

Designing a Technique for Program Expansion of Secondary Agricultural Education

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Abstract

Introducing, building support for, and implementing an innovation requires many components of diffusion to be in place. The purpose of this qualitative case study was to investigate the most effective methods for developing new agricultural education programs. Using Roger's (2003) Diffusion of Innovation model, four themes emerged from information collected in this study: a) identifying stakeholder needs, b) communication, c) education, and d) securing funding. Recommendations include creating informational packets for community members and administrators, hosting webinars to determine best practices, develop relationships with potential stakeholders, and research on additional information desired by secondary stakeholders and the circumstances under which diffusion in agricultural education fails.

Introduction

When secondary students graduate high school, their next successful transition is career, military, or post-secondary education. For many secondary students, productive dispositions and behaviors, coupled with non-cognitive skills, are most predictive of future earnings (Castellano, et al., 2017). Therefore, emphasis has been placed on college and career readiness through career and technical education programs. A number of educational organizations, including the National Association of State Directors of Career and Technical Education (NASDCTE), the Association for Career and Technical Education (ACTE), and the Partnership for 21st Century Skills, agree that all students in the United States should be college and career ready (Erdogan & Stuessy, 2016). However, the U.S. Department of Education (2010) reported that approximately 40% of all college freshmen are enrolled in remedial courses. To address this, schools have placed a greater emphasis on providing education which better prepares students for the transition from high school to higher education, the workplace, and/or the military. To ensure all students, regardless of geographic location, were indeed prepared to be college and career ready after completing their education in a public school, Common Core State Standards were developed in 2009 (Center for American Progress, 2014). In addition, common assessments were designed to measure the college readiness of secondary students (McIntosh, 2010). Although measuring college readiness is advancement in education, simply measuring readiness will not develop curriculum which allows students to pass. Instead, it is vital to also develop programs designed to produce career readiness in addition to college readiness, and to do so in a program that is available to all secondary students.

Along with conventional academic subjects, schools are turning to career and technical education courses to facilitate the development of college and career readiness. Not only does career and technical education provide knowledge and skill sets for students, but it also introduces potential career fields, as evidenced by a study in New York that revealed over half of middle school participants identified areas of interest that were representative of the agriculture, food, fiber, and natural resources industry (Conroy, 2000).

Secondary agriculture courses provide opportunities for a variety of learners to excel and succeed in an educational setting. This can be seen in a study completed by Roberts, Hall, and

Briers (2009) in which new agricultural programs in Texas schools encouraged Latino students to become more active in their education by joining and participating in an intracurricular program. Furthermore, parents of the students and alumni from the area became more active in the students' education. Access to a teacher who provides intracurricular opportunities, such as an agricultural educator, help at-risk students improve their GPAs and narrow the achievement gap (Herrick, 2010).

Career and Technical Education (CTE) not only helps engage minorities and at-risk students, but it also helps to increase the high school transition rate. According to Wells, Gifford, Bai, and Corra (2015), only 75% of public high school students earn a diploma within four years of entering the ninth grade. Fortunately, research infers students who enroll in career and technical education demonstrate higher levels of engagement, leading to a reduction in the probability of the students dropping out of school and improved levels of academic performance (Evan, et al., 2013). In the 2013 study, the researchers identified the geographic location of all career academies in public schools in Florida in order to determine the type of student most likely to enroll in the career and technical education classes, as well as school information such as dropout and student engagement rates, and then compared those numbers to geographic areas which did not offer career academies. They found that enrollment in career and technical education gives students an advantage in academic and career success. Furthermore, in a study by Neild, Boccanfuso, and Byrnes (2015) determined that increased engagement in and out of the CTE classroom was correlated to a reduction in disciplinary referrals.

All students can benefit from completing a course in career and technical education. In a study completed by Hagen (2010), every student in one high school completed at least one career and technical course per year. As a result of being enrolled in the course, the study revealed student engagement, achievement, student transitions, attendance rates, dropout frequency, graduation potential all improved. In addition, students developed a higher level of self-confidence and competence. Once students experience the development of their self-confidence, they experience a higher level of motivation (Eggen & Kauchak, 2010). Those who completed agricultural courses demonstrated a higher need for achievement than those students who did not complete an agricultural course. Furthermore, participants who completed agricultural courses and joined the local FFA chapter demonstrated an even higher need for achievement (Herren & Turner, 1997).

