructure is known as '*The homework gap*' (Hills, 2020).

Equity Challenges

- How to leverage early warning systems to address equity gaps (Balfanz, 2020; McCain, 2020; Tucker, 2020).
- Disparities in remote learning among schools (Herold, 2020).
- Lack of technology access and support to ethnic minorities and individuals from low socio economic status (McCain, 2020).
- Mental health and food insecurity (McCain, 2020; PolyCentric, 2018).

Other Challenges

- Data collection and accountability.
- Supporting local districts implementing Perkins V.

Fundamental Steps for CTE Leaders and Stakeholders

1. *Culture of Trust*. Leading remote workers will require earning trust from the team (Doraiswamy, 2012).
2. *Embrace Servant-Leadership*. As a servant-leader, your greatest opportunity is what your teammates get accomplished; it is not about you! Thus, CTE leaders should focus on empowerment, involvement, and collaboration (Doeaiswamy, 2012; Fernandez & Shaw, 2020).
3. *Gather Data*. Focus on metrics related to the pandemic (COVID-19). Data will guide you to make more and better informed decisions.
4. *Communication*. Field (2020) described communication in a crisis as a balancing act. "Communicate too much and you run the risk of people tuning you out; stay silent, and they may become worried and stressed" (Communicate section, para. 7). Arrange one-on-one meetings, team meetings, and selected project meetings as needed with all stakeholders.

Implications for Policy and Practice

According to Bramlett (2018) "servant leadership is a timeless concept describing individuals who lead by serving others and placing their needs above their own. The leader empowers individuals, focuses on growth and ensures that their basic needs are met" (p.115). CTE leaders and practitioners must understand the relevance and value of servant-leadership and place emphasis on applying what works best for them in their current work environment during the COVID-19 Pandemic and future crises.

Selected issues to address:

1. Investment in servant-leadership training. This training is necessary for increasing the pipeline of future CTE servant-leaders.
2. The value and relevance of providing leadership crisis workshops and seminars for CTE teachers and administrators (see Appendix B).

3. Identifying a task force that will have responsibility to develop and implement the education response to the COVID-19 Pandemic and future pandemics.
4. The COVID-19 Pandemic has increased the digital divide. Thus, CTE policymakers should address the importance of investing in access to digital infrastructure in rural and urban areas.
5. Professional development to support online training for CTE instructors.
6. The use of virtual Web-Based Learning (WBL) to mitigate access challenges for WBL placements (Association for Career and Technical Education, 2020).
7. The cost-benefit analysis in providing incentives to business and community partners to provide WBL experiences to secondary and postsecondary CTE students.
8. Design and implementation of high quality CTE virtual courses and simulated training for students and instructors.
9. Coordination and collaborative efforts with local public health authorities and CTE policymakers.
10. Development and maintenance of a website to communicate with teachers, students, and parents about available COVID 19 resources and related curriculum activities.

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Appendix A: Covid-19 Preparedness Questions of Interest for CTE Leaders and Practitioners

- What are the challenges you are facing in the midst of the COVID-19 pandemic?
- What methods of distance learning are you using during the COVID-19 pandemic to deliver CTE content?
- What are your views for long-term inequities that will result from COVID-19 challenges?
- What leadership and instruction changes have you implemented in response to COVID-19? What challenges remain?

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Appendix B

Crisis Leadership Survey

WITH 5 BEING VERY HIGH AND 1 BEING VERY LOW, RATE YOUR CRISIS LEADERSHIP TRAITS AND QUALITIES:

1.	I aggressively seek key information.	5 4 3 2 1
2.	I effectively communicate information.	5 4 3 2 1
3.	I am proactive and take initiative.	5 4 3 2 1
4.	I think clearly under pressure.	5 4 3 2 1
5.	I can maintain calm and self-control.	5 4 3 2 1
6.	I am flexible, versatile, and adaptable.	5 4 3 2 1
7.	I am positive, upbeat, and optimistic.	5 4 3 2 1
8.	I am creative and can improvise.	5 4 3 2 1
9.	I am resilient and mentally tough.	5 4 3 2 1
10.	I act courageously and take risks.	5 4 3 2 1
11.	I act in a decisive and timely manner.	5 4 3 2 1
12.	I establish a clear vision and direction.	5 4 3 2 1
13.	I am professionally competent.	5 4 3 2 1
14.	I develop caring relationships.	5 4 3 2 1
15.	I empower, equip, and enable employees.	5 4 3 2 1

ADD UP YOUR SCORES FROM EACH OF THE QUESTIONS AND FIND WHERE YOU LAND BELOW:

65-75: **LEADING THE WAY** – Congratulations! You have the qualities necessary to lead successfully during crisis situations. Keep up the good work and continue to guide those you have the privilege to lead – through good times and bad.

64-51: **ON THE RIGHT PATH** – You have what it takes to lead through crisis, but you could strengthen some areas to be more effective. Note the areas where you scored 4 or lower and focus your attention on improving them.

51-38: **READY FOR A MAP** – While you have some strong leadership qualities,

you still have plenty of room for improvement in order to successfully lead through a crisis. Consider exploring our free resources on Communication and Crisis Leadership.

37 or less: **UNPREPARED FOR THE JOURNEY** – Dealing with crisis and disruption is the new norm for today's leader. In order to stay competitive and grow, you must focus immediately on improving your crisis leadership capabilities -- start with the steps outlined in our article, **How to Lead Through a Crisis**.

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Integrating Career-Connected Learning and Academics in K-12

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Abstract
A professional development meeting held at a Pittsburgh area career and technical school in Fall 2019 gathered educational leaders from nine consortium school districts, in part, to study the knowledge, attitudes and behaviors of academic leaders toward integrating career-connected learning. Professional development was guided by improvement science inquiry, specifically a Plan, Do, Study, Act cycle. Results yielded increased collaboration and integration of career-connected learning between the districts and the career center. The participants included principals, assistant principals, directors of special populations, and school counselors.

Introduction

The level of integration of career-connected learning can vary greatly in each school and program. Investigating the implementation of post-secondary and career readiness offers insight into varied perspectives and methods from many stakeholders.

Skill shortages have impacted the largest industries in the United States, including financial services, food and beverage, health care, information technology, manufacturing, retail, and travel and tourism (McDonough, 2017). Although the skills gap is often explained as a broad problem, it is more specific to industries, companies and specific job functions. Many factors contribute to the skills gap. There is not a single set of skills every person is missing (McDonough, 2017). This gap has motivated educators to analyze the preparedness of high school graduates for post-secondary education and careers in the 21st century (Bentley University, 2014).

