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A Philosophical Examination of the Agricultural Education Model and Transformational Leadership for Secondary Agricultural Education

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Abstract

Leadership has long been associated with agricultural education at the secondary level. An examination of agricultural education literature has shown leadership development and leadership activities as products of agriculture programs, rather than as components central to the agricultural education model. This philosophical document sought to give an overview of the agricultural education model and the transformational leadership approach. The authors developed a dynamic model for agricultural education which places an emphasis on the leadership approach of the agricultural educator. Transformational leadership was added to provide a starting point for agricultural educators seeking to utilize the traditional three-circle agricultural education model. The transformational leadership approach will enhance the leadership skills of educators, resulting in greater effectiveness in each of the three components and lead to a higher quality agricultural education program. Furthermore, high quality agricultural education programs will have a positive impact on the local community and its residents. The Transformational Leadership and Community Impact (TLCI) Model was developed to provide a more holistic approach for operating a high quality secondary agricultural education program.

Introduction

In 1963, John F. Kennedy addressed the Graduate Research Center of the Southwest, emphasizing the deep relationship between leadership and learning as he said, "leadership and learning are indispensable to each other" (John F. Kennedy Presidential Library & Museum, n.d.). The outcome of the leadership and learning relationship is dependent upon the teacher, Townsend (1999) stated, "Teaching is an enormous responsibility where teachers are leaders, providers of knowledge, and role models for the generation that will soon run the world" (p. 4). Those involved in agricultural education must have an outlook that supports the development of teachers as effective leaders.

Today—in 2009, leadership in education is more important than ever before as we face a plethora of issues such as high-stakes testing, economic and budgetary decline, overcrowded schools, and underrepresented populations. Agricultural education faces the challenges felt by education as a whole; therefore, leaders in the profession must find solutions to these issues. Stallman (2004) opined that maintaining and developing high quality agricultural education programs must remain a top priority if we want to enjoy the safest, most affordable and abundant food supply in the world.

The National Council for Agricultural Education (The Council) has recognized the importance of this issue and has developed a "long-range strategic goal—10X15." The Council believes:

> Of the critical issues facing the nation, few are more compelling than improving the academic performance of public schools and ensuring a stable, safe and affordable food supply. Today agricultural education is positioned to contribute substantially in these arenas through a major national initiative. (National Council for Agricultural Education, 2007)

The goal of the "10X15" plan is to have 10,000 *quality* agricultural education programs in place by 2015 (2007). One may measure the *quality* of a program by the standards of the Agricultural Education Mission of preparing students for "successful careers and a lifetime of informed choices in the global agriculture, food, fiber and natural resources systems" (National FFA Organization, 2008, p.5). According to the National FFA, there are 7,358 programs in the United States, Puerto Rico, and the Virgin Islands (National FFA, 2008). The current numbers show that we are 2,642 programs short with about seven years remaining to accomplish this goal.

Agricultural educators in the profession must have the necessary knowledge and skills to implement the agricultural education model if they are to make the substantial contributions vital to the success of agricultural education. Furthermore, understanding the origin and historical underpinning of how the model was developed is essential. The foundation of agricultural education is based on the familiar three–circle model: instruction (classroom/laboratory), supervised agricultural experience (SAE), and FFA. The three-circle agricultural education model has been widely accepted as a guide—an ideal—for agricultural educators who set out to build and sustain high quality agricultural education programs. Although this model does provide the ideal "end state," it does not depict how to get to that state. Structural in nature, the model is somewhat static; thus, it does not depict possible or actual causal relationships.

Literature (Bell, 1996; Dodson & Townsend, 1996; Dyer & Osborne, 1996; Fritz, 1996; Gliem & Gliem, 1999; Vaughn, 1976; Vaughn & Moore, 2000; von Stein & Ball, 2007) indicates the leadership experiences of the teacher have a positive influence on program quality and leadership development of students. But how does the agricultural education teacher—the person responsible for leading the agricultural education program—go about doing his or her job and fulfill the three-circle model creating a high quality program. How does the teacher provide leadership to reach the ideal? What model for leadership should serve as the "ideal"? At this point there is not a leadership model or approach adopted by the profession for those seeking to enhance their leadership within the context of agricultural education.

Ensuring high quality agricultural education programs is vital to the success of the agriculture industry and ultimately to the quality of life in America. Therefore, it is crucial that the agricultural educator of today possess strong leadership skills that will ensure a successful agricultural education program, enabling students to gain the qualifications and skills needed to sustain American agriculture as a global leader. If agricultural educators are limited in their development as leaders and in their leadership skills, what are the chances that students in the

program will develop the leadership skills necessary to succeed in a highly competitive, global workforce?

Additionally, ineffective or non-existent leadership by teachers in agriculture programs encourages school administrators to close agricultural education programs or reduce the number of classes, which prevents many students from taking agriculture courses. According to the National Council for Agricultural Education, only about six percent of high school students successfully complete coursework in agriculture (2000). Greater leadership skills and abilities of agricultural educators would increase the number of students interested in taking agriculture courses and the quality of instruction and learning, ultimately leading to an increase in the number of high quality agriculture programs across the nation.

Purpose

The purpose of this paper is to examine logically and philosophically whether the transformational leadership approach can benefit secondary agricultural educators, creating more effective and successful agriculture programs. This information will challenge current agricultural educators to enhance their leadership skills, resulting in greater effectiveness and success of their agriculture program. The objectives are as follows: a) Present transformational leadership as an effective approach for agricultural educators seeking to operate high quality programs. b) Provide an overview of agricultural education models. c) Provide an overview of the transformational leadership approach. d) Describe the possible contribution of transformational leadership to agricultural education in producing a high quality program that positively impacts the community.

Theoretical Framework

The profession has not adopted a particular leadership model or approach for those seeking to enhance their leadership effectiveness as agricultural educators. One may be naive to think that there is only one leadership model or approach which would benefit agricultural educators in every situation they face. However, identifying a model that complements the current agricultural education model should serve as a good starting point. Several key points explained below support the logic as to selecting transformational leadership as the model of choice.

First, the transformational leadership approach has been one of the most widely researched and utilized theories in the leadership profession. In fact, a content analysis in *Leadership Quarterly* by Lowe and Gardner (2001) suggested that one third of the research was about transformational or charismatic leadership. Second, over the past 25 years leaders in military, government, education, manufacturing, high technology, church, correctional, hospital, and volunteer organizations have been studied through the lens of transformational leadership and were reliably differentiated as leaders ranging from highly effective to ineffective (Bass & Avolio, 2004). An additional point which was made by Boyd (2009) should appeal to those in education:

using transformational leadership theory as a pedagogical method and teaching philosophy will not only help students operationalize the theory, but will also lead to deeper understanding for students– a transformation of their understanding of themselves as leaders and leadership itself. (p. 51)

Finally, research specific to our profession by Greiman, Addington, Larson, and Olander (2007) suggested that transformational leadership might be advantageous when confronted with issues in the school environment. The 2007 study utilized the Multifactor Leadership Questionnaire (MLQ) and concluded that agricultural educators are "more transformational in their preferred style in contrast to transactional and laissez –faire styles" (p. 93). The transformational leadership approach seeks to create performance beyond expectations for both the leader and the follower. Roberts and Dyer (2004) studied an expert panel of agricultural educators in Florida to identify the characteristics of an effective agriculture teacher. One hundred percent of the respondents agreed that an effective agriculture teacher demonstrates personal qualities such as: "cares for students, is honest, moral, and ethical" (p. 89). Each of the previous qualities aligns with the transformational leadership approach; therefore, this approach will be used for a leadership component to be incorporated into the agricultural education model. This leadership emanates from the instructional leader of an agricultural education program—the agricultural education teacher.

Agricultural Education Model

Agricultural education has existed in North America since the early 1600s when the Native Americans taught the early settlers about crop production (Talbert, Vaughn, & Croom, 2007). The predominant model for agricultural education used today (Figure 1) first appeared in the 1975 version of the FFA Advisor's Handbook (Croom, 2008). However, Croom reported that there is not "evidence of an established date or recognized event that created the three-component agricultural education model" (2008, p. 117).   Even though the first document to show the Venn configuration of the three overlapping circles with instruction, FFA, and SAE was in 1975 (National FFA Organization), each of the three components has been in practice for decades.
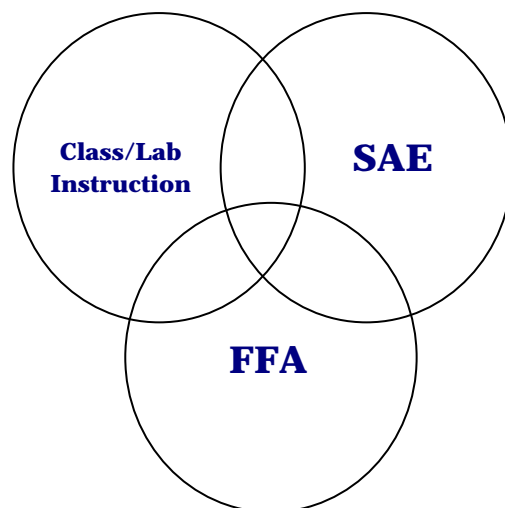
Figure 1. Agricultural education model (National FFA Organization, 2007)

Most likely, the first component developed in the agricultural education model was supervised experience as youth gained skills around the home or through apprenticeship programs dating back to the first American settlers (Struck, 1945). Formal agricultural education in public schools did not exist for almost three centuries; then, the 1917 Smith-Hughes Act was established to provide "instruction in vocational agriculture" (Phipps, Osborne, Dyer, & Ball, 2008, p. 28). A few years later, in 1928, the Future Farmers of America (FFA) was formed and is now a co-curricular organization, providing opportunities unique to students enrolled in agricultural courses. The FFA seeks to make a positive difference in students by developing "premier leadership, personal growth, and career success through agricultural education" (National FFA Organization, 2008, p.5).

These three components have been integrated to form the agricultural education model. As Croom stated, "the integrated model for agricultural education seems to describe the philosophical thought surrounding agricultural education in the early twentieth century, and as such, became the guide for what agricultural education was to be or become" (2008, p. 117). The three circle model has been the most recognizable and emphasized approach to developing a quality agricultural education program. However, should agricultural educators of today rely solely on the current form of the model which was developed over time and as needed rather than as a part of a concrete or systematic plan? In a study by Brown and Stewart (1991) the authors noted:

> Some research has been conducted to document and begin to develop agricultural education program models. However, these studies appeared to focus on the need for change rather than specific agriculture program components that need to be added, eliminated, modified, or refocused. (p. 134)

The authors and experts in the field suggest that alternative models for the delivery of agricultural education would be useful to the profession (Croom, 2008). The challenges agricultural education faces today are more likely to be overcome by a model that has been developed with purpose, through the scholarship of experts in the profession.

An alternative model for agricultural education was created post the three circle model; in 1992, the Agricultural Education Program Model was developed and published in *Experiencing Agriculture: A Handbook on SAE*. The "new" model (see Figure 2) viewed agricultural education in the context of school and community with four components: a) classroom and laboratory instruction, b) application, c) employment and/or additional education, and d) career (Hughes & Barrick, 1993). The Agricultural Education Program Model of 1992 was not accepted as a replacement for the three circle model; therefore, this study will not focus on the details of that model. However, the development of a "new" model would suggest that the three-circle model may be inadequate to provide the foundation for agricultural education programs of today.

The Hughes and Barrick (1993) model is one example of how the profession attempted to create a new model "representing the total agriculture program," one that would "more accurately reflect agricultural education" (p. 59). At this point a new model that assists agricultural educators in meeting the standards of the profession has not been developed. Although Classroom/Laboratory Instruction, Supervised Agricultural Experience (SAE), and FFA are vital components of a quality agriculture program, the leadership of the agricultural educator has not

been accounted for in any model. The leadership of the educator orchestrating each of the three components takes precedence as the single most important factor in building and sustaining a quality agricultural education program. Therefore, one must seriously consider the leadership approach taken by the agricultural educator. Furthermore, agricultural education will greatly benefit by a model which places an emphasis on the leadership approach of the agricultural educator as a means to create and maintain a well-balanced, high-quality program.
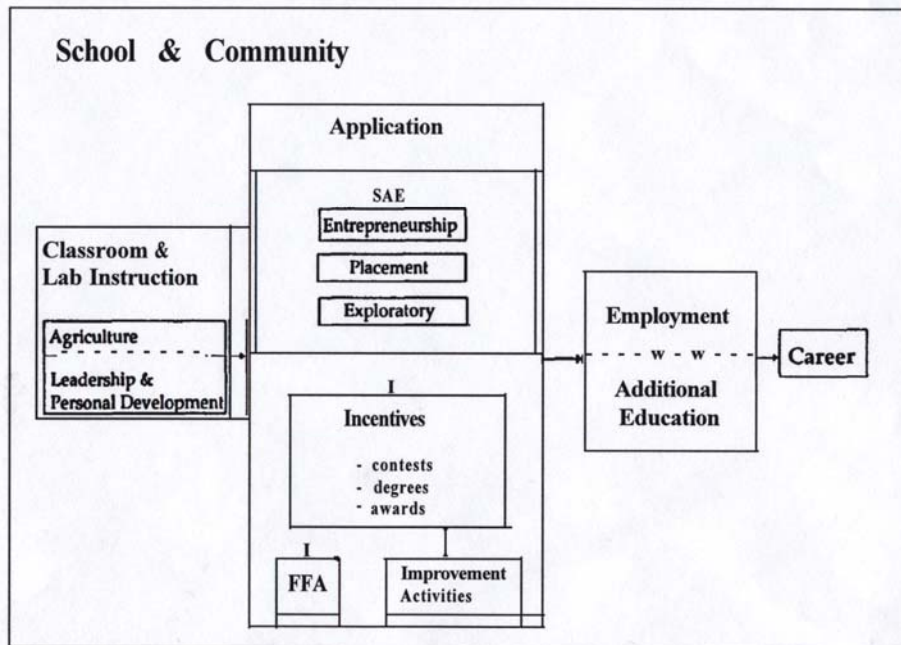
Figure 2 Agricultural education program model (Hughes & Barrick, 1993)

A new model will be explained; the model recognizes the benefits of the traditional three circle model but adds transformational leadership and community impact (TLCI). The TLCI Model for Agricultural Education places an emphasis on the leadership ability of the agricultural educator as he/she performs the various roles required to build and maintain a high quality agricultural education program. The transformational leadership is the starting point which provides direction for agriculture teachers operating each aspect of the three circle model; it is this component that creates the balance and completeness of the three circles. The Transformational Leadership Approach will now be explained in greater detail and with illustrations to show practical application.

Transformational Leadership Approach

The history of this approach is quite young; the term transformational leadership was first coined by Downton in 1973 and is often viewed as part of a "New Leadership" paradigm (Northouse, 2007, p.175). In fact, leadership theory and empirical work was concentrated almost exclusively on transactional leadership until the late 1970s (Bass, 2008). Greater attention toward transformational leadership began to emerge from the work done by James McGregor Burns in the late 1970s (Antonakis, Cianciolo, &Sternberg, 2004). In his book titled *Leadership,* Burns (1978) wrote that a "transforming leader looks for potential motives in followers, seeks to satisfy higher

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needs, and engages the full person of the follower" (p. 4). In addition Burns made the distinction that there are two types of leadership: transactional and transforming; transactional leadership is the exchange process that occurs between leaders and followers, while transforming leadership involves engaging with others to raise the level of motivation and morality of both the leader and the follower.

One cannot consider the transformational approach without also giving attention to the theory of charismatic leadership. The work of House in 1976 sparked a great deal of interest on the subject; however, charismatic leadership is often "described in ways that make it similar to, if not synonymous with, transformational leadership" (Northouse, 2007, p.177). Therefore, the focus of this discussion will be on research done by the most recognized scholars in transformational leadership.

Bernard Bass authored *Leadership and performance beyond expectations* (1985) and is one of the most recognized names associated with transformational leadership research today. Bass "provided a more expanded and refined version of transformational leadership" that built on work from Burns and House (Northouse, 2007, p. 3). In the early 1990s, "transformational and transactional factors were conceived by Avolio and Bass (1991) as continua in leadership activity and effectiveness. Added was laissez-faire or nonleadership to the bottom of the continua in activity or effectiveness" (Bass, 2008, p. 624). The model of the Full Range of Leadership describes transactional and transformational leadership as a single continuum with seven factors; each factor will be explained to clarify the work of Bass and Avolio (1994).

Transformational Factors

Factor one, *idealized influence* or *charisma,* describes a leader who acts as a strong role model, with high morals; followers count on them to "do the right thing" ((Bass & Avolio, 1994 p. 3). Factor two, *inspirational motivation,* describes a leader who communicates high expectations and motivates followers to commit to a shared vision, ultimately inspiring a high level of team spirit (Bass & Avolio). Factor three, *intellectual stimulation,* is evident in leaders who encourage followers to be creative, innovative, and willing to challenge personal as well as organizational beliefs; the leader supports followers as they try new approaches to deal with issues and solve problems within the organization (Bass & Avolio). Factor four, *individualized consideration,* consists of a supportive climate in which the leader listens attentively to individual follower needs, advising and coaching the follower towards self actualization (Bass & Avolio).

Transactional Factors

Factor five, *contingent reward,* is the exchange process between leader and follower: effort is exchanged for a specified reward; the follower gets a payoff for completing tasks that must be done (Bass & Avolio, 1994). Factor six, *management-by-exception,* is evident in leaders who looks for mistakes, errors or deviance from standards and takes corrective action; this behavior "tends to be more ineffective, but required in certain situations" (Bass & Avolio, p. 4). There are two forms of management-by-exception: active and passive. A leader using an active approach watches closely for mistakes from the follower and takes corrective action; when a leader does not intervene until after problems arise a more passive approach has been taken (Bass & Avolio).

Nonleadership Factor

Factor seven, *laissez-faire,* is the "avoidance or absence of leadership"; and is, "by definition, the most inactive–as well as the most ineffective according to almost all research on the style" (Bass & Avolio, 1994, p. 4).

Collectively, these seven factors make up The Full Range of Leadership Model developed by Bass and Avolio (1994); the model illustrates the seven different factors of the transformational leadership approach The model includes four transformational factors (4I's), two transactional factors, and one nonleadership factor. A clear illustration of what is expected when a leader is transformational or transactional can be seen below in Figure 3, and is referred to as the additive effect of transformational leadership. Bass and Avolio (1990) believe that transactional leadership results in expected outcomes whereas transformational leadership results in performance beyond expectations.
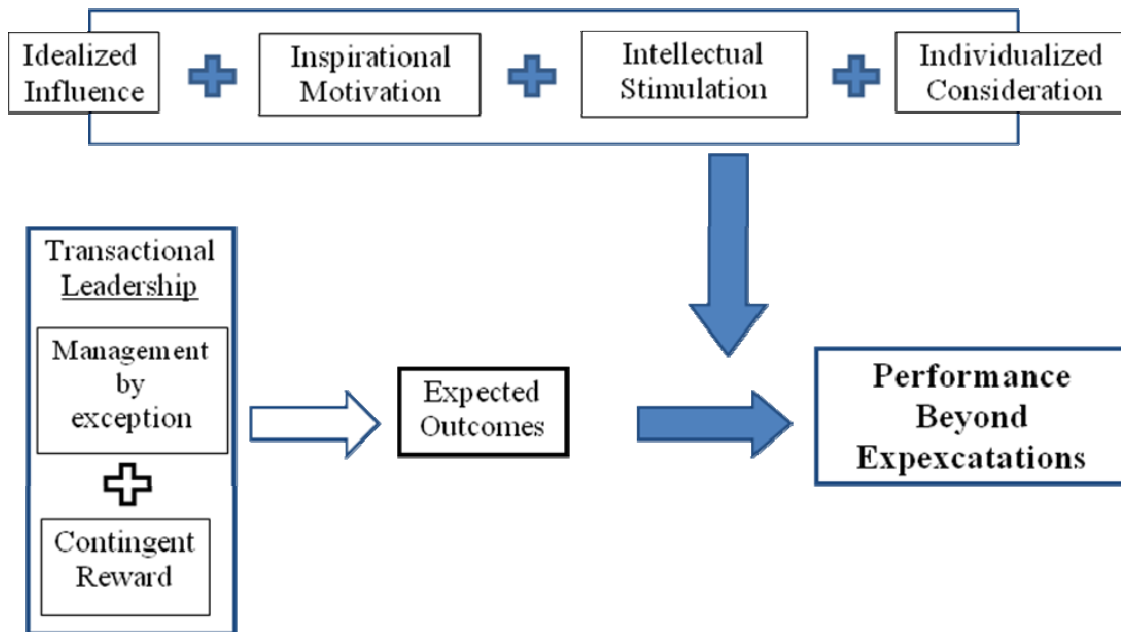
Figure 3. The additive effect of transformational leadership (Bass & Avolio, 1990).

Transformational Leadership Applied to Agricultural Education

The traditional agricultural education model is a structural figure depicting the "ideal" secondary program. The model suggests that a high quality program is represented by the interrelated balance of classroom/laboratory instruction, FFA, and SAE activities. The current model exhibits the make-up of a high quality program; however, it does not provide the means by which an agricultural educator can reach such a level of quality. In addition, the current model does not depict the outcomes associated with high quality agriculture programs. A high quality program results in a positive impact on the community on a personal and professional level. A model that illustrates the how, what, and why behind agricultural education may be beneficial for

those in the profession and for those unfamiliar with its value. Therefore a more holistic, dynamic model that provides a) the means to reach the standard (ideal) for a high quality program and b) the positive impact on the community is needed.

Agricultural education is a natural fit for the application of transformational leadership. The constant interaction between the teacher, students, and community provides the perfect opportunity for each party to be transformed in order to perform beyond their personal expectations (Bass & Avolio, 1990). The authors contend that the extent to which the leadership of the teacher can cause further overlap of the three circles, program quality and the level of impact on the community will increase. The TLCI Model for Agricultural Education is shown in Figure 4 to illustrate the need for leadership as a starting point for agricultural educators.
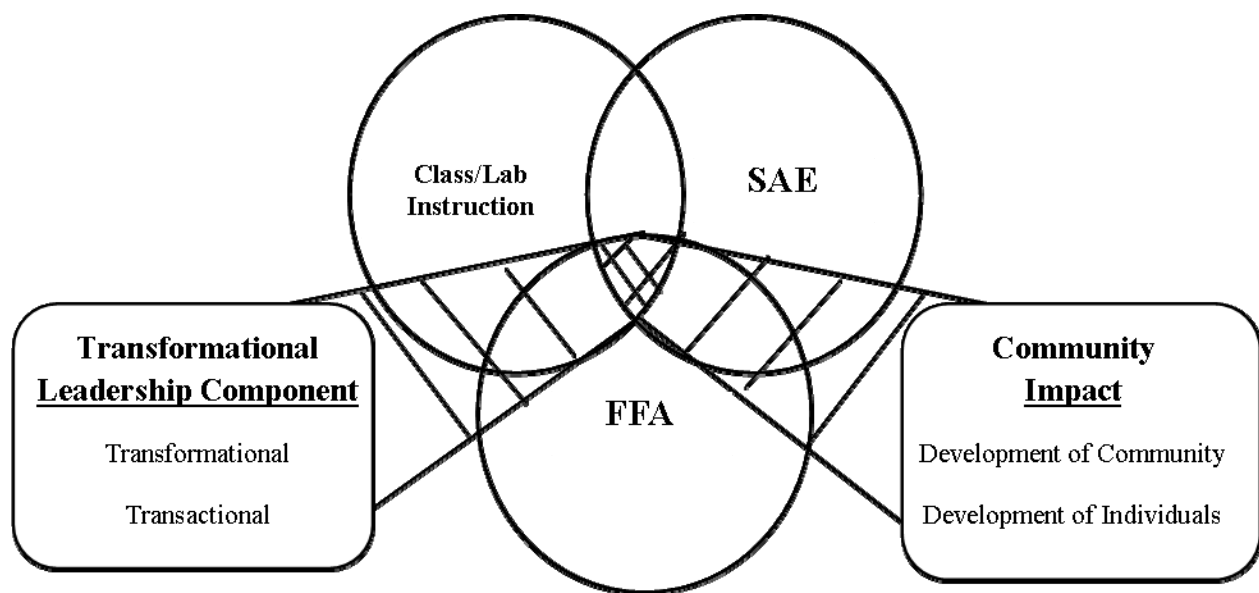
Figure 4 TLCI model for agricultural education.

Outcomes of a High Quality Agricultural Education Program

Very few studies have examined the quality of secondary agriculture programs, thus, the literature is quite limited on the impacts of quality programs on the community. However, one can glean valuable information from studies that look at individuals or groups associated with secondary agriculture programs. A study on the impact of an agriculture program on community leadership found that the program "had an impact on the success of many community leaders" and the "agriculture participants were found to have a higher degree of involvement in community activities" (Brannon, Holley, & Key, 1989, p. 43). Additional studies also noted that leadership skills are gained by agriculture students; Connors and Swan (2006) stated, "agricultural education has prided itself on developing youth leadership through secondary agricultural programs and the FFA organization since the early 20th century" (p. 1).

Summary

Agricultural education plays a key role in promoting a safe, affordable, and abundant food supply. Ensuring quality agricultural education programs is vital to the success of agriculture industry and ultimately to the quality of life in America. There are countless challenges facing agricultural education today; agricultural educators need a solid model to guide their efforts to meet and exceed such challenges. The history of the traditional agricultural education model shows that the three components have existed in some form for decades. The three components provide structure; however they need an engine to put them in motion. That engine is the teacher and the teacher's leadership. Similar, a more complete model should depict outcomes. The outcomes of the newly-proposed model are community development and individual development. In the age of accountability, outcomes must be communicated. Therefore, the TLCI model may better meet the needs of today's agricultural education programs. Leadership is too important a concept for agricultural education to be considered in FFA alone. Purposeful attention to leadership by teachers and students is necessary for a more effective agricultural education model.

The Transformational Leadership Approach is a natural fit for the agricultural education profession. The teacher is the most important person to assist youth in developing leadership through involvement in an agricultural education program; therefore, to accomplish the Agricultural Education and FFA Missions, effective leadership is a requirement of secondary agriculture teachers. Evidence shows that the transformational leadership approach is currently in use by some agriculture teachers (Greiman, Addington, Larson, & Olander, 2007). Agricultural education can greatly benefit from adopting a transformational leadership approach in the daily activities required to run a successful agriculture program. In addition, the community impact aspect of the model shows the outcomes of a high quality secondary agriculture program.

Implications

Agricultural education currently has many challenges that will need strong leadership to overcome; without effective leadership of agriculture teachers, programs will close and countless students will miss out on the benefits provided from a successful program. In the event of programs closing, the "10X15" plan set by The Council will have a difficult time reaching the goal of 10,000 quality agriculture programs by the year 2015 (National Council for Agricultural Education, 2007). In order to ensure that agriculture teachers are effective, Roberts and Dyer (2004) believe that teacher educators at universities have the primary responsibility of preparing future agriculture teachers to conduct a total agricultural program. Furthermore, teacher educators can now focus on developing the skills in their students that research has shown to be essential (Roberts & Dyer, 2004). The TLCI Model for Agricultural Education provides an example for agriculture teacher preparation programs to employ as they equip preservice teachers to effectively lead secondary agricultural education programs.

Recommendations

The history of agricultural education models can be examined more intently to determine if the model will meet current and future challenges and demands within agricultural education. For instance, has the three-circle Agricultural Education Program Model been fully vetted by the

profession? An examination of current agricultural education models is needed in order to create a contemporary model that will provide the foundation for successful agricultural education programs.

At this time only one study has been conducted to determine the leadership style of secondary agricultural educators (Greiman, Addington, Larson, & Olander, 2007); therefore, a gap still exists regarding leadership styles of agricultural educators. The research study done on leadership styles of Minnesota agriculture teachers needs to be expanded. More research is needed perhaps at the national level to ensure that findings can be generalized to all agriculture teachers and programs. In addition to identifying leadership styles, future studies should be conducted to determine if agriculture programs with transformational leaders are more successful than programs that lack leadership or use a style that is not transformational. Research on leadership styles of agriculture teachers will also need to determine how effective the leadership style being used is in terms of complete agriculture program success. Furthermore, the impact of the agriculture program on the community should be researched; ultimately the impact of the program determines if it is a high quality program.

Additional recommendations include determining how leadership development can be more prominent in agriculture teachers. If the agricultural education profession is going to advance the knowledge base within leadership development it must adopt a plan; what is the "best" leadership approach to use in secondary agricultural education (Connors & Swan, 2006). Programs and/or courses geared at developing leadership within preservice teachers and current agricultural educators should be offered. Providing agricultural educators with training and knowledge of leadership will result in greater success for the teacher, students, the agricultural education program, and the community as a whole.

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Predictors and Program Outcomes of Empowering Practices of FFA Chapter Advisors

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Abstract

Understanding the dynamics of youth-adult partnerships is a critical challenge that resides in the context of empowerment as an element of shared leadership. This quantitative study examined the predictors and program outcomes of empowering practices of FFA chapter advisors. The five empowering practices constructs comprised a composite theory developed through a review of the literature and interactions with key stakeholders. The 388 agricultural educators in the state of [state] served as the population for this study. From the population, 227 responses were deemed usable resulting in a 66% adjusted response rate. The responses revealed that practices associated with fostering self efficacy were implemented the most frequently. While those associated with creating a sense of ownership demonstrated the lowest frequency. The single most important finding in the study is that years of teaching experience and level of school administration support can be used to predict 9.1% of the implementation of total empowering practices which in turn can be used to explain 15.4% of overall advisor satisfaction. Based on the findings, three key considerations for teacher pre-service and in-service training are: improving the sense of ownership among students, retention of teachers to gain years of experience, and building support from school administration.

Introduction/Theoretical Framework

Introduction

Youth organizations are a prominent method for equipping young people with the life skills necessary for career success. The partnership between youth and adults in these organizations is instrumental to the personal development of the young people as it prepares them for future leadership opportunities. One of the challenges in youth development is to understand the dynamics of this partnership in order to determine the factors that foster optimal student growth. This challenge resides in the context of empowerment as an element of shared leadership and youth-adult partnerships.

Traditional theories of leadership tend to view the dynamic as unidirectional with the leader having influence over the subordinates. Organizations and leadership are not that simple; they are complex social organisms. One lens through which to view this complexity is shared leadership, a decentralization of power that fosters the empowerment of individuals. This process of empowerment leads to fertile ground for discovering how to create environments that lead to empowered individuals.

Movement Toward Shared Leadership

Pearce (2004) points out organizations are increasing the focus on teams because it is difficult for one person to possess all the skills and knowledge necessary for leadership. Shared

leadership has emerged as a theory to take into account that leadership and influence are multi-directional with influence occurring up, down, laterally, and inwardly for each individual. Unlike many conventional theories, shared leadership focuses on the group interaction rather than simply the dyadic sole leader-follower interaction. Houghton, Neck and Manz (2003) define shared leadership as "a process through which individual team members share in performing the behaviors and roles of a traditional, hierarchical team leader" (p. 124). Shared leadership is evident when every member of the team is fully engaged in the leadership of the team and is not hesitant to take action to increase the performance of the team and its members (Pearce).

A critical element of shared leadership is the empowering of employees with decision making authority and a sense of ownership. Therefore, shared leadership has gained attention as organizations are emphasizing empowerment among team members in order to increase organizational efficiency and personal development. Empowerment indicates how "the intrinsic motivation and self-efficacy of people are influenced by leadership behavior, job characteristics, organizational structure, and their own needs and values" (Yukl, 2006, p. 107). This concept aligns with shared leadership's decentralization of power and in contrast to traditional models that centralize power with the top of the organization. Building self efficacy and motivation for the task in an individual are the key aims of empowerment practices. In this light, leadership is about creating meaning and connections that pull the individual to the task and to taking on responsibility (Thomas & Velthouse, 1990). The process encourages commitment, risk taking, and innovation which develop leadership within the individual (Thomas & Velthouse).

Given the intent of developing leadership within young people, youth organizations have historically aimed to foster an environment of empowerment for the youth. Many youth organizations are formally structured for the youth and supervising adults to share decision making power in an effort to foster leadership development in the youth. The challenge is for adults in youth organizations to go beyond simply including youth in a participative leadership process. Participative processes can still leave group members feeling powerless if the work is meaningless (Conger & Kanungo, 1988). For empowerment to increase, responsibilities should have meaning to the individual, allow for self determination of how the tasks are completed, build the efficacy of the individual, and make an impact in the perceived world of the individual (Spreitzer, 1995). The challenge for adults managing youth organizations is to build a partnership with the youth in which the shared leadership process results in a sense of empowerment. Furthermore, the challenge for entities and organizations serving youth is to provide trained adults that understand how to create these empowering environments. The youth-adult partnership phenomenon is largely about empowerment.

In this paradigm, leadership is more focused on making the tasks attractive by creating meaning and connections for the individuals rather than the leader pushing individuals toward a task (Thomas & Velthouse, 1990). Additionally, individuals are aware of their competence level to be successful at the tasks and have some self-determination in how the task is completed. This approach encourages commitment, risk taking, and innovative thinking by individuals while building their self-efficacy. To create an environment that fosters empowerment, one must tend to the elements of the organization, the work to be done, and the people involved (Yukl, 2006). Organizations with decentralized structures that allow for participation in the decision making process and that place value on learning from mistakes bolstered the opportunity for participants to

take ownership and initiative to try new things (Yukl). Empowerment is fostered in a culture that values learning, flexibility, and participation. Additionally, menial tasks or tasks assigned without training or resources do nothing to increase self worth; instead, complex tasks with direction and continuing relationships build self efficacy (Yukl). Furthermore, the relationships and rapport with the leader are critical to the feelings of empowerment (Conger & Kanungo, 1988). As we consider the youth-adult relationship, these elements are critical to create an empowering partnership.

Movement Toward Empowering Youth-Adult Partnerships

The essence of this relationship is partnership. For partnership for occur, the contribution of both parties must be recognized and valued in the decision making process (Norman, 2001). This emphasizes the importance of identifying and honoring the assets that both youth and adults bring to the partnership while employing methods of shared leadership. Jones and Perkins (2005) define youth-adult partnership as: "A fostered relationship between youth and adults where both parties have equal potential in making decisions, utilizing skills, mutual learning, and promoting change through civic engagement, program planning, and/or community development initiatives" (p. 1160). This study explored the phenomena of youth-adult partnership within the context of the National FFA Organization, the youth organization for agricultural education students. The FFA is designed as a youth-driven organization in partnership with supporting adults, primarily the agricultural education instructor. Implementing youth-adult partnerships throughout its internal and external community activities is a primary aim of the FFA organization (National FFA Organization, 2006). Therefore, the leadership structure of the FFA organization provides for the establishment of partnership relations between youth and adults.

The youth-adult partnership dynamic yields benefits and learning dynamics which align with the design of the FFA program. In an action research study of community projects with intergenerational relationships, Kaplan (1997) found that both youth and adults learned "critical thinking, communication and decision making skills, how to use the art of negotiating, and developed a sense of civic responsibility" (p. 226). This study highlights the essence of youth-adult partnerships as a context where together youth and adults share responsibility, authority, and respect for one other's contributions (Panitz, 1996). Youth-adult partnerships create an avenue for youth and adults to learn and work together for the greater good of the organization and community. A key aspect of FFA activities is the ability for youth and adults to learn from one another. While experienced adults often provide advice to members, through shared responsibility all parties grow from the experience (Panitz).

The partnership between youth and adults fosters a relationship that facilitates experiential learning between youth and adults, allowing partners the opportunity to access individual abilities, and create stronger outcomes. These types of nurturing environments represent youth and adults that are caring, trustworthy, and understanding of each others' concerns and needs (Zeldin, 2004). The FFA organization provides the environment and support to foster these types of partnerships. A unique element of FFA is the relationship between the agricultural education instructor and the students. Unlike other high school teachers, the agricultural professional spends a great deal of time outside of school with students creating a unique relationship which often nurtures the development of both parties.

This nurturing relationship is essential to the leadership development of young people in youth organizations (Camino, 2000). For purposeful leadership development to occur, leaders must engage in partner dynamics that employ behaviors focusing on cultivating the technical and leadership skills of the other participants. In many cases, this relationship exhibits the behaviors that lead to a sense of empowerment (Norman, 2001). The adult employs actions that build the self efficacy and sense of ownership for the youth while establishing a framework that promotes success, learning, and leadership development.