With the benefits from agricultural education courses that ensure the development of college and career readiness, an expectation for program expansion should be a priority; however, 15 states have seen the number of agricultural programs decrease since the 2011-2016 academic year. The remaining states had an average increase of 12.6 programs per state, with 67% of that growth coming from ten states (National FFA Organization, 2017). What are the high growth states doing to increase the number of programs, and to provide secondary students with the opportunity to succeed? Why aren't states employing methods to produce more career and technical, and specifically agricultural, programs? This study focuses on obtaining answers to those questions so that all secondary students can experience the benefits of agricultural education.

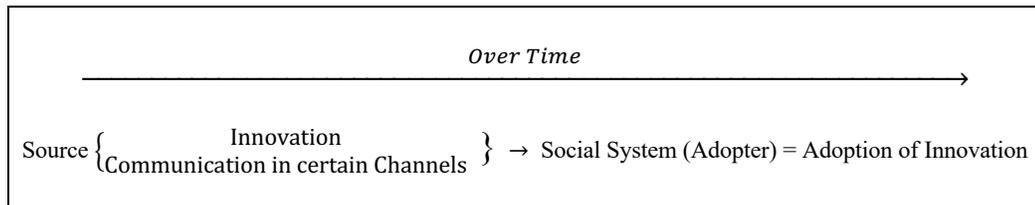
Conceptual/Theoretical Framework

The guiding theory of this study is Rogers' Diffusion of Innovations (Rogers, 2003). An innovation is defined as a new idea, product, or method as perceived by an individual or group of people (Rogers, 1983). According to Rogers (2003), an innovation is adopted after a need is determined. The Diffusion of Innovations Theory describes the necessary means for an innovation to be adopted by a group of people. Rogers (2003) described *diffusion* as a process where innovation is communicated through various methods over time among the members of a social system.

Diffusion can only occur when certain elements are present. Specifically, there are four essential elements for diffusion to occur. The source, or the entity presenting the innovation, provides two of those elements: the innovation itself and the communication of the innovation. The communication presented by the source must be through distinct channels, which connect the source to the social system in which the innovation is being presented. These channels can include mass media (television, social media, etc.) and/or interpersonal interactions (face to face meetings). According to Rogers (2003), the most effective channel for innovation is an interpersonal channel in which someone of similar status (age, education, etc.) completes a subjective evaluation of the innovation after adopting it themselves. People of similar status are referred to as "near peers". The third element, time, occurs throughout the process as the fourth element, a social system, or adaptor, considers the innovation before it decides to diffuse the innovation (Rogers, 2003). Figure 1 provides a visual interpretation of the Diffusion of Innovation.

Figure 1

Visual Interpretation of Rogers' Diffusion of Innovation



The four elements (innovation, communication through certain channels, time, and social systems) play roles in different stages of diffusion (Rogers, 1983). The knowledge stage is completed when the source communicates to the social system about the existence of the innovation and provides a basic understanding of said innovation. An example of how these stages can be seen in an educational setting can be found in a study by Hagen (1999) in which Valley City State University adopted a learning environment in which an innovation curriculum computer program was utilized. In this environment, all faculty and students were given laptops with constant access to the internet. The music department of the university entered the knowledge stage when they learned about what the technology could offer their department. As faculty learned about the possibilities, they entered the persuasion stage during in which they evaluated their initial impressions of the innovation. In this case, positive impressions were developed. The decision stage was completed when faculty began to create curriculum for the music department. The curriculum was implemented, and students focused on five innovative areas via the new environment: communication and aesthetic responsiveness, problem solving,

effective citizenship and global perspective, collaboration and wellness, and technology (Hagen, 1999).

Barriers can prevent the adoption of an innovation, and different barriers arise in different stages. Nelson and Thompson (2005) studied the diffusion of new technology into distance learning programs. When asked what the biggest barriers were to the adoption of the new technology, about 40% of teachers agreed the lack of adequate compensation for time and effort of the faculty was a major barrier. About 35% of respondents agreed the lack of faculty rewards/incentives was a major barrier and one-third of teachers agreed program development costs were also a major barrier to innovation.

Purpose and Objectives

The purpose of this qualitative multiple case study was to determine the most effective methods for program expansion of new agriculture education programs. The research questions were:

1. What methods of diffusion are utilized in the conception and implementation of new agricultural education programs, as described by leaders in state associations?
2. What barriers must be addressed to establish new programs?