Integrating career-connected learning with academic content is being implemented to best prepare students to succeed in the global economy (Bentley University, 2014). One report, *Inflection Point* (Burning Glass Technologies & The Council for Adult and Experiential Learning, 2016) discusses the disconnect between academic learning and career-connected learning among career centers and schools in the Pittsburgh region. In western Pennsylvania, most career centers are considered half-day non-comprehensive schools. Students in non-comprehensive career centers attend their sending school for academic courses and then are bused to the career center for their career and technical programs. The disconnect is partly

attributed to the framework of career and technical education in western Pennsylvania, in which students attend the career center part-time and their sending school part-time. The disconnect between career and technical centers and sending schools further contributes to the lack of combined academic and technical skills needed for students to succeed in postsecondary and career opportunities. Although some schools are attempting to move toward integrating career-connected learning with academics, there remains a need to increase collaboration of career-connected learning between sending schools and career centers.

Professional development as a catalyst

A professional development meeting hosted by the career center included educational leaders from nine consortium school districts. An improvement science inquiry used a Plan, Do, Study, Act cycle (PDSA) through professional development to study the knowledge, attitudes and behavioral status of academic leaders toward integrating career connected learning (Langley, 2009). This approach targeted continuous improvement and opportunities to refine practice, using professional development as a process to implement small changes with the goal of making long-term improvement (Shakman, et. al, 2017).

An entry ticket survey helped develop a portion of the professional development meeting and began to establish more personalized relationships between career-center staff and contacts at the sending schools. Participants then completed an exit ticket survey at the conclusion of the meeting that identified new knowledge gained and plans as they returned to their schools. The entry and exit ticket surveys were aligned to guide later conversations to identify and further support changes of knowledge, attitudes and behaviors of the participants.

Professional development follow-up discussions

Discussions were conducted with participants three months after the professional development meeting to follow-up on actions they had listed on their exit ticket to better integrate career-connected learning and/or collaborate with the career center. Participants were asked if they had made progress or if they needed assistance to implement their action items.

There were nine participants interviewed via phone or in person. Seven of the nine school districts were represented by participants who completed the entry ticket, exit ticket survey and interview. The follow-up interviews allowed for personalized discussions about successes and challenges each participant met when moving forward with plans to integrate career-connected learning and increase collaboration with the career center. The interviews supported more personalized problem solving for specific situations. Additionally, the relationships between the sending schools and career center became stronger due to the increased communication and collaborative efforts to address barriers to meet shared goals.

The nine people interviewed acted on at least one of the action items they had listed on the exit ticket survey. Overall, there was substantial evidence of action taken after the professional development meeting in seven out of nine school districts, including academic teacher visits to the career center, collaborative professional development for career center teachers, professional development for academic teachers, parent teacher organization presentations and plans for collaboration and integration the following school year.

Findings across participants

A Plan, Do, Study, Act cycle was applied to establish the baseline and follow up actions to measure the knowledge, attitudes and behaviors of educational leaders in regards to career-connected learning. The result from the PDSA cycle helped to build greater capacity in the knowledge, attitudes, and behaviors of the participants about career-connected learning and collaboration between the sending school districts and career center. The surveys and interviews together revealed growth among the participants in knowledge, attitudes, and behavior and participants were then able to enhance understanding and actions of stakeholders in their schools and districts. Participants were more active in incorporating career-connected learning in their building or district because they had a deeper understanding of the relevance to student success. These leaders communicated effectively with others and myself in their schools/districts and successfully collaborated on number of projects and initiatives to integrate career-connected learning.

The educational leaders who participated in the professional development meeting had the opportunity to list three actions they would be willing to take. Through follow-up discussions, I was able to offer assistance with their plans. Additional opportunities and strategies developed during these discussions that included, community presentations, school board presentations, academic and career center teacher professional development, and collaborative presentations to parents and the community to support career-connected learning. This continuous improvement model has utilized a process with small changes that lead to long-term improvement (Shakman et al., 2017). This model has been evident through the actions the participants have taken to integrate career-connected learning in their schools and districts. We were able to collaboratively take the following actions:

- Teacher visits to the career center
- Collaborative presentations to parents
- Professional development session presented by the career center assistant director/principal to district teachers
- Presentation from the assistant director/principal to a school's parent teacher organization. From this, future presentations were recommended by the PTO to administration
- Student tours of the career center for all ninth-grade students as well as fifth grade students from two districts
- Presentation scheduled for the school board by the career center assistant director/principal
- More STEAM related events in the elementary schools
- Meeting with career counselor from one district and the career center assistant director/principal to discuss future collaborative efforts
- Professional development from one district to the career center teachers about their educational model and approaches to integration
- Sharing of ideas and resources with educational leaders across participants from the professional development meeting

- Collaborative grant proposal with two sending schools and an outside district to institute collaborative career-connected learning and project-based learning amongst the three schools and business/industry partners

Professional growth

This improvement science project has helped me as a career and technical education administrator build very positive relationships among educational leaders, counselors, and academic teachers. I have gained more knowledge about the hard work classroom educators have put forth to provide students the most relevant education, including career-connected learning, through a Plan, Do, Study, Act cycle (Langley, 2009). I have increased my awareness of the actions districts are taking to integrate career-connected learning and equally, I have had many opportunities to educate people in our consortium schools about career and technical education and how the career center integrates academics and career-connected learning. The professional development and subsequent follow-up aided in building greater capacity in the knowledge, attitudes, and behaviors about career-connected learning between our districts and career center and most importantly, helped to create personal and responsive relationships.

While every district has its own specific barriers, there were common barriers that became evident through the surveys and discussions. Competition across curricula, time and resources, federal and state mandates, negative attitudes and stigma toward career and technical education remain as common obstacles. Often it was difficult to find time to meet with individuals from nine different districts to discuss and plan for career-connected learning. It is still a slow- moving process to plan more intricate collaborative projects. The schools and districts all have different resources that they can utilize for career-connected learning. Finances are a significant barrier for some schools/districts. Some districts serve affluent socioeconomic communities and others do not. Mandates are another barrier that create challenges for educational leaders. Schools and districts have many state mandates they must meet in addition to career readiness. Navigating through test preparation and state standards leaves little time to implement authentic career-connected learning opportunities for students.

Conclusion

The professional development meeting held at the career center early in the school year was the beginning of improving career-connected learning and collaboration between nine school districts and a career center. The PDSA cycle utilized throughout the process allowed for continued discussions that helped to build meaningful relationships. The discussions and development of relationships were key in increasing stakeholders' knowledge, attitudes and behaviors of career-connected learning. The results of these discussions led to actions that provided students with increased career-connected learning opportunities within the districts and career center. The continued improvement is evident through initiatives, projects and future discussions already scheduled for the following school year that will continue to integrate career-connected learning with academic curricula and increase collaboration between the districts and career center.

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Promoting School-Based Agricultural Education as a Career: Teacher Perceptions and Behaviors

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Abstract
The purpose of this study was to assess the self-career promotion perceptions and behaviors of School-Based Agricultural Education teachers in New Mexico (N=99). Sixty-eight teachers participated in the study with over 80% identifying the secondary agriculture teacher as the most responsible for promoting SBAE teaching as a career. Teachers were most likely to promote teaching through student involvement in the curriculum and by modeling appropriate teaching behaviors. It was recommended that teachers be provided opportunities to learn how to incorporate career promotion activities in their classrooms and programs to encourage students to become SBAE teachers. It was further recommended that teacher educators model effective career promotion behaviors to provide a context for exposing preservice teachers to effective career promotion behaviors.