Specific to this study, the youth-adult partnerships within the local FFA chapter create an interesting dynamic of youth leadership development. Through shared leadership, both the youth in the FFA chapter and the FFA advisor make decisions and carry out tasks to manage the organization. As a result, much like any company or organization, the advisor and youth engage in working relationships and therefore actions that lead to leadership and skill development. It seems apparent that since the FFA strives to be a shared leadership organization where the goal is to develop youth leaders to lead themselves, one critical aspect of this leadership development quest is the role of the FFA advisor in creating an environment that nurtures growth and development through implementing empowering practices.

The advisor in the youth-adult partnership of the FFA chapter empowers youth to lead the organization by developing each youth leader individually through shared power. The business, management, and leadership development literature reveal various theories for empowering group members (Arnold, Arad, Rhoades, & Drasgow, 2000; Bowen & Lawler, 1992; Conger & Kanungo, 1988; Konczak, Stelly, & Trusty, 2000; Spreitzer, 1995; Thomas & Velthouse, 1990). In terms of youth development and this study, the most relevant constructs of empowerment are: (a) fostering self efficacy, (b) setting a context for action, (c) structuring the task, (d) creating a sense of ownership, and (e) coaching for performance. The study sought to understand the predictors and outcomes of these empowering practices.

While there is an abundance of literature in leadership, leadership development, management, and coaching, the literature is primarily directed at the corporate setting. This study bridges this literature to an application in a youth development context and integrates the various empowerment and youth development theories to create a foundation for this research. Although many leadership studies focus on individual and organizational outcomes, this study focused on the adult practices that in turn create leadership development outcomes.

Statement of the Problem

Historically, organizational leadership is described as a hierarchal function between an individual and his or her subordinates. Recent literature reveals that organizational leadership is often shared among team members yielding greater performance outcomes (Yukl, 2006). As a management method, shared leadership de-emphasizes positions of authority and engages individuals based on their capacity to lead in any given moment, nurturing a sense of empowerment. Organizations generally have a structure of designated leadership even though shared leadership may take place. The leadership structure of youth organizations traditionally involves both youth and adults fostering an environment for youth-adult partnerships. The extent of responsibility sharing varies by organization. In a study of 68 organizations impacting youth,

Rasmussen (2003) found that 87 percent of the organizations considered youth input highly important to the organization. However, she discovered that only 28 percent indicated that youth were involved in the functioning or decision-making process of their organizations. Given these findings, youth organizations are missing opportunities to develop youth by sharing leadership. The partner dynamics of shared leadership through empowerment lead to the development of skills that allow youth to in turn lead themselves.

The organizational leadership model of the National FFA Organization, the youth organization for agricultural education students, contains student leaders managed by the agricultural educator/FFA advisor. As a form of youth leadership development, this model is intended to create opportunity for the youth to manage the organization. The degree of shared leadership between the youth and adult varies by local chapter. This variation may be attributed to the training, experiences, context, and leadership style of the FFA advisor. The youth development literature reveals the ability of adults to share leadership with youth as a primary barrier to youth-adult partnerships (Camino, 2000; Fiscus, 2003; Jarrett, Sullivan, & Watkins, 2005; Zeldin, 2004). However, the literature also reveals youth development as a major outcome. This development is a result of empowering practices building the leadership skills of the youth. While the literature reveals how empowerment is fostered, we do not know what affects an individual's implementation of empowering practices. Given the role of the FFA advisor in the youth-adult partnership of the FFA, it is critical to examine what influences the implementation of empowering practices by advisors in working with the members of the FFA chapter.

Theoretical Framework

According to Yukl (2006), empowerment is the influence of leadership behavior, job characteristics, organizational structure, and personal needs and values on motivation and self-efficacy. The review of several theories of empowerment revealed key aspects and themes that overlapped (Arnold, Arad, Rhoades, & Drasgow, 2000; Bowen & Lawler, 1992; Conger & Kanungo, 1988; Konczak, Stelly, & Trusty, 2000; Spreitzer, 1995; Thomas & Velthouse, 1990). All theories had elements that applied to the youth-adult partnership, but no one theory fit perfectly. Therefore a panel of experts was used to flesh out each theory to determine the key constructs relative to the youth-adult partnerships. As a result, the measurement framework for this study was a composite theory combining the elements of the empowerment theories to best suit the youth-adult partnership context. The five empowering practices constructs (*fostering self efficacy, setting a context for action, structuring the task, creating a sense of ownership,* and *coaching for performance*) comprised the theory developed through the review of the literature and interactions with key stakeholders, particularly agricultural education practitioners.

Purpose/Objectives

The purpose of this study was to understand the predictors and program outcomes of empowering practices of FFA chapter advisors. Specifically, the research questions that guided this study included: (a) which empowering practices are most commonly used by FFA advisors, (b) to what extent can the use of empowering practices be explained by the personal characteristics and program characteristics of the FFA advisor, and (c) to what extent can program outcomes be attributed to the use of empowering practices?

Methods/Procedures

The five empowering practices constructs served as the central variables for the study. The study attempted to understand what predicts the variation of implementation of these empowering practices and how implementing these practices affects program outcomes. Therefore, three other classes of variables were part of the logical model guiding this study. A set of variables for both personal characteristics and program characteristics were identified based on the literature, expert input, and personal experience. Additionally, a set of program outcome variables were identified. The use of empowering practices could accomplish several outcomes; however, based on the current issue of agricultural education teacher retention and the survey respondents' ability to accurately assess the outcomes, satisfaction was chosen as the outcome to measure.

Given the use of a composite theory, it was necessary to construct an assessment instrument for the study. The instrument was designed to measure four broad areas: the predictor variables consisting of both personal and program characteristics, the five empowering behavior constructs, and the program outcomes. The empowerment constructs were the central constructs of the instrument. The other three areas were provided to measure the predictors and the outcomes of implementing the empowering practices.

The development of the instrument followed an eight-stage process including (a) concept clarification, (b) identifying items to measure empowerment, (c) construction of response scale, (d) identifying predictor variables, (e) identifying outcome variables, (f) identifying additional descriptor variables, (g) expert review of survey instrument, and (h) pilot study. An expert panel consisting of agricultural educators and leadership specialists played a significant role in developing and establishing face validity of the constructs and measurement items through the first seven stages of the instrument development. Once the measurement items were established by the panel, a construct validity sort was conducted with a group of 24 adult education graduate students. Each student's choices were recorded as a method of determining divergent validity. Any item that rated lower than 75% agreement by the students was examined and then refined or eliminated. This resulted in 34 items to measure the five constructs; the additional 17 items of the instrument were used to personal and program characteristics as well as program outcomes.

The final stage of instrument developed included pilot study to determine if the proposed data collection methods would work and if the survey instrument was technically adequate. To adequately answer these questions, two pilot studies were necessary. The initial pilot study was conducted with the population of agricultural educators in a different state. Of the 256 potential respondents, 108 participated resulting in a 42% response rate. While the data collection methods were successful, the statistics revealed a lack of sensitivity to reflect variance in the instrument. A second study was conducted with the population of agricultural educators in yet another state using a revised instrument based on the findings of the first study. Of the 229 potential respondents, 91 participated resulting in a 40% response rate. This second study was revised by switching the item response scale from agreement to frequency; the findings revealed greater variance in the responses while maintaining acceptable reliability.

As a result, a 51-item survey instrument was established to specifically address the three research questions by means of gathering data from chapter FFA advisors. The online

questionnaire was designed as a self-assessment of the frequency that empowering practices were implemented in working with FFA members. The five empowering practices served as the central constructs of the instrument which also included items to determine personal characteristics, agricultural education program characteristics, and personal views of the program. These additional items were used to assess the predictors and outcomes of implementing empowering practices. The questionnaire consisted of 34 items to measure the frequency of implementing empowering practices, 13 items to measure predictor variables, and four outcomes measures items. For the five construct scales, alphas ranged from a high of .85 to a low of .76. Specifically, coefficient alphas ran in descending order as follows: .85 for fostering self efficacy, .84 for setting a context for action, .82 for structuring the task, .82 for coaching for performance, and .76 for creating a sense of ownership. Additionally, coefficient alphas were calculated for total empowering practices and overall advisor satisfaction. The alphas were .95 and .72 respectively. The intercorrelation between the five construct scales was also determined; the correlation coefficient between every scale was significant at the level of .01.

The 388 agricultural educators in the state of [state] served as the population for this census study. Of the population, 232 responded to the study and 36 were deemed unreachable. Of the 232 returned surveys, 227 were deemed usable resulting in a 66% adjusted response rate. The completed surveys were acquired through a data collection plan which closely followed the Tailored Design Method advocated by Dillman (2000). The collection plan included an email survey invitation, two email follow-up reminders, and one electronically transmitted thank you.

The data from the 227 usable surveys was entered into a SPSS database for purposes of statistical analysis. In addition to descriptive statistics, the statistical analysis included (a) mean ranking, (b) bivariate correlation, and (c) multiple factor analysis. The first research question (Which empowering practices are most commonly used by FFA advisors?) was addressed by rank ordering the 34 empowering practices items. The mean of each item was calculated and ranked from highest to lowest. The items were also grouped by construct to provide a rank order of which constructs are most commonly used. Research question two (To what extent can the frequency of implementing empowering practices be explained by the personal characteristics and program characteristics of the FFA advisor?) was designed to determine how the predictor factors both independently and simultaneously influence the implementation of empowering practices. To answer research question two, a series of bivariate and multivariate analyses were employed to determine the separate and combined predictive power of the identified variables on the five empowering practices constructs. Research question three (To what extent can program outcomes be attributed to the frequency of implementing empowering practices?) was designed to determine how the outcome factors both independently and simultaneously are influenced by the frequency of empowering practices. To answer research question three, a series of bivariate and multivariate analyses were employed to determine the predictive power of the five empowering practices constructs on the combined satisfaction construct as well as the individual components.

Results/Findings

The single most important finding in the study is that *years of teaching experience* and *level of school administration support* can be used to predict 9.1% of the implementation of *total empowering practices* which in turn can be used to explain 15.4% of *overall advisor satisfaction.*

Based on the strongest explanatory predictor and outcome variables for empowering practices, an explanatory model is presented in Figure 1.
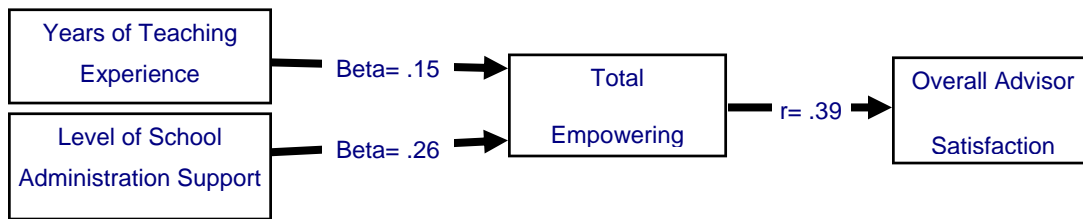
Figure 1
Explanatory Model for the Predictors and Program Outcomes of Empowering Practices

Findings Related to Research Question #1

Rank ordering of the 34 empowering practices item means was used to answer the question: "Which empowering practices are most commonly used by FFA advisors?" The means reflected the self-assessed frequency of implementation of each empowering practice on a scale of 1 (never) to 6 (always). The ten highest ranked practices included four of the eight measures for *fostering self efficacy* and three of the six measures for *setting a context for action.* The two highest ranking items were measures for *coaching for performance.* At the other end of the order, five of the six measures for *creating a sense of ownership* were displayed in the ten lowest ranking items. When the items were grouped by construct, *fostering self efficacy* exhibited the highest mean item mean while *creating a sense of ownership* demonstrated the lowest frequency.

Overall, the study revealed that FFA advisors believe they are regularly implementing practices within each of the five empowering practices constructs. The frequency should be viewed in the context that this study used a self assessment instrument. Therefore, the ratings depend solely on the teacher's personal awareness of their practices and may be influenced by social desirability.

Findings Related to Research Question #2

Simple correlation and multivariate analysis were implemented to answer the second research question: "To what extent can the use of empowering practices be explained by the personal characteristics and program characteristics of the FFA advisor?" Of the twelve predictor variables, only *age, years of teaching experience, and level of school administration support* exhibited significant (p<.05) correlations with any of the five empowering practices scales and *total empowering practices*. The strongest explanatory variable across the five construct scales and *total empowering practices* was *level of school administration support*. A summary of the significant correlation coefficients across the six dependent variables is shown in Table 1.

The variables yielding statistical significance (p<.05) at the individual level (*age, years of teaching experience,* and *level of school administration support)* were then entered into multivariate analysis to gain further explanation of the variance. In this analysis, useful models were produced for *fostering self efficacy, setting a context for action,* and *total empowering*

practices. When variables were grouped to determine the best model for simultaneous influence, the two-variable model including *years of teaching experience* and *level of school administration support* demonstrated the greatest influence by explaining 9.1% of the observed variance in the dependent variable of *total empowering practices.* While statistically significant (p<.05), this explanation of the observed variance is still quite small.

Table 1

Summary of Significant Predictor Variable Correlation Coefficients (and Percent of Variance Explained)

Predictor Variable	Dependent Variable					
	Self Efficacy	Context	Task	Ownership	Coaching	Total Empowering Practices
Age	.14 (1.8%)	--	--	--	--	.15 (2.4%)
Years of Teaching	.13 (1.8%)	.15 (2.2%)	--	--	--	.15 (2.4%)
Level of School Administration Support	.21 (4.5%)	.18 (3.2%)	.23 (5.1%)	.20 (4.2%)	.23 (5.3%)	.26 (6.6%)

Findings Related to Research Question #3

Simple correlation and multivariate analysis were implemented to answer the question "To what extent can program outcomes be attributed to the use of empowering practices?" All of the five empowering practices scales and *total empowering practices* displayed significant (p<.05) correlations among the four outcomes variables and *overall advisor satisfaction.* A summary of the significant correlation coefficients across the dependent variables is shown in Table 2. The composite scale of *total empowering practices* exhibited the strongest predictive power by explaining 15.4% of the observed variance in *overall advisor satisfaction.* In the multivariate analysis, no models of statistical significance were produced.

Conclusions/Recommendations/Implications

Conclusions

Theories of empowerment clearly point out enhancing feelings of self efficacy as an integral element of empowerment. Conger and Kanungo (1988) specifically describe empowerment as the process of enhancing feelings of self efficacy. To this end, this study revealed that, of the empowering practices constructs, agricultural educators are most frequently implementing practices that foster self efficacy. On the other hand, the practices within the *creating a sense of ownership* construct were consistently the lowest ranking items. This is an important finding to the study as we consider both the empowerment theories and the purpose of

youth-adult partnerships. A common thread between the theories of empowerment (Conger & Kanungo, 1988; Thomas & Velthouse, 1990; and Spreitzer, 1995) is the need to create an environment where individuals have control and ownership in decisions and outcomes. This ownership fuels the motivation toward the task which results in empowerment. Interestingly, the ability to share decision making to create a sense of ownership is a critical challenge for implementing youth-adult partnerships (Camino, 2000). Primarily, the challenge in youth-adult partnerships is with adults not viewing youth as partners which limits young people's ability to influence and control outcomes. This limit in shared decision making results in a lower sense of ownership and ultimately, empowerment. The results from this study signal that FFA advisors align with other youth workers in their challenge to include youth as partners in managing the youth organization. Given that creating a sense of ownership is central to fostering empowerment, this is an important finding to establish a starting point for training and development of agricultural educators.

Table 2
Summary of Significant Program Outcome Correlation Coefficients (and Percent of Variance Explained)

Predictor Variable	Dependent Variable				
	Job Satisfaction	Sense of Reward	Impact on Students	Student Commitment	Overall Advisor Satisfaction
Fostering Self Efficacy	.23 (5.4%)	.37 (13.5%)	.33 (10.8%)	.21 (4.4%)	.38 (14.7%)
Setting a Context for Action	.20 (3.9%)	.31 (9.7%)	.38 (14.6%)	.19 (3.5%)	.37 (13.3%)
Structuring the Task	.22 (4.8%)	.34 (11.4%)	.29 (8.2%)	.13 (1.8%)	.33 (11.0%)
Creating a Sense of Ownership	.21 (4.5%)	.25 (6.4%)	.19 (3.8%)	.15 (2.2%)	.27 (7.5%)
Coaching for Performance	.23 (5.2%)	.32 (10.3%)	.36 (13.0%)	.20 (4.1%)	.38 (14.4%)
Total Empowering Practices	.26 (7%)	.37 (13%)	.36 (13%)	.19 (3%)	.39 (15.4)

Even though the shared variance is small, one can still use the findings to consider the influence of personal and program characteristics on creating an environment that fosters empowerment. Specifically, *years of teaching experience* and *level of school administration support* are consistent with the literature in terms of challenges for the agricultural education profession. Fuller, Parsons, and Watkins (1974) outline three stages of teaching which highlight the influence of years of experience on the ability to release control in order to create a more student centered environment. Additionally, Thobega and Miller (2003) noted that poor administrative support was a major factor in teachers leaving the profession. This study revealed that empowering practices increased with years of experience and supportive administration. This poses a challenge for agricultural education given the issue of teacher retention. The number of qualified teachers leaving the profession early in their career limits the years of experience of teachers in the field therefore limiting the pool of teachers exhibiting empowering practices.

Furthermore, the level of school administration support ties directly to Yukl's (2006) explanation that empowerment is influenced by three categories: the organization, the work, and the people. The support of the FFA advisor by the school administration can be viewed as a major influence on the organizational context. So the agricultural educator's sense of support may foster individual empowerment which in turn leads to creating a more empowering environment for students.

Relative to outcomes from empowering practices, the studies of teacher retention in agricultural education reveal the concern for job satisfaction as a key element to teachers staying in the profession. In the empowerment literature, Mundt and Conners (1999) note that the struggle to motivate students is a major challenge which leads to departure from the profession. Thomas and Velthouse's (1990) definition of empowerment notes building motivation toward the task as one of the key elements. Linked together with this research study, one would assume motivated, empowered students contribute to overall satisfaction of the teacher which in turn could result in extended years in the profession. The literature also revealed that an empowering environment yields a stronger commitment to tasks, greater initiative for responsibilities, higher job satisfaction resulting in less turnover, stronger commitment to the organization, and great outlook for success (Block, 1987; Conger & Kanungo, 1988; Thomas & Velthouse, 1990). The findings of this study support those notions as the factors within *overall advisor satisfaction* (job satisfaction, sense of reward, impact on students, commitment of students) were positively correlated with an increase in empowering practices.

Recommendations and Implications

Based on the findings, three key considerations for teacher preservice and inservice training are: improving the sense of ownership among students, retention of teachers to gain years of experience, and building support from school administration. The literature clearly points out the importance of sense of ownership to foster empowerment and to build youth-adult partnerships. However, the study revealed that practices which create a sense of ownership were among the least frequently used empowering practices. One implication of the findings for agricultural education is the need to provide teacher training specifically addressing the implementation of empowering practices, especially those that foster ownership. These skills lie outside the realm on agricultural content in the array of skills relating to managing the agricultural education program and FFA chapter. The study highlights the importance of intentionally focusing on this skill development that might otherwise be overlooked in teacher training.

This study revealed years of teaching experience as an antecedent to implementing empowering practices. Additionally, satisfaction of the FFA advisor was confirmed as an outcome of implementing empowering practices. Therefore, the study could suggest that the agricultural education profession use teachers with more years of experience to mentor newer teachers explicitly focused on developing empowering practices. Furthermore, developing empowering skills early in the career may lead to more years in the program as teachers are more satisfied in their positions, have a greater sense of reward, and witness students committed to the program.

The third major area with implications for agricultural education is building support from school administration. While the findings are statistically significant but not substantial, there is

evidence that the perception that the school administration is supportive of the FFA advisor has an impact on the use of empowering practices. Given this finding, agricultural educators can work to determine methods for engaging the school administrators in an effort to build more support. Associations of agricultural educators might consider offering in-service opportunities to school administrators in an effort to educate them about the program, share best practices between school administrators, and to build the teacher-administrator relationship. Teachers who have a strong sense of support may be able to identify best practices for gaining support and mentor other teachers in building support. These strategies could lead to tools and resources being developed to educate school administrators in youth-adult partnerships to increase their knowledge and support of shared leadership in youth programming.

In addition to these three key considerations, the framework for this study could be utilized in teacher education and teacher in-service to frame training in empowering practices. The constructs and items could be used as a curriculum framework to provide practical and concrete guidance on practices that foster empowerment in students. Additionally, the instrument items could be used as a self assessment tool for individuals to gauge their practices over the course of the year and their careers. The items on the instrument would provide concrete examples to create awareness in the teacher's reflection.

Finally, this study raises further questions for study and consideration. Do these findings hold true in other organizations that rely on youth-adult partnerships? How are the empowerment practices of adults perceived by the youth? What further insight could be gained by qualitative study of exemplar and non-exemplar teachers and administrators? The answers to these questions could yield information for training adults in youth-adult partnerships.

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**Examining the Quality of a Secondary Agricultural Education Program at the Local Level:
A Qualitative Study**

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Abstract

This qualitative study utilized a variety of data collection and analysis procedures to gain an understanding of the aspects which constitute a quality secondary agricultural education program. This study also sought to reveal the impacts of a quality secondary agricultural education program on the community. The study revealed three main themes with several subthemes that constitute a quality program. A quality secondary agriculture education program is well-rounded, provides relevant application, and is well-respected. In addition, the study suggested two main themes relating to the impact of a quality program on the community. A quality program impacts the community by preparing students for college and career endeavors and assists in the development of the community.

Introduction/Theoretical Framework

What constitutes a *quality* secondary agricultural education program? Is it the number of students enrolled, the number of courses offered, the number of FFA members, the number of livestock projects, or the number of state or national titles? Quite frankly one would be hard pressed to determine a single criterion agreed upon throughout the profession which defines program quality. The National Council for Agricultural Education (The Council) seeks to define and measure program quality through the *National Quality Program Standards of Secondary (Grades 9-12) Agricultural Education* (National Council for Agricultural Education, 2007b). The 65 page document contains seven standards that should be used by those who seek to evaluate agriculture programs; their evaluation would utilize a rating scale: "4 = Exemplary, 3 = Promising, 2 = Improving, 1 = Struggling, 0 = Non-Existent" (p. i).

Having national quality standards provides a general guide or framework for agricultural programs to use as a reference. However, many agricultural educators would opine that secondary agriculture programs should be community based. Furthermore, the measure of quality should be relative to the specific nature of the local program and how well the program meets the specified communities' needs. Straquadine (1988) wrote, "Program quality becomes tangible only through measurement of the attributes associated with the vocational agriculture program" (p. 14). Therefore, the profession should attempt to reach a standard of quality from the national to the local level. The 2005-2006 *Annual Report on Agricultural Education* stated, "Research is also needed to describe the kinds of agricultural education programs offered in the various states" (Team Ag Ed, 2006, p. 24).

In addition to measuring the quality of a program, there is a great need to show the impact of a quality agricultural education program. In fact, the profession has established five *Research*

Priority Areas (RPAs) for Agricultural Education in Schools; studies relating to any of the five RPAs would contribute to the profession in a significant manner. The question "How do quality agricultural education programs contribute to school and community vitality?" was identified in the National Research Agenda as a *Priority Initiative* (Osborne, nd, p. 8).

Quality Agricultural Education Programs

At least for the last few decades, research on the quality of agricultural education programs is relatively limited. Crawford (1977) published Standards set for quality programs in vocational agriculture. These standards developed by the profession were to serve as a model to measure the quality of agriculture programs (Straquadine, 1988). Since that time, the profession has experienced countless changes; therefore, one may argue for the creation of quality standards for the agriculture program of tomorrow. In 1988, *Understanding Agriculture: New Directions for Education* was published bringing to light two basic challenges: "first, agricultural education must become more than vocational agriculture. Second, major revisions are needed within vocational agriculture" (National Research Council, 1998, p. 1).

The Council emphasized the need for new standards and stated that the standards used in the past for measuring a quality program can be somewhat discouraging. The Council has created the National Quality Program Standards (2007b) to define program quality at the national level. National standards to measure the level of quality in which an agriculture program operates are not only needed but are also admirable. However, agriculture programs operate at the community level, and the needs of each community can vary quite considerably. Straquadine (1988) stated that agriculture program quality becomes tangible only through measurement of the attributes associated with the specified program. Thus, one can see an inherent challenge of creating national (ubiquitous) standards for a quality agriculture program.

This qualitative study aims to examine agriculture program quality at the local level. The extent to which the selected program meets quality standards may or may not align with idealized standards of a program in another community. However, some quality measures may be general enough to carry national significance. For example, The Council's (2007b) desire to ensure high performance of current programs providing personal, academic, and career education in agriculture would apply to programs throughout the country. In addition, the current agricultural education model encourages programs across the nation to promote a balanced, interrelated relationship between each of the three components: Classroom/laboratory instruction, FFA, and SAE (National FFA Organization, 2007).

A national standard may be too broad; the local agricultural education program must provide the specificity and objectivity of quality standards. Regardless of the level at which one would attempt to measure program quality, there is no doubt of its importance. As the profession seeks to define standards for a quality agriculture program, there is no time to waste; the Council (2007a) stated, "the situation in which we find ourselves is unacceptable" (p. 2).

Purpose(s)/Objectives

The purpose of this investigation was to examine aspects of a quality secondary agricultural education program. Additionally, this study sought to reveal the impacts of a quality program within the given community. The objectives of this study were to

1. Examine the quality of the agriculture program as perceived by the agriculture teachers, their former students, school faculty and staff, parents of current students, and community leaders.
2. Identify the perceived impact of the selected secondary agricultural education program on the students, school, and community.

Methods/Procedures

Case study research was used to examine the quality of a secondary agricultural education program. "A case study is an in-depth description and analysis of a bounded system" (Merriam, 2009, p. 40). The principal researcher's previous experience as a secondary agricultural educator and current work as a graduate student observing agriculture programs has created a mental model of what constitutes program quality. A holistic picture of the program was gained through semi-structured interviews with 15 participants (Merriam, 2009), all of whom had different associations with the program. Participants were interviewed separately/individually to help ensure confidentiality and to encourage honest, detailed responses. The interviews were audio recorded, and additional data were collected through observational field notes that included photographs onsite.

Prior to conducting the interviews, the researcher utilized pilot interviews with several agricultural educators to eliminate confusing questions and to elicit suggestions for additional questions (Merriam, 2009). Additional qualitative methods included observations of the agriculture teachers as they carried out various roles within the program.

Data Collection

The purposive sample for this case consisted of the two agriculture teachers and 13 individuals who were associated with the selected secondary agricultural education program; they were purposely chosen to create a holistic representation of the agriculture program. The agriculture teachers were asked to identify possible participants: former students who had graduated from the program, parents of current and former students, faculty and staff from the school, and community leaders. A list of the respondents depicting their connections to the agriculture program is shown in Table 1.

The program was purposively selected based on the following criteria:
a) The agriculture program and FFA chapter was recognized as a "quality" program by the researcher and a panel of agricultural education experts.
b) The school was located in the Southeastern United States where the researcher taught agriculture and believed that that connection would foster greater rapport with participants.

Data Analysis and Trustworthiness Measures

The qualitative data were analyzed using "the process of breaking down, examining, comparing, conceptualizing, and categorizing data" (Stauss & Corbin, 1990, p. 61). Semi-structured interviews were audio recorded and field notes were taken throughout the observation and interviewing process. To enhance the credibility of the study, several strategies were utilized by the investigator: triangulation, peer examination, and the clarification of researcher's biases (Merriam, 2009). Triangulation was accomplished through gathering data from a variety of participants and through direct observation by the researcher. "Triangulation using multiple sources of data means comparing and cross-checking data collected through observations at different times or in different places, or interview data collected from people with different perspectives" (Merriam, 2009, p. 216). Peer examinations took place in several meetings with experts who made comments on audio recordings and themes that emerged. The researcher's background and perspectives related to the study were cataloged in a methodological and reflexive journal. All coded data were traced back to the transcripts with an audit trail ("R" for respondent and a number in the order of the interview). Results are presented with representative quotes to give voice to the respondents and provide thick description so the reader can vicariously determine if the results from this case will transfer to their context.

Table 1
Participant List

Respondent Designation	Title/ Connection to Program	Respondent Designation	Title/ Connection to Program
R1	Parent/ FFA Alumni President	R9	Former Student
R2	Science Teacher	R10	Parent/ FFA Alumni
R3	Parent/ FFA Alumni/Former Student	R11	Parent / FFA Alumni
R4	Principal/Parent of Current Student	R12	Guidance Counselor
R5	Former Student/ Valedictorian	R13	Agriculture Student Teacher
R6	Former Middle School Agriculture Teacher	R14	Agriculture Teacher
R7	School Secretary/ Parent of Former Student	R15	Agriculture Teacher
R8	Community Leader/ Former Student/ State FFA President		

Results/Findings

The Context

The selected secondary agricultural education program is located in the southeastern United States in a town with about 7,000 residents. According to the city's chamber of commerce, residents are employed in a variety of industries: health care and social assistance (18%), educational services (11%), retail trade (10%), construction (8%) and agriculture forestry fishing and hunting (8%); the ethnicity of the city comprises 68% White/Caucasian, 28% Black, and 4% Hispanic (Chamber of Commerce, 2009).

There was only one high school in the town; there were about 675 students in the high school with about 180 enrolled in the agriculture program. The agriculture program had two agriculture teachers with combined experience totaling more than 50 years in the classroom. The eight agriculture courses offered were Agriscience Foundations 1, Animal Science and Services 2, 3, & 4, Introductory Horticulture 2, Horticultural Science 3, and Agricultural Sales and Services 2 & 3.

Participants in the study were associated with the agriculture program in a variety of ways. Spending time at the school allowed the researcher to observe rather quickly that the school, community, and agriculture program were interrelated and connected in numerous ways. The students, parents, teachers, and community leaders were connected on multiple levels both personally and professionally. For example, one school employee grew up in the community, knew one agriculture teacher as a family friend, and eventually had a child go through the agriculture program (personal); however, now they are colleagues and work together at the school (professional).

Attention was brought to the interconnected, personal, and professional relationships that exist in this case because throughout the results there was an overlapping and connectedness of themes. The results should be considered from the multiple perspectives in which they were shared. In addition, there is an inextricable bond between the agriculture program and the agriculture teachers. However, this study seeks to focus specifically on the program.

The first objective was to examine the quality level of the agriculture program as perceived by the agriculture teachers, their former students, school faculty and staff, parents of current students, and community leaders. Through the interviews and observations, three main themes and six subthemes emerged. "How would you describe the agriculture program?" was one of the key questions that provided data for objective one. A summary of the program description themes and the source of each theme are provided in Table 2. The main themes that described the program were (a) well-rounded, (b) relevant application, and (c) well-respected.

A majority of respondents mentioned that the way they describe the program is well-rounded (R1, R4, R5, R6, R7, R10, R11, R12, R14). A former student's description of the well-rounded nature of the program was quite simple, "they [agriculture teachers] cover it all equally" (R5). As participants elaborated on why they felt the program was well-rounded, two subthemes emerged: diversity from an academic standpoint and diversity in terms of students in the program.

Most participants described the diverse nature of the agriculture program (R1, R2, R3, R4, R5, R6, R7, R8, R9, R12, R13, R14, R15).

One individual elaborated on the diverse nature of the classroom: the teachers provide an "opportunity for students to really learn about agriculture in a lot of different ways" (R13). Every participant commented on the numerous and wide variety of FFA Career Development Events (CDE) such as public speaking, farm business management, tractor driving, meat evaluation, and landscape and nursery and activities such as the FFA banquet and leadership conferences and conventions (R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15). In addition, the importance of SAE was mentioned by five participants (R5, R8, R9, R14, R15); one former student and community leader stated, "my SAE program that I started here kinda gave me the interest… because of the interest it gave me the opportunity that I do today… it's kinda hard to put a dollar value on what it's worth" (R8).

Table 2
Program Descriptions Themes

Themes & subthemes	Source of themes & subthemes
Well -rounded	R1, R4, R5, R6, R7, R10, R11, R12, R14
Diverse	R1, R2, R3, R4, R5, R6, R7, R8, R9, R12, R13, R14, R15
Good kids	R3, R4, R7, R10, R11, R14, R15
All types of Students	R1, R4, R5, R6, R9, R10, R11, R12, R13, R14
Relevant application	R1, R2, R3, R5, R9, R10, R11, R12, R13, R14, R15
Connected to community	R1, R2, R3, R6, R10, R11, R13
Well-respected	R1, R2, R3, R5, R8, R12
Successful	R1, R2, R4, R6, R7, R8, R12, R13
Very strong	R2, R3, R7, R10, R11

Diversity of students emerged as a subtheme of the "well-rounded" nature of the program; participants described the diversity of students by referring to all the types of kids in the program. In the context of the study, diversity went beyond ethnicity and gender to include the diverse interests and backgrounds of the students. Numerous participants referred to the kids in the program as "good kids" (R3, R4, R7, R10, R11, R14, R15). Comments like "top notch" (R4), "cream of the crop" (R7), and "the very top" (R12) were all words used to describe students in the agriculture program. A few parents commented that the kids in agriculture are good kids "involved in a wide variety of activities even outside of the ag program" (R10, R11). One of the agriculture teachers made a point to mention that "we are not a dumping ground" (R15) and the other

agriculture teacher stated, "we have always attracted some of the best students in the school, like the valedictorians" (R14). Observations and interviews made it clear that the program has good kids from an academic standpoint and in terms of school and community involvement.

The second key to the diversity of the students in the program was that all types of kids were in the program and all types were welcomed. Comments referring to all types of students being in the program were mentioned by a majority of participants (R1, R4, R5, R6, R9, R10, R11, R12, R13, R14). The aspect of "all types of students" included everything from college and non-college bound (R1, R12) to traditional vs. nontraditional agricultural interests (R4, R5, R14). A former student commented on the different social groups in the program, "we had everybody… rednecks, gothic people… we all learned from each other" (R9). One explanation for the wide variety of types of students in the program was summed up by a former student, "they [agriculture teachers] were very welcoming to those who didn't have an ag background" (R5). Another explanation for the diversity simply relates to the teachers' efforts, "we go out and recruit students" (R14).

Another main theme that emerged was relevant application; a majority of the participants referred to the opportunities provided through the program for students to apply in real life settings what they were learning (R1, R2, R3, R5, R9, R10, R11, R12, R13, R14, R15). Comments like, "it's very hands-on… they put it into action" (R2) and "puts it into practice" (R1) were used to describe this theme. Many of the opportunities for students to apply what they learned came through FFA contests and activities. While speaking of experience gained through being a part of three state champion CDE teams (Meat Evaluation, Farm Business Management, and Landscape and Nursery), a former student said, " I learned so much through those contests… I chose a career from this experience" (R5).

Activities such as planning and participating at the FFA banquet, traveling to FFA conventions and leadership conferences, or visiting the state legislature also provided opportunities for students to gain valuable skills and qualities that they will use throughout life. One student spoke of the importance of being able to participate in such activities. I gained "confidence in myself." I am "not afraid to talk to people…it [the program] influenced everything in my life… no way I'd get by without it" (R9).

An aspect of relevant application that emerged as participants shared their experiences was the relationship of the agriculture program with the community. One parent noted that the agriculture program is "one of the hubs of the community… parents rally around the program" (R1); other parents stated that the agriculture program was "a major part of the community" (R10, R11). The result of the strong relationship with the community was shared by a science teacher, "I know many students that have gone through this program and have been successful business people… you can hear them speak… they talk about the values they learned in the program… it means a lot to this community" (R2). Another parent (R3) spoke of the program's impact on the community:

> [It's] pretty substantial, a good many people in the community that I'd call prominent members of the community that have gone through this program. You got bank

executives, veterinarians, stock brokers, farmers, doctors… I think a lot of the things they learned helped through college and in their careers.

In addition, one community leader believes that in order to have a quality program you must "meet industry and community needs" (R8). A parent believes that "students would not be as active in the community" if the agriculture program did not exist (R1). Having an agriculture program that prepares students to be productive members of society is important.