Methods and Procedures

This study is a qualitative case study in nature, as designed by Denzin and Lincoln (2008). Case studies investigate a phenomenon, population, or general condition, which is common between different cases (Creswell, 2009). Case studies facilitate the conveyance of a participant's experience to the researcher. Case studies are chosen because it is believed that understanding them will lead to a better understanding about a larger collection of cases (Yin, 2008). In this study, the researchers investigated a series of phenomena, common in multiple states. The researchers sought to obtain detailed information about the methods and communication channels used when launching new agricultural education programs throughout the United States.

Participant Selection

Ten states served as the sampling frame for this study due to their growth of secondary agriculture programs. Each participant selected was chosen or nominated because of his or her affiliation with the state's growth. Achieving the best understanding of phenomena depends on choosing the best cases to study (Denzin & Lincoln, 2008). In this research study, the participants were selected based upon a series of standards set by the researchers. With the help of the National FFA Organization, ten participants met a predetermined series of qualifications. Qualifications for participant selection were as follows: represent a state which obtained a 10%+ chapter growth over a seven-year period at the time of growth and was employed by the state FFA association or by the state's Department of Education. The selected states had a growth range from 21 to 43 programs.

Researchers selected participants because 1) their state was one of the top 10 states to experience a growth of 10%+ in the last seven years in secondary agriculture programs; and 2) they were the considered instrumental in the state programmatic expansion by their peers. Three states considered a team of individuals were responsible for the state's growth. The researchers selected to interview the group of individuals within the selected states in a focus group interview; thus, each state's selected participant(s) partake in an interview.

Procedures

The researchers focused on obtaining information about the growth of agricultural education programs over the past two decades. The National FFA Organization was contacted and information for the past seven years was provided. The National Association for Agricultural Education did not have an accurate count of agricultural education programs; therefore, the frame was limited to growth over the past seven years. The number of FFA programs were compared for all state associations from the 2010-2011 and 2017-2018 academic years. Because there must be an agricultural education program in place in a school before an FFA chapter could be started, the researchers decided the number of FFA chapters in a state was an accurate method for determining the highest growth.

Semi-structured interviews were completed, with each participant being interviewed for approximately one hour. The open-ended questions used in the interview were structured and centered on the individual's views and experiences planning and implementing new agricultural programs, as it aligned with Rogers' (1983) model. Following Yin's (2018) framework of questioning, the researchers gradually modified their questions to transition from Level 1 questioning to Level 4 questioning. Pre-established prompts were used, but the order in which the questions were asked depended upon the participant's responses. Furthermore, clarifying and elaborating probes were utilized as needed in order to provide further explanations and seek more detail in participant responses. The interviews took place over the phone and were audio-recorded. Throughout the interview, the moderating researcher took field notes of reactions from the participant and researcher. After each interview was completed, the researcher expanded on the field notes in a reflective journal. Each interview was transcribed for analysis.

Data Analysis

This data from this study consisted of field notes, taped interviews, transcribed interviews, and journals of personal reflections over the interview. Once all data were collected, researchers read and reread the data to become more familiar with them. Then, the researchers independently and systematically coded the data by identifying phrases and topics which consistently were mentioned in the data. Next, researchers used axial coding to create themes from the codes through the iterative method of recursive analysis. By utilizing recursive analysis, researchers constantly compared each piece of data to the prior pieces of data in order to ensure the themes were representative of the data (Yin, 2008). The researchers coded the thematic responses following Rogers' Diffusion of Innovations to develop assertions. To add multiple perceptions to the analysis of the data for the enhancement of validity and credibility to the results, triangulation was utilized throughout the procedures.

Trustworthiness

After all interviews were conducted, audio recorded, transcribed verbatim, and field notes written and expanded upon in a journal, the researchers independently coded data and then compared results. Peer debriefing was utilized from an outside source throughout data collection and the coding process as an impartial colleague was asked to review methodology. Furthermore, the researchers independently coded the data and then compared results. This created inter-rater reliability, which enhances thematic credibility (Denzin & Lincoln, 2008; Saldena, 2009). To increase the trustworthiness of this study, member checking was utilized. Each participant was given a copy of the findings and asked to confirm the results, creating data confirmability (Denzin & Lincoln, 2008). Follow-up phone calls were conducted to each participant to verify the content of their interview. Finally, the findings and conclusions were sent to the participants for validation. Overall, the researchers established credibility of the data using reference materials, peer debriefing, and member checking.