Introduction/Theoretical Framework

Simply put, there are not enough School-Based Agricultural Education (SBAE) teachers to go around. Of the 3,136 SBAE positions filled with teachers new to the profession since 2015, less than 60% were filled with newly licensed graduates. This has forced school districts to hire individuals from a variety of backgrounds, which included 393 unlicensed teachers (Foster et al., 2015; Smith et al., 2016; Smith et al., 2017). These researchers found, over that same time period, students enrolled in agricultural education at over 200 programs began a school year without an SBAE teacher. However, beginning the school year without a teacher was not the worst of it; due in part to the teacher shortage, 167 SBAE programs were shut down (Foster et al., 2015; Smith et al., 2016; Smith et al., 2017). These findings have led to calls by researchers to identify effective recruiting practices to ensure an adequate supply of agricultural education practitioners (Stripling & Ricketts, 2016).

To better meet the needs of the teaching profession, agricultural education stakeholders have made calls to recruit students. The National Association of Agricultural Educators (NAAE) promotes teaching as a career opportunity through its *National Teach Ag Campaign* (NAAE, n.d.) which provides activities, lessons, games, videos, posters, and handouts along with information regarding teaching agriculture, and promising practices designed to expose students

to the opportunities which exist in the profession. Furthermore, Marx et al.(2014) identified participation in FFA activities within the SBAE program, including participation in career and leadership development events, state and National FFA Conventions and conferences, leadership workshops, and serving as an FFA officer possessed a moderated influence on students' career decisions. Even though program participation, FFA experiences, and the SBAE teacher do have an influence on students' choice to teach, researchers have also noted that teachers often fail to encourage students to teach (Arnett-Hartwick, 2015; Frisbee et al., 2000).

Researchers have indicated SBAE teachers positively influence students' decisions to teach (Ball & Torres, 2010; Lawver & Torres, 2012; Park & Rudd, 2005; Wildman & Torres, 2001). Park and Rudd (2005) found teachers who serve as role models, built quality programs, and refrained from negative remarks and attitudes toward the profession encourage students. These researchers also identified five constructs for recruitment of future teachers and include, encouragement, modeling, career counseling and awareness, program quality, and teacher effectiveness. While this study provided insight into promising career promotion practices of SBAE teachers, it was limited to the practices and attitudes of teachers who had prolifically produced post-secondary agricultural education students. Outside of agricultural education, Arnett-Hartwick (2015) found family and consumer sciences teachers were most likely to promote teaching as a career through course discussions in career lessons, encouragement, modeling, and involving students in the curriculum.

As a means to understand SBAE teachers' self-career promotion attitudes and behaviors, this study was grounded in Ajzen and Madden's (1986) Theory of Planned Behavior. "This theory hypothesizes that one's behavior is determined directly by one's intention to perform the behavior" (Myers & Washburn, 2008, p. 28). Ajzen (1991) further noted that intention is influenced by attitudes and perceived behavioral control. In regard to the present study, we operationalized attitudes as teacher beliefs about who is most responsible for promoting SBAE teaching as a career to students. Perceived behavioral control was operationalized by the actual self-career promotion behaviors exhibited by the teachers. The assumption of the research is that teacher attitudes toward who is most responsible for promoting SBAE teaching to students would have an impact on their self-career promotion behaviors.

Purpose/Objectives

The purpose of this study was to determine teacher attitudes toward the responsibility of promoting teaching as a career and to describe the self-career promotion behaviors of SBAE teachers. The study was guided by the following objectives:

1. Identify whom New Mexico SBAE teachers believe is most responsible for promoting SBAE teaching as a career to students.

2. Describe the methods New Mexico SBAE teachers use to promote SBAE teaching as a career to students.

Methods

We selected a mixed-method design to examine the phenomenon in detail and allow the respondents to describe the situations in their own words (Ary et al., 2006). The questionnaire was developed based upon the instrument used by Arnett-Hartwick (2015) who conducted a similar study with family and consumer sciences teachers. As part of a larger study, the section of the instrument devoted to the current study included two questions, in addition to demographic questions. The first question asked the teachers to identify whom they believed was most responsible for promoting SBAE teaching as a career to students. The teachers were provided a list of individuals from which to choose and included, secondary agriculture education teacher, state/national FFA representatives, university agricultural education faculty, parents, guidance counselor, and other. The second question was open-ended asked the teachers to describe how they promoted SBAE teaching to their students. Quantitative data analysis techniques were used to analyze the data collected from Question 1. Data were summarized and examined using frequencies and percentages. Regarding Question 2, data analysis was divided into three stages (Ary et al., 2006). In stage one, we transcribed the data, established response categories, and placed responses into categories. In stage two, the questionnaire, coding rubric, and final results of the coding were independently reviewed by an expert panel and recorded to establish reliability and validity. Data were then summarized and interpreted in stage three.

All SBAE teachers (*N*=99) in New Mexico employed during the spring of 2018 comprised the study population. The New Mexico FFA Association provided teacher contact information, and permission to conduct the study was granted by [UNIVERSITY] Human Subject Committee. Data was collected using Qualtrics® following procedures outlined by Dillman et al. (2009) and included five points of contact. As recommended by Lindner et al. (2001), nonresponse error was controlled by comparing early and late responders and no significant differences were found. Thirty-seven (54.4%) of the 68 teachers (69% response rate) who completed the survey were male. The average teacher was 37 years old and had taught for 10.5 years. Fifty-eight teachers (85.3%) were former FFA members and 55 (80.8%) graduated from a traditional teacher preparation program.

Results/Findings

As found in Table 1, a majority of the teachers indicated the secondary agricultural education teacher (82.3%) was most responsible for promoting teaching as a career followed by New Mexico/National FFA representatives (7.4%), university Agricultural Education faculty (5.9%), parents (2.9%), and guidance counselors (1.5%).

Table 1
Responsibility for Promoting Agriculture Teaching as a Career

Statement	*N*	%
Secondary Agriculture Education Teacher	56	82.3
NM FFA/National FFA Representatives	5	7.4
University Agricultural Education Faculty	4	5.9
Parents	2	2.9
Guidance Counselor	1	1.5

Regarding objective two, when asked how SBAE teaching was promoted as a career to students, the most common theme that emerged was involving students in the curriculum (*n*=20, 29.4%). Involvement included facilitating agriculture literacy programs with elementary and middle school students, participating in FFA programs, events, activities, and supervised agricultural experience programs (SAEs). One respondent explained, "Actively engaging students in all areas of the 3-circle model, including letting them teach class, is the best way to promote the career. That's how I got hooked."

Modeling teaching behavior as a method to promote the career was identified by 25% (*n*=17) of the teachers. One teacher indicated, "I promote my profession by providing engaging and fun lessons. By making my lessons engaging and informative I show the students you can learn while having fun! I also teach them that if you love your job you will never work a day in your life and I love my job!" A similar comment included, "By example. I share my personal life story and the choices I made and always show my career in a positive light."