The importance of students having opportunities to gain relevant application in life while in high school and upon graduation is a result of a strong relationship between the agriculture program and the community. Without this relationship students would not have as many opportunities to benefit from what they gain through relevant application. The community, in particular the FFA Alumni members, provide funds to help make many of the events and competitions possible (R3, R4, R6, R8, R13, R14, R15). One community member and former middle school agriculture teacher referred to the community support of the program as "phenomenal… because of the support they [agriculture teachers] get from the community… that gives the kids so much more opportunity" (R6).

The community encourages students to be a part of the program; "everybody's kids, in some way or another, are participating in the program" (R12). The community shows up for alumni meetings and the livestock shows at the fair (R10, R11); a big part of having a quality program is having "a community that will love and support the kids" (R8). The teachers, parents, and community members are involved in and strongly support the agriculture program.

One final theme that surfaced as participants described the agriculture program is how well-respected the agriculture program is at the local, state, and national level. According to one parent, "It's well respected in the community, the county, and the state" (R3). Many of the participants used the exact words "well-respected" (R1, R2, R3, R5, R8, R12), while others referred the program as "very strong" (R2, R3, R7, R10, R11) and "successful" (R1, R2, R4, R6, R7, R8, R12, R13). The comments regarding the strength and success of the program are subthemes of well-respected. Being a strong and successful program includes aspects of longevity, winning competitions, and preparing students for college and careers after graduation.

The agriculture program has quite a reputation of being strong and successful, which embodies the fact that they are well-respected. The aspect of longevity refers to the years the program has been running to the number of years the agriculture teachers have been at the school. One teacher described the program as "… a long-standing program and it's been an outstanding program for many, many years" (R2). A few parents and community leaders expressed the importance of teacher longevity to the quality of the program, "teacher longevity, I think helps too… we've been fortunate to have our teachers so long" (R3). A community leader summed up the value of the agriculture teacher who had taught for more than 30 years at the school. "We will not ever replace Mr. [agriculture teacher] when he retires" (R8).

As a former agriculture teacher in [State], the principal researcher clearly saw that agriculture programs wanted to be mentioned in the same sentence as this program. If the conversation was about an FFA competition, they were mentioned as the team to beat. One of the

community leaders shared a similar experience, "a person told me they want their program to be like this, when they show up to a contest, the team to beat is [ours]" (R8). There is no doubt that the agriculture program has gained a winning reputation. If you visit the school you will find countless trophies, plaques, and pictures that serve as a reminder of years of winning at the local, area, state, and national levels. To illustrate just one area of their success within FFA, Table 3 lists the 51 state and two national CDE titles that students in the agriculture program had earned.

The accomplishments of the FFA chapter were quite impressive; however, one thing that may be even more impressive was the way in which the teacher and the program supporters defined success. Success is not about winning contests; it goes beyond the high school classroom; the program is interested in helping students beyond graduation. The interviews with participants and observations of the program brought clarity to what success meant to them; honors and awards are nice, but what really matters is preparing students to be productive members of the community.

Table 3
State and National CDE Titles (1976-2009)

CDE	Level	Titles Won
Agricultural Mechanics	State	3
Agricultural Sales.	State	1
Farm Business Management	State	10
Forestry	State	2
Horse Evaluation	State	2
Livestock Evaluation	State	7
Land Judging	State	1
Meats Evaluation and Technology	State/National	13/2
Nursery and Landscape	State	4
Parliamentary Procedure.	State	8

A wide variety of comments illustrated the program's ability to help young people succeed beyond high school. One parent said the program "prepares students for successful college and careers" (R1). A former agriculture teacher stated, "They turn out some really good quality kids… people that have been successful in all kinds of jobs" (R6). One of the agriculture teachers summed up the concept of success by saying, "I just want kids to do well and they don't have to win [FFA contest] to do well… it's important to me that they do succeed when they leave high school… I am here to help them" (R14).

The second objective of this study was to identify the impact of the selected secondary agricultural education program on the students, school, and community. The previous objective, which was to describe the program and look at the level of quality, is important; however, a pragmatist may wonder how this "quality" program impacts the students, school, and community. One may feel that in order to truly be a "quality" program, there must be a substantial, positive impact on those associated with the program. Interviews and observations revealed the quality of the agriculture program had powerfully impacted the students, school, and community for years.

Every single participant commented on the positive impact that the program has made in either their life, their child's life, or in the community. The responses epitomize the benefits of

having a well-rounded, well-respected agriculture program that gives students the opportunity to learn through relevant applications. The themes and subthemes that emerged regarding the impact of the agriculture program are listed in Table 4.

Table 4
Quality Agriculture Program Impact Themes

Themes and Subthemes	Source of Themes and Subthemes
Prepare students: college and careers	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15
Reach their potential	R3, R5, R6, R7, R9, R10, R11, R12, R13, R14, R15
Reach all students	R1, R2, R4, R5, R6, R9, R12, R13, R14, R15
Gain skills and qualities	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15
Incorporates curriculum	R1, R2, R4, R5, R8, R9, R12, R13
Development of community	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15
Sense of pride	R1, R2, R4, R8, R9
Part of our lives	R1, R2, R6, R8, R10, R11

The two main themes that show the impact of the program are (a) preparing students for college and careers and (b) development of community. Several subthemes connected to the theme of preparing students. Respondents felt that the program helps students reach their potential and it reaches all types of students. They also believe that it helps students gain skills and qualities to contribute toward success while incorporating other curriculum areas to help students have a well-rounded education. Development of community had two subthemes: participants commented on the sense of pride they gained from the program and how much the program was a part of their lives. In the context of the study, development of community is defined by the sense of belonging created by the agriculture program and the contributions made by the agriculture program to better the community.

The comments made to support the idea that the agriculture program is preparing students for college and career were made by every single participant. The principal believes that what students gain through the program prepares them to "compete in this world in whatever direction they take" (R4). One parent noted that without the program "you'd lose a lot of potential out of a lot of kids" (R3). A former student shared how all students felt welcome, "there were a lot of different types of students… we all learned from each other" (R9). A community leader

commented on all the skills and qualities they learn in the program from leadership to technical agriculture skills, "that knowledge is lifelong… for what I do I can't put a price tag on it" (R8). One additional comment shows how the agriculture program incorporates other curricula to help students gain a well-rounded educational experience. "What ag does is teach math and science and makes them use it in a way that is meaningful… it stays with them a lot longer" (R12).

Development of community was expressed in numerous comments from every participant. The agriculture "program adds to a sense of pride" for the school and community… "people know and see our ag program is successful… it's extremely important to the school culture as a whole." (R4). In addition to creating a sense of pride, the agriculture program has become an integral part of people's lives in the community. A teacher commented that "they [those in the agriculture program] provide for us… a big chunk of what we are all about" (R2). A community member mentioned what it would be like without the agriculture program, "there would be a major void in this community… a black hole" (R6). The high quality of the agriculture program contributed to the development of the community in such a positive way that people identify with and actively participate in the activities associated with the program. A comment by one participant illustrates the significance of the program to the community, "There are two things in [Town] that are very important: one of them is football and the other one is the FFA program… if we had to pick, our FFA and ag program is more important" (R8).

Conclusions/ /Implications/Recommendations

The agricultural education profession has developed national standards to measure secondary agricultural education programs. However, one must realize that the quality of the program depends on the specific community in which the program exists. This qualitative case study described one secondary agriculture program and how its community defined level of quality. Major themes of (a) well-rounded, (b) relevant application, and (c) well-respected emerged along with several subthemes to describe this agriculture program. The participants in this study referred to the positive impact that the agriculture program made on the students, school, and community. The two main themes that surfaced regarding the agriculture program's impact were (a) preparing students for college and careers and (b) development of community. There were also several subthemes that supported the two major themes regarding the agriculture program's impact.

Agricultural educators may glean valuable information as to the quality of this particular agriculture program and its impact in their community. In order to truly understand the quality of a secondary agriculture program, one must examine the program at the local level. In addition, the agriculture program's impact on the students, school, and community should be done on an individual case basis. There may be quality standards that reach beyond localities to the national level; however, one should be cautioned that what may provide a positive or significant impact in one program may not have the same effect in another. At this time there are very few studies examining the level of quality or variables leading to quality secondary agricultural education programs. Research determining the quality of secondary agriculture programs would benefit the profession.

Examining and measuring the quality of secondary agricultural education programs should continue at the local level. Identifying the type and quality level of an agriculture program can be extremely beneficial for agricultural educators who seek to impact the community in a positive manner. The results of this study along with the *National Quality Program Standards* (2007) provide a solid reference for agricultural educators who seek to evaluate the quality of their programs. In addition, agricultural educators may compare the program's impact to the perceived impact of their program on the community. Agricultural education faces many challenges that could be answered if the positive impacts that a quality agriculture program has on the community were understood.

This study was not intended to determine the quality of the selected agriculture program based on the *National Program Quality Standards* (2007). Future studies should be conducted to measure program quality based on the *National Program Quality Standards* as well as standards established by local agricultural education professionals.

The results of this study describe the quality and impact of an agriculture program. While the study did not seek to determine the variables causing or leading to excellence, it did become evident that participants believed in the importance of good, high quality teachers. Facilities and other resources did not emerge as causes of quality. Thus, future studies are needed to examine and describe the behaviors and characteristics of the agriculture teacher(s) who teach in quality agriculture programs. Understanding the leadership of the agriculture teacher(s) who run(s) a quality program would provide valuable information for the profession. One community leader and former student expressed the importance of leadership. "There is no doubt that the leader of the program makes all the difference in the world" (R8). Agricultural educators could apply that knowledge to increase the quality of their programs and teacher preparation programs could apply the findings to courses which train new agriculture teachers.

The need to increase the number of quality agricultural education programs is a priority in the profession. Continuing to research aspects of quality agriculture programs and the teachers who teach in those programs is vital to the future of the profession. Dr. Larry Case stated, "I believe agricultural education is more crucial than ever" (Team Ag Ed, 2006, p. 9). Furthermore, ensuring that the profession is taking necessary measures today to guarantee that agricultural education will continue to provide a positive impact on students and communities is of utmost importance.

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Multicultural Teaching Concern Levels Among Preservice Teachers

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Abstract

Cultural diversity in secondary and postsecondary agricultural education programs is lagging behind recent demographic shifts in the general population. An examination of education literature provides many inquiries into the need for teaching of multicultural awareness and reducing the achievement gap between students of various cultures. This research sought to summarize the current concern level that secondary level preservice teachers have toward teaching students of various cultures. Concern was calculated based upon the summation of four concern components: familial/group knowledge, strategies and techniques, cross-cultural competencies, and school bureaucracy. Results of this study indicate that preservice teachers' sex, home residency, and academic major play a role in the overall concern displayed. Secondary agricultural education preservice teachers are not as concerned as secondary preservice teachers from other disciplines toward teaching multicultural students. Recommendations, implications, and conclusions were developed based on the result from this study.

Introduction

The population of the United States continues to grow and expand into a diverse ethnic and cultural melting pot (Census, 2006). In 2000, the United States Census Bureau issued a report detailing population numbers by ethnicity for 1980, 2000, and predicted values in 2020. The data reported the White population to be the only race to decline over the 40-year time-period. Identified with the largest increase in population growth within the United States is the Hispanic population with an 11.5% difference; followed by Asian (3.5%) and African-American (1.3%) populations.

Although the population of the United States continues to diversify, the same diversity trend is not observed among teachers within US schools. In 1991, the National Center for Education Statistics (NCES) reported that nearly eight percent of the teacher population is comprised of African-Americans, while African-American students constituted 15 percent of the enrolled population. Similar discrepancies are observed for other racial populations. These discrepancies are further amplified by the statistic that approximately forty percent of all schools in the United States do not have a single teacher of color (National Education Association, 2002). In the nation's largest urban public school systems (e.g. Chicago, Memphis, Atlanta, Milwaukee), 69 percent of the student population is of color represented by only 35 percent of teachers that are of color (NCES, 2003).

Although race is an identifiable facet of culture, it is not the only identifier. In fact, culture is explained as the explicit statement of aspects such as the learned, socially shared, and variable nature of one's experiences (Betancourt & López, 1993). Rohner (1984) proposed that culture

represents design and ways of life and that each are transmitted from one generation to another. With these thoughts in mind, one could include economic status as a cultural element in a student population. The National Center for Education Statistics (2006) reports that 41.6 percent of the entire student population of the United States qualifies for free or reduced price lunch.

One of the reasons for the discrepancy in the makeup of teacher/student enrollment in US schools is in the agriculture education profession. Larger gaps exist in agriculture education with one of the industry's largest enrolled states, California, representing the lack of diversity in the teacher and student makeup (Trexler, et al., 2004). In addition to the lack of diversity in agriculture education and the major shift in the American culture, fair warning has been issued to the profession. Bowen (2002) reported that within this cultural shift comes a fundamental challenge: either aggressively pursue methods to draw a diverse pool of new teachers into the discipline, or remain a course of study with teachers whose ranks are not reflective of the students they teach.

Throughout the agricultural education profession, presumptions can be made about preservice agricultural education majors based upon former research (Rocca & Washburn, 2006; Camp, Broyles, & Skelton, 2002; Joerger & Boettcher, 2000). Roberts and Dyer (2004) developed 40 characteristics to describe the effective agriculture teacher. In the characteristics, none of the 40 represented a cultural competent teacher or the effective teaching for all populations. Connors and Elliott (1995) concluded that although students enrolled in agriculture science classes did as well on state science examinations as students not enrolled in agriculture science; no increase was apparent with students from low socio-economic backgrounds. The outcome raises questions if preservice agricultural education teachers are concerned, aware, or even strategized how to teach the different cultures (including students of a different SES) that they will face in the classroom.

Does the agriculture education profession, as a whole, need to be alarmed about the level of concern that a preservice teacher has in teaching diverse populations? Spanierman, et al., (2008) indicated that many students are arriving at racially diverse campus settings, from mostly homogeneous high schools, with little knowledge of or experience with people from racial backgrounds. This should bring concern to teachers in their preparation of students for their future beyond high school. In fact, Wehlage and Rutter (1986) attributed the student dropout rate to teacher concern levels. Fritz and Miller may have revealed a key contribution to the agricultural education profession, accidentally, in their 2003 study. They concluded that preservice teachers had concerns for self-adequacy (described primarily as survival concerns) with one in four female teachers concerned with their teaching impact. Although valuable to the profession, these studies did not establish a level of concern for preservice teachers toward teaching students of various cultures.

Conceptual/Theoretical Framework

The conceptual model is derived from Fuller, Parsons, and Watkins (1973). Francis Fuller, a clinical psychologist, developed a two-stage teaching concern model for the concerns of self and pupil (Fuller, 1969). Fuller's research focus was on stages of concern in preservice teachers and beginning teachers. Fuller identified numerous categories in teaching concern, then (with Parsons and Watkins in 1973) grouped the specific categories into three stages: self-concerns, task concerns, and impact concerns.

Self-concerns relate to the teachers' own worries about their ability to perform in the school environment (adequacy as a teacher/survival) (Marshall, 1996). Task concern regards daily teaching duties that pertain to the teaching methods and performance of the teacher. Finally, impact concerns describe the teacher's apprehension toward the outcomes of the students (the students' learning needs) (Srivastava, 2007).

Researchers of education have described the cultural elements of race and class by how teachers interact with students of a different race and class (Junor Clarke & Thomas, 2009; Kozol, 1992; Dusek & Joseph, 1985). In addition, research within the education profession has described how teachers' concerns relate to what approaches they take in the delivery of content to students. Included in the literature are various areas of teaching concerns in preservice science education (Gunstone, Slattery, Baird, & Northfield, 1993), stages of concern in horticulture teachers exploring mathematics enhancement (Jansen, Enochs, & Thompson, 2006), stages of concern of individuals teaching or not teaching five years after graduation (Marso & Pigge, 1995), and concern stages of mathematics education teachers (Christou, Eliophotou-Menon, & Philippou, 2004). Although many of the sources are incredible references to enhance the performance of teacher education, none discuss the concerns that preservice agriculture teachers have for teaching students of different cultures (sources studying cultural concerns)

Purpose/Research Objectives

The purpose of this nonexperimental, descriptive-correlational study is to examine the level of concern toward teaching students of multiple cultures among preservice teachers in agricultural education. The following research objectives and hypotheses were developed to guide the study:

1. Describe preservice teachers (agriculture and other secondary areas) in terms of race, sex, home residency, and family's household income.
2. Describe the four components of multicultural teaching concerns (Familial/Group Knowledge, Strategies and Techniques, Cross-Cultural Competencies, and School Bureaucracy).
3. Describe the multicultural teaching overall concerns by the selected student characteristics (sex, race, home residency, and perceived family income).

Additionally, nine hypotheses were tested; for brevity, four hypotheses are collapsed into one and four into another.

$H_{01, 02, 03, 04}$: The proportion of variance in the components (Familial/Group Knowledge$_{01}$, Strategies and Techniques$_{02}$, Cross-Cultural Competencies$_{03}$, and School Bureaucracy$_{04}$) of multicultural teaching concerns cannot be predicted by the linear combination of selected student characteristics (sex, race, home residence, and predicted family income).
$H_{O5, 06, 07, 08}$: There was no statistically significant difference in the component area (Familial/Group Knowledge$_{05}$, Strategies and Techniques$_{06}$, Cross-Cultural Competencies$_{07}$, and School Bureaucracy$_{08}$) for teaching multicultural students between secondary preservice agricultural education teachers and other secondary preservice teachers.

H_{O9}: There was no statistically significant difference in the overall level of concerns for teaching multicultural students between secondary agriculture preservice teachers and the other preservice teachers.

Methods/Procedures

The assessable population of this descriptive-correlational study was secondary preservice teachers at the University of Missouri whom were entering phase III (of three teacher development phases) semester of teacher education. The purposeful sample consisted of all preservice teachers enrolled in a teaching methods course during the 2009 spring semester ($n = 113$). The sample represented the seven secondary academic certification areas (Agriculture, Art, English, Mathematics, Music, Science, and Social Studies) offered at the University of Missouri. The Associate Dean of Academic Programs in the College of Education granted access to preservice teachers. Confirmation of participation was received following the approval of the lead faculty member of each methods course. Faculty members of a methods course set a desired meeting time and date for the researchers to distribute and collect the instrument.

The Multicultural Teaching Concerns Survey (MTCS) was used to measure the level of multicultural teaching concern as expressed by the preservice teachers. Marshall (1996) developed the MTCS, with modifications and further developments to Locke's (1988) multicultural awareness model and Fuller and Brown's (1975) three-stage concern conceptualization: concerns about self, tasks, and teaching impact. Four components comprised the MTCS and included measures reflecting teaching concerns related to Familial/Group Knowledge (the culture among diverse students' families), Strategies and Techniques (effective teaching methods among different cultures), Cross-Cultural Competencies (teacher's knowledge, skills, and beliefs toward different cultures), and School Bureaucracy (identifying attitudes of intolerance toward diverse cultures within a school). The four components were derived from over 300 qualitative concerns and questions taken from 206 preservice and experienced teachers about teaching multicultural students. Statements of concern and questions were separated into the four components and matched by three independent judges. Marshall then conducted a three-round modified Delphi poll across judges, decreasing the concern pool into 64 questions. After further reliability testing, the 64 questions were reduced to 34 (14 in Familial/Group Knowledge, 10 in Strategies and Techniques, 6 in Cross-Cultural Competence, and 4 in School Bureaucracy).

A panel of experts ($n = 6$) with a similar research focus involving statistical and/or multicultural education at the University of Missouri reviewed the MTCS for face and content validity. To determine the reliability of the MTCS, it was piloted with preservice students enrolled in a multicultural diversity education course at the same university who were not included in the study ($n = 20$). Reliability estimates were determined using a Cronbach's alpha. The overall reliability estimate for the MTCS was .90. Reliability estimates were also determined for the four concern components (.73 for Familial/Group Knowledge, .82 for Strategies and Techniques, .87 for Cross-cultural Competence, and .51 for School Bureaucracy). The results were satisfactory, according to Nunnally and Bernstein (1994), except for School Bureaucracy. A panel of experts reexamined the School Bureaucracy anchor and restructured wording and sentence structure to minimize error, but did not develop critical change that would affect the overall score of the

instrument. Following revision, the School Bureaucracy component anchor received a new reliability estimate of .68.

For students in each academic certification area, the data collection period was at the end of each academic area's methods of teaching course, one week prior to the final examination using the MTCS. Data were collected using a simple distribution of the instrument to each student present in the methods class. Students were asked to rate their concern level to the various questions on a 5-point Likert scale ranging from "extremely important concern" to "extremely unimportant concern".

Following the collection period, data were coded and entered into SPSS. Descriptive statistics of central tendency and variability were calculated to summarize the data. According to the Oliver and Hinkle (1982), it is reasonable to argue that a well-established cohort of subjects in any given year is likely to be representative of a cohort in a similar nature over time. Because this sample is a cohort grouping of preservice teachers, inferential analyses were applied to the data. Independent sample t-tests and ANOVA were conducted to test differences on the MTCS, and stepwise multiple linear regressions was calculated to estimate the variance in the four components for teaching multicultural students (Familial/Group Knowledge, Strategies and Techniques, Cross-Cultural Competencies, and School Bureaucracy) as explained by preservice teacher selected predictor characteristics. Effect sizes were calculated and interpreted using Cohen's (1988) d coefficients: negligible effect size ($d < 0.15$, small effect size ($d < 0.40$), medium effect size ($d < 0.75$), large effect size ($d < 1.10$), very large effect size ($d < 1.45$), and huge effect size ($d > 1.45$). An alpha level of .05 was established *a priori* for tests of significance.

Results/Findings

Research objective one sought to describe the selected characteristics (race, sex, home residency, and family's household income) of the secondary agriculture and other secondary preservice teachers. Female preservice teachers ($n = 69$; 61.10%) outnumbered male preservice teachers ($n = 44$; 38.90%) in both secondary agriculture ($n = 17$; 70.80%) and the other secondary preservice teachers ($n = 52$; 58.40%). Secondary agriculture preservice teachers were homogenous in race (White; $n = 24$; 100.00%) while the other secondary preservice teachers had a slight diverse composition with White as the dominant sample ($n = 75$; 84.30%) followed by Asian ($n = 5$; 5.60%), African American ($n = 5$; 5.60%), Hispanic ($n = 3$; 3.40%), and American Indian ($n = 1$; 1.10%). All preservice secondary agriculture teachers ($n = 24$; 100.00%) considered their home residence to be located in a rural setting, while the majority of the other secondary preservice teachers identified home residence as suburban ($n = 60$; 67.40%) rather than rural ($n = 19$; 21.30%) and urban ($n = 10$; 11.20%). A discrepancy in perceived family income seems to exist between the two set of preservice teachers. Thirteen of the 24 (54.20%) perceived their family's household income to be within the range of $35,000 to $49,999, while the majority of the other secondary preservice teachers ($n = 31$; 34.80%) perceived their family household income to be $100,000 or greater.

Table 1 provides a description of the homogenous nature of the preservice teachers included in the study. This sample appears to reflect the parameters of the general teacher

populations – 87 percent are White middle class teachers with suburban values (Segall & Wilson, 2004).

Table 1
Descriptive Characteristics of Agriculture and Other Secondary Preservice Teachers (n = 113)

Characteristic	Agriculture Preservice		Other Preservice	
	F	*%*	*f*	*%*
Sex				
Female	17	70.80	52	58.40
Male	7	29.20	37	41.60
Race				
White	24	100.00	75	84.30
African American			5	5.60
Asian			5	5.60
Hispanic			3	3.40
American Indian			1	1.10
Home Residence				
Rural	24	100.00	19	21.30
Suburban			60	67.40
Urban			10	11.20
Perceived Family Income				
< $35k			2	2.20
$35k - $49,999	13	54.20	12	13.50
$50k - $74,999	7	29.20	24	27.00
$75k - $99,999	2	8.30	20	22.50
$100k ≥	2	8.30	31	34.80

To gain a better view of the preservice teachers' certification area, Table 2 serves as a summary of the academic areas represented in the study.

Table 2
Certification Area of Secondary Preservice Teachers (n = 113)

Secondary Academic Certification Area	*f*	*%*
Agriculture	24	21.20
Social Studies	24	21.20
English	19	16.80
Math	15	13.30
Science	13	11.50
Music	10	8.80
Art	8	7.10

With research objective two, preservice teachers MTCS results were broken down into the four components (Familial/Group Knowledge, Strategies and Techniques, Cross-Cultural

Competence, and School Bureaucracy). Concerns for Strategies and Techniques (*M* = 55.71; *SD* = 8.95) was out of a total concern level of 70, while Cross-Cultural Competence (*M* = 32.02; *SD* = 9.54) was out of a total concern level of 50. Familial and Group Knowledge (*M* = 24.40; *SD* = 3.53) represented six questions on the MTCS for a total concern level of 30 and School Bureaucracy (*M* = 14.61; *SD* = 3.19) only represented four questions for a total concern level of 20 (see Table 3).

Table 3
Familial/Group Knowledge; Strategies & Techniques; Cross-Cultural Competence; and School Bureaucracy Mean Scores (n = 113)

Cultural Competency	Mean Score	*SD*	Grand Mean[e]	Grand *SD*	Range
Strategies and Techniques[a]	55.71	8.95	3.98	0.64	20.00 – 70.00
Cross-Cultural Competence[b]	32.02	9.54	3.20	0.95	10.00 – 50.00
Familial/Group Knowledge[c]	24.40	3.53	4.07	0.59	14.00 – 30.00
School Bureaucracy[d]	14.61	3.19	3.65	0.80	6.00 – 20.00

[a]Out of 70 Points; [b]Out of 50 Points; [c]Out of 30 Points; [d]Out of 20 Points
[e]Scale based on: 1 = Extremely Unimportant Concern to 5 = Extremely Important Concern

Research objective three sought to describe the overall concern level of the preservice teachers based upon the characteristics of sex, race, home residence, and perceived family income. Tables 4 and 5 help in explaining this objective. Female preservice teachers are overall more concerned (*M* = 130.04; *SD* = 18.48) than male preservice teachers (*M* = 121.55; *SD* = 21.92) in teaching multicultural students (see Table 4). An independent (two-tailed) *t* – test revealed a significant difference (*t* = 2.22; *p* < .05) in level of concern held by female and male preservice teachers with a medium effect size (*d* = 0.43).

Table 4
Two-Tailed Independent t-test on Level of Teaching Concern by Sex (n = 113)

Sex	*n*	*M*	*SD*	*t*	*p*	Cohen's *d*
Female	69	130.04	18.48	2.22	.03*	0.43
Male	44	121.55	21.92			

*p ≤ .05

In addition to the sex of preservice teachers, the remaining characteristics were evaluated as multichotomous variables. To complete research objective three, a univariate linear 3-way ANOVA model was conducted to determine the differences in overall level of concern for teaching students of different cultures by race, home residence, and perceived family income (see Table 5). No significant difference (*p* > .05) in overall level of concern was found among the group's family income, however, a significant difference (*p* < .05) in home residency existed. Due to concerns toward the unequal group size in race, a test of significance was not calculated however, descriptive measures are provided in Table 5.

Table 5
ANOVA of Concern Scores by Preservice Teacher Characteristics (*n* = 113)

Characteristic	*n*	*M*	*SD*	*F*	*p*
Race					
White	99	126.43	19.27		
Asian	5	133.80	28.82		
Black	5	127.20	34.39		
Hispanic	3	133.33	10.02		
American Indian	1	99.00	-		
Home Residence				4.23	.01*
Rural	43	122.81	19.75		
Suburban	60	126.85	20.09		
Urban	10	142.90	16.16		
Perceived Family Income				0.73	.57
< $35k	2	125.00	28.28		
$35k - $49,999	25	128.28	16.47		
$50k - $74,999	31	129.13	18.66		
$75k - $99,999	22	126.41	20.20		
$100k ≥	33	123.64	20.23		
Intercept				420.28	.01*

Home Residence: $F(2,110) = 4.23$, Adjusted Eta^2 = .07 $p \leq .05$
*$p \leq .05$

A Levene's test revealed that an equal variance was assumed in the characteristic of home residency on the overall multicultural teaching concern score. Hochberg's GT2, post hoc, pair-wise comparison was utilized because of the unequal sample size between rural, suburban, and urban students. Hochberg's GT2 provides a calculation for the honest significant difference to address Type I error (Field, 2000). Results display a significant difference ($p < .05$) in the overall concern level among urban/suburban and urban/rural preservice teachers (see Table 6).

Table 6
Hochberg's GT2 Post hoc Pair-wise Comparison of Overall Concern Level by Home Residence

Home Residence	Mean Difference	*p*
Suburban/Rural	4.04	.66
Urban/Suburban	16.05	.05*
Urban/Rural	20.09	.01*

*$p \leq .05$

To test hypotheses 01, 02, 03, and 04, stepwise multiple linear regressions were utilized to predict the antecedents of preservice teachers' level of concern for teaching multicultural students in the four teaching concern components (Familial/Group Knowledge, Strategies and Techniques, Cross-Cultural Competencies, and School Bureaucracy) that can be predicted by their characteristics (race, certification area, sex, home residency, and family's household income). For

race, subjects were dichotomized as either "White" or "Not White" (African-American, Asian, Hispanic, and Native American) and the academic certification areas were dichotomized as "Agricultural Education" and "Other Secondary Areas" (Social Studies, English, Mathematics, Science, Music, and Art). Intercorrelations were calculated to check for multicollinearity. According to Berry and Feldman (1991), bivariate correlations between independent variables yielding a .80 or higher were considered to display a high degree of multicollinearity. No multicollinearity issues were observed in each of the multiple regression analyses. Tables 7 and 8 display the results of the analyses.

It was revealed that nine percent of the variance of preservice teachers' concern in Familial/Group Knowledge (see Table 7) component $(F(2,112) = 5.48; p \leq .05)$ was predicted in their sex ($\beta = -.24$) and certification area ($\beta = .21$). Home residency, race, and perceived family income were non-significant predictors. Concern for using Strategies and Techniques (see Table 8) to teach multicultural students ($F(5,112) = 10.65; p \leq .05$) was predicted by their home residency ($\beta = .30$), certification area ($\beta = .18$), and sex ($\beta = -.25$). Null hypotheses 01 and 02 were rejected in favor of the alternative hypotheses that the proportion of variance in Familial/Group Knowledge and Strategies and Techniques is explained by the linear combination of characteristics.

Table 7
Stepwise Regression of Familial Group Knowledge Concern ($n = 113$)

Variable	R	R^2	b	β	t	p
Characteristics	.30	.09				
Sex[a]			-1.71	-.24	-2.59	.01*
Certification[b]			1.83	.21	2.33	.02*
(Constant)			23.62		32.82	.01*

Adjusted R^2 = .07; For Model: $F(2,112) = 5.48; p \leq .05$
[a]Sex Coded: Female = 0; Male = 1
[b]Certification Area: Agricultural Education = 0; Other Secondary Areas = 1
*$p < .05$

Table 8
Stepwise Regression of Strategies and Techniques Concern ($n = 113$)

Variable	R	R^2	b	β	t	p
Characteristics	.40	.16				
Home Residence[c]			4.38	.30	3.48	.01*
Certification[b]			3.93	.18	1.56	.02*
Sex[a]			-4.49	-.25	-2.81	.01*
(Constant)			54.36		39.90	.01*

Adjusted R^2 = .15; For Model: $F(5,112) = 10.65; p \leq .05$
[a]Sex Coded: Female = 0; Male = 1
[b]Certification Area: Agricultural Education = 0; Other Secondary Areas = 1
[c]Home Residence: Rural = 0; Suburban = 1; Urban = 2
*$p < .05$

As noted in Table 7, the Familial/Group Knowledge component is explained by sex and certification area. The table provides information that preservice agriculture male teachers have significantly lower multicultural concern for familial/group knowledge than another group. Table 8 explains that the home residence, certification area, and sex play a significant role in their multicultural concern for the strategies and techniques in teaching students of a different culture.

Hypotheses 03 and 04 state, the proportion of variance in the component areas (Cross-Cultural Competencies and School Bureaucracy) of multicultural teaching concerns is not explained by the linear combination of the demographic areas. Using stepwise multiple linear regression, no unique variance was explained in each component area resulting in a failure to reject null hypotheses 03 and 04.

Two-tailed, independent t-tests were calculated to test hypotheses 05, 06, 07, and 08. Each hypothesis sought to determine if statistical differences existed between secondary preservice agriculture teachers and other secondary preservice teachers by each component of multicultural teaching concern (Familial/Group Knowledge, Strategies and Techniques, Cross-Cultural Competence, and School Bureaucracy). Table 9 provides the results. As noted in the concern component Familial/Group Knowledge, other secondary preservice teachers received a mean score of 24.74 ($SD = 3.72$) which is significantly ($p < .05$) higher than agriculture preservice teachers ($M = 23.13$; $SD = 2.38$) with a medium effect size ($d = 0.47$). Therefore, for Familial/Group Knowledge, equal variance is assumed with a significant t-value of -2.02.

Other secondary preservice teachers ($M = 56.76$; $SD = 9.20$) responded higher than agriculture preservice teachers ($M = 51.79$; $SD = 9.20$) in the component area of Strategies and Techniques (see Table 9). The difference in the component area was significant ($p < .05$) with a medium effect size ($d = 0.55$). Equal variance was not assumed, yielding a significant t-value of -2.83.

Significant difference was found in the independent t-test on the component areas of Familial/Group Knowledge and Strategies and Techniques. Null hypotheses five and six were rejected in favor of the alternative hypotheses which state differences do exist in the components of concern between preservice secondary agriculture teachers and other preservice secondary teachers. For the components of Cross-Cultural Competence and School Bureaucracy concerns, a significant difference was not found ($p < .05$). Null hypotheses 07 and 08 were not rejected.

Table 9

Two-Tailed Independent t-test on Multicultural Teaching Concern Components of Preservice Secondary Teachers (*n* = 113)

Concern Components	*n*	*M*	*SD*	*t*	*p*	Cohen's *d*
Familial/Group						Medium
Agriculture	24	23.13	2.38	-2.02	.04*	0.47
Other Secondary	89	24.74	3.72			
Strategies/Techniques						Medium
Agriculture	24	51.79	9.20	-2.83	.01*	0.55
Other Secondary	89	56.76	9.12			
Cross Cultural Competence						Negligible
Agriculture	24	31.83	9.20	-0.11	.91	0.03
Other Secondary	89	32.07	9.68			
School Bureaucracy						
Agriculture	24	13.96	3.34	-1.09	.28	Small
Other Secondary	89	14.79	3.14			0.26

*p < .05

　　　Hypothesis 09 is better explained in Table 10, which includes the one-way ANOVA findings for overall multicultural teaching concern levels in preservice teachers. The overall model was found to be significant (*p* < .05). The test of significance lead to rejecting null hypothesis 09 and accepting the alternative hypothesis that suggests there is a difference in the overall level of concerns for teaching multicultural students among the secondary preservice teachers. A significant difference among the group variance existed and as the result of the Levene's test, equal variance was assumed leading to performing a Tukey, post-hoc, pair-wise comparison (Table 11). Tukey post-hoc was utilized as a relatively conservative approach to addressing Type I error (Field, 2000). The Tukey comparison revealed a significant difference in overall multicultural teaching concern scores between secondary Agriculture/Social Studies, Agriculture/Art, and Agriculture/English preservice teachers.