Triangulation and Bracketing

Triangulation is the simultaneous display of multiple realities (Denzin & Lincoln, 2008). Data source triangulation, which is the use of multiple sources of data, were utilized in this study. There were three major types of data: interviews, field notes, and a reflective journal kept by the researchers. Investigator triangulation was also used. Because the researchers have not experienced the same events as the participants, there are multiple realities, which could lead to bias from the researchers. In order to prevent bias in this study, the background of the researchers should be addressed. The two researchers are involved in agricultural education. One researcher is involved in teacher education and taught at the secondary level for seven years prior to beginning his career at the collegiate level. The other is a current agriculture teacher who has four years of experience and is currently working on a PhD in Curriculum and Instruction. Investigator triangulation was utilized in all interviews and interactions with participants to minimize the influence of biases. This was achieved through independent coding and the maintenance of a reflective journal to describe the interactions between the researcher and the participants and to note any biases.

Findings

For all findings, participants have been given alias names. Research question one sought to determine what methods of diffusion are utilized in the conception and implementation of new agricultural education programs. For this objective, two themes emerged.

Theme 1: Identify potential stakeholders and their needs

Throughout the interviews, participants emphasized the importance of identifying stakeholder needs. Several different stakeholders were identified, and three subgroups emerged. The first group is community members ranging from parents, students, alumni, to legislators. The second group is school officials, ranging from administrators, school board members, superintendents, and the Department of Education. The third group included important people in the agriculture industry, such as farmers, Farm Bureau, the Department of Agriculture, sponsors,

and other agribusinesses. These different groups of stakeholders have different needs for an agricultural education program. For example, a farmer would want an agricultural education program that would focus on production agriculture. However, an urban community would want an agricultural program to focus on urban agriculture and sustainability. A school administrator would want a program that would appeal to students, parents, and testing scores. Participants in the study emphasized the importance of first building a relationship with and then helping stakeholders to identify their needs and then providing them with the necessary tools and resources to advocate and build support for an agricultural education program in their community. Table 1 includes supporting statements from participants.

Table 1

Stakeholders Necessary for Expansion

Stakeholder Sub-themes	Quotations from Participants
Community stakeholders	<p><i>Mr. A:</i> “If you look at the relationships those coordinators build in those schools and in those school systems, and in those communities, it helps them build the momentum, the excitement, and we can work with local individuals, whether they are farmers or businessmen, former FFA members, or moms, or whomever, that are interested in ag education where we do not have a program. And we work with those folks to help them understand how to get a program. We work with the movers and shakers then.”</p> <p><i>Mr. C:</i> “So I would say the parents and alumni of existing chapters, by creating the demand for those programs is by far the most effective. After them would be administrators, local school administrators, but if the demand is coming from their local communities, they listen much better than from the state level.”</p>
Administration stakeholders	<p><i>Mr. B:</i> “They had actually taught some ag science classes, but it wasn’t an approved program, so the superintendent called and we have five supervisors that work with me in the state of [STATE]. I took the supervisor who is responsible for that region. We went and had a sit down meeting with the superintendent and the school guidance counselor and the science teacher who is teaching a couple of ag science classes. And we just went through the whole program approval process. We explained what the expectations are.”</p> <p><i>Mr. G:</i> “Some other things that we’ve done as well, and we haven’t done this for a couple of years, but plan to do that this year, is we have rented charter buses, and the last time we did this we did this from three, we had Northern, Central, and Southern [STATE}, and schools, our first targets were schools without programs, we invited students, administrators, guidance counselors, community members, to go to National FFA Convention for a day. And that’s a great way to educate them about the opportunities that are available to students, just through the FFA.”</p>

Stakeholder Sub-themes	Quotations from Participants
Industry stakeholders	<p><i>Mr. A:</i> “I know we have Farm Bureau as a great partner, our state Grange is a wonderful partner, we’ve got great relationships with our state department of ag and public instruction when it comes to state government, and with those great relationships of agriculture and agricultural education and those ag related businesses, we’ve made great relationships where we can inspire some influence with local people who make decisions, too. And so they’ve been great partners in helping us establish programs across the state.”</p> <p><i>Mr. E:</i> “Yes, we get support from our Department of Education. The Farm Bureau is a huge supporter of ag education and FFA in our state. They are very visible in our state and they’ve been real good to us in a variety of ways and that’s another example.”</p>