Twenty-five percent of the teachers indicated they did not promote SBAE teaching as a career option to their students. One respondent noted, "I do not. It is a dead career and the whole idea needs to be changed. If ag and FFA do not get into the 21st century they will disappear." Another teacher indicated the responsibilities of the job were barriers to promoting SBAE teaching and noted, "With all the hats, mandatory State and District paperwork, plus all the jobs that must be accomplished by the teacher, who has time to recruit students?"

The fourth most common response category was to encourage students who show interest to pursue an SBAE teaching career (11.8%, *n*=8). One teacher commented, "I really try to encourage those students who demonstrate leadership skills in the classroom and in the organization. Talking to them about career options and if teaching is one that they had considered before." Another teacher encouraged students due to their concerns about the profession and noted, "I continue to see the quality of Ag Teachers declining as a whole and the reason is probably low pay and additional factors. However, I stress the importance and the demand, and encourage those with potential to look into it as an option."

The last category that emerged was discussions in careers lessons/units (8.8%, *n*=6). Teachers made specific note of incorporating the NAAE's *National Teach Ag Campaign* (NAAE, n.d.) and programs promoted by the National FFA Organization into their careers units. For example, one teacher noted, "On TAGGED day - I present to each class the ag teacher info - including requirements, job description, pay and benefits, etc." Another teacher reported, "We use the FFA career exploration program, after answering the questions on the career interest inventory provided by FFA.org. After they get their career they create career boards that talk about all careers including Agriculture Education." A summary of the categories of self-career promotion behaviors is displayed in Table 2.

Table 2
New Mexico SBAE Teachers Agricultural Education Career Promotion Behaviors

Career Promotion Behavior	*N*	*%*
Student involvement in the curriculum	20	29.4
Modeling teacher behavior	17	25.0
No promotion	17	25.0
General encouragement for students who show interest	8	11.8
Discussion during careers lessons/units	6	8.8

Conclusions/Recommendations/Implications

The objectives of this research study were to identify whom New Mexico SBAE teachers believed was most responsible for promoting SBAE teaching and to describe the methods these teachers used to promote the career. Based upon the findings, a majority of New Mexico teachers believed that the secondary agriculture education teacher was most responsible for promoting teaching as a career option. While little research exists describing career promotion beliefs of SBAE teachers, this does support previous findings that agriculture teachers are the best suppliers of future teachers (Lawver & Torres, 2012).

Involving students in the curriculum and modeling teaching behavior were the most common methods employed by SBAE teachers to promote this career option to their students. Furthermore, while not the most common methods, teachers also noted they promote the career through career awareness lessons and encourage students who show an interest to pursue SBAE teaching as a career. These methods are consistent with findings from Park and Rudd (2005) who identified encouragement, modeling, and career awareness as constructs for recruitment of future teachers.

In combination, however, the findings yield more questions than answers. If over 80% of the teachers indicated the secondary agriculture teacher was most responsible for promoting teaching as a career option, why did 25% of the teachers indicate they did not engage in activities that promoted SBAE teaching as a career? Marx et al. (2014) noted that engaging students in the FFA components of an SBAE program influence student career decisions. Do these teaches not recognize that their behaviors inherently promote the career? Park and Rudd (2005) indicated positive teaching behaviors promoted the career while negative attitudes and behaviors tend to discourage students from teaching. In light of this, we recommend that inservice teachers are provided access to research data which illustrates how their behaviors influence their students' career decisions in a meaningful and practical format to maximize its impact.

Career awareness is a foundation of agricultural education. In order to mitigate the teacher shortage plaguing the profession, we implore that SBAE teachers not lose sight of their role in sustaining agricultural education. To do this, we recommend that the resources available through programs like the NAAE's *National Teach Ag Campaign* and programs supported by the National FFA Organization continue to be made accessible and promoted to teachers so that they may be used to recruit future teachers. However, simply making these resources available may not be enough. Therefore, we further recommend that professional development opportunities

are made available so that teachers may be taught how to incorporate those resources into their programs and existing curriculum.

Less than 6% of the teachers indicated teacher educators were the most responsible for promoting the career to agricultural education students. However, we believe there exists an opportunity for university faculty to wield significant influence in addressing the teacher shortage issue. We recommend that teacher educators model the most influential constructs identified by Park and Rudd (2005) – encouragement and program quality – in their own programs. By encouraging preservice teachers and maintaining quality programs, teacher educators will, in effect, be modeling behaviors which have been identified as the most influential behaviors which encourage students to become teachers.

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Factors Related to Teaching Efficacy: Examining the Environment

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Abstract
Teacher efficacy studies in agricultural education have primarily focused on documenting the perceived teaching efficacy of agriculture teachers. The primary purpose of this study was to investigate the environmental factors that may contribute to the teaching efficacy beliefs of beginning agriculture education teachers. These factors included perceived collective efficacy, perceived principal support, and perceived teacher preparation program quality. The population for this study included all agriculture teachers in Missouri and Kansas (N=213) who had not completed more than five years teaching agricultural education. Collective efficacy and perceived teacher preparation program quality were found to have positive relationships with perceived teaching efficacy. It is recommended that future research be conducted regarding the status of the perceived collective efficacy of the agricultural education profession. Recommendations and plans to develop new and existing programs to increase the collective efficacy of individual schools and the agricultural education profession are discussed.

Introduction/Theoretical Framework

Priority area five of the National Research Agenda for the American Association for Agricultural Education states, "the central mission of agricultural education programs is the preparation of educators in agriculture" (Thoron et al., 2016, p. 42). This mission will be addressed by "developing the models, strategies, and tactics that best prepare, promote, and retain new professionals" (Doerfert, 2011, p. 9). Addressing the retention portion of the priority is vital if the profession is to stay viable as Clark et al. (2014) indicated "approximately 50% of agriculture teachers leave within the first six years of teaching". In attempts to address the retention issue plaguing the profession, the study of teacher efficacy has become an important topic among agricultural education researchers (Swafford, 2014). Identifying those factors that influence the efficacy beliefs of beginning teachers may provide baseline data from which programs can be improved or developed to further increase efficacy beliefs of beginning teachers.

Agricultural education has been described as a challenging profession (Talbert et al., 1994) and one that "eats its young" (Halford, 1998, p. 38). Prompting the inclusion of the study of teacher efficacy is warranted as Bandura (1997) suggested that people who are efficacious tend to show more effort and persistence when faced with difficult tasks. Supporting this, Burley et al. (1991)

concluded that teachers who are more efficacious about their teaching are less likely to pursue careers in other fields. Specific to agricultural education, Knobloch and Whittington (2002) indicated teachers who are more efficacious about their teaching will be more motivated, be persistent in challenging situations, and may remain in the profession longer than their less efficacious contemporaries.