Table 10

ANOVA of Concern Scores by Certification Area (*n* = 113)

Academic Certification Area	*n*	*M*	*SD*	*F*	*p*
				3.97	.01*
Agriculture	24	120.71	17.47		
Social Studies	24	133.08	17.12		
English	19	137.63	15.73		
Math	15	114.67	23.02		
Science	13	116.54	17.28		
Music	10	129.00	25.69		
Art	8	136.25	17.94		

Academic Certification Area: $F(6,112) = 3.97, p \leq .05$
Adjusted Eta^2 = .14
*p < .05

Table 11
Tukey Post hoc Pair-wise Comparison of Preservice Secondary Agriculture Teachers with Other Preservice Secondary Teachers

Certification Area	Mean Difference	p
Agriculture/Math	6.04	.96
Agriculture/Science	4.17	.99
Agriculture/Music	-8.29	.90
Agriculture/Social Studies	-12.38	.05*
Agriculture/Art	-15.54	.04*
Agriculture/English	-16.92	.03*

*$p \leq .05$

Conclusions/Implications/Recommendations

The following conclusions and recommendations are based upon the findings. The concern component area of Familial/Group Knowledge received the highest concern score held by preservice teachers; followed closely by their concern toward the Strategies and Techniques in teaching multicultural students. The college of education at the University of Missouri places a lot of emphasis on teaching strategies and techniques and because of these efforts, it implies why the Strategies and Techniques component received higher scores. The high concern scores towards a student's family and group knowledge could be due to the large population of female preservice teachers. To capitalize on the two high concern component areas, it is recommended that the college of education begin to address the components by preparing preservice teacher's efficacy level in various classroom strategies and techniques that benefit different cultures as well as essential steps in working with families and groups of a different culture. The lowest two component areas, School Bureaucracy and Cross-Cultural Competence, suggest that a greater level of awareness is needed before an efficacy level is addressed. To build preservice teachers' concern levels, it is recommended that educators provide students with opportunities to work and observe in schools with various cultures that allow a stronger understanding. In addition, qualitative interviews of teachers, administrators, and students from schools of multi-cultures will help in the education process that will reflect a higher concern in cross-cultural competence and school bureaucracy.

Females and male preservice teachers differ significantly on the overall concern level of teaching multicultural students, where females appear to have the higher level of concern. It is possible that females' concern scores are higher due to their nurturing care or their cautious behavior. Although research implies that race of a teacher affects the educational outcome of the teacher (King, 1993), there was no significant relationship between preservice students' race and their overall concern level in teaching multicultural students. However, this might be due to the homogenous nature of the preservice teachers in the study. Urban students differ significantly on their overall level of concern than did suburban and rural preservice teachers. This implies that rural preservice teachers have a narrow definition of "culture" as a subject of race, which they received minimal association with as oppose to students from an urban background. It is recommended that college educators strengthen their efforts to educate students about various cultures in a classroom. In addition, it is recommended that male preservice teachers receive

additional opportunities to practice teaching in more diverse schools. Although not significant, it was observed that students who perceived their family income in a middle class representation expressed a higher level of concern than students from higher and lower perceived family income levels. This implies that both rural and higher perceived family income preservice teachers assume to teach in schools that represent the population demographics of the school they attended. Preservice teachers representing a middle class perceived family income may reside in a diverse school population. It is recommended that colleges of education give all preservice teachers the experience to work in diverse school populations through service learning hours, observations, and practice teaching experiences.

When predicting students' concern levels from the four teaching concern components (Familial/Group Knowledge, Strategies and Techniques, Cross-Cultural Competence, and School Bureaucracy), two were found to be significant (Familial/Group Knowledge and Strategies and Techniques). Female preservice teachers in an education certification area other than agriculture have the highest level of concern for the Familial/Group Knowledge component area. This implies that agriculture education preservice teachers at the University of Missouri anticipate a teaching job similar or close to their home residence. This anticipation provides agriculture preservice teachers with an assumption that the classroom students' family and group background will be similar to their own. The opposite is true to the secondary preservice teachers that represent the other certification areas. These students have a better understanding that it is possible that their students' family and group background could be different from their own. It is recommended that agricultural educators make strides in immersing preservice teachers in the various family and group lifestyles. This could be accomplished with the help of student teaching placements in multicultural communities or through a teaching exchange program with an urban school district.

The second concern component area that was significant addresses the strategies and techniques utilized in teaching students of different cultures (Strategies & Techniques). It was concluded that urban, female preservice teachers from a certification area other than agriculture have the greatest level of concern. This implies that all agriculture preservice teachers from the University of Missouri, according to the findings in Table 8, were immediately disadvantaged versus their other content area colleagues due to their certification area and their homogenous rural home residency. It is recommended that efforts be made to offer experiences that provide greater understanding of the different strategies and techniques that are successful among different cultures. Agriculture preservice teachers need experiences that allow each to practice the strategies and techniques among students of different cultures. Utilization of the preservice teachers' obtained strategies and techniques could be practiced in classrooms with diverse student populations. These classrooms could be in an urban setting, on a study abroad experience, or in a secondary classroom of art, social studies, or English.

In two components (Familial/Group Knowledge and Strategies and Techniques), preservice agriculture teachers are significantly less concerned than their other secondary colleagues. A medium effect size exists in the variance of Familial/Group Knowledge and Strategies and Techniques, while a small effect size in the variance of School Bureaucracy exists between agriculture and other secondary preservice teachers. Overall, this suggests that the agricultural education department at the University of Missouri should provide more opportunities for their preservice teachers to understand the various cultures in the classroom and identify the best

practices of teaching to students of different cultures. Potentially, this component provides an opportunity in the implementation of an immersion project with urban secondary agriculture programs.

Although agriculture preservice teachers received an overall concern score lower than the majority of their peers, a significant difference was found between preservice agriculture teachers and the preservice teachers in the areas of Social Studies, English and Art. This implies that Social Studies, English, and Art preservice teachers represent a melting pot of cultures and that these departments make efforts to encourage their students to understand diverse cultures and understand the benefit of teaching to all students. Social Studies and English preservice teachers represent core content area classrooms that embody every student in a school. It would benefit the agricultural education department to work closely with the Social Studies, English, and Art departments in developing collaborative practices and professional development opportunities for agriculture preservice teachers. For example, preservice teacher collaboration through team teaching and attendance at professional development events developed by the departments.

Recommendations for Further Research

Further research should examine why differences exist among multicultural teaching concern levels among the academic areas. Researchers should seek to identify instruments that measure a deeper sense of preservice teachers' knowledge, skill, and beliefs of teaching students of different cultures. Yet another area for further research is to examine additional independent variables that may lead to the increase of an individual's concern level (i.e. interaction with students of different culture, cumulative grade point average, and whether the student continues to commute from home or not). Based upon the literature review, it is assumed that higher concern for teaching students of a different culture will result in an increased enrollment of diverse cultures. Some preservice agriculture teachers may lack concern due to the overall interaction that they may have received while in high school. Qualitative research should be conducted to determine this phenomenon. If the reasoning behind the lack of concern is true, then the agricultural education profession must heed the call in emphasizing the need for understanding cultural diversity.

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Analyzing The Attitudes Of Agricultural Education Teachers On Diversity Inclusion In Secondary Agricultural Education Programs

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Abstract

Secondary agricultural education teachers' attitudes about the perceptions of diversity inclusion in their programs are variables that may have a strong influence on the number of students that enroll in agricultural education courses. The purpose of this study, which was part of a larger study, was to determine if relationships existed among agricultural education teachers' selected demographic and personal characteristics regarding their perceptions of the benefits toward diversity inclusion, perceived barriers toward diversity inclusion, and proposed solutions to increase diversity inclusion in secondary agricultural education programs. Using a web-based questionnaire, the researchers employed a nonproportional stratified random sampling technique and 232 secondary agricultural education teachers participated in the study. Through comparative analysis, researchers found that statistically significant differences existed in teachers' perceptions toward the benefits of diversity inclusion, the perceived barriers toward diversity inclusion, and the opinions of proposed solutions to increase diversity inclusion in secondary agricultural education programs. Additional research should be conducted to understand better why these differences exist.

Introduction

The National Council for Agricultural Education's strategic plan and action agenda states: "All students have access to seamless, lifelong instruction in agriculture, food, fiber and natural resource systems through a wide variety of delivery methods and educational settings" (National Council for Agricultural Education, 2000, p. 4). In order to fulfill this goal, the need to increase the diversity of our profession has become paramount. Although the agricultural education profession has made strides for diversity, we still have fallen short. Data on race/ethnicity and gender show that 88% of all agricultural educators are White with almost 64% being White male and 24% being White female (Kantrovich, 2007). In contrast, the general population of students of color reached 30% in 1990, 34% in 1994, and 40% in 2002 and will continue to increase throughout the 21st century (Hodgkinson, 1991, 2001, 2002; KewalRamani, Gilbertson, Fox, & Provasnik, 2007; National Center for Educational Statistics, 2007). As public schools become progressively more diverse, the need to recruit and retain students from diverse backgrounds is important. Loudenslager (2006) summed it up well:

> Agricultural education's record of attracting and serving a diverse student body is mixed at best. We have made great progress in gender and geographic (rural, urban and suburban)

diversification. But, the goal of attracting and fully engaging all students of color and varied socio-economic means and locales has been elusive. (p.2)

Students with Disabilities in Agricultural Education

Since the inception of P.L. 94-142 and the reauthorization of the No Child Left Behind Act of 2002, the movement to include students with disabilities in regular education settings has become an important topic. The Individuals with Disabilities Education Act Amendments of 1997 (P.L. 105-77) require that students with disabilities have access to the general curriculum. The Carl D. Perkins Vocational and Applied Technology Act of 1990 (P.L. 101-392) mandates equal access to career and technical education for students with disabilities. The increasing number of children in regular education classes requiring different accommodations in the classroom has had a profound impact on the nature of teaching (Hayes, 2008). Because of this grouping, agricultural educators are faced with an important task of providing effective instruction that will address every student in the classroom. Elbert and Baggett (2003) concluded that "because programs have evolved toward mainstreaming disabled students due to legislation and various philosophies held by educators, most agricultural educators continue to feel less than competent while working with disabled students" (p. 113).

In order to address the changing demographics, the perceptions of diversity inclusion among agricultural educators must be examined. This is one of the first steps in ensuring that agricultural education teachers are prepared in terms of philosophy, pedagogy and curriculum to deal with the challenges of an increasingly diverse population.

Conceptual Framework

The conceptual framework guiding this study is based upon the concept of diversity inclusion. Diversity inclusion is an educational philosophy that welcomes all learners by actively engaging them in secondary agricultural education programs regardless of their race, ethnicity, or exceptionality. As a concept, diversity inclusion is based upon three constructing themes: inclusion, multicultural education, and culturally responsive teaching. To develop the conceptual framework, the authors conducted a review of the literature to identify emerging themes that could shed light on promoting and implementing a more inclusive atmosphere in agricultural education. The authors examined teacher perceptions of inclusion, multicultural education, and culturally responsive teaching.

Inclusion

Finegan (2004) conducted a study concerning teacher perceptions involving inclusion in general education classes. The researcher investigated identifying teacher perceptions about educating students with special needs, examining relationships between teacher perceptions and years of teaching experience, grade level, and type of institution in which the teachers were employed, and identifying beliefs about the critical issues involved in implementing inclusion. A total of 1,341 general and career and technology educators in grade levels Pre-Kindergarten through grade 12 were surveyed regarding (a) the extent of previous training received in working with students with disabilities and perceived needs for additional training, (b) the frequency of

communication between special and general education teachers, (c) the perceived helpfulness of suggestions given to general educators by special educators, (d) teacher participation in individualized education program team meetings and parent involvement in such meetings, (e) the provision of related services, and (f) teacher perceptions of their personal experiences with including students with disabilities in the general education classroom. The researcher discovered that public school teachers in Texas generally favor traditional special education service delivery models over full inclusive practices. Finegan (2004) also indicated that teachers perceive additional training, support from special education personnel and administrators, teacher communication and collaboration, and access to related services are necessary to meet the needs of their students with disabilities in the general education setting.

Multicultural Education

The history of multicultural education can be traced back to three prominent phases for which the roots of this entity started. The first phase of multicultural education can be linked directly to early ethnic studies scholars such as George Washington Williams, W. E. B. DuBois, Carter G. Woodson, Horace Mann Bond, and Charles C. Wesley (Banks, 1993). These originators were involved heavily in African- American scholarship and ethnic studies related to the other ethnic minority groups during the later part of the 19th century. The second phase of multicultural education began when educators, who were interested in ethnic studies, began to realize that by adding ethnic content into the school and teacher education curriculum, multicultural education would be critical in developing attitudes and perceptions of all people toward racial and ethnic studies (Banks, 1993). The third phase of multicultural education arose when other underrepresented groups, such as women and people with disabilities, demanded that their stories and struggles be included as well (Banks, 1993). Today, multicultural education is an educational reform movement that is geared toward creating equal and equitable school curriculums and structure for all students to learn about every race, ethnicity, culture, and lifestyle.

Culturally Responsive Teaching

Culturally responsive teaching is an educational process by which educators use cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students (i.e., students of color) to foster more relevant and effective learning encounters (Gay, 2000). Additionally, culturally responsive teaching teaches what Gay (2000) called *"to and through"* the strengths of ethnically diverse students. Villegas and Lucas (2002) asserted that to move successfully beyond the disjointed and superficial treatment of diversity that exists (in the field of teacher education), a systematically guided "infusion of multicultural issues" (p.21) must happen. This infusion process entails teacher educators to examine and assess the current curriculum and make the necessary revisions that will allow for a more diversity-centered approach. Villegas and Lucas identified six significant characteristics that define the culturally responsive teacher:

> Such a teacher (a) is socioculturally conscious, that is, recognizes that there are multiple ways of perceiving reality and that these ways are influenced by one's location in the social order; (b) has affirming views of students from diverse backgrounds, seeing resources for learning in all students rather than viewing differences as problems to be overcome; (c)

sees himself or herself as both responsible for and capable of bringing about educational change that will make schools more responsive to all students; (d) understands how learners construct knowledge and is capable of promoting learners' knowledge construction; (e) knows about the lives of his or her students; and (f) uses his or her knowledge about students' lives to design instruction that builds on what they already know while stretching them beyond the familiar (Villegas & Lucas, 2002, p.21).

The Diversity Inclusive Program Model (see Figure 1) is an illustration that guides the concept of diversity inclusion. As previously mentioned, diversity inclusion encompasses multicultural education, inclusion, and culturally responsive teaching in a three-part model that highlights the critical infusion in which a diversity inclusive program should exist. Teachers and programs that exist within this area have positive perceptions about (a) the benefits of diversity inclusion; (b) understanding that, because of past perceptions, whether it be from students, teachers, or external factors (i.e., friends, coworkers, parents, etc.) pre-existing barriers may be reason why these particular students are underrepresented in agricultural education, and (c) having an awareness of possible solutions to increase underrepresented group participation in agricultural education. Additionally, teachers who are receptive to a diversity inclusive program have become allies to those who understand that the future success of agricultural education will be determined by how prepared our agricultural educators are in teaching students of color and students with disabilities in our classrooms. The over arching goal of the program model is to formulate an educational culture and classroom structure that all students, regardless of race, ethnicity, language, social class, physical, or mental ability, will experience social equity and equitable education.
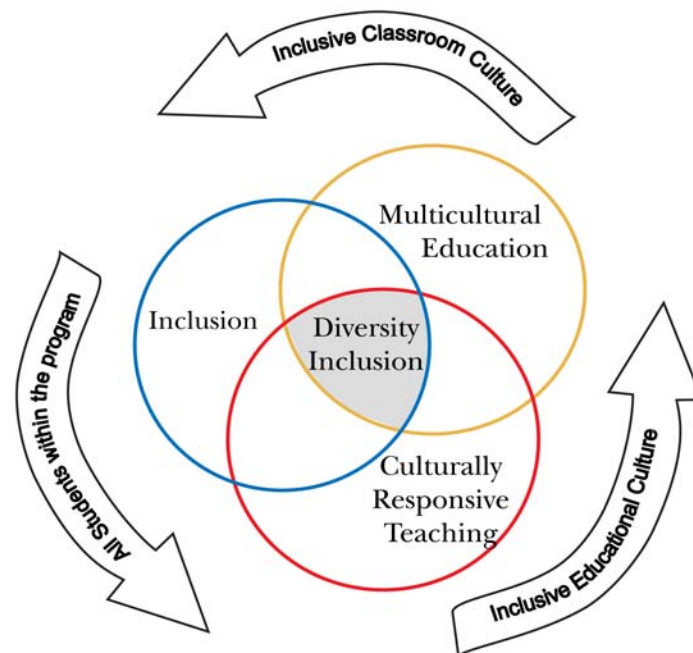
Figure 1. The Diversity Inclusive Program Model.

Purpose

The purpose of this study was to determine if relationships existed among agricultural education teachers' selected demographic and personal characteristics regarding their perceptions of the benefits toward diversity inclusion, perceived barriers toward diversity inclusion, and proposed solutions to increase diversity inclusion in secondary agricultural education programs. Based on consulted literature, the following hypotheses were developed to guide this study. The researchers set the alpha level *a priori* at p< .05.

Null Hypotheses

Ho_1: No difference exists in secondary agricultural education teachers' perceptions of the benefits of diversity inclusion in the presence of teaching area, age, gender, teaching experience, preservice diversity/multicultural training, inservice diversity/multicultural training, ethnicity, or school setting.

Ho_2: No difference exists in secondary agricultural education teachers' perceptions of the barriers of diversity inclusion in the presence of teaching area, age, gender, teaching experience, preservice diversity/multicultural training, inservice diversity/multicultural training, ethnicity, or school setting.

Ho_3: No difference exists in secondary agricultural education teachers' perceptions of proposed solutions to increase diversity inclusion in the presence of teaching area, age, gender, teaching experience, preservice diversity/multicultural training, inservice diversity/multicultural training, ethnicity, or school setting.

Procedures

To address the purpose of this study and to test the null hypotheses, researchers employed a descriptive and correlational design. Gall, Gall, and Borg (2007) wrote "descriptive research, in quantitative research, is a type of investigation that measures the characteristics of a sample or population on prespecified variables" (p.638).

The target population consisted of all secondary agricultural education teachers listed by the state's educational agency during the 2006-2007 school year ($N = 1,732$). Because of the lack of personal information listed by the state's educational agency, access to the entire target population was not practical. Therefore, the accessible population consisted of all of the state's agricultural education teachers that had email addresses listed on JudgingCard.com website. At the time of selection, 1,500 of the state's agricultural education teachers were listed. To promote validity and to ensure that all 1,500 teachers listed on the website were agricultural education teachers within the state, the researchers cross referenced the information with the state's agriculture teachers association's membership roster. Of the 1,500 members who had email addresses on the website, all were members of the state's agriculture teachers association during the 2007-2008 membership year.

Because of the size of the population and the inaccessibility to all agricultural education teachers in the state, the researchers used nonproportional stratified random sampling (Gall, Gall, & Borg, 2007). However, judgments based upon the findings of this study should be made with caution especially when making generalizations to other groups of agricultural educators.

The researchers determined that all 10 administrative areas as defined by the state's FFA Association would be represented equally in the study. Within each administrative area, 32 teachers were selected randomly among each Area ($n = 320$). The sample size was determined using a sampling formula from Bartlett, Kotrlik and Higgins (2001). This formula allowed the researchers to attain a practical sample size based upon a set alpha level *a priori* (.05), a set margin of error (5%) and a set estimate of standard deviation (1.17).

Survey participants completed a web-based, four-part questionnaire developed by the researchers and hosted on SurveyMonkey.com. The questionnaire was based on prior research by Warren and Alston (2007) concerning diversity and inclusion perceptions of North Carolina agricultural education teachers. Part one (*Benefits*) consisted of 12 statements designed to measure participants' perceptions toward diversity inclusion in secondary agricultural education programs. Part two (*Barriers*) of the questionnaire contained 12 statements designed to assess participants' perceptions on the perceived barriers to diversity inclusion in secondary agricultural education programs. Part three (*Solutions*) consisted of 12 statements designed to gauge participants' perceptions on possible strategies or solutions that would promote diversity inclusion in secondary agricultural education programs. Part four consisted of eight items designed to collect demographic information on the agricultural education teachers. Teachers responded to each question using a four- point, summated or Likert-type scale: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. The researchers used a four point scale to encourage participants to respond to the statements favorably or unfavorably. A panel of experts with expertise in diversity and inclusion established content and face validity. Construct validity was established through factor analysis. Reliability was estimated by calculating a Cronbach's alpha coefficient. The reliability analysis coefficients for the three constructs were *Benefits* = .75, *Barriers* = .73, and *Solutions* =.90.

With the popularity of the Internet and e-mail, digital research using e-mail or Web-surveys has become very common (Dillman, 2007). Ladner, Wingenbach, and Raven (2002) wrote: "Today, Web-based surveying has become a major information source for all researchers" (p. 41). One major weakness of web-based research is coverage error (sample population not having e-mail/internet access). This weakness was addressed because all public school teachers within the state have valid e-mail addresses through district websites and access to the Internet (Personal communication, 2008). Schonlau, Fricker, and Elliot (2002) wrote that Internet surveys should be considered when the target population is affiliated with an organization that provides an e-mail address.

On June 30, 2008, the researchers mailed a pre-notice/introductory letter to 320 agricultural education teachers. The letter explained the purpose and importance of the study and notified the participants that they would receive an e-mail with instructions on how to complete the questionnaire. At the time of the first e-mail, 31 e-mail addresses were invalid. The researchers searched district websites and contacted school personnel to obtain valid e-mail addresses. Once corrected, the e-mail was re-sent and deemed valid.

On July 7, 2008, the researchers sent the first notification e-mail to 320 agricultural education teachers. The notification letter served as an introduction to the study and the Internet link to the questionnaire. On July 10, 2008, a second reminder was sent via e-mail to the sample population. Because of the increased speed of web-based research, the time between the pre-notice

letter and the initial questionnaire was reduced to days rather than weeks (Fraze, Hardin, Brashears, Haygood & Smith, 2003; Schaefer & Dillman, 1998). However, for the remainder of the data collection phase, the researchers sent reminder e-mails each Monday until the study was concluded on August 21, 2008.

Data were analyzed using SPSS® for Windows™ statistical package. Demographic characteristics were assessed using means, frequencies, and standard deviations. Hypothesis testing in this study was conducted using a series of independent samples t-test and Analysis of Variances (ANOVA). Analysis of Variances (ANOVA) was used to compare various subjects (independent variables) on scaled variables (dependent variables). If ANOVA was statistically significant, Tukey's post-hoc means test was used to determine which of the group means were different from others. To assess the magnitude of statistical differences, effect sizes were calculated, interpreted, and reported (Cohen, 1988).

Findings

During July 7, 2008 – August 21, 2008, 232 (72.5%) teachers responded. The researchers analyzed data for normalcy (SPSS procedure descriptive, explore) and determined that all data were usable (100%).

Non-response error was addressed by comparing participants who completed the questionnaire before the deadline (n =195) to those that completed the questionnaire after the closing date (n = 37) (Lindner, Murphy, and Briers, 2001). Table 1 shows that no statistically significant differences existed between respondents' mean scores on the three scales (*Benefits*, t (230) = 0.27, p <.05, r =.06, *Barriers*, t (220) = 0.06, p <.05, r = .00 *Solutions*, t (215) = 0.20, p <.05, r =.01) of the questionnaire.

Table 1
Early versus Late Response for the Three Constructs of the Benefits, Barriers, and Solutions Scales (n =232)

Scale	Returned Status	n	M	SD	t	p
Benefits	Early	195	3.35	.490	.267	.789
	Late	37	3.33	.460		
Barriers	Early	195	2.82	.368	.056	.955
	Late	37	2.83	.428		
Solutions	Early	195	2.91	.486	.199	.842
	Late	37	2.89	.491		

Note. Scale: 1.00 to 1.49 = Strongly Disagree, 1.50 to 2.49 = Disagree, 2.50 to 3.49 = Agree, 3.50 to 4.00 = Strongly Agree.

Perceptions of agricultural education teachers on the *Benefits, Barriers,* and *Solutions* scales are shown in Table 2. The reliability analysis coefficient for the *Benefits* scale was .96, .75 for the *Barriers* scale, and .93 for the *Solutions* scale, respectively.

Table 2
Overall Mean Scores for the Benefits, Barriers, and Solutions Scales (n =232)

Scale	n	M	SD
Benefits	232	3.34	.484
Barriers	232	2.82	.378
Solutions	232	2.90	.485

Note. Scale: 1.00 to 1.49 = Strongly Disagree, 1.50 to 2.49 = Disagree, 2.50 to 3.49 = Agree, 3.50 to 4.00 = Strongly Agree.

Null hypothesis one stated no difference exists in secondary agricultural education teachers' perceptions of the benefits of diversity inclusion in the presence of teaching area, age, gender, teaching experience, preservice diversity/multicultural training, inservice diversity/multicultural training, ethnicity, or school setting. The personal characteristics were the independent variables. The dependent variable was the *Benefits* scale. This hypothesis was tested using a combination of independent samples t-test and the ANOVA procedure. Only those personal characteristics in which a statistically significant difference exists ($p < .05$) are reported.

Teaching Area

A one –way analysis of variance (ANOVA) was used to compare participants' perceptions of the benefits of diversity inclusion in secondary agricultural education programs by teaching areas of the state. As seen in Table 3, a statistically significant difference existed in mean scores among participants, $F (9, 206) = 2.31, p < .05$. A large effect size existed ($r = .92$). A Tukey's post-hoc analysis showed that Area 7 teachers ($M = 3.53, SD = .421$) had statistically significant higher mean *Benefits* scores than Area 9 teachers ($M = 3.04, SD = .637$).

Table 3
ANOVA Table of Overall Benefits Scores by Teaching Area (n = 232)

	n^a	M	SD	F	p
Teaching Area					
1	13	3.49	.449	2.310	.017*
2	19	3.11	.348		
3	21	3.35	.417		
4	22	3.34	.486		
5	27	3.32	.500		
5	25	3.33	.414		
7	25	3.53	.421		
8	25	3.40	.519		
9	19	3.04	.637		
10	20	3.50	.432		

Note. Scale: 1.00 to 1.49 = Strongly Disagree, 1.50 to 2.49 = Disagree, 2.50 to 3.49 = Agree, 3.50 to 4.00 = Strongly Agree.
[a] Sixteen participants chose not to respond to this question.
* $p < .05$

Because of statistically significant ($p <.05$) differences found between the personal variables, the null hypothesis was rejected, and the researchers concluded that a statistically significant difference existed in secondary agricultural education teachers' perceptions of the benefits of diversity inclusion in secondary agricultural education programs.

Null hypothesis two stated no difference exists in secondary agricultural education teachers' perceptions of the barriers to diversity inclusion in the presence of teaching area, age, gender, teaching experience, preservice diversity/multicultural training, inservice diversity/multicultural training, ethnicity, or school setting. The personal characteristics were the independent variables. The dependent variable was the *Barriers* scale. This hypothesis was tested using a combination of independent samples t-test and the ANOVA procedure. Only those personal characteristics in which a significant difference existed ($p <.05$) are reported.

Race/Ethnicity

The researchers used the t-test procedure to determine if differences existed in the perceptions of the barriers to diversity inclusion based on race/ethnicity. For this analysis, participants who identified their race/ethnicity as Asian American, Black/African-American, Hispanic/Latino American, or Native American were coded as "yes"; participants who identified their race/ethnicity as White were coded as "no." Results indicate that a statistically significant difference ($t (209) = 3.01, p <.01$) existed between mean scores of teachers of color ($M = 3.07, SD = .528$) and White/European American teachers ($M = 2.81, SD = .350$) on the perceptions of the barriers to diversity inclusion in secondary agricultural education programs (see Table 4). A negligible effect size ($r = .04$) existed.

Table 4
Comparison of Barriers Scale by Teacher of Color Status (n =232)

Teacher of Color	n^a	M	SD	t	p
Yes	20	3.07	.528	3.010	.003**
No	191	2.81	.350		

Note. Scale: 1.00 to 1.49 = Strongly Disagree, 1.50 to 2.49 = Disagree, 2.50 to 3.49 = Agree, 3.50 to 4.00 = Strongly Agree.
[a] Twenty one participants chose not to respond to this question.
** $p <.01$

Because of statistically significant ($p <.05$) differences found between the personal variables, researchers rejected the null hypothesis and concluded that a statistically significant difference existed in secondary agricultural education teachers' perceptions of the barriers to diversity inclusion in secondary agricultural education programs.

Null hypothesis three stated no difference exists in secondary agricultural education teachers' perceptions of proposed solutions to increase diversity inclusion in the presence of teaching area, age, gender, teaching experience, preservice diversity/multicultural training, inservice diversity/multicultural training, ethnicity, or school setting. Researchers tested this hypothesis using a combination of independent samples t-test and the ANOVA procedure. The

personal characteristics were the independent variables. The dependent variable was the *Solutions* scale. Only those personal characteristics in which a statistically significant difference existed (p <.05) are reported.

Gender

Researchers used the t-test procedure to determine if differences existed in the perceptions of proposed solutions to increase diversity inclusion in secondary agricultural education programs by gender of participants. Results of the comparison show that a statistically significant difference existed by the category of gender, t (213) = 2.050, p <.05 (see Table 5). Females had a composite mean score of 3.04 (SD = .539) while males had a composite mean score 2.87 (SD = .463). A negligible effect size (r = .02) existed.

Table 5
Comparison of Solutions Scale by Gender (n =232)

Gender	n^a	M	SD	t	p
Female	45	3.04	.539	2.050	.042*
Male	170	2.87	.463		

Note. Scale: 1.00 to 1.49 = Strongly Disagree, 1.50 to 2.49 = Disagree, 2.50 to 3.49 = Agree, 3.50 to 4.00 = Strongly Agree.
[a] Seventeen participants chose not to respond to this question.
* p <.05

Race/Ethnicity

Researchers used the t-test procedure to determine if differences existed in participants' perceptions of proposed solutions to increase diversity inclusion in secondary agricultural education programs based on race/ethnicity. For this analysis, participants who identified their race/ethnicity as Asian American, Black/African-American, Hispanic/Latino American, or Native American were coded as "yes"; participants who identified their race/ethnicity as White were coded as "no." Results indicate that a statistically significant difference (t (208) = 3.739, p <.01) existed between mean scores of teachers of color (M = 3.28, SD = .563) and White/European American teachers (M = 2.87, SD = .460) on the proposed solutions to increase diversity inclusion in secondary agricultural education programs (see Table 6). A negligible effect size (r = .06) existed.

Table 6
Comparison of Solutions Scale by Teacher of Color Status (n =232)

Teacher of Color	n^a	M	SD	t	p
Yes	20	3.28	.563	3.739	.001**
No	191	2.87	.460		

Note. Scale: 1.00 to 1.49 = Strongly Disagree, 1.50 to 2.49 = Disagree, 2.50 to 3.49 = Agree, 3.50 to 4.00 = Strongly Agree.
[a] Twenty one participants chose not to respond to this question.
** p <.01

School Setting

Researchers conducted a one –way analysis of variance (ANOVA) to compare participants' perceptions of proposed solutions to increase diversity inclusion in secondary agricultural education programs by school setting. As noted in Table 7, the researchers concluded that a statistically significant difference existed in mean scores among participants, $F(2, 211) = .045$, $p <.05$. A negligible effect size existed ($r = .03$). A Tukey's post-hoc analysis revealed a statistically significant difference between the urban and rural school settings regarding mean scores of the *Barriers* scale.

Table 7
ANOVA Table of Overall Solutions Scores by School Setting (n =232)

	n^a	M	SD	F	p
School setting					
Rural	135	2.84	.417	3.147*	.045
Suburban	47	3.02	.550		
Urban	32	2.98	.571		

Note. Scale: 1.00 to 1.49 = Strongly Disagree, 1.50 to 2.49 = Disagree, 2.50 to 3.49 = Agree, 3.50 to 4.00 = Strongly Agree.
^{a} Eighteen participants chose not to respond to this question.
* $p <.05$

Because of statistically significant ($p <.05$) differences found between the personal variables, researchers rejected the null hypothesis and concluded that a statistically significant difference existed in secondary agricultural education teachers' perceptions of proposed solutions to increase diversity inclusion in secondary agricultural education programs.

Conclusions, Recommendations, and Implications

The teaching area chosen by respondents had a statistically significant difference on the *Benefits* scale score. This finding indicated that Area VII agreed more with the perceptions of the benefits of diversity inclusion than did Area IX teachers. Results of this study also reveal that the racial and ethnic makeup of respondents had statistically significant differences among the groups. Teachers of color had higher mean scores than White/European American teachers on the *Barriers* scale. This finding indicated that teachers of color were more aware than did their counterparts of the barriers that influence students of color and students with disabilities not to enroll in agricultural education programs. Further knowledge of why these differences exist will determine what strategies will need to be implemented to ensure all agricultural educators understand the benefits of diversity inclusion in agricultural education programs.

Gender was found to show a statistically significant difference in mean scores on the *Solutions* scale. This finding indicated that females tended to agree more than their male counterparts with the proposed solutions to increasing diversity inclusion in agricultural education programs. This conclusion refutes the findings by Park (2004) which concluded that male teachers had statistically significant more positive attitudes about inclusive settings than did their female

counterparts. This study also refutes the findings by Pearman, Huang, Barnhart, and Mellblom (1992) which reported that male teachers had a statistically significant higher amount of negative opinions about inclusion than did their female counterparts. Additional research should be done with male and female teachers to determine if personal or situational characteristics caused this difference to exist between the groups.

Teachers of color had higher mean scores than White/European American teachers on the *Solutions* scale. This finding indicated that teachers of color tended to agree more than did their counterparts with the proposed solutions to increase diversity inclusion in secondary agricultural education programs. Deliberate efforts should be made to examine why these differences exist. In order for agricultural education programs to maintain success, all agricultural educators will need to be on one accord in ensuring that the relevancy of recruiting students of color and students with disabilities is understood and emphasized.

A statistically significant difference existed between teachers who taught in an urban setting and teachers who taught in a rural setting on proposed solutions to increase diversity inclusion in secondary agricultural education programs. This finding indicated that teachers who taught in urban settings typically agreed more with the statements in the *Solutions* scale. Additional research of a qualitative nature should be conducted with agricultural education teachers to develop effective strategies to increase diversity inclusion in secondary agricultural education programs. Case studies involving successful inclusive programs could provide strategies and recommendations to other teachers as well.

Recommendations for future research should include replicating this study with similar populations to examine if differences exist among agricultural education teachers regarding diversity inclusion. In terms of teachers of color, very few were selected randomly among the sample population. Additional research should incorporate a stratified random sampling procedure to ensure that respectable populations of certain subgroups within the target population are represented.

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The Voices of Minority Students in an Agricultural Communications and Journalism Program: A Case Study

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Abstract

In 1998, the National Association of State University and Land Grant Colleges addressed the "access challenge" for minority students, stating nothing less than open opportunity and commitment would embrace the land grant history. Researchers have documented barriers and strategies for the recruitment and retention of minority students in agricultural education. The experiences minority students have in college are unique, and effective recruitment and retention strategies should only be developed after in-depth, explorative conversations with the students; therefore, the purpose of this study was to begin the dialogue with minority students in agricultural communications. Nine students, eight female and one male, and one female faculty member, were interviewed for this qualitative case study. This research was framed by the following questions: (1) Who are minority students within the predominantly White agricultural communications and journalism program at a southern university, (2) What are the experiences of minority students within the predominantly White agricultural communications and journalism program at a southern university, and (3) What are the perceptions of minority students of the predominantly white agricultural communications and journalism program at a southern university.

Introduction

The National Association of State University and Land Grant Colleges (NASULGC) addressed what they called the "access challenge" in their 1998 report on the future of land-grant universities. "Land-grant institutions were created to open opportunity and broaden access for higher education. Today, this historical commitment must encompass the different educational needs of many different kinds of students coming from different and ever-more diverse backgrounds. Anything short of that is not true access in terms of our institutions' history" (Kellogg Commission, 1998, p. 19). Land grant institutions are now experiencing the future the predicted by the NASULGC. According to U.S. Census Bureau data from 2000, approximately 30% of the U.S. population is a racial or ethnic minority group (Talbert & Edwin, 2007) and 28.7% of traditional college-aged students are African American or Hispanic (Opp, 2001).

Agricultural programs seem to be embracing the idea of access; however, a thorough review of available literature found no research on the recruitment and retention of minority students in agricultural communications programs. Agricultural education researchers have been conducting research in their discipline, one that can be considered "peer" to agricultural communications and in many land grant institutions is housed in the same department.

One of the key priority areas in the *Strategic Plan for Agricultural Education* claims "Attracting, serving, and retaining historically underrepresented populations will be an important growth strategy for all of agricultural education" (Loudenslager, 2006, p. 5). Agricultural education researchers have documented barriers to minority students entering the field; these barriers have been operationally defined within education research as attitudinal barriers and structural barriers (Opp, 2001).