Theme 2: Communication is a method of entry

An important part of building relationships with stakeholders is communication. In each interview with participants, communication was a factor in creating and implementing new agricultural education programs. Two sub-themes emerged under this umbrella: methods of communication and resources in communication. Methods of communication varied, but a theme emerged with the most popular ones. Participants overwhelmingly responded that face-to-face meetings were the most effective methods of communication. However, participants recognized the need for other methods of communication, such as emails and telephone calls. For communication with students, the participants reported social media, including Facebook and Twitter, were the most effective method. Participants also listed several documents and online resources they utilize in order to implement new programs. These resources include student surveys, educational literature about agriculture and agricultural education, course standards, websites with information about agriculture courses and opportunities in FFA, and letters. State officers are also used as resources. Additional resources mentioned include grants for new programs, time placed into working with new programs, conference calls and webinars for teachers in new programs, leadership training for officers of new programs, state staff designated to help a region of teachers, and an employee who visits new programs and provides assistance as requested. Table 2 includes supporting statements for this theme.

Table 2

<i>Communication as a Method of Entry</i>	
Communication Sub-themes	Quotations from Participants
Verbal communication	<p><i>Mr. B:</i> “You know, it’s the face to face. I mean you can answer a lot of questions, as far as explaining the program, showing value of the program, and the passion you have for why the program is important. It’s hard to do that over email. Hard to do by phone, a letter doesn’t really mean anything. We’d do face to face contact anytime we get an inquiry.”</p> <p><i>Mr. G:</i> “We have some, for example, we have some documents such as student surveys, where as schools start to explore the idea, we will sometimes provide them with a survey the students can complete and see what the interest is in agriculture in general and also which areas of agriculture do they have the most interest in now, whether that’s ag mechanics or etc. We also utilize state FFA officers to conduct visits sometimes after they have decided to have a program just to introduce students to FFA, so I guess I would consider FFA state officers or section officers as a resource as we start new programs, that’s for sure.”</p>
Verbal Communication	<p><i>Mr. C:</i> “But my state officers are trained and prepared to present to local school boards and say, <i>This is what FFA is and this is what FFA has done for me. This is how FFA changed my academic course. Here’s what it has done for my life and here is what it can do for your students.</i>”</p>
Non-verbal communication strategies	<p><i>Mr. D:</i> I don’t know if you’ve been on the [STATE] Agricultural Education website, but we redid that. You look at it, it’s public friendly, but it has the information for teachers and students as well. It’s obvious where to go. And the third option is “Start a Program in Your School,” which takes you to a list of a few questions that are commonly asked, around “How do I start a program?” and we have in there to contact state staff, to provide support and give guidance around what to do.”</p> <p><i>Mr. F:</i> “With our new programs, we always hold a new program conference call in January to kind of make sure they- when new chapters start out, we always want them to be successful, so we have a conference call and let them ask any questions and that kind of thing. We also have a new chapter grant program. The startup costs for a new program varies - there’s a lot of expense associated with starting a new program and through our foundation, we have an opportunity for those chapters to get a \$1,000 grant to help with startup expenses and that’s been a very successful.”</p>

Research question two sought to identify what barriers had to be overcome in order to implement new agricultural education programs. For this objective, two themes emerged.

Theme 1: Overcoming educational barriers

When asked about barriers to creating and implementing new agricultural education programs, participants responded one barrier was the education of communities. Two sub-themes also emerged. The first sub-theme is the education of the community (including all stakeholders) about the importance of agriculture. This was especially noted in urban and suburban areas as many people in those areas are unaware of the importance of agriculture in their community. However, in order to begin new programs, the community must see value in agriculture in order to develop a need for an agricultural education program. Participants spoke about how their first task in beginning new programs was to establish validity and importance for agriculture. The second sub-theme is the education of school officials, including administrators, school board members, and superintendents, about the difference between agricultural education and FFA. Several participants spoke about schools that wanted to start an FFA chapter, but were unaware they had to have an agricultural education program first. Participants spoke of the importance in making school officials understand the importance of agricultural education, and not just the FFA component. Table 3 gives quotes from participants about community education.