Agricultural education researchers have identified factors that may influence teacher efficacy including teacher preparation programs (Whittington et al., 2006) and teacher support within the organization (Swan et al., 2011). Researchers outside of agricultural education have identified similar factors (Capa, 2005) and have suggested perceived collective efficacy may be influential as well. Perceived collective efficacy refers to how a group views its shared capabilities to perform given tasks (Bandura, 1997; Goddard et al., 2000). Skaalvik and Skaalvik (2007) argued "high collective self-efficacy leads to challenging goals and persistence in teachers efforts to meet those goals" (p. 621). These researchers later argued that "such a cultural context promotes student engagement and achievement, which again enhance individual teachers' sense of self-efficacy" (p. 621).

Teacher's sense of efficacy, often referred to as individual teacher or teaching efficacy can be defined as "teacher's judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (Tschannen-Moran & Woolfolk Hoy, 2001, p. 783). The study of teacher efficacy finds its origins in a study conducted by the RAND Corporation that examined teacher characteristics and student learning (Armor et al., 1976). Studies of teacher efficacy have been conducted to develop a conceptual understanding of teacher efficacy (Gibson & Dembo, 1984; Guskey & Passero, 1992; Rose & Medway, 1981; Tschannen- Moran et al.,1998), attempt to understand other relationships or outcomes in teaching situations through the lens of efficacy (Allinder, 1995; Meijer & Foster, 1988; Midgley et al., 1989), and identification of factors influencing teachers' sense of efficacy (Capa, 2005). Within the profession of agricultural education studies have been conducted to better understand the teacher efficacy of preservice, early career, and experienced teachers (Burris et al., 2010; Knobloch, 2006; Roberts et al., 2008; Roberts et al., 2006; Stripling et al., 2008; Whittington et al., 2006).

Researchers agree that the preservice teacher education programs have a positive impact on beginning teachers' sense of teaching efficacy (Whittington et al., 2006). Ross et al. (1996) noted that adequate preservice teacher preparation may influence teaching efficacy by reducing uncertainty about one's ability to perform teaching behaviors. Still more, Rubeck and Enochs (1991) found that university level coursework related to future teaching requirements predicted teaching efficacy.

Researchers have noted that teachers' perception of their preservice teacher preparation program was significantly related to their sense of efficacy about their teaching effectiveness (Darling-Hammond et al., 2002; Raudenbush et al., 1992). Furthermore, Ross (1992) found evidence that teachers' sense of efficacy increased when they had received learning opportunities that improved their teaching skills. Teachers who felt better prepared were more likely to believe they could reach all of their students, manage classroom problems, and teach all students to high

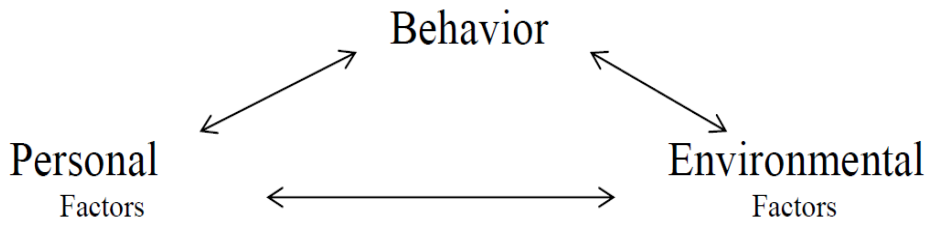
levels (Darling-Hammond et al., 2002). "Those who felt underprepared were significantly more likely to feel uncertain about how to teach some of their students and more likely to believe that students' peers and home environments influence learning more than teachers do" (Darling-Hammond et al., 2002, p. 294). These same teachers also indicated that they would less likely choose teaching again if given the choice and were more likely to leave teaching for another profession (Coladarci, 1992; Evans & Tribble, 1986).

The support for beginning teachers within a school organization is a key element in assisting those teachers as they address the major job demands they encounter. A quality relationship with an effective principal "may alleviate the influence of job demands (e.g. work overload, emotional and physical demands) on job strain" (Bakker & Demerouti, 2007, p. 316). This is supported, as teachers who report greater efficacy beliefs tend to do so when they receive more effective principal support (Tschannen-Moran & Woolfolk Hoy, 2001). As important as effective leadership and support is to a beginning teacher's efficacy, a lack of or ineffective support is just as damaging. Lack of administrative support has been linked to disengagement from work (Demerouti et al., 2001).

Principal support has been found to be a significant predictor of school effectiveness (Hoy et al., 1992), which has been linked to collective efficacy (Goddard & Goddard, 2001), which has, in turn, been linked to personal teaching efficacy and school administration satisfaction (Pajares, 2002). Hoffman, Sabo, Bliss, and Hoy (1994) identified trust in the principal as significant. Lewandowski (2005) noted, "since trust is a part of organizational support, it is believed to influence teacher performance," (p. 32).

Research has indicated the perceived collective efficacy of a school may have significant influence on the perceived teaching efficacy of its faculty (Goddard et al., 2004). However, teachers tend to work almost exclusively in their own classrooms and, from an outside perspective, may appear to be oblivious to external school climatic forces. However, Bandura (1997) noted, people working independently with a group do not function in isolation and are not totally immune to the influence of those around them. Bandura (1997) further noted, the resources, impediments, and opportunities provided by an environment determine, in part, how efficacious individuals within the environment can be. Therefore, as Bandura (1997) noted, it is within acceptable reason to expect a positive relationship between a teacher's sense of efficacy and the perceived collective efficacy of a school. To take the concept a step further, the influence of perceived collective efficacy of a school "may be especially pronounced for novice teachers as they are socialized into the teaching profession" (Tshannen-Moran, et al., 1998, p. 221).

The theoretical framework for this study was grounded in Bandura's (1986) social cognitive theory, and more specifically, self-efficacy. Causation of human behavior as explained by Bandura's (1986) social cognitive model is a triadic reciprocal interaction between personal factors, behavior, and environmental factors. Therefore, human behavior is determined by the bidirectional interaction of these factors. Therefore, the relationship between environmental factors (school environment and preservice teacher preparation program), teaching behaviors and, beliefs about one's teaching provides the foundation which undergirds this study.



Bandura's triadic reciprocal determinism model. Adapted from Pajaras (2002).

Bandura's (1986) social cognitive theory is rooted in the belief that human action is a result of a variety of influences, in addition to environmental factors only (Pajares, 2002). Behaviorists would argue that inner thoughts or processes transmit behavior, rather than cause it, and therefore, do not warrant investigation (Pajares, 2002). Conversely, Bandura (1986) argued that people make sense of their psychological world through introspection. However, behaviors are influenced by environmental factors but, it is vital that people use cognitive processes to determine their behavior based upon those environmental factors (Bandura, 1986). To substantiate the point, James (1981) argued that "introspective observation is what we have to rely on first and foremost and always" (p. 185). Bandura (1986) added, "a theory that denies that thoughts can regulate actions does not lend itself readily to the explanation of complex human behavior" (p. 15).