Attitudinal barriers include minority students' negative perceptions of agriculture and agricultural programs (Bowen, 1993; Bowen, Bowen, & Heinsohn, 1997; Myers, Breja, & Dyer, 2004; Sutphin & Newsom-Stewart, 1995; Talbert & Larke, 1995; Talbert, Larke, & Jones, 1999), misperceptions of career paths and/or availability (Bowen, Bowen, & Heinsohn; Sutphin & Newsom-Stewart), and a view that the profession is made up of, and for, White men (Bowen, Bowen, & Heinsoh; Sutphin & Newsom-Stewart).

According to Opp (2001), structural barriers may include lack of financial aid, low number of minority mentors on campus and little minority culture and/or support services; the same areas where agricultural education researchers have focused their recruitment and retention strategies. Westbrook and Alston (2007) stated that "African American students who are surrounded by African American professors are more likely to remain in the agricultural field because they have role models or mentors" (p. 124). This trend is not limited to African American students; a minority student who has a role model who a) shares their culture and/or ethnicity and b) encourages them is more likely to succeed (Bowen, 1993; Jones & Larke, 2001; Talbert, Larke, & Jones, 1999; Westbrook & Alston).

Talbert, Larke, and Jones (1999) recommend Minorities in Agriculture, Natural Resources, and Related Sciences (MANRRS) as an organization where students can interact and network to share experiences. "As a result of the existence of MANRRS and the networking and mentoring it provides, the participation and success of underrepresented students in agriculture and related fields have been enhanced" (Talbert, Larke, & Jones, p. 95). Agricultural education researchers have stated that peers can have some influence one's attitudes about careers and; therefore, recommend workshops or seminars during elementary and secondary education to introduce minority students to agriculture and agricultural programs (Bowen, Bowen, & Heinsohn, 1997; Talbert & Larke, 1995).

Although these recruitment and retention strategies are encouraging, agricultural education researchers have suggested effective recruitment and retention strategies can only be developed after speaking to minority students to discover what factors affect their decision-making process (Jones & Larke, 2001; Sutphin & Newsom-Stewart, 1995; Wildman & Torres, 2001).

Conceptual/Theoretical Framework

Most agricultural education and agricultural communications programs are housed within colleges of agriculture located at land-grant institutions. Of the 107 land grants, 50 can be categorized as Predominantly White Institutions (PWIs). By utilizing PWI research as a conceptual framework and minority student development as a theoretical framework, minority students' experiences at both the institutional and individual level can be better understood.

Predominantly White Institutions (PWIs)

When legally mandated to open their doors, PWIs admitted cultural outsiders with relatively little thought given or action taken to accommodate the "stranger"…The unchanging nature of most PWIs conveyed to some that white institutions were superior and students attempting to maneuver through them must conform to the institutional standards rather than evolving standards more appropriate for the needs of a diversifying student body (Benton, 2001, p. 22).

Researchers have documented that minorities at PWIs face a plethora of emotions including hostility, isolation, and difficulty balancing between two or more cultures, and barriers including self-segregation, a one-sided curriculum, and lack of minority faculty or mentors (Benton, 2001; Currence, 2007; Hernandez, 2002; Humphreys, 1998; Jones, Castellanos, & Cole, 2002; Taylor & Olswang, 1997; Westbrook & Alston, 2007). According to Jones, Castellanos, and Cole (2002), the minority student experience is "distinctly different from that of majority students at PWIs" (p. 23).

The culture at PWIs can be isolating for minority students, whether through overt racism or more subtle prejudice (Currence, 2007). Because some minority cultures are based on strong family ties, minority students at PWIs may feel caught between conforming to the dominant culture on campus and staying true to their own (i.e. returning home regularly) (Currence; Hernandez, 2002). Either of these two factors on their own, or in combination, may lead to a third factor for minority students at PWIs: Self-segregation. This "seeking out" of other students who share their color, culture, background, or story is a coping mechanism for minority students (Benton, 2001; Hernandez).

There are several ways to alleviate this sense of isolation for minority students at PWIs. One way is for students to create positive relationships with minority faculty or staff members because "personal, concerned contact appears to have a mitigating influence on the inherent isolation experienced by [minority] students" (Taylor & Olswang, 1997, p. 16). Closely related is creating places or organizations for minority students to go where they can feel welcomed at PWIs (Jones, Castellanos, & Cole, 2002; Taylor & Olswang). Because PWIs reflect the dominant culture, minority students may not see themselves, their history, or their culture in the curriculum (Benton, 2001; Taylor & Olswang). Faculty members should look to their courses to ensure they are being inclusive in both their curriculum and teaching styles. "Research shows that when students perceive that there is a broad campus commitment to diversity, there is increased recruitment and retention of students from underrepresented groups and an increase in all students' satisfaction and commitments to improving racial understanding" (Humphreys, 1998, p. 2).

Minority student development theory

College is a critical time for students as they answer the questions "who am I" and "who am I not" (Torres, Howard-Hamilton, & Cooper, 2003). These questions are at the heart of student identity development. A basic definition of student development provided by Rodgers, a key researcher in student identity development, is "the ways that a student grows, progresses, or

increases his or her developmental capabilities as a result of enrollment in an institution of higher education" (Evans, Forney, & Guido-DeBrito, 1998, p. 4).

Student identity development theorists from Erikson to present; however, have called attention to role the environment can play in a student's development (Torres, Howard-Hamilton, & Cooper, 2003). "The first aspect that should be understood about campus culture is that 'dominant campus features reflect the influence of the dominant groups'…This component of campus culture can influence how the racial, ethnic, or multiple identities of students develop" (Torres, Howard-Hamilton, and Cooper, p. 80).

Student identity development must also be understood as a very individualized, personal journey; no two people will experience it the same way. "A college student's identity development is a complex and individual process based on choices that bring congruence between old and new learned beliefs." (Torres, Howard-Hamilton, Cooper, 2003, p. 7).

Researchers have developed several models to look at minority student identity development, but they call them road maps or guides because the student's development can be affected by their personal and environmental experiences. Each model has a number of stages along a continuum, although the model may not necessarily be linear in nature (Atkinson, Morten, & Sue, 1993; Hardiman & Jackson, 1992). While there are models for specific races and all races are unique, the researchers chose a model for all minority students because "the fact they have been subjected to various forms of physical, economic, and social discrimination suggests they share a common experience" (Atkinson, Morten, & Sue, p. 27).

The Minority Identity Development (MID) Model developed by Atkinson, Morten and Sue includes five stages—conformity, dissonance, resistance and immersion, introspection, and awareness (Atkinson, Morten, & Sue, 1993; Chickering & Reisser, 1993; Torres, Howard-Hamilton, & Cooper, 2003). In the first stage, conformity, minority students prefer the dominant culture over their own and may try to assimilate. Stage two, dissonance, occurs when minority students begins to question the beliefs from stage one; this can be a gradual process or a sudden occurrence (Atkinson, Morten, & Sue; Toress, Howard-Hamilton, & Cooper). In stage three, resistance and immersion, the minority student completely accepts their own culture and rejects the dominant culture. Stage four, introspection, is a more personal stage. Minority students move away from the group views they ascribed to in stage three and begin to develop their own personal identity (Atkinson, Morten, & Sue; Toress, Howard-Hamilton, & Cooper). In stage five, awareness, minority students complete their self-introspection and accept or reject views from all cultures based on their own views and experiences.

By combining knowledge of the MID Model and PWI research, faculty and staff in agricultural communications program will be better prepared to understand the experiences of their minority students, both at the individual and environmental level. Furthermore, this knowledge can, and should, be used to develop appropriate strategies for connecting to, interacting with and helping minority students.

Purpose

The purpose of this study was to begin the dialogue with minority students in agricultural communications. The experiences minority students have in college (especially PWIs) are unique, and effective recruitment and retention strategies should only be developed after in-depth, explorative conversations with students. This study was guided by three research questions:

RQ1: How do minority students within the predominantly White agricultural communications and journalism program at a southern university describe themselves?

RQ2: What are the experiences of minority students within the predominantly White agricultural communications and journalism program at a southern university?

RQ3: What are the perceptions of minority students of the predominantly White agricultural communications and journalism program at a southern university?

Methods

This study employed a qualitative case study methodology. Denzin and Lincoln (2005) defined qualitative research as "…an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings that people bring to them" (p. 3). Although different than quantitative research, qualitative research is similarly characterized by methodological acts that are expected across the profession. These include an inductive research strategy, an emergent research design, small sample size, time in the natural setting, understanding the meaning people have constructed, understanding a phenomenon from the participants' perspective, and the researcher(s) as the primary data instrument (Dooley, 2007; Lincoln & Guba, 1985). Lincoln and Guba further describe the research paradigm as including value-bound inquiry, an interactive relationship between the inquirer and the subject, and "time-and-context bound working hypothesis" (p. 37).

For this study, the researchers used a purposive sampling technique, a convenience sample. A list of the minority students enrolled in the agricultural communications and journalism program at this southern university was obtained from one of the agricultural communications and journalism advisers. These 16 students were sent an initial contact email asking them to participate in a one-hour interview. Nine of the students agreed to, and kept, appointments for interviews during the data collection period of November 3, 2008-December 3, 2008. Based on students' comments during the interviews, the researcher added an additional interview with one agricultural communications and journalism adviser who was not involved in the research project. Each interviewee was assigned a code to protect their identity. The code was based on their major, their gender, and the order they were interviewed in (for example, ACF1: agricultural communications and journalism, female, and the first to be interviewed).

Each interview transcript was typed, analyzed for individual units, and then imported into a computer program to print the units onto note cards. The researcher used the constant comparative method for data analysis. This four-step process begins with comparing the units to each other as

categories emerge, solidifying the categories and their properties, reducing the number of categories while unit saturation occurs, and then writing the results (Lincoln & Guba, 1985). According to Dooley (2007), "data analysis throughout the process allows the researcher to 'test' working hypotheses that emerge from the initial patterns for the next wave of data collection" (p. 37).

According to Lincoln and Guba (1985), qualitative researchers must establish trustworthiness just as quantitative researchers must establish rigor. There are four criteria required—credibility, transferability, dependability, and confirmability. Credibility was addressed in the study by peer debriefing, "a process [that] helps keep the inquirer 'honest,' exposing him or her to searching questions by an experienced protagonist doing his or her best to play the devil's advocate" (Lincoln & Guba, 1985, p. 308). Because naturalistic inquiry is time- and context-bound, transferability is achieved through thick, or detailed, description. Dependability and confirmability were both addressed in this study by establishing an audit trail and keeping a reflexive journal. The researchers acknowledge that a) their positions within the program and larger department and b) their membership in the dominant culture may have influenced students' participation.

Results

At the time of this study, the nine students ranged in age from 20 to 24 years old, and classified from sophomores to seniors in school. There was one male and eight female students interviewed, along with one female faculty member. Interviews, scheduled at the students' convenience, were conducted in on-campus locations related to the major that the students were already familiar with.

The students

The students all chose to define themselves in terms of their family. ACF3, for example, said that she has a twin who lives with her in the dorm on campus, while ACF4 said: "I'm from a family of four, one little sister and a dog (five with the doggie), we're upper middle class." Several students gave self-definitions in addition to their family descriptions. "I'm an outgoing person, love to talk, very curious, understanding, intelligent," ACF6 said. ACF5 described herself in terms of religion: "Pentecostal is what I am, you see it in my dress, hopefully you see it in my personality, it's a one God, Christian religion." Only two students described themselves in terms of race or ethnicity, and one, ACF7 said she was "Americanized Hispanic."

Their families

The students described their families in detail, who they are and what they do. Most of their parents hold what would be considered white collar jobs, placing the students in theoretically middle-to-upper middle class situations. ACF3 said her father, who really wanted her to come to Texas A&M University, is an executive chef at a restaurant, who "wants to open his own when contract is up in two years." Both of ACF8's parents are engineers for a large electronics development company, where ACF6's father works as a manager. ACF4's mother works in the governmental relations department of a research hospital while ACF2's mother is a nurse at a

teaching hospital. In contrast, two of the students had much different stories to tell about their families. "Mom is in welfare and housing program, school helped me out with school [college] application fees," ACF1 said. ACF5 said her mother was a nomad while she was growing up. "We never had a house or apartment to call ours, always lived with relatives. It sucked, no home, no stability, always keep your bags packed, you never know where you're going to go," she said. During the interview with the agricultural communications and journalism faculty member, ACF10 she said that she sometimes associates family problems with her minority students because of who they are:

> Occasionally I've hit family issues or concerns that either I personally associate with their minority background or I've been told by advisers in other programs who have directed the students to me that are part of their background, in other words, because of their background, this [family] tends to be an issue.

At the same time, ACF10 said the parents of minority students who come to her office usually want to know about job prospects for the major more than nonminority parents.

Schools

When schools, both secondary and postsecondary, came up in the interviews, a mix of viewpoints was shared by the students. Two students said they went to public high schools, specifically stating that they were diverse. "High school was very diverse, someone from every type of background, because of magnet drew from across the district," ACM9 said. In contrast, two students who said they went to private high schools did not mention the racial make-up of their schools. Four of the students said they are first-generation college students, and for some, they are the first in their family to ever attend college. "First one to actually go to school, to do something beyond high school…my sister is currently applying to schools in Texas and Georgia," ACM9 said. ACF1 said she did not even know that something existed after high school, what college was. "I just went day by day, started asking questions in high school because I had friends who were planning to go to college, my counselor started telling me, 'oh yes, after high school you go to college'." In contrast, ACF4 said: "I always assumed I would go to college, always instilled in me throughout growing up, my Dad has always said 'I want better for y'all than I had'."

Choosing Agricultural Communications and Journalism

The students' reasons for choosing agricultural communications and journalism as a major fell into two categories. The first group wanted to do something communications related, and this is where they ended up. "Originally started out journalism, they took it off and I didn't know what to do because I was like 'I don't want to study anything else this university offers,' and because I was in the corps I decided to stay in," ACF1 said. Another student, ACF3, echoed this sentiment when she said "…since A&M doesn't have a regular journalism program I thought I try the agriculture part of it and see how that goes." The second group of students said they chose this major after being kicked out of their first major, or the university, due to poor academic performance. "Honestly the truth was that I got put on probation while I was in English, I didn't meet the probation so they basically dismissed me, so my only choice was to pick a major that would accept my GPR as-is or drop out of A&M," ACF2 said. ACF4 also transferred to

agricultural communications and journalism from English: "The only reason I became an ag major, I was an English major but partied too much freshman year and I, um, had lower than a 2.0 and I had to look for another major to transfer to or I was going to get kicked out of the university." Although ACF6 did not mention her major, she had a similar story. "Considering the fact that I failed one of my classes which made my GPA drop, so I had to get into ag or get out of school, and mom wasn't having that," she said.

Because none of the students were original to agricultural communications and journalism they were asked how they had discovered the major. Most said that an adviser had told them about it, or a friend. Interestingly, they were all told to go and talk to ACF10. This initial meeting with ACF10 made a lasting impression on many of the students I spoke to. "First meeting with ACF10 was great…we talked past 5:30…I was surprised she didn't try to dismiss me…I felt so welcomed in that first meeting with her that I was glad that I got kicked out of the English department," ACF2 said. ACF7 said that while the people in the business department had seemed cold and uncaring to her, ACF10 was welcoming which made her excited about joining the major. "Talking to her made me feel at home, and that's why I decided to join the major," she said. Another student, ACF5, said: "When I first met ACF10 it was like Paula Dean, she made me feel really comfortable and made everything look really pretty."

The students were then asked if they could change anything about the major, what they would do. Several students said they would focus on getting the word out about the program, telling more people, and bringing more people in. "I would pour more money into the program, everybody would know about ag comm…I don't feel like we get enough attention, I don't feel like we get enough respect," ACF5 said. In a similar train of thought, ACF7 said: "We should advertise ourselves better to students because if my advisor had never told me to call ACF10 I would never had known about this [major]." ACM9, ACF3, and ACF6 suggested recruiting more minority students to the program.

Recruiting more minority students and making sure our major is known to everyone, I feel like we recruit FFA students and more students towards agriculture and because that's what they've been around their whole life, I didn't know about agriculture until I got here, ACM9 said.

Faculty and Staff

The students' feelings of comfort and welcome were extended to other faculty and staff members in the program. "They want you to do well so they'll help you out any way they can, whether it's helping you out after class, even helping you out with simple things," ACF7 said. ACF2 shared similar thoughts, saying "It's more of a personal relationship, they try to help you…they don't try to brush you off like they did in the English department...here they treat you like an individual." Many of the students attributed this feeling of acceptance and familiarity to the fact that the program is so small; everyone knows each other and is on an individual level. "I feel very at home and very at ease, especially because we are such a small major, it makes me feel very connected to everyone…even as T.A.'s come in I'm able to connect with them," ACF4 said. Two students said they did not feel like they were part of the major yet, but said it was because they were still learning—either about the subject or about the department. "I feel like I'm in the

freshman shoes getting into the major, getting into the classes and stuff, just dipping into it, trying to figure out what this whole department's about," ACF8 said.

Fellow Students

There were mixed reactions when the students were asked to describe their friends within agricultural communications. "The reason that I like ag journalism is because everyone knows each other, unlike other departments where there's like 5-600 kids in the major, there's only a handful of us so we get to know each other," ACF7 said. ACF2 shared similar thoughts saying: "They're great, it's not a big major so you have the same people in every class for the most part, we're all in the same classes." However, some said their friends are outside the department and these are the people they go to class with. ACF6 said: "To be honest I don't have any friends in this department, I have associates I guess you could say, and I don't even know their names, I just talk to them in class." ACF8 said: "I haven't really talked to them outside of class, but for the most part I would consider them acquaintances."

While discussing the other students in the major, ACF5 and ACF3 expressed concern that the students were different than them. "I don't think anyone would be interested in the same things I am that are in my major…I don't think we would have much in common," ACF3 said. ACF5 said: "I am extremely intimidated of everyone that is in this major, I feel like they have the upper hand, like they have an advantage." The students also told me about their friends outside the major. While ACF7 talked about a friend from a summer internship, ACF5 and ACF3 mentioned friends from home. ACF1 said her friends are outside of her school activities, they are fellow minority students who she mentors.

Classroom and Program Experience

The students were asked to imagine themselves sitting at a desk in on of their typical agricultural communications and journalism classroom. Once they had that image in their minds, they were then asked to look around them and describe who or what they were seeing. ACF4 for example said: "I see a lot of familiar faces, pretty much..." Similarly, ACF7 said: "I see most of the people I know as friends…we're in the computer lab." ACF1 said she saw students from both agricultural communications and journalism students and those from other majors taking the class to improve their writing. Two students focused on the female-male ratio within the classroom. "Probably like 20 females and like five males, most them are like upperclassmen who are really excited about graduating and moving on," ACM9 said. ACF8 said: "A lot of girls, there are some guys in there, they might be ag comm majors but I'm not sure, I can't tell with the guys."

Five of the students saw race or ethnicity when they looked around them in this scenario. ACF2 said "I notice the majority of our students are White, there are not a lot of African American students in our major." In addition to noticing the majority of women in her classroom, ACF8 also noticed the racial makeup. "There's probably a good majority in the class are Caucasian," she said. ACF5 also noticed race and gender, saying: "I see farmer joe's daughter, I see the all-American White girl, blonde or brown hair, country accent." Two students, ACF6 and ACF3, described how sitting in a classroom surrounded by a majority of people not of their race made them feel. ACF3 said:

I mainly see mostly White students, mainly girls, and there's two Black students in one class…like I'm the person that sticks out because I'm one of three Black students in the class…everyone else is White, which may be why I don't know a lot of people in my major, I feel like I stick out a little bit because of that.

This feeling of not being able to connect was echoed by ACF6. "All white, one Black sitting next to me…sitting in an all White classroom is different because you feel like there's no one who can relate to you because honestly you can't relate to them," she said.

In comparison, some of the students said they just do not see race. When this description was probed, the students provided varying answers. ACF1 said "I know I'm a minority, but when I'm there I don't see a difference, everything just shuts down, I never feel like a minority." ACM9 said that he does not see color in this situation that "everyone is friendly and not says anything that is out of place." ACF2 and ACF7 say they do not identify themselves as a minority.

I think growing up, my mom came from a predominantly White neighborhood and her parents wouldn't let her speak Spanish and they taught her to be more Americanized, so growing up I never saw myself as 'ACF7, the Mexican,' I saw myself as 'ACF7.'

Similarly ACF2 said: "I've never really thought about 'wow, there's only a handful of Mexicans,' I guess since I've never really thought of myself as a minority, as we said in class, people see me as White."

In comparison, the students all stated they have never experienced or observed any racially-related incident in the program and/or the department. When asked, they all replied "no" right away.

Student Organizations

The researchers wanted to understand the reasons minority students would join an agricultural communications organization, Agricultural Communicators of Tomorrow (ACT), and/or MANRRS. Except for one who had been an officer of the organization, the rest of the students had never heard of MANRRS. The one student who had joined, ACF1, said:

The program offers a lot of opportunities for students that I never thought of…I met a lot of important people, as a minority student I never thought I could do those things…go to a conference, fly on an airplane…I never pictured those things.

All of the students were familiar with ACT, and six of the nine were members. The students who have not joined ACT said their schedules were full; they either have conflicts with the meeting time or too much on their plate to add another organization. One student chose to join Public Relations Student Society of America (PRSSA), another student communication organization, rather than joining ACT. Those who have joined described multiple membership benefits including getting to know their fellow students and connections for future jobs. "I joined so I could get to know different people, a good opportunity to be known as well as to get to know people, pick up a little knowledge along the way," ACF6 said.

Conclusion

College is a critical time in the development of students' identities. Researchers have shown that environment, in the form of campus culture, can play a role in this development process (Torres, Howard-Hamilton, & Cooper, 2003). When minority students are in programs or at institutions that have barriers such as those documented in agricultural education or at PWIs, then this can further influence how their identity does, or does not, develop. These barriers can include a lack of minority faculty or mentors, culture, organizations, and/or support services.

The first research question that guided this study was, "How do minority students within the predominantly White agricultural communications and journalism program at a southern university describe themselves?" The students interviewed for this case study described themselves first in terms of their family. Going by their parents' jobs, most of them can be classified as middle class, and four of them are first generation college students.

The second research question guiding this study was, "What are the experiences of minority students within the predominantly White agricultural communications and journalism program at a southern university?" Many of the students interviewed simply do not see race, in themselves, in the classroom setting, or in the program. The five students who did see race described the classroom as predominantly White (and female). They feel like they do not fit in or cannot relate to the other students. When asked about two different organizations, ACT and MANRRS, only one of the students had ever heard of the minority organization and she was an active member.

Only one of the students interviewed even knew what MANRRS was, and this organization had taken out a full-page advertisement on the back cover of the magazine produced by students in the agricultural communications and journalism program. Researchers studying minority students in both agricultural education and PWIs have stressed that minority students need places to go where they can feel welcomed, and Talbert, Larke and Jones (1999) stated that MANRRS can enhance the success of minority students in agriculture.

The third research question that guided this study was, "What are the perceptions of minority students of the predominantly White agricultural communications and journalism program at a southern university?" The students had positive feelings towards the program overall, especially for the faculty and staff. Most of them described how welcome ACF10 made them feel during their initial meeting. They also said that every faculty member is open and caring, developing one-on-one relationships with the students, which means a lot to them. Although they said they knew a lot of their classmates because the program is small and they take classes together, many of them are more on the level of acquaintances than friends with others within the program.

The minority students interviewed seem to feel deeply and personally connected with the faculty within the agricultural communications and journalism program at this southern university, despite their lack of diversity. Although research in minority retention and recruitment has shown minority role models tend to have a positive effect, Wildman and Torres (2001) stated "the friendliness of a departmental faculty and the overall friendly atmosphere in the College of

Agriculture lead to selecting a career in agriculture" (p. 54). Many of the students interviewed transferred into the program after attending this southern university for one or more years and credit the faculty as one of the reasons for choosing the program.

The students expressed conflicting views of minority identity. Some said they do not *see* race while one said she can "pass for White." These students seem to be at stage one of the MID, conformity; they prefer the dominant group while they devalue their own individual and/or group identity. In contrast, several students described feeling different from their classmates or isolated within the classroom because of the color of their skin. These students seem to be at stage two of the MID, dissonance; these students are beginning to feel a conflict between the dominant group and their own individual and/or group identity.

Several of the students said their friends were either outside the agricultural communications and journalism program or "back home," suggesting that these students are self-segregating or balancing two cultures as described in the PWI literature. Additionally, the minority students themselves stated a future focus for the program should be bringing in more minority students. This combination of attitudes suggests some of the minority students within the program may be in stage three of the MID, resistance and immersion; they are accepting all minority group views, rejecting all dominant group views and seeking to eliminate oppression.

Based on the knowledge gained from applying PWI research and minority student development theory to the minority students' responses, the researchers have several recommendations for faculty in this agricultural communications and journalism program to further develop their roles as mentors for both minority and nonminority students. The faculty in should model inclusion behaviors for nonminority agricultural communications and journalism students to learn. Second, they should ensure channels of communication are open so minority students can present any concerns they may have. Finally, faculty should strive to be more aware of the vulnerable environment that minority students feel the agricultural communications and journalism classroom presents. By focusing on these recommendations, faculty will be able to strike a balance between minority student identity development and recruitment and retention within their program.

The National Research Agenda has emphasized the need to "develop effective agricultural workforces for a knowledge-based society" (IFAS, 2007, p. 11) and "provide insights to strengthen courses, curricula and other aspects of academic programs in agricultural communications, agricultural journalism, development communications, life sciences communications, and related professional areas of interest" (p. 11). This study began the conversation with minority students in agricultural communications. Because it is a case study, the results are not generalizable; however, the description provided may allow others to see similarities in their own agricultural communications program and conduct similar qualitative studies thereby continuing the conversation and furthering the knowledge base relating to minority students, retention and recruitment, student identity development, and agricultural communications.

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Marketing Strategies of Agri-tourism Businesses

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Abstract

Agri-tourism is an expanding business that has directed urban attention to the rural countryside. Such markets have helped increase farm profits while teaching travelers about the beauty and importance of the world's agricultural economy. This research takes a direct look at what marketing strategies are being used by such businesses in one Midwestern state. Knowing which marketing strategies are being used could lead to better development of outreach resources and programs that will stimulate the growth of the agri-tourism industry. By surveying a large population of agri-tourism business owners about how they conduct their marketing and advertising, data shows that less than 5% of their yearly budget is used on marketing. This study also indicates that operations are focusing on their local communities when it comes to marketing, and are relying heavily on word of mouth and roadside advertisements. Recommendations for marketing training are made.

Introduction

Agri-tourism, recreational travel to agricultural entities or agriculture-related events, is a growing business in the United States (Lobo, n.d.). Rural bed and breakfasts, u-pick operations, roadside fruit and vegetable markets, corn mazes, and hay rides are just a few of the many agri-tourism businesses developing across the nation. As commodity prices decrease and input costs increase, farmers nationwide are being trained on implementing agri-tourism in their operation to increase income and viability. Programs, such as the "Agri-tourism Initiative" sponsored by the Tennessee Department of Agriculture and the United Stated Department of Agriculture Rural Development are helping farmers realize the economic opportunities that can be accessed through agri-tourism (Center for Profitable Agriculture, 2003). To some, these businesses are also bringing positive change to the rural countryside. During the 1990s, rural counties that stressed the development of recreation and tourism averaged a 20% population growth and a 24% employment growth (Reeder and Brown, 2005).

In maximizing these available profits and growth opportunities, farmers must develop innovative methods of marketing that allow them to reach a larger, more diverse audience. Numerous states, including Virginia, Illinois, and Arizona, have developed workbooks and interactive websites that provide step-by-step instructions for farmers interested in starting an agri-tourism business. Entire chapters in these government or non-profit publications are devoted to marketing agri-tourism. The publications focus on how to support direct marketing with community support and word of mouth and roadside sign advertising (Blacka, et.al., 2001). Other books and articles explain how farmers can use websites, fliers, and television or radio advertisements to market their business (Agri-tourism workbook, 2007).

Research conducted in the realm of agri-tourism has focused on the producers, consumers, and products. Case studies that observe the effects on an agri-tourism site on the county have been conducted a handful of times (Reeder and Brown, 2005). Other research has explored how agri-tourism businesses begin and how they help and hinder the communities around them (Reeder and Brown, 2005). However, very little research has been conducted on what marketing strategies agri-tourism businesses are actually using. Specifically, no study has been presented that shows what Ohio business owners are using to learn about marketing, and no project has been published that shows what methods of advertising and marketing Ohio business owners are currently using.

Significance of the Study

Though not currently available, research that focuses on marketing strategies of agri-tourism businesses in Ohio could show what methods are being used the most. A study could also explore what resources these businesses are using, shedding light on the marketing strategies and how the size, location, and type of businesses relates to marketing strategies. In the end, understanding where business owners are going for resources and what marketing strategies are being used the most in agri-tourism could do two things. First, the data could show what resource providers (Extension, farm bureaus, industry organizations, chambers of commerce, etc.) are proving to be used the most and/or the least. Second, the data could help these resource providers develop new and improved educational materials and workshops specific to what is currently needed. Ultimately, the strength of the relationship between agri-tourism and its consumers could be improved, capitalizing on an economic gain for both the business owner and the surrounding community.

Research on the marketing strategies of agri-tourism businesses in Ohio would ultimately improve the overall growth of agri-tourism in Ohio. Improvement in the growth of Ohio agri-tourism is important because it advances the sustainability of agriculture, something that is in danger because of urbanization.

Objectives of the Study

The initial idea behind this project was gaining insight into how agri-tourism businesses promoted themselves to their targeted audiences. After reviewing the relevant literature, specific goals were outlined to help define the study. In order to fill a broad void in current research, a total of four objectives were identified (as listed below).

1. To define the types of agri-tourism businesses that currently exist in the state of Ohio by location, size, gross income, and type of product or service offered;
2. To determine what advertising agri-tourism businesses throughout the state of Ohio are using to promote their products and services, and their perceptions of these advertising methods;
3. To establish how the communications and marketing departments within these agri-tourism businesses operate, including who operates them and what their budget is;
4. To identify what networking and educational tools and resources agri-tourism businesses are using to improve the success of their business

Literature Review

Defining Agri-tourism

The word agri-tourism is derived from the two words: agricultural tourism. Because agri-tourism is an expanding and changing industry, it is constantly characterized by different terms. One study found that more than 13 unique definitions of agri-tourism have evolved (Busby and Rendle, 2000).

Agri-tourism is defined by the Merriam-Webster Dictionary Online as "the practice of touring agricultural areas to see farms and often to participate in farm activities (agritourism, 2009)." The United State Department of Agriculture describes agri-tourism as any farm-based recreation or on farm entertainment-related activities including: hunting, fishing, petting zoos, horseback riding, and on farm rodeos (Brown and Reeder, 2007). Other agencies across the nation have defined it in the following ways:

- Colorado Department of Agriculture: "Activities, events and services related to agriculture that take place on or off the farm or ranch, and that connect consumers with the heritage, natural resource or culinary experience they value (Agriculture-Colorado Agritourism, n.d.)."
- National Sustainable Agriculture Information Service: "New, highly consumer-focused types of agriculture (Adam, 2004)."
- Oklahoma Agritourism Association: "A working farm or ranch that invites the public in to purchase products, learn, have fun or just relax (What is agritourism, n.d.)."
- University of California Small Farm Program: "Refers to the act of visiting a working farm or any agricultural, horticultural or agribusiness operation for the purpose of enjoyment, education, or active involvement in the activities of the farm or operation (Lobo, n.d.)."

As can be seen from the broad existence of definitions for this industry, a "standard" description that answers "What is agri-tourism?" does not exist. However for the purpose of this study agri-tourism is defended by the following: any for-profit or non-profit business that uses agriculture as a form of entertainment or that attracts attention to agricultural goods and services by offering an experience unlike what can be found in a grocery, supermarket, or shopping mall setting.

Agri-tourism Growth and Expansion

Agri-tourism is currently in a state of extreme growth and expansion, in terms of both supply and demand. As commodity prices decrease and input costs increase, thousands of small family farms are turning to agri-tourism to stay viable. By replacing or supplementing traditional farm operations with alternative functions, farmers are discovering increased profits (Brown and Reeder, 2007). In terms of demand, societies interest in farm activities has increased in recent years as the number of farms continues to steadily decrease (Carpio et.al., 2008). People are retreating to vacationing at rural locations for a number of reasons, including cost efficiency, a growing support for locally grown products, and an increased desire for outdoor, family-friendly

recreation (Carpio et.al., 2008). This realm of expansion and increased supply and demand has been the subject of a number of recent research projects.

Carpio, Wohlgenant and Boonsaeng (2008) looked at the state of farm recreation trip visits and the economic value of the rural landscape around the year 2000. Researchers estimate that 62 million Americans visited farms at least one time in 2000, which was equivalent to 30% of the national population (Barry & Hellerstein, 2004). In addition, the national percentage of farms with income from agri-tourism was 2%, but in state-to-state studies, some Midwest states showed farms with over 7% of their income resulting from agri-tourism (Barry & Hellerstein, 2004; Carpio, 2006). The estimate of the overall farm income generated from agri-tourism nationally in 2006 was a minimum of $800 million (Carpio, 2008).

Published shortly following "The Demand for Agritourism" was a study by Brown and Reeder (2007) looking at opportunities for farm operators in agri-tourism. The findings from their study reported that in 2004, 2.5% of all farms (n=52,000) received income from farm-based recreation. From this data, the estimate of the overall farm income generated from agri-tourism in 2004 was $955 million (Brown and Reeder, 2007). This demonstrates that in four years, from 2000 to 2004, the number of farms receiving part of their income from agri-tourism increased a half of a percent. In addition, the amount of income generated from agri-tourism increased by $155 million.

A third report in Tennessee improved on national reports, showing the actual economic impact of money spent at agri-tourism businesses. The Center for Profitable Agriculture (CPA) at the University of Tennessee did a study on agri-tourism and the arts (Bruch and Holland, 2004). The study found that for every dollar spent at an agri-tourism venue, about $0.77 of additional economic impacts were multiplied through Tennessee's economy (projections were for dollars spent on-site only). Additionally, 30% of study respondents earned between $1 and $10 on average per customer visit. Respondents stated that the agri-tourism portion of their operation accounted for a significant number of full and part-time jobs both year-round and seasonally, and 63% of respondents had plans to expand their operation in the next three years (Bruch and Holland, 2004).

The University of Tennessee CPA study also compiled data on the demographics of agri-tourism businesses operating in Tennessee in 2003 and 2004. After inventorying 210 enterprises, the research team found that 48% of the agri-tourism businesses offered an on-farm retail market as an attraction. Other attractions included on-farm concessions (43%), on-farm tours (35%), pick-your-own (26%), pumpkin patches (19%) and petting zoos (16%). In a second study, the CPA reported that 38% of 273 agri-tourism businesses inventoried had annual gross sales of less than $25,000. However, the total sales for all 273 enterprises was estimated at $21 million (Bruch and Holland, 2004).

Ultimately, these studies illustrate that, despite the challenges agriculture is facing in terms of its own growth, agri-tourism is a significant sector of the agriculture industry that is making an economic impact in terms of financial gain.

Qualities of Business-to-Consumer Communication

In the 2003 study done by the University of Tennessee, 22.4% (the majority) of the agri-tourism businesses surveyed identified "advertising," "promotions," and "marketing" as the most important factor for creating and maintaining a successful business (Bruch and Holland, 2004). In recognizing that advertising and marketing promotions are important to agri-tourism, a number of business operators need to know how to build good communications internally and externally for their venue. This allows them to capitalize on available profits and maintain stamina and success.