Table 3

<i>Educational Barriers</i>	
Education Sub-themes	Quotations from Participants
Education of community	<i>Mr. A:</i> “And that every county in our state has agriculture. It’s our state’s largest industry. Although we may not have the largest number of farmers employed in our state, we do have the largest number of employees and jobs in the agricultural industry. And when you’re providing \$72 billion to the economy, you want to be a part of something that is good, something that is quality. You want to be a part of something that is making a difference. People just want to do that naturally. And I think it’s our job to relay that and communicate that to these folks.”
Education of school officials	<p><i>Mr. B:</i> “That’s why we’ve got schools that call and say, “Well, our neighboring school has an FFA chapter, we want an FFA chapter, too.” Then we sit down and explain to them, it’s not just FFA, it’s ag education, too. Once we get the ag education program started, then the FFA component can get started in the school.”</p> <p><i>Mr. E:</i> “Well, I think, probably most typically, the FFA recognition is the easiest answer because all the recognition that FFA gets- probably the most high profile part of ag ed- I don’t know about by any stretch the most important- I think those all three circles, FFA, classroom, and SAE, are very important and they have to be the same size and I think they all have to be connected. But I think the piece with the most high profile is the FFA part... We’ll get a call from somebody and they say, “How do we get FFA?” And we (state staff) understand they mean how do we get ag education, and so that’s how we have to get started and make sure they understand they’re getting an ag program and not just an FFA chapter.”</p>

Education Sub-themes	Quotations from Participants
Education of school officials	<i>Mr. G:</i> “But another obstacle is emphasis on academics. Maybe another obstacle is just administrators, parents, etc. don’t truly understand what is involved in ag education program so that they think it’s for students who are going into farming, and so it’s an education process to educate that we are preparing students to go into the field of agriculture. And beyond, providing skills to students regardless of what their career path may be. And so that’s an obstacle, it really is, because they have misperceptions about what agriculture and FFA is today, that’s for sure.”

Theme 2: Addressing financial support issues

Overwhelmingly, the biggest barrier participants reported having to overcome is the lack of funding, or trying to find funding for new agricultural education programs to start. In most states, agriculture teachers are paid for extended days or they are paid on ten to twelve month contracts because they work with students throughout the year, regardless of whether or not school is in session. Because of this, many states have passed legislation that allows agriculture teachers to be paid for this time. In addition to paying a higher salary to a teacher, agricultural programs require additional facilities. For example, some schools have Agriscience labs or shops. Other schools have farms for their students. No matter what facilities are chosen for a program, it is an investment for schools, and many schools have struggled to find funding for new programs. The economic downturn, beginning in 2008, has also made it hard for schools to find funding for new programs. Table 4 provides participant responses on the funding barriers.

Table 4

<i>Methods for Finding Funding</i>	
Finding Funding	Quotations from Participants
	<i>Mr. C:</i> “We actually generate more dollars per student than academic programs. Of course, they’re also much more expensive to run than academic programs.”
	<i>Mr. E:</i> “...we’ve taken a 1% cut here, a 2% cut there, 3% there, and so where we are now is smaller than where we were six years ago. That’s just the way it is because that’s the way the state budget is because that’s the way the economy is. And so, that pie continues to get smaller, we still have interest in adding programs, so we have more people feeding the pie, we have people getting bigger pieces of the pie, because we’ve got teachers who are adding degrees, they’re getting Masters degrees, or getting more experience, and help increase their salaries. So continuing to grow funding to match a growing program has been a challenge.”

Finding Funding	Quotations from Participants
	<p><i>Mr. G:</i> “To try to talk them into adding new programs when they’ve probably made some cuts elsewhere, is somewhat of a hard sale, even though it has happened. A school that added a new program that will start this school year, they had a board meeting where the agriculture program was approved, they cut \$400,000 from their budget or maybe more from their budget, and then right after they did that, they added an ag program.”</p>

Conclusions, Implications, & Recommendations

The researchers recognize the limitations to this study and acknowledge that the findings were based upon the stories of a few individuals who were instrumental to the significant growth of program expansion in their state. However, this study did not include members of the community where the programs began, members of the organizations that further assisted with the growth, nor governmental or school officials that assisted with program expansion. Furthermore, the study is viewed from the lens of the authors who took a pragmatic worldview; hence the use of Roger’s model as a guide. Nevertheless, the findings from this study were implemented which have resulted in program development and expansion of programs within the Commonwealth of Kentucky. Of the programs developed, all have maintained partnerships with the community agency and are still present in secondary schools.