Found within Bandura's (1986) social cognitive theory is the concept of self-efficacy. Perceived self-efficacy refers to the beliefs one holds regarding the capabilities to perform actions at designated levels (Bandura, 1997). Efficacy judgments are "concerned not with the number of skills you have, but with what you believe you can do with what you have under a variety of circumstances" (Bandura, 1997, p. 37). Bandura (1997) further noted self-efficacy beliefs influence the courses of actions people choose to pursue, how much effort is put forth, and how long they tend to persevere in challenging situations.

Self-efficacy beliefs are formed based upon four main sources of information: enactive mastery experiences, vicarious experiences, verbal persuasions, and physiological states (Bandura, 1997). Enactive mastery experiences produce "stronger more generalized efficacy beliefs than do modes of influence relying solely on vicarious experiences, cognitive stimulations, or verbal instruction" (Bandura, 1997, p. 80). Therefore, people need opportunities to practice behaviors in order to master them (Knobloch & Whittington, 2002). Consequently, Capa (2005) noted, "as learners master skills, they tend to raise the expectation that they will be able to master those skills further" (p. 20). Further, Bandura (1997) explained, as failure tends to lower self-efficacy, success tends to raise it.

Purpose of the Study

The purpose of this study was to identify the perceived level of teaching efficacy of beginning agricultural education teachers in Missouri and Kansas and to investigate the environmental factors that may affect their self-perceived teaching efficacy. Teaching efficacy factors included

support within the organization (principal), teacher preparation program quality, and perceived efficacy of the organization.

The research objectives were:

1. Describe the professional characteristics of the beginning agricultural education teachers including, teaching efficacy, perceived teacher preparation program quality, perceived principal support, and perceived collective efficacy.

2. Describe the relationships between the study variables teaching efficacy, perceived teacher preparation program quality, perceived principal support, and perceived collective efficacy.

Methods and Procedures

The population for the study (*N*=213) included secondary agricultural education teachers in Missouri and Kansas who had been teaching four years or less and were licensed or completing licensure through an approved program. Teacher names and contact information were obtained from the Missouri Department of Elementary and Secondary Education and the Kansas Department of Education. Nonresponse error was controlled by comparing on-time (*N*=103) respondents to late (*N*=77) respondents (Miller & Smith, 1983), and by the use of procedures outlined by Dillman et al. (2009). No significant differences were found between the two groups; therefore, the data were combined, resulting in a final response rate of 84.5% (*N*=180). Data were collected using an instrument developed by the researcher and administered using the internet survey provider SurveyMonkey®.

Data were collected during June and July. Following the procedures outlined by Dillman et al. (2009), an initial pre-notification e-mail informing the participants of the study and requesting their participation. Subsequently, the participants were sent the online instrument. Approximately one week later, participants who had not responded to the first request were sent the first reminder (third contact) requesting their participation. Two weeks after the initial contact participants who had not yet responded were sent a reminder e-mail with a request to participate and a link to the online survey. One week later, those who had not responded were contacted via telephone and their participation was again requested.

The scale used to measure teaching efficacy was a modified, with permission from the authors, version of the Teachers' Sense of Efficacy Scale-Short Form (TSES-SF) (Tschannen-Moran & Woolfolk-Hoy, 2002). The TSES-SF is a 12-item scale that measured teaching self-efficacy across three constructs: Efficacy in Student Engagement, Efficacy in Instructional Practices, and Efficacy in Classroom Management.

Principal support was measured using the Principal Behavior Scale which is a sub-scale of the larger Organizational Climate Description Questionnaire for Secondary Schools (OCDQ-RS) (Hoy et al., 1991). This scale contained seven items and measured a teacher's perception of their principal's efforts to motivate teachers by indicating the observed frequency of practices such as

the principal using constructive criticism and setting an example by working hard while being helpful and genuinely concerned with the personal and professional welfare of the teachers. Perceived collective efficacy was measured using the Collective Efficacy Scale-Short Form (CES-SF) (Goddard, 2002). The CES-SF is a shortened version of Goddard, Hoy, and Woolfolk Hoy's (2000) Collective Efficacy Scale. The CES-SF contained 12 items and measured, as perceived by the beginning teachers, the shard perceptions of the teachers in a specific school that the efforts of the faculty will have positive effects on students (Goddard, 2002). Perceptions regarding teacher preparation program quality were measured using a researcher prepared scale. This scale was developed based upon the National Quality Program Standards for Secondary (Grades 9-12) Agricultural Education established by The National Council for Agricultural Education (2009). It contained 10 items in Likert-type format and elicited data from the participants regarding how they perceived the preparation to teach that they received from their preservice teacher education program. The scale included five response choices and ranged from 1 "Not At All" to 5 "Very Well".

Since the Preservice Teacher Preparation Scale was specifically designed to collect information regarding a single dimension, preservice teacher education program quality, the use of factor analysis was used to determine if the scale was unidimensional. However, before the factor analysis was conducted, a Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) was computed to determine if conducting a factor analysis was appropriate. An MSA of .83 was found and according to Hair et al (2010) an MSA of .50 should be obtained before factor analysis should be occur. Upon the computation of the component factor analysis and initial factor matrix, only one factor was identified. Factor loadings for the items on the scale ranged from .72 to .89. The combined scale was pilot tested with a group of 30 early career agriculture teachers who taught in a state not used in the research study. Internal consistency was determined to be $\alpha = .94$.

Findings

The age of the beginning teachers ranged from 23 to 55 with a majority of the teachers between 23 and 27. Ninety-four of the respondents were female (52%), and 86 (48%) were male. Most of the teachers (85%) completed a traditional route to teacher certification, which included a student teaching experience. The majority of the teachers (89%) were enrolled in agricultural education in high school and were FFA members.

Objective one sought to describe the professional characteristics of the participants including teaching efficacy, teacher preparation program quality, principal support, and perceived collective efficacy. Perceived teaching efficacy data were reported through summated mean scores. The respondents tended to agree to very strongly agree with the statements regarding their perceived ability to engage students and manage their instructional strategies. The respondents tended to feel more efficacious about their instructional strategies of ($M = 7.02$; $SD = 1.33$) than for classroom management ($M = 6.87$; $SD = 1.23$) and student engagement of ($M = 6.47$; $SD = 0.89$). These data can be found in Table 1.

Table 1
Teaching Self-Efficacy Constructs for Beginning Agricultural Education Teachers

Efficacy Constructs	*M*	*SD*
Instructional Practices	7.02	1.33
Classroom Management	6.87	1.23
Student Engagement	6.59	1.07

Note. 9-point scale.

According to the overall mean score for the scale (*M* = 3.47, *SD* = .80), the beginning agriculture teachers indicated their teacher education program adequately prepared them to teach agricultural education. The beginning teachers indicated they were well prepared to "pursue professional growth through continued participation in professional development," (*M* = 3.76, *SD* = 1.00) "deliver curriculum in an integrated model that incorporates classroom and laboratory instruction, experiential learning, and leadership & personal development," (*M* = 3.74, *SD* = .93) "provide students with opportunities for the development and application of knowledge and skills," (*M* = 3.74, *SD* = .91). On the other hand, the teachers indicated they were least prepared to "utilize advisory councils to determine areas for program improvement," (*M* = 3.09, *SD* = 1.14) and "manage students supervised agricultural experience programs." (*M* = 3.07, *SD* = 1.10). It should be noted that 14 participants did not complete these questions as it was indicated they did not complete a teacher education program. These data are found in Table 2.