A report from Page and Fearn (2005) found that promoting the company's reputation over their goods and services created favorability toward a company. This favorability does not guarantee a significant economic gain, but it does create the opportunity to develop stronger brands, which could indirectly lead to an increase in consumer traffic and sales. In their study, Page and Fearn used a series of surveys to determine two things: (1) do consumers care about corporate reputation and (2) which elements of corporate reputation matters more to consumers than others? The surveys asked consumers to rate companies on characteristics of their perceived reputation and overall success. Analysis of the data showed that the consumers concern for corporate reputation could be divided into three broad categories (See Figure 1):

- *Public Responsibility*: The traditional view of consumer reputation. Looks at whether or not companies play a useful role in society, if they are charitable, if they support the local community and if they are environmentally sound.
- *Leadership and Success*: Looks at whether or not the company is successful and if they are innovative or cutting edge.
- *Consumer Fairness*: Considers how the company treats consumers in terms of respectfulness, product pricing, and product quality.
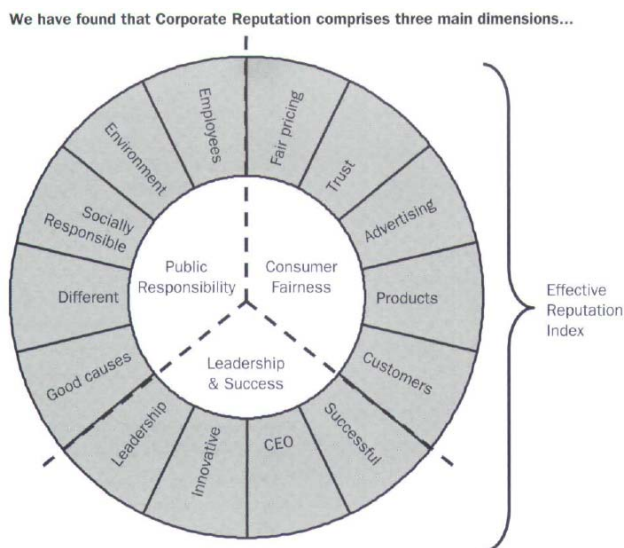
Source: "Corporate Reputation: What Do Consumers Really Care About," a study by Page and Fearn in 2005
Figure 1. The Three Dimensions of Corporate Reputation

Most consumers care about the goods or services offered only after evaluating how fair businesses are to them. This study reveals that prior to advertising a product or service, businesses, especially those new to the industry, should develop a reputation for themselves through promotions and marketing (Page and Fearn, 2005).

In exploring advertising and its efficiency, Eldridge (1958) breaks down the parts of advertising and the qualities of good advertising. Eldridge writes that there are two principal parts to advertising: *what* is said and sold, or the product and its attributes, and the *how* of the advertisement, or the headline, typography, layout, copy, etc. He explains that much more time has been spent developing the *how* of advertising over the *what*, causing the latter to lack considerably; therefore, the *what* deserves a good amount of time and focus when being developed (Eldridge, 1958).

Eldridge, combining the research of others and his own theories, composed five key characteristics of good advertising. The following is an excerpt from his writing (p. 243) describing these five qualities:

1. It must be truthful, both in its statements, and its reasonable implications.
2. It must be believable.
3. It must not unfairly disparage competitors or competitive products.
4. The advertising claims must be effectively presented—in order that they may be heard or read, and in order that they may register with readers and/or listeners a clear and memorable understanding of the product-attributes and sales-appeals.
5. The product-attributes which are the subject matter of the advertising must be attributes which are, or can be made to be, important to those whom the advertising is intended to influence.

Any advertisement conforming to these guidelines has the most potential to be, from a consumer standpoint, good advertising. Despite a current evolution of advertising, where the marketing mix is transforming from newspaper, television, and radio spots to multimedia and online forms of promotion, Eldridge's points still hold value. They focus on what the advertisement is itself—the *what*—instead of the media of which it is established on. Therefore, advertising can still be critiqued using the aforementioned guidelines.

With agri-tourism's growth and expansion probabilities, advertising, marketing and promotions hold an invaluable status in terms of improving gains and maintaining success. If advertising and marketing strategies can be enhanced, they have the potential to attract the attention of a larger and more diverse audience, which could benefit the economic stability of the operation, the community, the state and, quite possibly, the nation.

Theoretical Framework

The expectancy-value theory was founded by Martin Fishbein in the 1970s. The core assumption of the theory is that behavior is a function of expectancies and goals. The theory predicts that, when more than one behavior is given as a choice, the user choosing a behavior will pick the one that will be the quickest and most successful route to their expected goals and values.

This theory is based in the philosophy that humans are goal-oriented, and are therefore motivated by their beliefs and values (Expectancy Value Theory, 2004). The conceptual model for the theory is as follows (Figure 2):
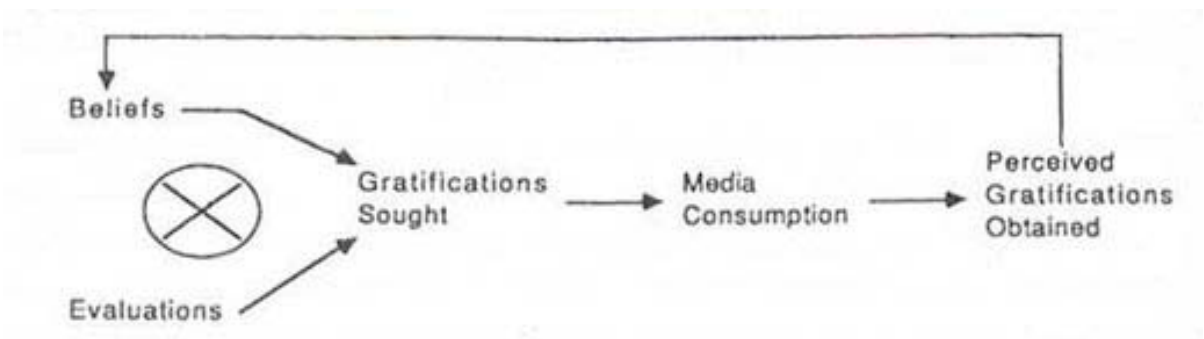
Source: University of Twente Expectancy Value Theory, 2004
Figure 2. The Expectancy-Value Theory

Researchers have explored this theory in relation to perceptions of small business managers. A study in 2003 reported on the expectancy-value theory and how it related to small business managers attitudes toward growth (Wiklund et.al, 2003). The authors concluded that beliefs play an important role in understanding why people act the way they do. The small business managers' beliefs about the consequences of growth provided insights into the reasons why they think expanding their business is a good or bad thing (Wiklund et.al., 2003). Similarly, their practices in advertising could be affected by their beliefs regarding the growth of their business. If they believe that the quality of their business is more important than expanding, they may be less likely to value marketing.

This theory is significant in understanding the responses and results in this study. The expectancy-value theory demonstrates that the agri-tourism operators will choose the advertising methods they believe will fulfill the needs of the business, which may or may not be to increase consumer traffic and sales. This theory also illustrates that these operators will makes choices in advertising, marketing, and promotions based on what they believe will lend readily to improving the success of the business overall.

Methods

This descriptive study was designed as an analysis of existing agri-tourism businesses and their communications and advertising efforts. The goal of the 34-question survey and the data analysis was to fulfill the four study objectives.

Instrument Design

In order to collect data for this study, a 10-page survey was composed with 34 questions. The questions were created to answer all of the objectives of the study. Questions asked the following: the demographics of the business, including size, location, income and type of products and services offered; months the business is open for operation; who is in charge of communications and advertising and how much they spend on advertising; what advertising they

use; who the target audience is for advertising; how well they know the consumers of their products and services; if they offer any specials or discounts throughout their operating season and if so, what they are; if they attend conferences, workshops, or other networking opportunities, and if so, where; and if they use other resources in libraries or online to improve their business. The last portion of the survey asked the respondents to define on a Likert scale of 1 (strongly disagree) to 5 (strongly agree) how effective, entertaining, interesting, attractive, informative and easy to maintain the five categories of advertising methods are. These categories were newspaper and magazine; television and radio; billboards and roadside signs; websites, e-mails and internet; and mailing, postcards, fliers, and other forms of paper handout advertisements. The survey included both qualitative and quantitative questions. A panel of several faculty members who have worked with such businesses through Extension were asked to review the survey for validity.

Survey Population

After composing the survey and cover letter, a mailing list was compiled. A search on the internet revealed three Web sites that contained registries for businesses that fell within the agri-tourism definition. These Web sites were Ohio Proud's Find a Farmers Market (http://www.ohioproud.org/searchmarkets.php); Discover Ohio (http://consumer.discoverohio.com/searchresults.aspx?category=92); and the Ohio Bed and Breakfast (http://www.ohiobba.com/searchproperty.asp). From these three registries', the researcher typed the following information for 928 businesses into a Microsoft Excel spreadsheet: business name, contact name, street address, city and state, zip code and phone number. Then, the list was randomized within the spreadsheet. It was decided that, due to the budget available and the time allotment, only one-third of the addresses would be mailed surveys. The 304 addresses used were randomly sampled by selecting every third address on the randomized spreadsheet.

Data Collection

The researcher used a modified form of the Dillman Tailor Design Method to collect data for the study. In the first wave, the survey was mailed to respondents on November 24, 2008 with a postage paid return envelope. No incentives were included with the study. The first survey was returned on December 1, 2008. Five surveys were returned due to undeliverable addresses, resulting in an actual population of 299.

On January 20, 2009, a second wave, a reminder post card, was mailed to all 304 businesses who received a survey. The post card thanked those who had already responded and reminded those who had not that the survey was due as soon as possible. It also stated that those respondents who had never received or lost their survey could contact the researcher by e-mail or phone to have a replacement sent to them. A total of two respondents asked for new surveys and a total of four surveys were received after the post card was mailed. A total of 108 surveys were returned for a 36.1% return rate. While this is a lower response rate, the researchers felt it was adequate with this population. Many of these are businesses who only operate in certain parts of the year, and thus they may not have received the mailing.

Data Analysis

The data was analyzed using descriptive statistics including means and frequencies. The SPSS PASW Statistics 17.0 for Mac OS X software was used for the analysis. The instrument reliability was measured at an alpha of .97. In addition, early and late responses were compared on demographics and business make-up using t-tests. No significant differences were found between the two groups.

Findings

Objective 1: To define the types of agri-tourism businesses that currently exist in the state of Ohio by location, size, gross income, and type of product or service offered

In terms of farm market location, 42.6% (n=46) were located in northern Ohio, 15.7% (n=17) were located in southern Ohio, 8.3% (n=9) were located in western Ohio, 13% (n=14) were located in eastern Ohio and 19.4% (n=21) were located in central Ohio (Figure 3).
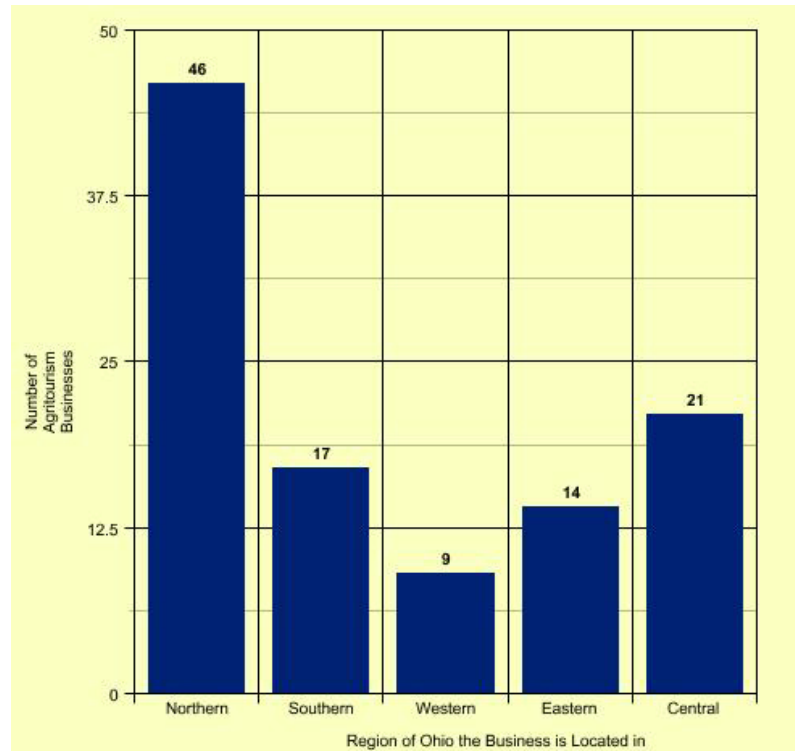
Figure 3. The Location of Agri-tourism Businesses by Region of Ohio.

The average total annual income of the farm markets surveyed fell between $50,000 and $199,999. Over half of the respondents (55.6%, n=60) listed their company's total annual income as less than $49,999. A minority of 9% (n=10) of the businesses brought in a total annual income over $500,000, with 3.7% (n=4) of the businesses bringing in more than a million dollars annually.

In terms of customers, respondents provided the following data. A majority (84.3%, n=91) of the respondents listed that the largest share of the customers for their farm market traveled 24

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miles or less to visit, with 13.0% (n=14) of the respondents listing that the largest share of the customers for their farm market traveled less than five miles to visit. Only 2.8% (n=3) of respondents said that the largest share of their customers travel 100 miles or more to visit. Additionally, 79.4% (n=85) of respondents marked "As the owner or employee, I am very familiar with our customer base," while 17.6% (n=19) said they were somewhat familiar with their customer base, and 1.9% (n=2) said they were not familiar with their customer base.

The most significant data for Objective 1 came from analyzing "My company is/includes the following: (please check all that apply)" A list of 42 choices for business type followed the question, including an "Other" category. The top three types of entertainment offered by agri-tourism businesses were: roadside stands and markets (41.7%, n=45), u-pick operations (39.8%, n=43) and agricultural food and craft shows (25.9%, n=28). The data for the other 39 choices is represented in Table 1.

Table 1
Types of Entertainment Offered at Agri-tourism Businesses in Ohio

Entertainment	*n*	*f*
Roadside Stands/Market	45	41.7%
U-pick Operations	43	39.8%
Agricultural Food and Craft Show	28	25.9%
Other	23	21.3%
Educational Tours	20	18.5%
Hay Rides/Sleigh Rides	20	18.5%
Harvest Festivals	16	14.8%
Animal Feeding/Petting Zoo	14	13.0%
Crop Tours	14	13.0%
Crop Mazes	12	11.1%
Farm Working Experience	12	11.1%
Children's Camps or Field Trips	11	10.2%
Gardens/Arboretums	9	8.3%
Barn Parties/Weddings	8	7.4%
School Activities	8	7.4%
Food Festivals	7	6.5%
Floral Arrangement Workshops	7	6.5%
Flower Shows	5	4.6%

Hiking	5	4.6%
Restaurant	5	4.6%
Barn Operation Tours	3	2.8%
Camping/Picnicking	3	2.8%
Wildlife Watching	3	2.8%
Barn Dances	2	1.9%
Horseback Riding	2	1.9%
Hunting and Fishing	2	1.9%
Off-Road Motorcycling, ATV or Mountain Biking	2	1.9%
Rock Climbing	2	1.9%
Wagon Trains	2	1.9%
Wilderness Experiences	2	1.9%
Bed and Breakfast	1	0.9%
Bird Watching	1	0.9%
Boating and Canoeing	1	0.9%
Fossil/Rock Collecting	1	0.9%
Historical Museums and Displays	1	0.9%
Pack Trips	1	0.9%
Self-Guided Driving Tours	1	0.9%
Rodeos	0	0.0%
Swimming	0	0.0%

Objective 2: To determine what advertising agri-tourism businesses throughout the state of Ohio are using to promote their products and services and their perceptions of these advertising methods

The advertising and marketing strategies and the producers' perceptions of these methods were defined by respondents' answers to questions asked in the last half of the survey.

The most popular marketing methods chosen by the respondents were newspaper advertisements (68.5% or n=74), a business Web site (52.8% or n=57), and roadside signs (51.9% or n=56). The least popular marketing methods chosen by respondents were television commercials (4.6% or n=5), online blogs (5.6% or n=6), personal Web sites (5.6% or n=6) and media kits (5.6% or n=6) (See Table 2).

Table 2

Types of Advertising Methods Used by Agri-tourism Businesses in Ohio

Advertising Method	*n*	*f*
Newspaper Ad	74	68.5%
Business Web site	57	52.8%
Roadside Signs	56	51.9%
Mailings	40	37.0%
Fliers	31	28.7%
Brochures	27	25.0%
Radio Commercials	23	21.3%
Magazine Ad	21	19.4%
T-shirts	17	15.7%
E-mails through a List serve	17	15.7%
Posters	12	11.1%
Local Community Billboards	11	10.2%
Internet Advertisement	9	8.3%
Shop Windows	9	8.3%
Highway Billboards	8	7.4%
Personal Web site	6	5.6%
Media Kits	6	5.6%
Blog	6	5.6%
Television Commercials	5	4.6%

After answering what their chosen advertising methods were, respondents were asked to evaluate the methods on a rating scale of 1 to 5. The rating numbers correlated in the following way: 1-strongly disagree, 2-disagree, 3-neutral, 4-agree and 5-strongly agree. The advertisements were evaluated to the extent the producer felt they were for his operation under the following categories: effective, entertaining, interesting, attractive, informative and easy to maintain.

The report from the data analysis showed that nearly every rating had a mean between 2.80 and 3.93, representing that, overall, the respondents maintained a neutral attitude toward their advertising methods (Table 3). Two means fell outside this range: with a mean of 4.01,

respondents agreeing that billboards and roadside signs were effective for their companies. In addition, with a mean of 2.73, respondents disagreed that television and radio advertisements were easy to maintain for their company.

Table 3
Means of Respondents' Evaluations of Advertising Methods

	Effective		Entertaining		Interesting		Attractive		Informative		Easy to Maintain	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Newspaper and Magazine Ads	3.48	1.23	2.91	1.05	3.20	1.00	3.27	1.06	3.65	1.13	3.34	1.13
T.V. and Radio Ads	3.00	1.33	2.80	1.22	2.82	1.17	2.80	1.15	3.04	1.30	2.73	1.13
Billboards and Roadside Signs	4.01	1.09	3.07	1.13	3.33	1.08	3.58	0.99	3.73	1.04	3.55	1.08
Web sites, Mass E-mails and Internet Ads	3.87	1.11	3.60	1.10	3.69	1.12	3.78	1.18	3.84	1.18	3.45	1.19
Mailings, Postcards, Fliers & Other Paper Handouts	3.92	1.19	3.33	1.20	3.52	1.21	3.73	1.38	3.93	1.17	3.44	1.26

Finally, respondents described the best marketing strategy they had ever used or seen used for agri-tourism. Twenty-two of the respondents (n=20.4%) wrote in word-of-mouth as the best marketing strategy for agri-tourism businesses.

Objective 3: To establish how the communications and marketing departments within these agri-tourism businesses operate, including who operates them and what their budget is.

Sixty-two percent (n=67) of respondents said that the owner was the person in charge of the communications operations within their company. The second highest remark (19.4%, n=21) was that the person in charge of the communications operation was a friend or family member who was assigned the job. Only 2.8% (n=3) of respondents listed a person who was hired specifically for the job as the person in charge of the communications operations, while 2.8% n= (2) said that there is no person in charge of communications at their company (Figure 4).
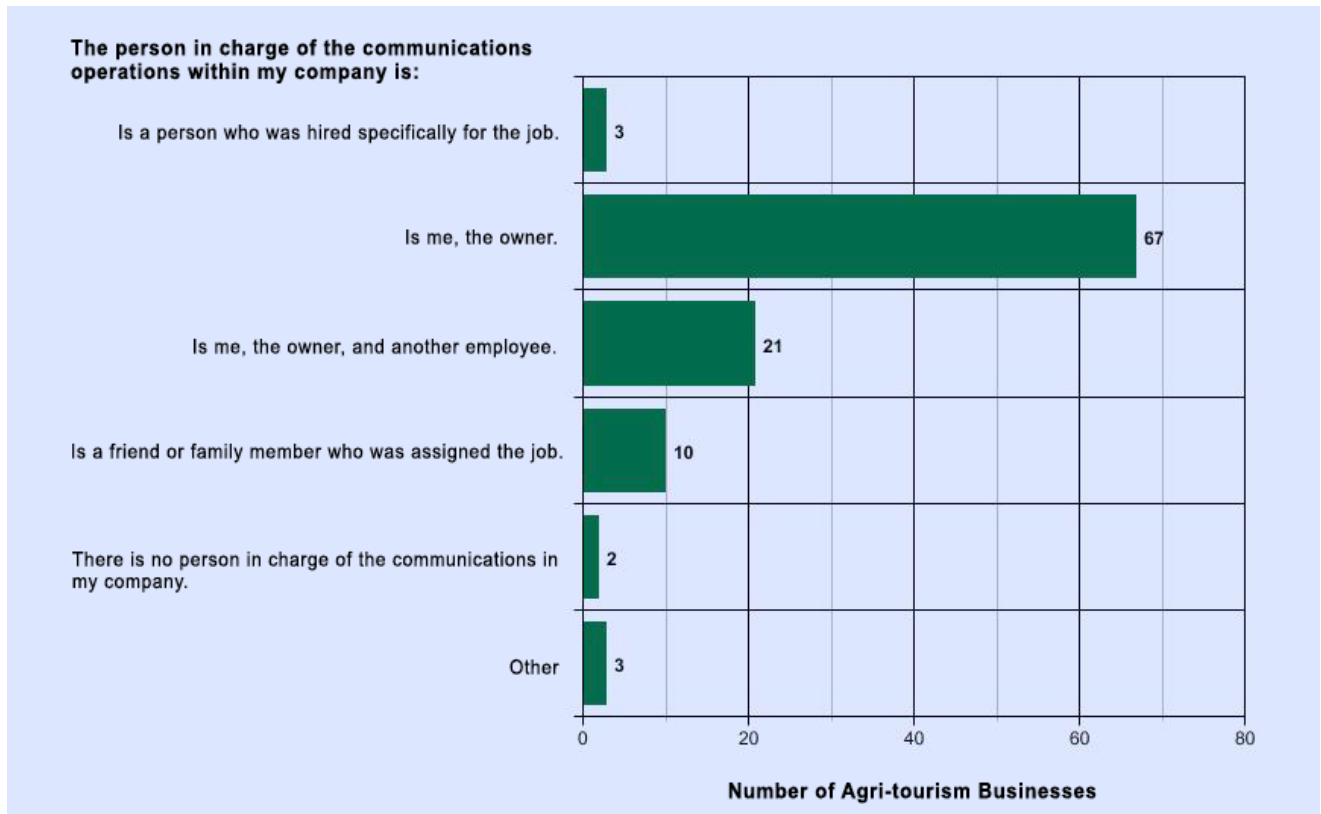
Figure 4. Person in Charge of Communications Operations.

In regards to their customer base, the respondents provided the following data. Respondents were asked if they felt that, as the owner or employee, they were either very involved, somewhat involved, rarely involved, or never involved in communicating with the customers of their company. A majority of 82.4% (n=89) said that they were very involved in communications to their customers, while 16.7% (n=18) said they are somewhat involved. No respondents marked being rarely involved or never involved in communicating with their customers. The following question asked if communicating to customers through marketing was extremely important, somewhat important, not very important, or not at all important to the vitality of their company. Nearly 69.5% (n=75) said that it was extremely important. An additional 22.2% (n=24) said that it was somewhat important, while 6.5% (n=7) said that it was not very important to the vitality of their company. Finally, respondents were asked about what type of audiences they focus on when developing advertising. Of participants, 75.0% (n=81) said that they focus on both rural and urban audiences. Also, 83.4% (n=90) said they focus on their local and county-wide community.

The last question asked participants what percentage of their annual income was spent on communications. Data analysis showed that 72.2% (n=77) of the businesses spend less than 5% of their annual income on communications. An additional 14.8% (n=16) spend less than 10% of their annual income on communications, while only 2.8% (n=3) respondents checked that their business spends between 21-25% of their annual income on communications. No respondent answered that their company spends more than 25% of their annual income on communications (Figure 5).
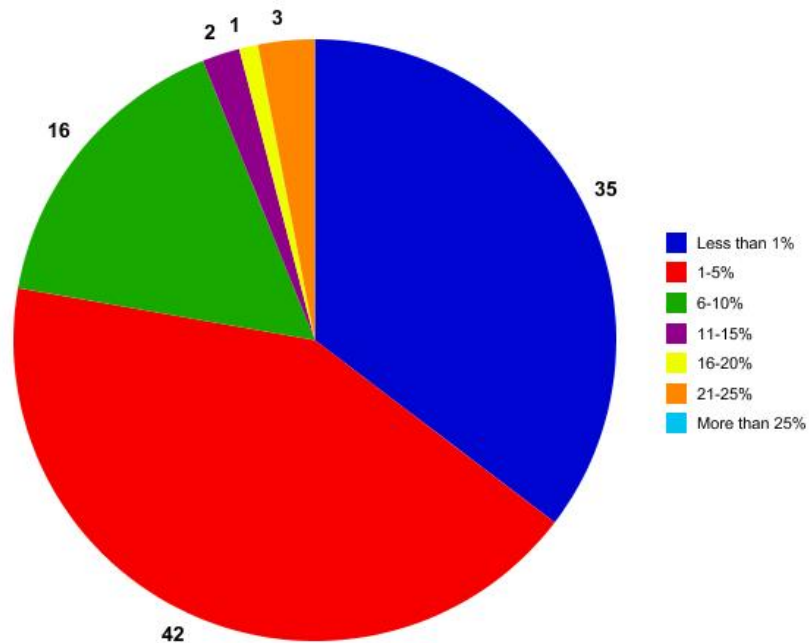
Figure 5. Percentage of Annual Income Spent on Communicating to People Outside of the Business.

Objective 4: To identify what networking and educational tools and resources agri-tourism businesses are using to improve the success of their business

In regards to networking, respondents were asked questions about membership in organizations and attending conferences (Figure 6). Approximately half (50.9% or n=55) of the respondents stated that they were a member of an organization that brings together agri-tourism business owners for networking and educational opportunities. When asked if they have attended conferences in Ohio on agri-tourism or direct farm marketing, 62.0% (n=67) of respondents said that they had. Of the Ohio conferences attended, the following were written in most often: Ohio Christmas Tree Association conferences (8.3%, n=9), Ohio Produce Growers and Marketers Association conferences (7.4%, n=8), and the Ohio Fruit and Vegetable Growers Congress (4.6%, n=5). However, only 33.3% (n=36) of respondents said that they had traveled to states outside of Ohio to attend conferences on agri-tourism or direct farm marketing. Respondents traveled as close as Pennsylvania and Michigan and as far away as California and Canada to learn about agri-tourism.
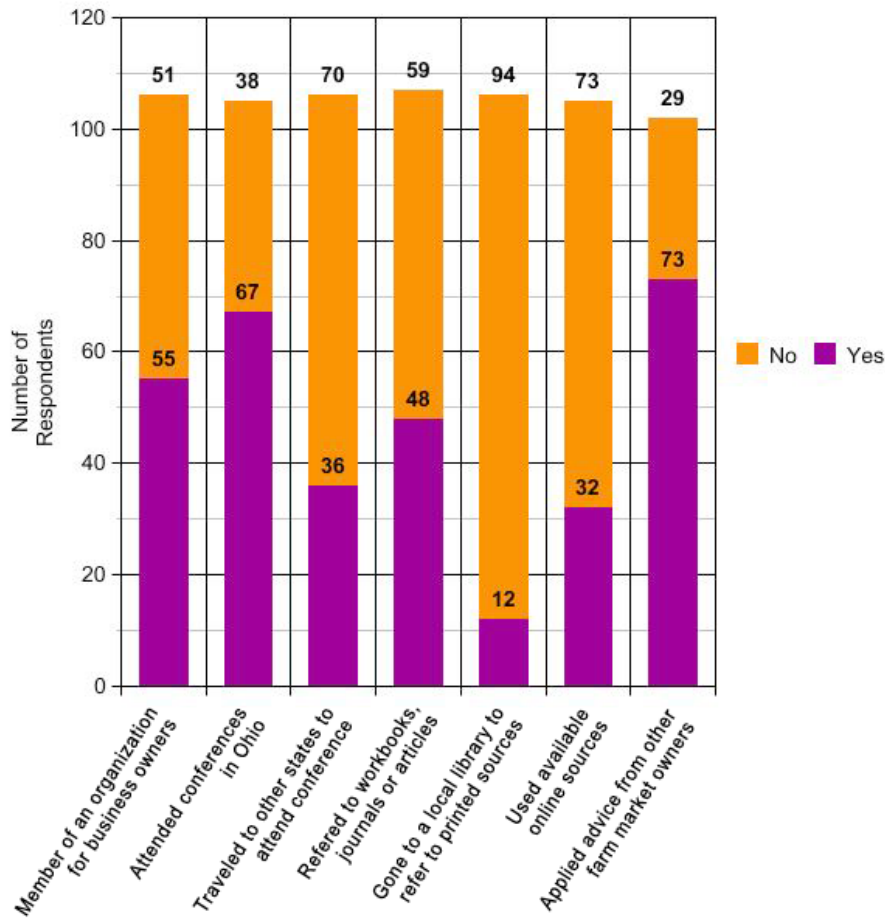
Figure 6: Business Owners Use of Networking and Resources, by Type

When respondents were asked about using educational tools and resources to improve their success, they provided the following data according to the survey. Less than half (44.4%, n=48) said that they have referred to agri-tourism workbooks, handbook, journals, or articles to improve the overall success of their company. Of the 35 respondents who wrote in answers, only four described using items published by The Ohio State University Extension, while Ohio Farm Bureau, and Ohio Department of Agriculture were each mentioned once as being utilized as a resource.

Exactly 87.0% (n=94) of respondents said that they do not go to the local library or use printed sources, including books, journals, or magazines to refer to communications and marketing strategies that could be used within their company. On the other hand, when asked if they use available online sources, including agri-tourism Web sites, and communications or marketing improvement software to advance their company, 29.6% (n=32) said that they do, versus the 67.6% (n=73) that do not. Of the 22 respondents who wrote in answers, only three described using The Ohio State University Extension. In addition, Ohio Farm Bureau, Ohio Proud, and Ohio Department of Agriculture were each described once by different respondents.

Finally, when respondents were asked about applying advice from other farm market owners and/or employees to improve the success of their farm market, 67.6% (n=73) said that they do. The respondents most commonly described that the experiences of others, both positive and negative, influenced the business choices made at their venues.

Conclusions/Recommendations

Limitations of the Study

The mailing list for the survey was composed from a random sample of 928 businesses that had an address listed on one of the following Web sites: Ohio Proud's Find a Farmers Market; Discover Ohio; and the Ohio Bed and Breakfast Association. If a business was not listed on one of these Web sites, they were excluded from the study. Due to time and funding restraints, the researcher could only do a random sample of 304 businesses, removing hundreds of Ohio agri-tourism businesses from the study. In addition, of the 304 surveys that were mailed, 108 of them were returned (35.5%). Due to this these findings are not generalizable past those who responded, but they do shed light on how these types of companies view marketing and communication.

Key Findings and Implications

Agri-tourism is a growing and expanding sector of the agriculture industry in the United States. The purpose of this study was to find out what advertising and marketing strategies are being used by agri-tourism businesses as well as what networking and educational resources business owners are utilizing to improve their success. The following discussion divides the key findings and their implications according to the objective they are most closely related to.

Objective 1: To define the types of agri-tourism businesses that currently exist in the state of Ohio by location, size, gross income and type of product or service offered

Almost half (42.6%, n=46) of the respondents' businesses were located in northern Ohio. This could have resulted for a number of reasons. First, the mailing list could have been biased in the fact that it sampled more businesses in the north than any other region. Second, more businesses from the north have their addresses registered with the Web sites that were used as a database for this study. Third, the result could be reliable. If there are more agri-tourism businesses operating in northern Ohio than any other region, the data could be accurately predicting the actual population. The northern region of Ohio is an area rich in wineries and bed-and-breakfasts. Respondents living the high tourist area of "Amish Country" could also place themselves in this section, so it is very likely the case that this area does have more agri-tourism than other parts. Further data that takes an inventory of every agri-tourism enterprise in Ohio would show why the data from this study resulted in almost half of the businesses being in the northern region.

The total annual income data revealed that 55.6% (n=60) of the agri-tourism businesses bring in less than $50,000. This data implies that the agri-tourism businesses operating in Ohio are smaller businesses that may not be designed to make large profits, but instead only supplement additional incomes. The inventory done on Tennessee agri-tourism businesses by the Center for

Profitable Agriculture (Bruch and Holland, 2004) showed similar results to this study, with 38% of 273 agri-tourism businesses having less than $25,000 in annual gross sales.

Data analysis regarding how far customers travel to visit the businesses demonstrated that a majority (84.3%, n=91) of consumers are traveling less than 24 miles. Consumers are rarely traveling long distances, with only 2.8% (n=3) respondents marking that their largest share of customers travel over 100 miles to visit their operation. This result implies that customers who live or work close-by are familiar with the business and the area. It also shows that the customers may be loyal to the company or its owners, and that they may trust its local reputation. In addition, this data shows that the trend of and increased emphasis on "buying local" may be growing on consumers.

In a similar context, 79.4% (n=85) of respondents said that they are very familiar with their customer base. A minority of 1.9% (n=2) said they were not familiar with their customer base. This result reiterates the idea that many of these agri-tourism businesses are small, have a good local reputation and respect their customers. According to the Page and Fearn study (2005), *consumer fairness,* which includes trust and consumers, is one of the three main dimensions of corporate reputation. If the respondents foster a familiarity with their customers, they are more likely to have a good corporate reputation.

The final result for objective 1 is the data regarding what type of entertainment of service is offered at the businesses sampled. Roadside stands and markets (41.7% or n=45), u-pick operations (39.8% or n=43), and agricultural food and craft shows (25.9% or n=28) topped the list, while zero respondents marked rodeos and swimming. In relation to the Center for Profitable Agriculture study at the University of Tennessee Knoxville (Bruch and Holland, 2004), these results are very comparable. Their study showed that 48% of Tennessee agri-tourism businesses offered an on-farm retail market, while 43% offered on-farm concessions and 26% offered a pick-your-own. This data shows that the most popular type of service deals with food and food products, one of the largest commodities in the world. This may mean that consumers are most willing to travel to an agri-tourism business when it offers some type of food product or show, making these businesses the most successful and the most popular to operate. It could also show that food-related agri-tourism is the easiest type of service to offer, since food is abundant and cost-efficient (it does not require an excess of supplies or maintenance).

Additionally, rodeos are most likely least popular because Ohio is not known for ranch-style farm operations, and swimming at an agri-tourism business is probably not popular with consumers (due to the presence of community and private swimming pools and the fact that Ohio's climate only allows for swimming for three months out of the year).

Objective 2: To determine what advertising agri-tourism businesses throughout the state of Ohio are using to promote their products and services and their perceptions of these advertising methods

The most utilized advertising methods were newspaper advertisements (68.5%, n=74), business Web sites (52.8%, n=57), and roadside signs (51.9%, n=56). For business owners, newspaper advertisements may be easy, familiar and (because they are typically small businesses)

locally-targeted. The businesses that do operate Web sites may be knowledgeable, from outreach resources or their own experiences, on how beneficial Web sites can be to their consumers. Web sites are known to be long-term, quick, and reliable methods of advertising for consumers. The half that do not operate a Web site may not know how to set one up, or they may not believe the benefits are the worth the cost and time of maintaining one. These individuals may also live in remote areas where only dial-up is available, and may not see its value for their local audience. In addition, the frequent use of roadside signs suggests that business owners like the convenience of them. Roadside signs are maintained by users, at no to low cost, and often last for years once made. They are also easy to alter or rotate, and their use operates on the business owner's schedule (unlike a newspaper advertisement).

Television commercials (4.6% or n=5), online blogs (5.6% or n-6), personal Web sites (5.6% or n=6), and media kits (5.6% or n=6) were the least utilized marketing strategies. This data suggests that, for agri-tourism businesses, television commercials may not be cost-effective, or easy to develop when they are trying to reach local consumers. Online blogs are relatively new to the media mix, and therefore many owners may lack familiarity with using them (preventing them from seeing any benefits to using this method). In addition, the low percentage of respondents who use personal Web sites and media kits demonstrates that many of the businesses do not have them or need them, due to strong dependence on more familiar methods.

The Likert scale evaluation data resulted in nearly every mean ranging from 2.80 to 4.01. This illustrates that the respondents' attitudes toward all the defined advertising methods are neutral. This could be for a number of reasons. First, the overall opinions may differ so much that, when averaged, they came out to a neutral score. This could be because marketing is generally considered on a case-by-case basis (i.e. what works for one company may not for another). Second, the respondents may not have been sure of their feelings, and therefore chose the simple answer of "3." Third, the Likert scale questions were at the end of the survey. Respondents may have been tired or in a rush, and therefore answered neutral instead of considering the question with more thought. It is interesting to note that respondents indicated an average of 4.1 on effectiveness of roadside signs and billboards, while all other media were neutral. This could indicate why this is such a popular method with these business owners.