Although no community is the same and agricultural programs were not be created and implemented homogenously, there are similarities in the diffusion process. From this study, it was concluded that one of the first steps in creating new programs is to identify the needs of all stakeholders, including the community members, school officials, and industry representatives. Another important part of the process is to use the most effective communication channels possible. Although all types of communication are used (phone, email, letter, etc.), the most effective method of communication is face-to-face meetings. Resources must be used efficiently as well, in order to increase the understanding of agricultural education for the school officials and community. Resources that are utilized include websites, documents, student surveys, etc.

The need for stakeholders serves as *Channels* to Rogers’ (1983) Diffusion of Innovation Theory. These stakeholders are the voice box for promoting the start of the agricultural education program from within a community. Various organizations serve as fundamental platforms and provide opportunities for community members to encourage the promotion of a secondary program within a school. To begin the process of innovation, agricultural education state staff members who are looking for the correct *channel* should consider meeting with various advocate groups that can assist in the process. Examples of organizations to be contacted, but not limited to, are the local Farm Bureau, the National Association of Agricultural Educators, and the local Chamber of Commerce. Each serve as interpersonal channel that could open opportunities for an agricultural education program to exist. Based upon Rogers’ model, the interpersonal channel the participants made, had a great impact on the adoption of new program expansion.

State staff members are recommended to build relationships with community leaders, administrators, and leaders in the agricultural industry prior to program proposals. Once established, the relationships serve as additional adopters for promoting and advocating the implementation of new agricultural education program. In addition, states with an interest in program expansion should seek to increase support at the state level. In this study, participants expanded upon utilizing trained support, such as state officers or teachers in the state, to further help in explaining the benefits and developing supportive networks. From the findings, it is recommended that states with the desire of program expansion seek opportunities to gain help by providing professional development in the area of advocacy. Such professional development could be provided to teachers within the state, state officers, alumni, and members of Foundation boards. Building support by developing relationships with adopters is vital in getting a community to adopt an innovation (Rogers, 1983).

Communication in this process occurs through various ways, including phone calls, email, letters, etc., but the participants overwhelmingly agreed that face-to-face meetings are the most effective way to implement new programs. However, the main key is that an initial contact be implemented. For example, in a study utilizing Diffusion of Innovation Theory, small businesses who showed the most growth made various efforts to contact potential clients (Nooteboom, 1994). Resources that are crucial to share include student surveys, information about agriculture and agricultural education, agricultural education and FFA websites, and examples of other successful agricultural education programs in an area like the school which is considering a program. Currently, the National FFA Organization provides opportunities for administrators of non-agricultural education programs to attend the National FFA Convention to understand the value of the profession. Each state is encouraged to consider opening the door of their State FFA Convention to administrators of schools. Through these methods, communication serves as a source to the Diffusion of Innovation Theory (Rogers, 1983).

If support for agricultural education could be raised in school systems that do not currently have programs, they would be much more likely to implement one. Therefore, it is recommended that advocates for agricultural education programs should target school administrators to encourage implementation. To best implement the recommendation, face-to-face meetings are suggested, based upon the findings. In addition, different resources, such as community, financial, industrial, and collegial, are beneficial if established prior to meeting. The establishment of such resources solves for barriers that may limit the social system (Rogers, 1983).