Table 2
Level of Teacher Preparation Program Quality as Perceived by Beginning Agricultural Education Teachers

Program Quality Statements	*M*	*SD*
Pursue professional growth through continued participation in professional development.	3.76	1.00
Deliver curriculum in an integrated model that incorporates classroom and laboratory instruction, experiential	3.74	0.93
Provide students with opportunities for the development of knowledge and skills.	3.74	0.91
Assess student learning.	3.73	0.88
Motivate students to participate in FFA programs and activities.	3.58	1.06
Coordinate year-round instruction & laboratory instruction, experiential learning, and leadership & personal development.	3.46	1.05
Market the agricultural education program to community stakeholders.	3.28	1.13
Create and foster partnerships to assist in developing and supporting the agriculture education program.	3.27	1.04
Utilize advisory councils to determine areas for program	3.09	1.14

improvement.		
Manage student supervised agricultural experience programs.	3.07	1.10
Scale Total	3.47	0.80

Note. *N* = 166. Response options: 1 = Not at All, 2 = Somewhat, 3 = Adequately, 4 = Well, 5 = Very Well. Interpretive scale: 1.00 – 1.49: Not At All; 1.50 – 2.49: Somewhat; 2.50 – 3.49: Adequately; 3.50 – 4.49: Well; 4.50 – 5.00: Very Well.

Respondents rated the level of perceived principal support regarding seven behaviors displayed by their building principal. A 4-point anchored scale, with the response choices: 1 = *Rarely Occurs*, 2 = *Sometimes Occurs*, 3 = *Frequently Occurs*, and 4 = *Very Frequently Occurs*, was used to obtain the respondents' perceptions regarding each item. The means for this scale were interpreted as follows: 1.00 – 1.49: Rarely Occurs; 1.50 – 2.49: Sometimes Occurs; 2.50 – 3.49: Frequently Occurs; 3.50 – 4.00: Very Frequently Occurs.

With a summated scale mean of 2.80 (*SD* = .70), the principals were perceived by the beginning agriculture teachers as frequently displaying supportive behavior. The beginning agriculture teachers identified "the principal sets an example by working hard," (*M* = 3.07, *SD* = .84) and "the principal looks out for the personal welfare of the faculty" (*M* = 2.96, *SD* = .93) as the areas where they perceived the most supportive behavior. Conversely, the beginning agriculture teachers were least likely to perceive "the principal goes out of the way to help teachers" (*M* = 2.65, *SD* = .94). These data can be found in Table 3.

Table 3
Level of Principal Support as Perceived by Beginning Agricultural Education Teachers

Principal Support Statement	*M*	*SD*	Rarely Occurs	Sometimes Occurs	Frequently Occurs	Very Frequently Occurs
The principal sets an example by working hard	3.07	0.84	7	36	74	63
The principal looks out for the welfare of the faculty	2.96	0.93	11	49	57	63
The principal uses constructive criticism	2.80	0.79	8	54	84	34
The principal explains their reason for criticism to teachers	2.72	0.88	16	53	76	35
The principal compliments teachers	2.71	0.88	15	58	72	35
The principal is available after school to help teachers when assistance is needed	2.70	0.93	22	46	76	36
The principal goes out of the way to help teachers	2.65	0.94	16	73	49	42

Scale Total	2.80	0.70

Note. Response options: 1= Rarely Occurs, 2 = Sometimes Occurs, 3 = Frequently Occurs, 4 = Very Frequently Occurs. Interpretive scale: 1.00 – 1.49: Rarely Occurs; 1.50 – 2.49: Sometimes Occurs; 2.50 – 3.49: Frequently Occurs; 3.50 – 4.00: Very Frequently Occurs.

To assess perceived collective efficacy, the participants completed the Collective Efficacy Scales – Short Form (Goddard, 2002). This scale is designed to determine the collective efficacy of an entire school faculty as perceived by each member of the faculty. In practice, each member of a teaching faculty would complete the instrument and all would be totaled and a mean score computed. The mean score would then be standardized and compared to a normed set of data to determine the collective efficacy of the teaching faculty of a specific school. In this specific study, the scale was used to determine how the agriculture teachers perceived the collective efficacy of the faculty with whom they taught. Goddard and Goddard (2001) indicated how a teacher perceives the teaching efficacy of colleagues has an influence on individual teaching efficacy.

The agriculture teachers in the study tended to perceive their school as a safe location for students to learn (M = 691.54, SD = 124.11). They also perceived their fellow faculty members as efficacious regarding their abilities to produce meaningful student learning (M = 621.14, SD = 149.29), motivating their students (M = 526.41, SD = 136.86), and managing student disciplinary issues (M = 522.93, SD = 171.54). However, the teachers in the study were less positive about the opportunities that their community presented to ensure that students will learn (M = 473.39, SD = 168.05) or that the home lives of their students provided advantages for them to learn (M = 291.74, SD = 206.54). These data are presented in Table 4.

Table 4
Faculty Collective Efficacy Scores as Perceived by Beginning Agricultural Education Teachers

Collective Efficacy Statement	*M*	*SD*
Learning is more difficult at this school because students are worried about their safety. a	691.54	124.11
Teachers here don't have the skills needed to produce meaningful student learning. a	621.14	149.29
Teachers in this school believe that every child can learn.	619.40	129.45
If a child doesn't want to learn, teachers here give up. a	530.75	169.83
Teachers here are confident they will be able to motivate their students.	526.41	136.86
Teachers in this school do not have the skills to deal with student disciplinary problems. a	522.93	171.54
Teachers in the school are able to get through to the most difficult students.	496.86	127.13
Drug and alcohol abuse in the community make learning difficult for students here. a	476.00	211.06
The opportunities in this community help ensure that these students will learn.	473.39	168.05

These students come to school ready to learn.	398.64	160.70
Students here just aren't motivated to learn. a	378.65	155.41
Home life provides so many advantages that students here are bound to learn.	291.74	206.54
Perceived Collective Efficacy Scale	502.29	99.66

Note. Response options: 1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Slightly Agree, 5 = Agree, and 6 = Strongly Agree. a Reverse coded.

Following the procedures outlined by Goddard (2002) a mean collective efficacy score was computed and standardized using the following formula: CE = 100(CE – 4.1201) / .6392 + 500. Utilizing the formula proposed by Goddard (2002), the mean standardized collective efficacy score of the participants in the study regarding how they perceived the collective efficacy of the faculties with whom they taught was 502.29 (*SD* = 99.66). Goddard (2002) indicated that a collective efficacy score of 500 indicated a faculty that was average with regard to collective teaching efficacy when compared to the representative sample of schools used to standardize the scale. The distribution of collective efficacy scores was documented by Goddard (2002) and modeled a normally distributed bell curve. Therefore, the teachers in this study perceived the collective efficacy of the individual faculty with whom they taught as neither overly positive nor negative.