The final questions for objective 2 asked about the best marketing strategy respondents had ever used or seen used. Twenty-two respondents answered "word-of-mouth." This could mean that many of them are relying on the businesses reputation to speak for itself. It could be the case that in these rural areas, people tend to trust the word of their neighbor over other forms of communication and the business owners capitalize on that. A recent study of crop producers' sources for farming information in Ohio indicated that farmers trust interpersonal communication (the word of people in their community and at their local mill) more than other sources (Hall & Rhoades, 2009). They also may utilize this strategy because they cannot afford to pay for other strategies, or because feedback from their consumers makes this claim for them.

Objective 3: To establish how the communications and marketing departments within these agri-tourism businesses operate, including who operates them and what their budget is.

A significant portion (62.0%, n=67) of the respondents said that the owner is the individual in charge of communications at their business. Only 2.8% (n=2) respondents said that they had hired someone to specifically be in charge of their communications and marketing. This is a key finding, because it shows that many of these business owners may not realize the benefits of hiring a specialist in the field of communications. It illustrates that having employees working in other areas of the business may be taking priority over marketing. In addition, when combined with the data showing the low total annual incomes, it could suggest that these businesses cannot afford to hire an employee for such a position.

Data analysis also showed that the businesses' current advertising methods were typically targeting both rural and urban audiences and local and county-wide communities. Seventy-five percent (n=81) said they focus on rural and urban audiences, versus just one or the other. This implies that agri-tourism businesses are looking to attract a diverse range of customers, and that their marketing strategies need to be designed to do that (in terms of content and medium used). Also, 83.4% (n=90) said that they focus on advertising to local and county-wide communities, with only 9.3% (n=10) focusing on the state-wide community. This suggests that respondents are looking at cost-efficiency and choosing the range of their marketing strategies. While a Web site is accessible to everyone, a newspaper advertisement may only be accessible to the local area. It could also demonstrate that respondents rely on word-of-mouth to gain consumers beyond the local community. They may believe that if they gain the respect of local consumers, then word will travel to those outside of the area. In contrast, the population for this sample included information taken off of the following Web sites: Ohio Proud's Find a Farmers Market; Discover Ohio; and the Ohio Bed and Breakfast Association. These businesses are included in these lists, but may not realize the value of their outreach programs to advertise their business.

Finally, data for objective 3 reviewed how much of the total annual income business owners were spending on communications. A majority of 72.2% (n=77) of the respondents said they spend less than 5% of their annual income on communications. The income data from objective 1 showed that a majority of businesses make less than $50,000. From these two sets of data, it can be assumed that a majority of the businesses are spending less than $5,000 a year on communications, which includes marketing and advertising. When considering the rising cost of advertising, this is a very small amount. Many of the businesses are using roadside signs and word of mouth to generate business, two methods that are extremely low or no cost.

Objective 4: To identify what networking and educational tools and resources agri-tourism businesses are using to improve the success of their business

While approximately half (50.9% or n=55) of the respondents are members of a networking and educational organization, half of the respondents are not. This could suggest that 50% of business owners do not see the benefits in being a member of an organization. They may feel that they do not have the time to attend meetings or conferences, or they may not want to pay the fees associated with being a member of some organizations. In addition, while 62.0% (n=67) of respondents attend conferences in Ohio, 33.3% (n=36) attend conferences out-of-state. Many of

the respondents who attended conferences out of state traveled as far away as California, New Mexico, Texas, and Canada. This data suggests that some agri-tourism business owners value networking and educational opportunities, even when they must travel great distances to receive it. In post hoc visual analysis it can be noted that many of the companies use information from national member organizations or programs implemented in other states. This begs the question of what can Ohio associations do to better help these local companies grow?

Of respondents, 11.1% (n=12) said that they have gone to the local library or used printed sources to refer to communications and marketing strategies that could be used within their company. On the other hand, 29.6% (32) said that they use available online sources to advance their communications and marketing. This suggest that business owners are twice as likely to use a resource if it is online versus having to go somewhere to get the printed document.

Four questions related to what resources agri-tourism business owners were using to improve their business. Each of these questions provided two lines (per question) to describe the resources they used. Of the 75 written responses combined, The Ohio State University Extension was only mentioned as a resource seven times. Ohio Farm Bureau was only mentioned as a resource two times, and the Ohio Department of Agriculture was only mentioned two times. This suggests that, although some educational material has been published by these outreach organizations (Barrett, n.d.); many respondents are not accessing it. It could also be the case that these organizations are not producing enough materials about the right things to help this audience. With the positive impact such businesses can have on rural communities (Bruch and Holland, 2004) it is important that these entities are providing support materials to help such businesses grow.

Implications of Key Findings

Individuals who work closely with the agriculture industry, especially agricultural communicators, outreach program directors, and government employees should take special note on specific details in this study.

The typical profile of an Ohio agri-tourism business is as follows. They are small businesses, with limited total annual profits. Their consumers are usually from the local community, allowing business owners to be very familiar with their customer base. Most of the agri-tourism businesses in Ohio handle food products as part of their service or entertainment. While some may be involved in a member organization, others may not be. Agri-tourism business owners are more likely to travel to a conference in Ohio versus out-of-state, but if traveling out-of-state, there does not appear to be a restriction on the distance they are willing to travel.

In regards to utilizing resources, a majority of agri-tourism businesses are not using them. If they do, the materials they are looking at are most likely online. Therefore, this study suggests it may be more profitable for outreach programs and government agencies to disseminate their resources and educational materials via the internet versus spending money to print them. Because of the low number of people using these resources, the following could also be considered. Are these resources being marketed properly themselves? The data, which showed low use of documents created by The Ohio State University Extension, the Ohio Farm Bureau, and the Ohio

Department of Agriculture, illustrates that a significant number of respondents either do not know about the resources that are currently available, or they do not care to use them. Because outreach programs and government agencies operate on small budgets, it is important that the audience they are targeting is being reached and using the resources that are designed for them. If they are not, then one of two things should be considered: (1) is there a break in the line of communication between outreach program and the business owners or (2) are these programs not needed because business owners are not using them? Further studies that focus specifically on the use of resource materials could answer these questions.

In regards to communications and advertising, agri-tourism businesses are doing the following. Many of the owners are running the communications and advertising themselves, versus having the job assigned to a separate individual. They are also utilizing the most cost-effective and convenient strategies of marketing, with many of them relying mainly on word-of-mouth to expand consumer traffic. They are spending less than 5% of their total annual income on their advertising, and they are focusing mostly on local, rural/urban audiences. This study suggests that unique programs or workshops that teach business owners the importance of communication could be useful to agri-tourism businesses. These new programs could stress the development of new and innovative marketing techniques that would help enhance the current growth of the industry. The low use of online blogs illustrates business owners' unfamiliarity with new social media tools. This is most likely due to a lack of educational materials regarding social media. Workshops can be offered to teach owners how to use online tools and how to develop business websites.

Ultimately, it is suggested that two things be done in order to capitalize on the possible growth opportunities that currently exist in agri-tourism. First, communicators and marketers of outreach programs and government agencies (such as Extension programs) should re-evaluate how well their products are reaching the audiences they are attempting to target. Second, outreach and member organizations (from local to state-wide) should consider hosting workshops for agri-tourism business owners that focus not only on the importance of marketing their business, but also on transforming from everyday methods of marketing (newspapers, Web sites, signs, etc.) to more innovative forms that could attract that attention of a new, more diverse audiences.

Educators in communication and agricultural business programs need to emphasis to students the importance of successful marketing when looking to grow and continue a small business like a farmer's market. Since many of the respondents did the marketing themselves, students interested in entrepreneurship should be encouraged to take marketing and communication classes to build skills in advertising content and design.

Since this is a small sample in one Midwestern state, further studies should look at other agri-tourism areas to see how they compare to the findings of this study. Other research that could be beneficial would include business owners' skill level in developing marketing materials, and a study of consumers to see how they learn about such companies. Finally a study of business owners should be conducted to find out their information needs and how organizations like Extension and Farm Bureau can provide that information.

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Assessment of Instructional Technology Use and Needs of University Instructors

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Abstract

This study assessed the use of technology and need for in-service related to using instructional technology for a group of university instructors. The 54 subjects evaluated 36 tasks that require the use of instructional technology. Instructors indicated their level of competence related to each task as well as their interest in learning more about the technology. Overall, instructors were most competent in using email, searching the Internet, word processing documents, and creating presentations. They were most interested in learning about creating presentations, searching for journal articles, creating web pages, creating information graphics, and providing students online access to grades and course materials. Cohen's d was calculated to detect effect size differences among means to identify those areas that should be the focus for professional development efforts. The two areas of greatest emphasis identified through this procedure were producing custom audio/video and creating websites and web pages.

Introduction and Theoretical Framework

With the development of personal computer technology came the expectation that new instructional technologies would revolutionize teaching and learning in American higher education (Gilbert, 1994). Proponents of computers in the classroom have long argued that technology has a transformative effect on teaching and learning (Office of Technology Assesment 1995; Rochelle, Pea, Hoadley, Gordin, & Means, 2000; Sandholz, Ringstaff, & Dwyer, 1997). Computers have been used in college classrooms for decades and recent advances in online computer technologies have fostered the capability to effectively utilize interactive multimedia in both traditional and not-traditional instructional settings (Rhoades & Irani, 2007). The trend toward technology use in higher education is evident through the increased investment in electronic technology by universities (Spotts, 1999). Although the investment in technology is significant, student learning must be a priority as well. As the needs of students change, so do the needs of faculty (Dillon & Walsh, 1992). Many universities are adopting a blended learning approach, merging face-to-face and technology-mediated learning (Kirkwood & Price, 2005).

Faculty members must be able to meet the technological demands of students while continuing to deliver a quality education. Students are able to locate, retrieve, and interact with educational resources, and engage with teachers and fellow students in ways not previously thought possible (Kirkwood & Price, 2005). Furthermore, the delivery of higher education is changing with the proliferation of distance education and the supplementation of technologies into existing courses. This requires an understanding of the student and how they learn in the environment developed for them (Byrne, Flood, & Willis, 2002). This, above all, is more important when we begin to address the issue of improving the quality of student learning through the use of technology (Kirkwood & Price).

The National Research Agenda for Agricultural Education (Osborne, 2007) includes an area for agricultural education in university settings calling for researchers to investigate how specific faculty development can improve the teaching and learning process. Understanding the technology in-service needs of instructors within this group a university instructors in a college of agriculture aligned with that expectation.

A tool used to identify the professional development needs of various groups is the needs assessment. Witkin and Altschuld (1995) defined needs assessment as "a systematic set of procedures undertaken for the purpose of setting priorities and making decisions about program or organizational improvement and allocation of resources" (p. 4). Waters and Haskell (1989) contended that "gathering data from potential clientele and actively involving them in the process of identifying potential educational programs increases the likelihood of implementing relevant educational programs; thus, increasing the likelihood of achieving appropriate outcomes" (p. 26). Identifying the prospective technology training needs of the instructors will help determine the areas of focus for future in-service programs.

Review of Literature

According to McKeachie and Svinicki (2006), integration of technology is becoming a major thrust in higher education. While technology is not a substitute for quality teaching, higher standards, or accountability, when properly applied, it can substantially enhance the quality of teaching and learning (George, 2000). It is essential for instructors in higher education to take part in professional development as more technology becomes available because Inman and Mayes (1998) found that faculty's use of one technology feeds the need for more technology and training in other areas. This makes professional development in technology critical. It must be understood, however, that not only are instructors faced with the technical concerns of integrating technology into the courses they teach successfully, they also must deal with the challenges associated with using technology (Rhoades, Friedel, & Irani, 2008). This point became evident in a study (Spotts & Bowman, 1995) that reported fewer than 40% of the teaching faculty had good to expert knowledge with newer instructional technologies and fewer than 20% indicated they used such tools each week.

The Boyer Commission (1998) recommended an exchange of information between campus units to encourage faculty to learn new teaching skills and to share ideas about effective computer-based learning. In addition to institutional support, implementation of technology in the classroom is gaining public support as well. Glenn (1997) found public support for technology is strong, and there is an expectation that no school can prepare students for tomorrow's society if new technologies are not available for students. Alston and Warren (2007) agree that faculty in agriculture programs should use web-enhanced instruction to better prepare students for future careers. According to McKeachie and Svinicki (2006), integration of technology serves to prepare students for life in a wired world and allows faculty and students to take advantage of the information available online. Specifically within the educational setting, it has been found that future teachers are less inclined to use technology in their own classrooms if their faculty has not modeled its effective use (Zehr, 1997).

This situation leads to a natural question: What technologies are common? A recent college-wide assessment by Penn State University (Sonak & Williams, 2008) investigated technology use by students, staff and faculty. Common technologies were computers, laptops, internet, cell phones and MP3 players. Technologies that seemed to be less widely implemented included; video production and podcasting as well as management of web pages, videoconferencing and student response tools, with a noticeable gap appearing between faculty and students.

Another factor that university instructors must consider is that the current generation of students are quite different that their predecessors regarding the use of technology. Prensky (2001) pointed out, "Today's students are no longer the people our educational system was designed to teach" (p. 6). Students in college classes today have grown up in a technology filled world and are now described as *digital natives* (Prensky). Students use technology like computer games, email, internet, cell phones and instant messaging as part of their daily lives (Levin & Arafeh, 2002; Prensky). The average college graduate today has spent less than 5,000 hours reading, but has spent 10,000 hours playing video games and 20,000 hours watching television (Prensky).

This infatuation with, or even dependence on, communication technology devices creates a divide between the students and their instructors who could be described as *digital immigrants (Prensky, 2001)*. Many schools and teachers have not responded to or even recognized the way students communicate and access information (Levin & Arafeh, 2002). This gap can create tension in the classroom. Students wonder why they have to unplug while learning (Levin & Arafeh). Smith, (n.d.) found that students notice when their instructors lack technology skills. In fact, ten percent of students indicated their instructor did not appear to know how to use a teaching technology properly and many thought their instructor sped up when covering information using technology in the classroom. This same study found that 62% of students think that college courses should be integrating technology if it fits within the class topic. This leaves us with one conclusion: students and educators have different views as to the role of technology in the classroom (Levin & Arafeh).

If this discrepancy is so obvious, why are more faculty not implementing instructional technology into their classes? Smith (1997) found that the addition of technology does not tend to save teachers any time. In most cases, development of the technology-rich learning environment involves a larger time investment than traditional lecture. In fact, it seems that faculty members have a desire to learn, but sometimes encounter barriers. Wardlow and Johnson (1999) found that university faculty had an interest in learning about educational technologies while George (2000) found that lack of expertise was one of the barriers to implementation of technology in education. Ladner and Wingenbach (2000) found that faculty in colleges of agriculture and education felt discouraged from using technology because of a lack of administrative support and/or equipment, while also feeling an overall lack of formal training in the use of technology. While teaching and learning in higher education are unlikely to be improved by simply the application of new technology, it can be enhanced when innovations take into account the characteristics of the technology, the pedagogic design, the context in which the learning takes place, student characteristics and prior experience, and familiarity with the technologies involved (Kirkwood & Price, 2005). Perhaps the benefits outweigh the time investment since technology adds choice to "how, when and where students access learning opportunities" (Smith, p. 7).

Purpose and Objectives

The purpose of the study was to assess uses of technology and needs for in-service related to using instructional technology for the instructors in the Division of Applied Social Sciences (DASS) in the College of Agriculture, Food and Natural Resources at the University of Missouri. Specific research objectives were defined as:

1. Describe selected personal and professional characteristics of instructors in DASS (department, title, years of experience, and age).
2. Describe the instructors' self-perceived competence at selected tasks using instructional technology.
3. Describe the instructors' interest in learning more about the technology used for selected tasks.
4. Identify the areas of focus for professional development efforts related to instructional technology.

Population and Sampling

The target population of this study consisted of 54 instructors in the Division of Applied Social Sciences within the College of Agriculture, Food and Natural Resources. The frame was identified through the e-mail directory for the College and was verified through contact with faculty members in each department. Deliberate efforts were made to remove duplicate names and ensure an accurate frame was obtained. A census was sought for this group.

Instrumentation

Data were collected using a mailed questionnaire. The questionnaire contained two sections. Section one consisted of 36 different technology tasks, identified through a review of literature as well as through discussion with the Educational Technology department of the University. The assembly of the instrument began by listing all of the programs, software applications and hardware items that were used for teaching within the division. Once this list was compiled, items were grouped to represent the skills. Participants were asked to evaluate each task and rate their level of competence on a scale of 0 – 4, where 0 = none, 1 = low, 2 = moderate, 3 = high, and 4 = very high. The same scale was used for the respondents to describe their level of interest in learning more about the tasks.

Section two of the instrument was composed of a series of questions to gather data about selected personal and professional characteristics. Items inquired about the department in which they were employed, their job title, their years of experience, and their age. A panel of experts consisting of three university teaching faculty and three educational technologists reviewed the instrument for face and content validity. Minor adjustments were made to enhance instrument clarity based on the suggestions of the panel.

Data Collection

Three points of contact were made with members of the population during the data collection phase of the study. The first contact included a brief letter announcing the intent of the study and included an invitation to participate. Five days later, a second contact was made with participants that included a signed cover letter, a paper copy of the instrument, and a return envelope. The third contact included a reminder to participate and another copy of the instrument. As a result of these efforts, a response rate of 85% ($n = 46$) was achieved.

All completed instruments yielded usable data. Data were coded and entered into SPSS (v.16) and analyzed using measures of central tendency and variability. Cohen's d (Thalheimer & Cook, 2002) was calculated to determine effect size.

Results

As shown in Table 1, more than half of the subjects were from the Department of Agricultural Economics ($n = 26$, 57.78%) with the rest being split across Agricultural Education ($n = 10$, 22.22%), Rural Sociology ($n = 7$, 15.56%), and Agricultural Journalism ($n = 2$, 4.44%). Almost one third of the instructors held the rank of associate professor ($n = 13$, 28.89%), with the second largest group being graduate assistants ($n = 10$, 22.22%). There was an equal representation of full professors and assistant professors ($n = 8$, 17.78% each). The study also included four instructors (8.89%) and two individuals (4.44%) who classified themselves as "other." On average, respondents had more than 12 years of experience ($SD = 11.82$) and their average age was 44.98 ($SD = 11.92$).

Table 1

Instructors' Personal and Professional Characteristics ($n = 46$)

Characteristic	f	%	M	SD	Range
Department					
Ag Economics	26	57.78			
Ag Education	10	22.22			
Rural Sociology	7	15.56			
Ag Journalism	2	4.44			
Title					
Associate Professor	13	28.89			
Grad Assistant	10	22.22			
Full Professor	8	17.78			
Assistant Professor	8	17.78			
Instructor	4	8.89			
Other	2	4.44			
Years Experience			12.16	11.82	0.50 - 50.00
Age			44.98	11.92	28 - 78

Note. Missing values: Valid percents reported.

The second objective of this study sought to determine instructors' level of competence related to tasks using instructional technology. When describing data related to the levels of

competence, the following real limits served as a guide for data analysis: none = 0.00 – 0.50; low = 0.51 – 1.50; moderate = 1.51 – 2.50; high = 2.51 – 3.50; very high = 3.51 – 4.00.

The instructors rated their competence as very high for none of the 36 tasks evaluated in this study. They rated their competence as high for 10 tasks, moderate for 19 tasks, and low for 7 tasks. Instructors felt most competent in their ability to "use email to communicate" (M = 3.50, SD = 0.69), followed by the ability to "word process documents" (M = 3.33, SD = 0.82), "conduct searches of material available on the internet" (M = 3.15, SD = 0.63), "search for journal articles online" (M = 2.85, SD = 1.01), "maintain an electronic calendar" (M = 2.83, SD = 1.20), "creating presentation graphics" (M = 2.80 , SD = 0.81), "developing spreadsheets" (M = 2.78 , SD = 1.07), "electronically searching the library catalog" (M = 2.65 , SD = 0.97), "bookmarking web pages for online access or sharing" (M = 2.85 , SD = 1.37), "providing students online access to grades and course materials" (M = 2.54 , SD = 1.05).

They felt least competent in their "use of electronic student response tools" (M = 0.85, SD = 0.89), "compiling online portfolios" (M = 1.07, SD = 1.02), "producing a custom audio/video recording" (M = 1.11, SD = 0.92), "contributing to online information bases" (M = 1.13, SD = 1.09), "using computer-based simulators" (M = 1.28, SD = 1.09), "creating websites and web pages" (M = 1.41, SD = 1.09), and "creating online tests" (M = 1.50, SD = 1.21). These data are displayed in Table 2.

Table 2

Instructors' Competence Related to Selected Instructional Technology Tasks (*n* = 46)

Task	M	SD
Communicating to individuals or groups with email	3.50	0.69
Word processing of documents	3.33	0.82
Conducting searches of material available on the internet	3.15	0.63
Searching for journal articles	2.85	1.01
Maintaining an electronic calendar	2.83	1.20
Creating presentation graphics	2.80	0.81
Developing spreadsheets	2.78	1.07
Electronically searching the library catalog	2.65	0.97
Bookmarking web pages for online access or sharing	2.58	1.37
Providing students online access to grades and course materials	2.54	1.05
Playing video in class or other presentations	2.43	0.95
Digitizing existing documents with a scanner	2.35	1.22
Presenting existing audio video	2.24	1.20
Viewing digital maps	2.18	1.11
Developing databases	2.15	1.01
Creating documents with desktop publishing tools	2.04	1.11
Editing photographs and other graphics	1.93	1.09
Using portable media devices	1.87	1.39
Capturing and recording screen images	1.84	1.31
Viewing documents/objects	1.80	1.24
Electronically collaborating with groups of people	1.73	1.10
Desktop conferencing with audio and video	1.70	1.11
Interacting in electronic social networks	1.70	1.14
Subscriptions to updates of web based information	1.67	1.19
Conducting online teaching evaluations	1.65	1.61
Using online meeting/classroom tools	1.64	1.00
Creating information graphics	1.63	1.06
Publication of personally created logs, journals and articles	1.61	1.18
Reserving digital documents for students	1.56	1.06
Creating online tests	1.50	1.21
Creating websites and web pages	1.41	1.09
Using computer based simulators	1.28	1.09
Contributing to online information bases	1.13	1.09
Producing a custom audio/video recording	1.11	0.92
Compiling online portfolios	1.07	1.02
Using electronic student response tools	0.95	0.89

Note. Mean scale: 0.00 – 0.50 = none; 0.51 – 1.50 = low; 1.51 – 2.50 = moderate; 2.51 – 3.50 = high; 3.51 – 4.00 = very high.

Table 3 shows the level of interest instructors indicated in learning about tasks involving the use of instructional technology. When describing data related to their levels of interest, the following real limits served as a guide for data interpretation: none = 0.00 – 0.50; low = 0.51 – 1.50; moderate = 1.51 – 2.50; high = 2.51 – 3.50; very high = 3.51 – 4.00).

Instructors had neither very high nor high interest in learning more about any of the 36 tasks included in this study. There was moderate interest, however, in 30 of the tasks and low interest in the other 6 tasks. The tasks that generated the greatest interest were "creating presentation graphics" ($M = 2.48$, $SD = 1.28$), "conducting searches of material available on the internet" ($M = 2.38$, $SD = 1.34$), "searching journal articles" ($M = 2.35$, $SD = 1.45$), "creating information graphics" ($M = 2.33$, $SD = 1.19$), and "creating websites and web pages" ($M = 2.33$, $SD = 1.33$). The tasks in which instructors were least interested in learning more about were "interacting in electronic social networks" ($M = 1.27$, $SD = 0.99$), "using computer based simulators" ($M = 1.31$, $SD = 1.13$), "contributing to online information bases" ($M = 1.35$, $SD = 1.04$), "publication of personally created logs, journals and articles" ($M = 1.39$, $SD = 1.11$), "subscriptions to updates of web based information" ($M = 1.47$, $SD = 1.16$) and "digitizing existing documents with a scanner" ($M = 1.50$, $SD = 1.20$).

It would follow logic that if instructors showed a low competence and/or had a high interest in learning more, that area would be well-suited to professional development. Therefore, for each of the tasks where the mean for competence was lower than the mean for interest, a Cohen's d was calculated (see Table 4). Two tasks, "producing custom audio/video recordings" (0.77) and "creating websites and web pages" (0.76), had a large effect size indicating a strong difference in the level of competence and interest. A medium effect size was found for six tasks, including: "using electronic student response tools" (0.64), "creating online tests" (0.63), "creating information graphics" (0.63), "compiling online portfolios" (0.61), "desktop conferencing with audio and video" (0.50), and "using online meeting/classroom tools" (0.41). Six tasks had a small effect size. Those tasks were: "reserving digital documents for students" (0.37), "electronically collaborating with groups" (0.33), "creating presentation graphics" (0.30), "using portable media devices" (0.21), "contributing to online information bases" (0.21), and "conducting online teaching evaluations" (0.17). For two tasks, "creating documents with desktop publishing" (0.05) and "using computer based simulators" (0.03), a negligible effect size was found.

Table 3

Instructors' Interest in Learning More about Selected Instructional Technology Tasks (*n* = 46)

Task	M	SD
Creating presentation graphics	2.48	1.28
Conducting searches of material available on the internet	2.38	1.34
Searching for journal articles	2.35	1.45
Creating information graphics	2.33	1.19
Creating websites and web pages	2.33	1.33
Providing students online access to grades and course materials	2.30	1.38
Desktop conferencing with audio and video	2.26	1.14
Creating online tests	2.24	1.16
Using portable media devices	2.16	1.46
Editing photographs and other graphics	2.13	1.23
Electronically collaborating with groups of people	2.13	1.31
Using online meeting/classroom tools	2.11	1.30
Creating documents with desktop publishing tools	2.09	1.06
Playing video in class or other presentations	2.04	1.32
Developing spreadsheets	2.04	1.35
Word processing of documents	2.02	1.54
Presenting existing audio video	2.00	1.14
Reserving digital documents for students	1.96	1.15
Electronically searching the library catalog	1.96	1.33
Producing a custom/audio video recording	1.91	1.17
Conducting online teaching evaluations	1.89	1.14
Capturing and recording screen images	1.87	1.31
Developing databases	1.85	1.19
Maintaining an electronic calendar	1.80	1.50
Compiling online portfolios	1.78	1.33
Communicating to individuals or groups with email	1.78	1.47
Bookmarking web pages for online access or sharing	1.73	1.34
Viewing documents/objects	1.72	1.05
Viewing digital maps	1.70	1.23
Using electronic student response tools	1.58	1.10
Digitizing existing documents with a scanner	1.50	1.20
Subscriptions to updates of web based information	1.47	1.16
Publication of personally created logs, journals and articles	1.39	1.11
Contributing to online information bases	1.35	1.04
Using computer based simulators	1.31	1.13
Interacting in electronic social networks	1.27	0.99

Note. Mean scale: 0.00 – 0.50 = none; 0.51 – 1.50 = low; 1.51 – 2.50 = moderate; 2.51 – 3.50 = high; 3.51 – 4.00 = very high.

Table 4
Areas for Professional Development Related to Instructional Technology (*n* = 46)

Task	Competence		Interest		Cohen's *d*	
	M	*SD*	*M*	*SD*		
Producing a custom audio / video recording	1.11	0.92	1.91	1.17	0.77	Large
Creating websites and web pages	1.41	1.09	2.33	1.33	0.76	Large
Using electronic student response tools	0.95	0.89	1.58	1.10	0.64	Medium
Creating online tests	1.50	1.21	2.24	1.16	0.63	Medium
Creating information graphics	1.63	1.06	2.33	1.19	0.63	Medium
Compiling online portfolio	1.07	1.02	1.78	1.33	0.61	Medium
Desktop conferencing with audio and video	1.70	1.11	2.26	1.14	0.50	Medium
Using online meeting / classroom tools	1.64	1.00	2.11	1.30	0.41	Medium
Reserving digital documents for students	1.56	1.06	1.96	1.15	0.37	Small
Electronically collaborating with groups	1.73	1.10	2.13	1.31	0.33	Small
Creating presentation graphics	2.80	0.81	2.48	1.28	0.30	Small
Using portable media devices	1.87	1.39	2.16	1.46	0.21	Small
Contributing to online information bases	1.13	1.09	1.35	1.04	0.21	Small
Conducting online teaching evaluations	1.65	1.61	1.89	1.14	0.17	Small
Creating documents with desktop publishing	2.04	1.11	2.09	1.06	0.05	Negligible
Using computer based simulators	1.28	1.09	1.31	1.13	0.03	Negligible

Note. Mean scale: 0.00 – 0.50 = none; 0.51 – 1.50 = low; 1.51 – 2.50 = moderate;
2.51 – 3.50 = high; 3.51 – 4.00 = very high. Effect size interpretation: 0 – 0.14 = negligible;
0.15 – 0.39 = small; 0.40 – 0.74 = medium; 0.75 – 1.10 = large.

Conclusions, Implications, and Recommendations

The typical instructor in this academic unit is nearly 45 years old with 12 years of teaching experience. Thus, instructors are, on average, 25 years older than the college students they teach. This age gap aligns with research stating that a gap exists between digital immigrants and digital natives (Prensky, 2001) and may indicate a difference in technology use as well as technology expectations.

Results of this research indicate that instructors do not consider themselves to be highly competent at performing any of the 36 tasks associated with instructional technology. This finding indicates that instructors do not perceive themselves to be experts with such tasks. DASS instructors are, however, highly competent at tasks requiring the use of standard desktop applications and basic Internet functions. Because of their self-perceived proficiency at performing such tasks, no interventions to increase competency in word processing, using spreadsheets, sending email, or conducting basic searches on the Internet are necessary at this time.

Tasks in which instructors rated themselves as having moderate competence fit into one of two groups: Collaboration/Networking or Graphics/Visuals. Specifically, tasks in the former group included electronically collaborating with groups of people, using online meetings/classrooms, interacting in social networks, and publishing blogs, logs and journals. The latter group included tasks such as playing video in class, editing photographs or graphics, using portable media devices, creating information graphics, as well as capturing screen images and viewing digital maps. While

these items had moderate rankings, they did have comparatively higher standard deviations indicating that some instructors are comfortable using these technologies while others are not. Therefore, there may be some in the group with low competence for which targeted interventions could be implemented on a case-by-case basis.

There were no tasks with a mean that fit into the category of "none" on the competence scale. There were, however, seven tasks that fit into the low competence category. These tasks align with the theme of instructor-created content or information that instructors design themselves. Examples of these tasks include creating web pages, compiling portfolios, producing custom audio and video recordings, as well as creating online tests. Instructors appear more confident using software programs and Internet applications than they do in creating their own technology based content. This conclusion seems to be consistent with research findings saying the further a technology is from a faculty members existing practice, the less likely they are to adopt the new practice (Zhao, Pugh, Sheldon, & Byers, 2002). Perhaps there is adequate pre-created information available so instructors do not need to create. An alternative explanation could be that support personnel are in place that are proficient with these technologies, therefore instructors do not need to know how to perform these tasks. This lack of competence may also be reflective of the "newness" of some of the technologies.

Instructors in this academic unit do not have a strong desire to learn more about any of the tasks requiring the use of instructional technology included in this study. On the other hand, they have a moderate desire or need to learn about nearly all of the tasks investigated. As such, no common themes can be extrapolated from this conclusion. It is interesting to note that several of the standard deviations are large, basically spanning the 4-point scale. This finding indicates that the specific areas interests regarding instructional technology are among the group are diverse and individualized. As such, the idea of delivering information about instructional technology through workshops for groups of people is not practical. Rather, other forms of instruction, such as asynchronous online programs, should be explored. Another approach could be for the academic unit to hire a person to provide personalized training to faculty as needed.

Interestingly, a task that rated lowest among the list of 36 tasks was interacting in electronic social networks. This task was related to the use of applications such as Facebook, MySpace, and other forms of social networking. From recent research in Agricultural Education, we know that college of agriculture students actively use social networks (Rhoades, Friedel, & Irani, 2008). So, why are instructors so uninterested in learning more about social networking? Could this finding be further evidence of the digital divide between digital natives and digital immigrants? Do instructors fail to see the value or potential use for social networking in teaching? Or, is the lack of interest due to the fact that these tools are so easy to use, so there is no felt need for professional development on that topic?

There were sixteen tasks considered to be targets for professional development. These are tasks in which instructors' interest was higher than their competence. Two of these areas were found to have a large effect size. These tasks included producing custom audio and video, and creating websites and web pages. While these tasks could be the initial focus for any professional development in the academic unit, the campus division of information technology regularly offers free workshops on both of these topics.

Recommendations for further research

This study focused on one division in the college. It would be of value to replicate this investigation with other divisions in the college as well. Data from these needs assessments would serve several valuable functions, including identification of current technology use by instructors, and identification of topics for professional development programs. In addition, such assessments would provide information for comparisons between the various divisions in the college.

A number of studies provide evidence that students with access to educational technologies show positive gains in achievement and improved test scores (Schacter, 1999). Research should be conducted to describe the instructional technology competencies, interest and needs of students when developing educational technology components for the classroom. It is important to identify the students' educational needs first and determine how technology fits into their learning. By paying attention to the learner, learning environments, professional competency, system capacity, community connections, technology capacity, and accountability, technology will be kept in service to learning (Schacter, 1999).

Further research should be conducted to explore links between technology use and effective teaching and student learning. The college and university continue to make substantial investments in instructional technology and the educational impact of such investments should be assessed. The researchers recommend research on this topic move beyond basic descriptive studies toward more sophisticated and higher impacting experimental designs.

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Perceptions of Missouri Secondary Agriculture Teachers Regarding Interorganizational Cooperative Behavior

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Abstract

Interorganizational teams have the potential to accomplish more than the sum of individual efforts of members working independently, provided that members share similar goals and tasks. Thus, an interorganizational team consisting of organizations that share similar roots, as well as educational and outreach initiatives would seem logical. Subjects of this study were randomly selected secondary agriculture teachers (n = 140) in Missouri. Factors that teachers perceived as important to cooperation and the perceived affect the factors had on relationships with 4-H youth development personnel were investigated guided by the modified team performance and training framework (Cannon-Bowers, Tannenbaum, Salas, & Volpe, 1995). Mean weighted discrepancy scores were calculated to determine the levels of deficiencies between the perceived and desired levels of cooperative activities, as perceived by secondary agriculture teachers. Results indicated that interorganizational behavior was desirable to secondary agriculture teachers. Despite their desire to cooperate, their perceived level of cooperation was much lower than that of their desired level.

Introduction

An effective team possesses members who are interdependent in their pursuit of common goals and tasks; hence, the reason teams usually accomplish more than the sum of individual efforts of members working independently (Bass, 2008). Teams composed of organizations benefit in a similar fashion, given that the members in both organizations share similar goals and tasks (Johnson & Johnson, 2009). Effective organizations must serve the interests of their constituents and stakeholders from whom they draw their charter and resources; if organizations do not, they will suffer from a loss of resources and support (Tjosvold, 1990). Secondary agricultural education programs and the Cooperative Extension Service – 4-H programs are an example of organizations who draw their charters from similar roots. The Smith-Lever Act of 1914 and the Smith-Hughes Act of 1917 were each national initiatives that addressed the need for educating rural people in agriculture (Lemons, 1958). Education in the community and the school are closely related (Hamlin, 1949); the school cooperates with the agencies of the community, but remains a separate organization. Because similarities exist between each organization's role "in providing knowledge, skills, and competencies that relate to agriculture" (Schroeder & Moss, 1984, p. 4), these educational organizations are best positioned to address this need.

The policies and goals of secondary agricultural education programs and the Extension service are similar; however, the organizations have historically encountered challenges in cooperating with one another. To be effective, organizations must be mindful of their goal and cooperate to accomplish the goal. Without a goal, outcome, or reward, interdependence is unlikely; thereby diminishing any reason to cooperate (Johnson & Johnson, 2009). One of the most productive tools humans possess is the ability to join together to accomplish a single goal (Johnson & Johnson).