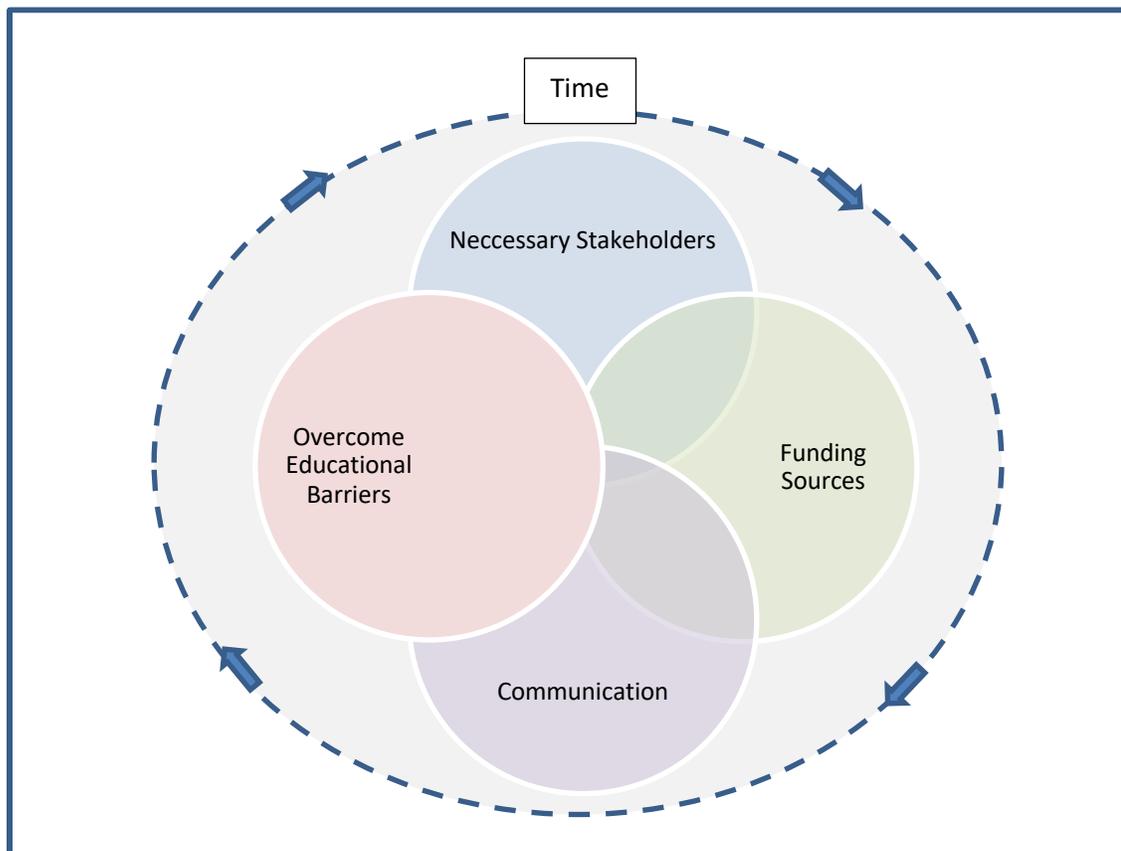
To fulfill Rogers' Diffusion of Innovations Theory more efficiently in the context of agricultural education program development, it is recommended that stakeholders develop educational materials for individuals seeking to propose new agricultural education programs. Similarly, Roberts, et al. (2009) determined that new curriculum was needed for program expansion in Hispanic serving program where Roger's model was implemented. These educational materials could consist of, but are not limited to, creative program support information, beneficial results from agricultural education, and correspondence from administration of successfully started programs.

It was concluded that the development of a new program is costly and such cost may sometimes be detrimental to its development. Therefore, supporters of agricultural education, such as National Association for Agricultural Education (NAAE) and its state affiliates, should lobby to state legislatures in the development of funding resources for establishing new programs. Such funding sources, such as the STAR program, would assist in addressing barriers and further securing a commitment between administration and agricultural education stakeholders.

To help understand the emerging themes, the researchers developed the Agricultural Education Program Development Concept Model (Figure 2). It was concluded from the results in this study that the model best represented what the participants conceptualized for their success in program expansion. Each of the four emerging themes are all linked together in the process of program expansion. Although time is necessary in the development of a new program, stakeholders must be involved, funding sources need to be addressed, a clear and open flow of communication has to exist, and the school or profession must identify and extinguish educational barriers.

Figure 2

Agricultural Education Program Development Concept Model



It is important to note that this model is merely a visual representation of how the participants in this study conceptualize program expansion. It is recommended that the model serve as a guide toward the development of questionnaires in exploring and validating the findings in this study.

The National FFA Organization, in partnership with NAAE, are encouraged to host a series of webinars in which state leaders, such as the participants in this study, collaborate and share their ideas for new program expansion. The purpose of the webinar would be to create a list of best practices for distribute to all associations, which could then be utilized in the creation and implementation of agricultural education programs across the nation.

To provide opportunities for all students in all schools to become college and career ready, programs which provide that type of preparation must be available, including agricultural education. By following Rogers' (1983) Diffusion of Innovation Theory and ensuring all necessary stakeholders are involved, clear and effective communication is presented, and options to overcome barriers are developed, it is possible to help schools adopt this innovation and improve the education provided to their students.

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