Objective two sought to describe the relationships between the study variables teaching efficacy, teacher preparation program quality, principal support, and perceived collective efficacy. The results of the Pearson product-moment correlation revealed statistically significant relationships among the selected variables. For those relationships that were statistically significant, the set of descriptors published by Davis (1971) were used to interpret the strength of the relationship. It should be noted that correlations including the preservice teacher education variable included an $n = 166$ as fourteen teachers indicated they had not completed a preservice teacher education program, and thus, data was unavailable for those teachers.

There were positive and low associations between principal support and perceived teacher education program quality ($r = .153$, $n = 166$, $p = .048$), principal support and teaching efficacy ($r = .173$, $n = 180$, $p = .022$), and principal support and perceived collective efficacy ($r = .267$, $n = 180$, $p < .001$). Positive and moderate associations were identified between preservice teacher education program quality and perceived collective efficacy ($r = .391$, $n = 166$, $p < .001$), and teaching efficacy and preservice teacher education program quality ($r = .400$, $n = 166$, $p < .001$). A positive and substantial association was identified between teacher efficacy and perceived collective efficacy ($r = .513$, $n = 180$, $p < .001$). These data can be found in Table 5.

Table 5
Relationships Among Teaching Efficacy and Study Variables

Variable	Teaching Efficacy	Collective Efficacy	Teacher Preparation	Principal Support

Teaching Efficacy	1.00			
Collective Efficacy	.513[a] (<.001)	1.00		
Teacher Preparation	.400[b] (<.001)	.391[b] (<.001)	1.00	
Principal Support	.173[c] (.022)	.267[c] (<.001)	.153[c] (.048)	1.00

Note. [a] substantial association; [b] moderate association; [c] low association

Conclusions/Recommendations/Implications

From the findings of this study it can be concluded that perceived collective efficacy, preservice teacher preparation program quality, and principal support are all interrelated and provide varying degrees of influence on the teaching efficacy of the beginning agricultural education teachers. How the beginning agriculture teachers perceived the faculty with whom they worked significantly impacts their beliefs about their own teaching. Tschannen- Moran et al. (1998) indicated collective efficacy's influence on teaching efficacy may be especially pronounced for beginning teachers. From a cultural context standpoint, perceived collective efficacy is the aspect most strongly related to teachers' sense of efficacy (Goddard et al., 2004). Bandura (1997) noted people working independently within a larger group are influenced by those around them. Coleman (1990) further suggested that social norms within an organization develop in order for members of the organization to influence the actions of others in the group especially when the consequences of those actions impact the collective whole.

The quality of the preservice teacher education program completed by beginning agriculture teachers significantly influences their personal teaching efficacy beliefs. Ross (1992) indicated teachers' sense of efficacy increased after participating in learning activities that improved teaching skills. Participation in teacher preparation programs provide authentic teaching opportunities for preservice teachers, which beginning teachers can reflect upon as prior experiences thus, providing a foundation for efficacy beliefs. Darling-Hammond et al. (2002) indicated teachers who felt better prepared were more likely to believe they could teach all students to high levels. Since completing preservice teacher education programs are an influence on beginning teachers' sense of efficacy, providing a quality program is vital to teacher success. In this study, the beginning teachers felt the least prepared to manage advisory councils and support supervised agricultural experience programs. These are needs which cannot be denied and must be included in all preservice programs. Further investigations identifying the deficiencies within in teacher preparation programs should be conducted to improve the quality of instruction and experiences provided preservice teachers.

However, in this study, the concept of principal support and its relationship with teaching efficacy is mixed, at best, when compared to the relationships of collective efficacy and teacher preparation with teaching efficacy. This conclusion is not entirely surprising as researchers in areas outside of agricultural education have published conflicting results about this phenomenon. Tschannen-Moran and Woolfolk Hoy (2001) indicated teachers who reported

greater teaching efficacy beliefs tended to do so when they perceived more effective principal support. Conversely, as Tschannen-Moran and Woolfolk Hoy (2007) pointed out, teachers are going to form personal beliefs about their teaching abilities whether there is support from an administrator or not.

The beginning agricultural education teachers viewed their principals as supportive. The principal is responsible for fostering a supportive and productive atmosphere (Hoy et al., 1992). Furthermore, a supportive principal has been found to be a predictor of school effectiveness (Hoy et al.,1992), and has been associated with collective efficacy (Goddard & Goddard, 2001), which has been linked to teaching efficacy (Pajares, 2002a). However, teaching efficacy is not solely based upon principal support Tschannen-Moran and Woolfolk Hoy (2007). Even though the principal may not directly influence the teaching efficacy of beginning teachers, it is safe to assume that there is an indirect influence by creating a quality educational environment. Although the influence may be indirect, developing quality relationships with the building principal is still paramount to the success of beginning agricultural education teachers. Beginning teachers should be allowed to develop quality professional relationships with building principals to ensure that effective mentoring and support is provided.

It has been suggested that a potential solution to the teacher shortage issue facing agricultural education may be supporting beginning teachers to increase their perceptions about their abilities to teach. This belief is not necessarily unfounded. Burley et al. (1991) documented that teachers who were more efficacious about their teaching abilities remained in the profession longer than their less efficacious counterparts. So far, engaging beginning teachers in professional development programs focused on agricultural education topics and mentoring relationships have been the profession's most valid attempt to address this challenge. These programs provide opportunities for beginning teachers to further develop their skills through vicarious and mastery experiences, which as Bandura (1997) noted, are sources of efficacy beliefs. With regard to content specific skills needed by agricultural education teachers, this model is still valid. In this study beginning teachers felt less prepared to manage advisory committees and supervised agricultural experience programs. Development programs focused on these areas will continue to provide the resources for beginning teachers to develop the competence and confidence to manage these components of the agricultural education program.

However, as found in this study, with the relationship collective efficacy has with beginning teachers' perceptions of their own teaching efficacy, a new model for teacher support may be warranted. Through the use of collective efficacy building programs for faculty a more confident academic atmosphere can be created which will, inherently, support beginning teachers and influence positive efficacy beliefs. Building instructional knowledge and skills of all faculty, creating opportunities for faculty to share skills and experiences through collaboration, providing actionable feedback on teachers' performance, and involving teachers in school wide decision making are known to build collective efficacy and are suggested as foundation actions for all collective efficacy building programs (Brinson & Steiner, 2007). Since perceived collective efficacy of an individual school is substantially associated with perceived teaching efficacy, it is recommended to expand upon this finding and investigate the relationship of between the collective efficacy of an entire teaching profession (i.e. agricultural

education teachers) and the perceived efficacy of beginning teachers in the field. This will provide additional data from which programs can be developed to support beginning teachers.

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