Previous attempts to develop memoranda of understanding between secondary agricultural education programs and the Extension service may be viewed as goals of cooperation; however, on the state and national levels, these efforts were not successful (Hamlin, 1949). In a report on the nature of memoranda of understanding between Extension services and State Departments of Vocational Education, Rogers (as cited in Lemons, 1958; Omar, 1963) noted the existence of 17 memoranda. Most formal agreements and understandings have outlined what individual states determined to be appropriate responsibilities of agriculture teachers and Extension personnel. Furthermore, many state-developed agreements have determined youth eligibility for membership in 4-H and FFA and restrictions limiting or allowing membership in both educational organizations.

Theoretical Framework

One specific theoretical framework pertaining to cooperation by secondary agriculture teachers does not exist; thus, this study was guided by the modified team performance and training framework developed by Cannon-Bowers, Tannenbaum, Salas, & Volpe, 1995. "A team is a set of interpersonal interactions structured to achieve established goals" (Johnson & Johnson, 2009, p. 526). Arguably, because of the similar roots and shared educational and outreach initiatives, secondary agriculture teachers and 4-H youth development personnel can be viewed as members of the same team. In an effort to determine potential team training requirements needed to facilitate cooperation between secondary agriculture teachers and 4-H youth development personnel, this particular framework was deemed appropriate.

The modified team performance and training framework (Figure 1) is based upon the premise that in order to establish appropriate training procedures, one must first identify the team's task and work characteristics, and determine competency requirements (Cannon-Bowers, et al., 1995). Johnston, Smith-Jentsch, and Cannon-Bowers (1997) proposed that in order to improve the effectiveness of an organization, collecting outcome data alone is not adequate; identifying unique situational conditions is also necessary. Moreover, "…the goal should not be to train people to make the right decision in a given scenario, but to learn to make the right decision" (p. 313).

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┌─────────────────────────────────────────────────────────────────┐
│           Organizational and Situational Characteristics          │
└─────────────────────────────────────────────────────────────────┘
         │                        │                        │
         ▼                        ▼                        ▼
┌──────────────┐        ┌──────────────┐        ┌──────────────┐
│ Task and Work│        │     Team     │        │Team Training │
│Characteristics│──────▶│  Competency  │──────▶│ Requirements │
│              │        │ Requirements │        │ and Strategies│
└──────────────┘        └──────────────┘        └──────────────┘
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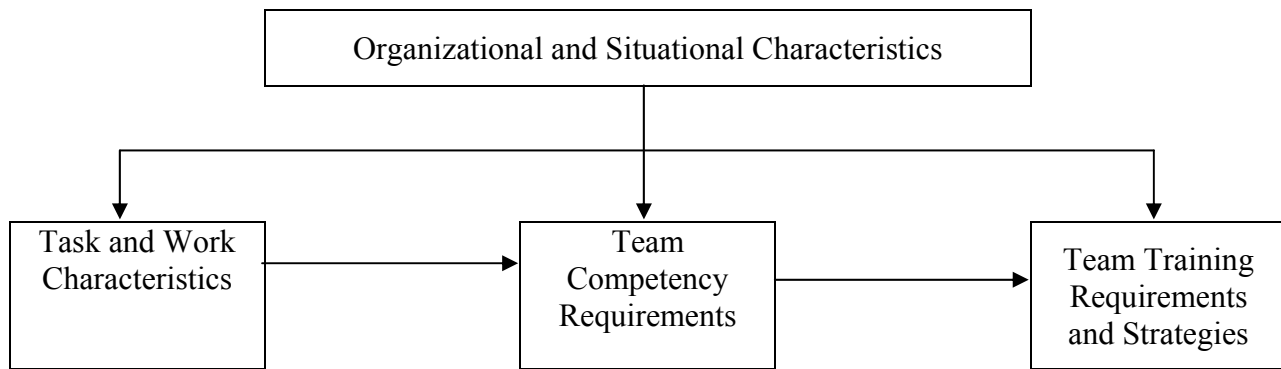
Figure 1. Relationships Among Organizational and Situational Characteristics, Task Characteristics, Team Competency Requirements, and Team Training Requirements and Strategies (Cannon-Bowers, Tannenbaum, Salas, & Volpe, 1995)

Specifically, the fore mentioned framework consists of four primary components. *Organizational and situational characteristics*, which encompass reward structures, supervisory control, environmental uncertainty, and available resources, are known to have an impact on how teams function and perform (Cannon-Bowers, et al., 1995). *Task and work characteristics,* which can be further defined as how team tasks and work are structured and organized, help determine the team competencies required for team performance (Cannon-Bowers, et al.). The *team competency requirements* component of the model addresses the teamwork skills, team-relevant knowledge, and team attitudes (Cannon-Bowers, et al.). Ultimately, if members of a team have the appropriate team competency requirements for the context or setting, increased performance and effectiveness will result (Cannon-Bowers, et al.). If not, the final component of the model, *team training requirements and strategies,* becomes increasingly important as additional training based on the team competencies needed is required for success (Cannon-Bowers, et al.).

As a component of a larger study, this study sought to identify secondary agriculture teacher's team competency toward cooperating with 4-H youth development personnel. As a result of the findings from this study, potential recommendations for training and professional development for both groups may provide for more effective teamwork and collaboration.

Related Research

Lemons (1958) conducted a study in Tennessee that investigated perceptions of cooperation between vocational agriculture teachers and county agents. Lemons noted that a majority of vocational agriculture teachers and county agents perceived their working relationships with their respective counterpart as good or excellent. In Louisiana, Buddle (1981) conducted a study of cooperative relationships between county Extension agents and teachers of vocational agriculture. Buddle noted that similarity or differences in their programs, as well as initiative in contacting one another were among the most important influential factors to cooperation. In a study of agriculture teachers and Extension agents in North Carolina, Schroeder and Moss (1984) investigated factors and activities that influence cooperative relationships. No single factor was reported to have had a hindering affect on cooperation; however, differences existed between perceived appropriateness and actual occurrence of cooperative activities. Diatta and Luft (1986) reported nearly opposite findings in their study of secondary vocational agriculture teachers and

county agents in South Dakota. Diatta and Luft investigated many of the same factors as Schroeder and Moss, but reported most of them as having at least some positive influence on cooperative relationships.

Several studies were conducted regarding cooperation between secondary agricultural educators and Extension agents in Florida (Grage, Ricketts, & Place, 2002; Grage, Place, & Ricketts, 2004; Ricketts & Place, 2005). In their qualitative study, Grage et al. (2002) noted that effective collaborative relationships were occurring, which allowed secondary agricultural educators and Extension faculty to accomplish essential outcomes. They further noted that when secondary agricultural educators and Extension faculty relied on one another's strengths, their effectiveness and efficiency increased. Grage, et al. (2004) also noted that secondary agriculture teachers iterated the importance of a good working relationship with Extension agents. Additionally, Ricketts and Place noted aspects such as mutual respect toward one another and communication efforts as having a positive influence on cooperative relationships.

Possible barriers to cooperative relationships were noted by Bruce and Ricketts (2007) in their study in Pennsylvania. Barriers such as time constraints, programmatic differences, and inequitable resources were identified. Grage, et al. (2002) suggested that imperfect relationships, insufficient awareness of each other's profession, and participant biases regarding cooperation were among barriers hindering cooperation. Grage, et al. (2002) identified competition as having positive and negative aspects when present in a cooperative relationship. Grage et al. (2002) further noted that competition was an influential factor on the cooperative relationships of the agricultural educators and Extension faculty members in Florida. Similar findings were iterated by Grage, et al. (2004), as well as Ricketts and Place who additionally noted the importance of the two organizations sharing resources and having open communication.

Purpose and Research Objectives

Each of the previously noted studies reported specific activities or factors that contributed to or hindered cooperative relationships, as was the case with findings of other previous studies reviewed (Bryant, 1965; Cardenas & McComas, 1963; Horne, 1940; Jefferies, 1949; Rutherford, 1929; Smith, 1966). Although the number of studies conducted on cooperative relationships between secondary agriculture teachers and 4-H youth development personnel were numerous, disagreement existed regarding what influenced the level and extent of cooperative behavior. Additionally, the numerous attempts at forcing cooperation made by state and Federal governments, mostly by way of legislation, formal agreements, and memoranda has proven to be less than effective (Lemons, 1958; Omar, 1963; Smith, 1966). The mere existence of the numerous cooperative agreements and memoranda would indicate that individual states and the federal government have acknowledged that cooperation between secondary agriculture teachers and 4-H youth development personnel is important and must be clarified. Thus, the purpose of this study sought to explore the cooperative nature between secondary agriculture teachers and 4-H youth development personnel, as perceived by secondary agriculture teachers. The following research objectives guided the study:

1. Describe the factors that secondary agriculture teachers perceived as being important toward cooperative relationships with 4-H youth development personnel and the perceived influence on cooperative relationships.
2. Describe and prioritize the perceived and desired levels of participation on cooperative activities.
3. Describe and prioritize the perceived levels of importance regarding activities/factors that influence cooperative behaviors.

Procedures

The population for this non-experimental quantitative study was secondary agriculture teachers in Missouri during the spring of 2008. The *2007-2008 Missouri Agricultural Education Directory*, included a total of 414 secondary agriculture teachers. Given the size of the population, Krejcie and Morgan (1970) identified the required sample size of 210 as to represent the population acknowledging a +/- 5 percent margin of error. Consequently, a simple random sample of 210 teachers was identified.

The data collection instruments developed by Omar (1963), Smith (1966), and Schroeder and Moss (1984) were consulted during the development of the five-sectioned instrument used in this study. Three sections were used to address the research objectives. The first section consisted of a double-matrix containing 12 statements representing a sampling of youth development activities. The nature of the double-matrix allowed subjects to respond to each statement twice; regarding the perceived current frequency and desired frequency of the activity. Both scales utilized the following scale anchors: 1 = *Never*, 2 = *Rarely*, 3 = *Occasionally*, 4 = *Frequently*, 5 = *Always*. The second section consisted of a double-matrix containing seven statements representing a sampling of factors related to professional relationships between secondary agriculture teachers and 4-H youth development personnel. The double-matrix allowed subjects to respond to each statement twice; first regarding the perceived importance of factors to each subject (1 = *Not*, 3 = *Some*, 5 = *Very Much*), and secondly, the perceived effect that the factor had on the subjects' relationship with secondary agriculture teachers (1 = *Very Negative*, 2 = *Slightly Negative*, 3 = *Neutral*, 4 = *Slightly Positive*, 5 = *Very Positive*). Section three also used a double-matrix which consisted of 13 statements that sought to determine the perceived influence that each activity or factor had on the level of cooperation. Each subject was asked to indicate the perceived level of *what is* and *what should be* to how each activity or factor influences their professional relationship with 4-H youth development personnel using a five-point Likert-type scale (1 = *Not important*, 3 = *Neutral*, 5 = *Very Important*).

A mixed-mode design, as referenced by Dillman (2007), was implemented. Subjects were first provided with a mail questionnaire, followed by an electronic questionnaire in the sequence order suggested by Converse, Wolfe, Huang, and Oswald (2008). Providing subjects with the option of choosing which mode of responding was shown to have little effect on the response rate (Converse, et al., 2008). Therefore, all correspondence, with the exception of the cover letter in the first mail questionnaire packet, included both response options.

Content and face validity of the data collection instrument were determined by a panel of eight experts; whom were either faculty members from the University of Missouri, Department of

Agricultural Education or the University of Missouri Extension Service. Unimode construction principles (Dillman, 2007) were followed when creating the electronic version of the questionnaire to reduce the possibility of inconsistencies in responses due to the mixed-mode data collection approach. The electronic version of the questionnaire was created and distributed to the same panel of experts using Hosted Survey™ to reassess face validity of the instrument in its electronic form.

A pilot test was implemented to estimate the reliability of the instrument using individuals with similar characteristics of the secondary agriculture teachers in the sample; in this case, 100 of the secondary agriculture teachers not selected to comprise the sample (n = 210). The electronic version of the questionnaire was distributed via e-mail to each of the secondary agriculture teachers in the pilot test sample using Hosted Survey™. Response data were downloaded from Hosted Survey™, then imported into SPSS® to calculate Cronbach's alpha coefficients for the subscales (importance, influence, perceived, desired, what is, what should be). The resulting coefficients ranged from 0.83 to 0.93 ($n = 42$).

Dillman's (2007) data collection protocol was followed for this study; however, the communication medium suggested by Converse et al. (2008) deviated from the methods described by Dillman. The primarily difference was in the medium used to correspond with and provide questionnaires to respondents and nonrespondents. The first mail questionnaire packet included one cover letter, one paper questionnaire with a $1 incentive attached to the cover of the booklet-type paper questionnaire, and one preaddressed envelope with a first-class stamp pre-applied to the envelope. An e-mail reminder was sent to all secondary agriculture teachers who had not yet responded, six days after the first mail-questionnaire packets were mailed. An additional complete e-mail message containing a link to the web-based electronic questionnaire was sent to nonrespondents six days after the previous reminder message. A response rate of 65% ($n = 136$) was obtained.

Procedures for handling non-response error were followed as outlined in Miller and Smith (1983). A list of nonrespondents was compiled and a simple random sample of 25% ($n = 20$) was selected from the list to receive an additional mailed questionnaire packet. The content, format, and construction of the paper questionnaire were unaltered; however, an incentive was not included in the second packet. Respondent and nonrespondent data were compared using an independent samples t-test to compare the variables of interest: perceived participation in activities, desired participation in activities, perceived importance of activity/factor items, and desired importance of activity/factor items. No significant differences ($p > .05$) were found between respondent and nonrespondent data; therefore, the nonrespondent data were pooled with respondent data, yielding a final response rate of 69% ($n = 143$).

Respondent data from each paper questionnaire were manually entered into a Microsoft Excel spreadsheet, whereas, respondent data from each electronic questionnaire were downloaded from the Hosted Survey™ website in a .txt form document, then imported into a Microsoft Excel spreadsheet. Data were analyzed using SPSS® version 15.0 for Windows™ platform computers.

In an effort to determine where discrepancies existed for objectives two and three, two ratings had to be taken into account simultaneously; hence, the Borich (1980) needs assessment model was utilized to determine the discrepancy for each cooperative activity. A discrepancy score

was determined by taking the desired level of participation in cooperative activities (*what should be*) minus the perceived level of participation in cooperative activities (*what is*) for each respondent on each activity. A weighted discrepancy score was then calculated by multiplying each discrepancy score by the associated mean desired level of participation in cooperative activities rating of the activity. Lastly, a mean weighted discrepancy score (MWDS) was calculated by taking the sum of the weighted discrepancy scores for each activity and dividing it by the number of respondents in each group.

Findings

Research objective one sought to determine factors that secondary agriculture teachers perceived as being important toward cooperative relationships and the perceived influence on cooperative relationships. Secondary agriculture teachers were asked how important each factor was and what influence they perceived each factor to have on his/her professional relationship. Mode was used as a more conservative descriptor of central tendency to order the factors as perceived by secondary agriculture teachers which are summarized in Table 1. Secondary agriculture teachers indicated *mutual respect of efforts* was most important (M = 4.33; SD = 0.84) and had a *very positive influence* (M = 4.10; SD = 1.01) on their cooperative relationship with 4-H youth development personnel. Conversely, *belief that 4-H and FFA are always in competition with one another* was not at all important (M = 1.89; SD = 1.01) and had a *slightly negative* influence (M = 2.51; SD = 1.04) on secondary agriculture teachers' cooperative relationship with 4-H youth development personnel.

Table 1
Secondary Agriculture Teacher's Perceived Importance and Influence of Factors of Cooperation (n = 140)

Factor	Importance			Influence		
	M	SD	Mode	M	SD	Mode
Mutual respect of efforts	4.33	0.84	5	4.10	1.01	5
Personality of the Extension faculty or staff member	4.03	1.01	5	3.72	1.14	5
Success of the Extension faculty or staff member	3.52	1.08	3	3.64	0.91	4
Frequency of interaction	3.31	0.91	3	3.57	0.92	3
Views passed down from county or state administrators	3.08	1.01	3	3.23	0.80	3
Similarity of age	2.11	1.09	1	3.14	0.64	3
Belief that 4-H and FFA are always in competition with one another	1.89	1.01	1	2.51	1.04	3

Note. Importance Scale: 1 = Not at All Important; 3 = Some; 5 = Very Much Important. Influence Scale: 1 = Very Negative; 2 = Slightly Negative; 3 = Neutral; 4 = Slightly Positive; 5 = Very Positive

Research objective two sought to determine and prioritize the perceived and desired levels of participation on cooperative activities. Differences of perceived and desired levels of secondary

agriculture teachers' participation in 12 cooperative activities are summarized in Table 2 and ordered by priority level based on the MWDS for each item. Mode was included for each item as a secondary and more conservative indicator of central tendency. More than 75% of the activities were identified as rarely or never occurring, based on the mode score. *Share responsibility for publicity concerning educational programs in agriculture in the county* (*M* = 2.35; *SD* = 1.24), *coordinate efforts toward similar goals related to youth* (*M* = 2.74; *SD* = 1.25), and *exchange or forward e-mail messages which might be beneficial to the other's program* (*M* = 2.62; *SD* = 1.27), were the only activities perceived as occurring occasionally. Despite most of the activities rarely or never occurring, secondary agriculture teachers indicated that they desired to frequently participate in more than 75% of the activities.

Table 2
Secondary Agriculture Teacher's Difference of Perceived and Desired Level of Participation in Activities (n = 140*)*

Category	Activity	MWDS	What Is			What Should Be		
			M	*SD*	Mode	*M*	*SD*	Mode
I	Discuss advancements in instructional materials available for teaching educational programs in agriculture	5.03	2.01	1.10	1	3.50	0.88	4
	Serve as consultants to each other's advisory committee	4.82	1.96	1.19	1	3.45	0.98	4
	Coordinate efforts for training similar competitive teams	4.49	2.07	1.20	1	3.51	0.92	4
II	Share responsibility for publicity concerning educational programs in agriculture in the county	4.45	2.35	1.24	3	3.64	0.73	4
	Conduct joint demonstrations, workshops, or county field days	4.45	2.18	1.09	2	3.44	0.80	3
	Identify common educational objectives of Extension and high school agriculture programs	4.42	2.16	1.06	2	3.41	0.80	3
	Coordinate efforts toward similar goals related to youth	4.22	2.74	1.25	3	3.86	0.77	4
	Consult each other's special abilities and knowledge in problem situations	4.13	2.60	1.25	1	3.71	0.80	4
	Discuss community needs pertaining to agriculture	3.84	2.44	1.10	2	3.60	0.67	4
III	Discuss space and facilities available for conducting education programs in agriculture	3.78	2.11	1.12	1	3.31	0.91	3
	Exchange or forward e-mail messages which might be beneficial to the other's program	3.58	2.62	1.27	3	3.67	0.83	4
	Discuss fundraising activities	3.21	1.53	0.85	1	2.53	1.08	3

Note. Perceived and Desired Scale: 1 = Never; 2 = Rarely; 3 = Occasionally; 4 = Frequently; 5 = Always

To prioritize the activities in need of attention, categories were determined for secondary agriculture teachers by observed natural breaks in the MWDS of activity items. Category I consisted of three activity items considered to be a high priority. Category II consisted of six activity items considered to be of moderate priority. Category III consisted of three activity items considered to be of low priority. Items determined to need the most attention based on MWDS were *discuss advancements in instructional materials available for teaching educational programs in agriculture* (MWDS = 5.03), *serve as consultants to each other's advisory committee* (MWDS = 4.82), and *coordinate efforts for training similar competitive teams* (MWDS = 4.49). *Discuss space and facilities available for conducting education programs in agriculture* (MWDS = 3.78), *exchange or forward e-mail messages which might be beneficial to the other's program* (MWDS = 3.58), and *discussing fundraising activities* (MWDS = 3.21), were among the lowest MWDS.

Research objective three sought to describe and prioritize the perceived levels of importance regarding activities/factors that influence cooperative behaviors. Activity/factor items were analyzed to determine the differences of *what is* and *what should be* and were ordered by priority level (see Table 3) based on the MWDS for each item. The mean score for *what should be* was higher than *what is* for 12 of the 13 activity/factor items. Additionally, secondary agriculture teachers perceived (*what is*) for all activity/factor items as less than very important, based on mean scores.

Table 3
Secondary Agriculture Teacher's Difference of Perceived "What Is" and "What Should Be" Regarding the Importance of Activities/Factors (n = 140)

Category	Activity	MWDS	What Is			What Should Be		
			M	*SD*	Mode	*M*	*SD*	Mode
I	Coordination of efforts for training similar competitive teams (i.e. livestock judging)	4.38	2.56	1.20	3	3.72	0.93	4
	Consulting each other's knowledge or special abilities in problem situations	4.31	2.94	1.21	3	4.02	0.70	4
II	Plan events so that they are not in competition with one another	3.63	3.01	1.31	3	3.92	1.01	4
	Having the Extension agent be a guest presenter in a class or at an FFA meeting	3.53	2.74	1.15	3	3.69	0.82	4
	Initiative in contacting one another	3.46	2.94	1.20	3	3.84	0.88	4
	Willingness to serve a portion or all of the county	3.02	3.24	1.19	3	3.98	0.87	4
	Similarity in program goals	2.98	2.88	1.07	3	3.69	0.86	3
	Compatibility of personality	1.72	3.17	1.09	3	3.66	0.97	4
III	Degree of personal friendship	0.98	2.83	1.15	3	3.14	1.12	3
	Differences of program structure (4-H & FFA)	0.73	2.59	1.04	3	2.86	1.09	3
	Tenure at present location	0.21	2.36	1.12	3	2.46	1.15	3
	Variation in total years experience	0.15	2.34	0.99	3	2.41	1.05	3
IV	Similarity or difference in our age	-0.02	2.18	1.12	3	2.17	1.11	3

Note. What Is and What Should Be Scale: 1 = Not at All Important; 3 = Some; 5 = Very Much Important

Four priority levels were determined by observed natural breaks in the items' MWDS to prioritize the activities and factors in need of attention (see Table 3). Two activity/factor items, considered to be high priority items, comprised Category I. Category II consisted of six activity/factor items considered to be moderate priority items. Category III consisted of four activity/factor items which were considered to be low priority items. Category IV, negligible, consisted of one activity/factor item *similarity or difference in our age* (MWSD = -0.02). *Coordination of efforts for training similar competitive teams (i.e. livestock judging)* (MWDS = 4.38)*,* and *consulting each other's knowledge or special abilities in problem situations* (MWDS = 4.31) were the items identified as needing the most improvement based on MWDS. *Similarity or difference in our age* (MWDS = -0.02) was considered a negative discrepancy which would indicate that the level of *what is* was low and the level of *what should be* was lower.

Conclusions/Implications/Recommendations

The first research objective sought to determine factors that secondary agriculture teachers perceived as being important toward cooperative relationships and the perceived influence on cooperative relationships with Extension personnel. Secondary agriculture teachers' cooperative relationships are most influenced by a *mutual respect of efforts* and the *personality of the Extension faculty or staff member* with whom they are interacting. These findings support those of Grage, et al. (2002) who suggested agricultural educators and Extension faculty desired cooperative interdisciplinary relationships, emphasizing mutual respect and communication. Successful cooperation in agricultural activities depends largely on the attitude and reaction of the personnel involved (Ball, 1938). Although secondary agriculture teachers are not necessarily able to change the personality of 4-H youth development personnel, they can attempt to establish mutual respect with and for their counterparts. Deutsch (2003) noted that "…helping people to develop a respect for themselves and their interests enables them to see their conflicts in a reasonable proportion and facilitates their constructive confrontation" (p. 27). The question remains, who will have to give respect first in order for the other group to reciprocate, in an effort to eventually establish mutual respect? Further study may be justified to determine how to best establish a mutually respectful relationship between secondary agriculture teachers and 4-H youth development personnel.

Secondary agriculture teachers perceived *frequency of interaction* as having little or no influence and only some importance on their cooperative relationships. For cooperation to be successful, ongoing and frequent interaction of the parties expecting to cooperate must occur (Axelrod 1984, 1997). A key element of a successful cooperative relationship could be found in the phrase "you scratch my back, I'll scratch yours" (Barash, 2003, p. 107). How can "back scratching" occur if only one neither group is present to scratch?

The second research objective sought to determine and prioritize the perceived and desired levels of participation on cooperative activities. The three highest priority items, *discussing instructional materials*, *serving on each other's advisory committee*, and *coordinating efforts for training similar competitive teams,* could potentially be resolved through increased communication. Roberts and Dyer (2004) suggested that among other qualities an effective agricultural teacher communicates well with others, is passionate for their subject matter, and effectively plans for instruction. Miller, Kahler, & Rheault (1989) suggested that an effective

agricultural educator will develop course activities which reflect life-like situations, engage in positive interpersonal relationships, uphold professional responsibilities, and promotes positive interaction. The qualities of an effective agricultural educator suggested by Roberts and Dyer (2004) and Miller, Kahler, & Rheault (1989) would address the three highest priority items. Could deficiencies be linked to the secondary agriculture teachers' perception that frequency of interaction had little or no influence and only some importance to cooperative relationships? These findings varied from those of Schroeder and Moss (1984) which would indicate that further research should be conducted to determine if there is any correlation between the highest deficiencies and the perceived importance of communication and interaction.

An additional theme present across the four activities with the highest MWDS was coordination. Coordination is an important part of cooperation, but in order for coordination to be effective; all members must be prepared and willing to do their part (Komives, Lucas, & McMahon, 2007). Furthermore, cooperation is difficult or impossible without a common goal (Johnson & Johnson, 2009) which hinges on establishing open communication channels, further requiring contact and frequent interaction.

The third research objective sought to determine and prioritize the perceived levels of importance regarding activities/factors that influence cooperative behaviors. Secondary agriculture teachers perceived activity/factor items as having neutral to no importance; however, they indicated that 12 of 13 activity/factor items should be more important than what they are, with the exception of *discuss fundraising activities*. The indication that little importance is placed on cooperative activities/factors may lead one to question if secondary agriculture teachers and 4-H youth development personnel are making an honest effort to cooperate.

Items noting *coordinating efforts for training similar competitive teams* and *conducting joint demonstrations, workshops, or county field days,* were the areas requiring the greatest amount of attention. Both are related to youth development activities; more specifically activities related to 4-H and FFA. These observations further support Grage, et al. (2004), Ricketts and Place (2005), and Bruce and Ricketts (2007) who noted the importance sharing resources and open communication.

Secondary agriculture teachers in many cases recognized differences between *what is* and *what should be*. The highest MWDS were related to integrating resources of 4-H youth development personnel with those of secondary agricultural educators. Inequitable resources were noted by Bruce and Ricketts (2007) as possible barriers to cooperation. Although a desire to increase the importance of interaction between 4-H youth development personnel and secondary agriculture teachers is evident, barriers exist that are preventing secondary agriculture teachers increasing their interaction. As Bruce and Ricketts suggested, barriers must be overcome in the interest of efficiency which will eventually yield a reward such as a reduced work load or time saved for all of those who are involved. A suggestion offered by Cannon-Bowers, Tannenbaum, Salas, and Volpe (1995) was to develop shared situational awareness, or a common understanding of the situation. This could be accomplished by a joint advisory committee as suggested by Stimson (1920). He suggested that conferences or committees were necessary to coordinate efforts of the federally funded agencies providing agricultural education in order to avoid overlapping and overlooking. "Good teamwork could hardly be expected in the absence of such conferences"

(Stimson, p. 359). Following the spirit of Stimson's suggestions, a professional development conference should be organized by the Missouri Department of Elementary and Secondary Education and University of Missouri Extension administration, to be held annually.

A negative MWDS may seem counterintuitive; however, if one were to consider the item *similarity or difference in our age* (MWSD = -0.02), the negative score would indicate that secondary agriculture teachers realized that the age of their counterpart should be less important than what it was. Arguably, the influence of factors that possess a negative connotation could be reduced with the appropriate undergraduate and in-service training.

All Category I (high discrepancy) items were related to coordination and consultation, both of which require communication. In order for cooperation between secondary agriculture teachers and 4-H youth development personnel to be successful, the members of both organizations will have to be persistent in their efforts toward open communication and frequent interaction. Items with the highest discrepancy scores were also closely related to the youth development aspects of the secondary agriculture teachers' profession rather than the semantics of program structures and the compatibility of attitudes.

Integrating resources available in the community, such as farms, greenhouses, and agriculture-related businesses, to supplement the curriculum and use as potential laboratories (Bender, et al., 1972) would seem intuitive to professions operating under budgetary restraints. Because administrators must frequently be mindful of budgetary items, they should consider the efficiency that interorganizational cooperation offers their organization, such as saved time and reduced workload (Bruce & Ricketts, 2007). The premise that cooperation is efficient is further substantiated by Johnson and Johnson (2009) who noted that the most productive group is the one that cooperates. Furthermore, administrators of both organizations have access to list serves for their respective professions. It may be appropriate for state administrators to distribute mutually beneficial information through the channels of the list serves, which may further inform secondary agriculture teachers of the opportunities to cooperate with 4-H youth development personnel.

Deutsch (2000) characterized two types of actions by individuals: "effective actions" and "bungling actions." Deutsch suggested that effective actions will improve the chances of the entity attempting to reach a goal, while bungling actions hinder the chances of an entity in attaining their goal. Despite their desire for a cooperative relationship with 4-H youth development personnel, secondary agriculture teachers may need to transition from a bungling action to effective action in order to more effectively reach their goals.

All of the fore mentioned recommendations require administrators to invest time and effort in facilitating change that will promote cooperation between the organizations. To establish effective cooperation, state administrators must be mindful that change will require both organizations to frequently reevaluate their joint goals to determine where adjustments are needed. Arguably, this may only occur if the team members concentrate their focus on the performance of the interorganizational team toward accomplishing a shared set of goals, rather than the independent shortfalls of the individuals within the organizations (Bass, 2008).

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Predicting Students' Choice to Teach Secondary Agricultural Education

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Abstract

The purpose of this study was to explain and predict the factors that influence senior-level agricultural education students' choice to become a secondary agriculture teacher. The study focused on the extent to which beliefs and attitude toward teaching influenced students' intent to select teaching secondary agricultural education as a career. An adaptation of the FIT-Choice® Scale instrument was distributed to senior-level students enrolled at institutions with teacher development programs to certify secondary agriculture teachers within nine states. A total of 145 students completed the instrument. Overall, students' characteristics of sex, perceived agriculture experience compared to their peers, years enrolled in school-based agricultural education courses, years of FFA membership, participation in SAE, and years of 4-H membership were not significant predictors of students' intent to teach. However, two beliefs about teaching sub-constructs ("teacher morale" and "expert career") were found to be significant predictors of students' intent to teach. Similarly, four attitude toward teaching sub-constructs ("fallback career," "working with adolescents," "intrinsic career value" and "job security") were significant predictors of students' intent to teach. Eight percent of students' intent to teach can be accounted for by attitude when controlling for beliefs.

Introduction

The shortage of secondary agricultural education teachers is a prevalent occurrence that has been documented as early as 1921 (Camp, 2000). Parmley, Bowen, and Warmbrod (1979) concluded that the teacher shortage problems in agricultural education that were reported from previous national supply and demand studies did not result from a shortfall in the number of graduates, rather from the low percentage of graduates who chose teaching as upon graduation. Currently, the supply and demand study from agricultural education graduates in 2006 reported that 53 percent of graduates will accept positions teaching secondary agricultural education in the fall of 2007 (Kantrovich, 2007), which supports the tendency of graduates that Parmley et al. found over 25 years ago. Furthermore, Kantrovich stated that teacher shortage epidemic has potential to reach sweeping proportions if teacher preparation programs are unable to recruit and retain additional students into agricultural education. In order to improve recruitment efforts, it is critical to target the range of motivations, including altruistic, intrinsic and extrinsic motivators, which attract people to the teaching profession in the first place (Richardson & Watt, 2006).

The core issue to filling new and vacant teaching positions is supplying an adequate number of graduates to fill those positions. This is encouraging as it seems that the number of available graduates in agricultural education exceeds the number of new and vacant positions. Kantrovich (2007) reported 785 new graduates and 652 positions available in 2006. Yet, due to the matriculation of graduates into careers other that teaching, a significant number of positions will go unfilled each year. This is problematic as those unfilled positions either are left unfilled for the

year or programs are closed entirely. In the 2006 National Supply and Demand study 401 positions of the 652 positions were filled leaving 251positions unfilled (Kantrovich). This occurrence will force school administrators to hire uncertified or alternatively certified teachers, leave the position vacant, or worse close the program (Roberts & Dyer, 2004). Perhaps even more distressing is that agricultural education has not experienced a single year since 1965 in which all teaching positions have been filled (Kantrovich).

Each year, students enroll in agricultural education as a major course of study at higher education institutions across the United States. Reasons for majoring in agricultural education, as identified by Hillison, Camp and Burke (1986), were the flexibility of the program that allows majors to enter jobs other than teaching. Inspiration from local agriculture teachers also influence students choice of career path (Park & Rudd, 2005) Additionally, it has been noted that students are drawn to teaching because intrinsic motives such as having the opportunity to serve others, touch people's lives and feeling like they had a "calling" to the profession (Harms & Knobloch, 2001). Extrinsic motives identified by Harms and Knobloch included salary and benefits, balance between career and personal time and opportunities for advancement and personal growth. Seng Yong (1995) further identified that people are likely attracted to teaching because of the altruistic, intrinsic and extrinsic motives. To improve recruitment and retention efforts, tapping into this motivation is important when working with pre-service teachers and when assisting them with their career choices.

Identifying and recruiting teachers to the profession has been an ongoing concern for more than two decades (Wright & Custer, 1998). An additional concern raised by Harms and Knobloch (2005) is that pre-service agricultural education teachers are likely to be sought after by non-profit and industry because of their caring and competent qualities. Today's teacher candidates have multiple career options that offer attractive features (Peske, Liu, Johnson, Kauffman, & Kardos, 2001). Because of the excessive need for teachers Darling-Hammond and Sykes (2003) offer several strategies for recruiting teachers, including state-supported scholarships, recruiting minorities and experts in the field, offering better incentives, and improving licensing agreements. Given that, agricultural education continues to face recruitment issues and additional teacher recruitment practices are necessary to encourage students to choose a career in the profession.

Theoretical Framework

Fishbein and Ajzen (1975) provide the framework for which to better understand antecedents to behaviors. According to Fishbein and Ajzen, in general, an individual will hold a positive attitude toward a given behavior if he/she believes that the performance of the behavior will lead to mostly positive outcomes. Fishbein and Ajzen suggest that many researchers fail to distinguish between beliefs, attitudes and intentions and stated that behavior is a result of intentions. Intentions, then, are a function of one's attitude which are a result of one's beliefs or expectations that the behavior will lead to a particular outcome. Additionally, the Expectancy-Value theory is directly linked to Fishbein and Ajzen's theory with the core belief that behavior is a function of the expectancies an individual has and the value of the goal toward which the individual is working (Watt & Richardson, 2007). The Expectancy-Value theory is the overarching theory in which this study is based upon. Understanding students' motivations for choosing a teaching as a career has implications for teacher education, curriculum design, and recruitment.

The FIT-Choice framework provides a comprehensive model to guide systematic investigation into the question of why people choose teaching (Richardson & Watt, 2006). Richardson and Watt developed a FIT-Choice® framework model which organizes the themes from the teacher education literature and locate them within the Expectancy-Value framework to explain students' choices to teach. The FIT-Choice® model (see Figure 1) contains antecedent socialization influences, followed by more proximal influences of task perceptions, self perceptions, values, and fallback career. The task constructs include *expert career*, *high demand*, *social status, teacher morale* and *salary*. Similarly, *values* constructs contain first order component constructs. The values constructs in the model are *intrinsic career value, job security, time for family*, *job transferability, shape future of children/adolescents, enhance social equity, make social contribution, bludging,* and *work with children/adolescents*. These constructs ultimately lead to the choice to become a secondary agriculture teacher. The term bludging is an Australian expression meaning the laziest approach possible, in this study it is used only to identify a construct; it was not used in the instrument. The FIT-Choice® scale determines the strength of influence for a range of attitude, motivation and intent from individuals choosing teaching as a career, this framework, founded on the Expectancy-Value theory, provides a comprehensive model to guide systematic investigation into the question of why people choose teaching as a career (Richardson & Watt).
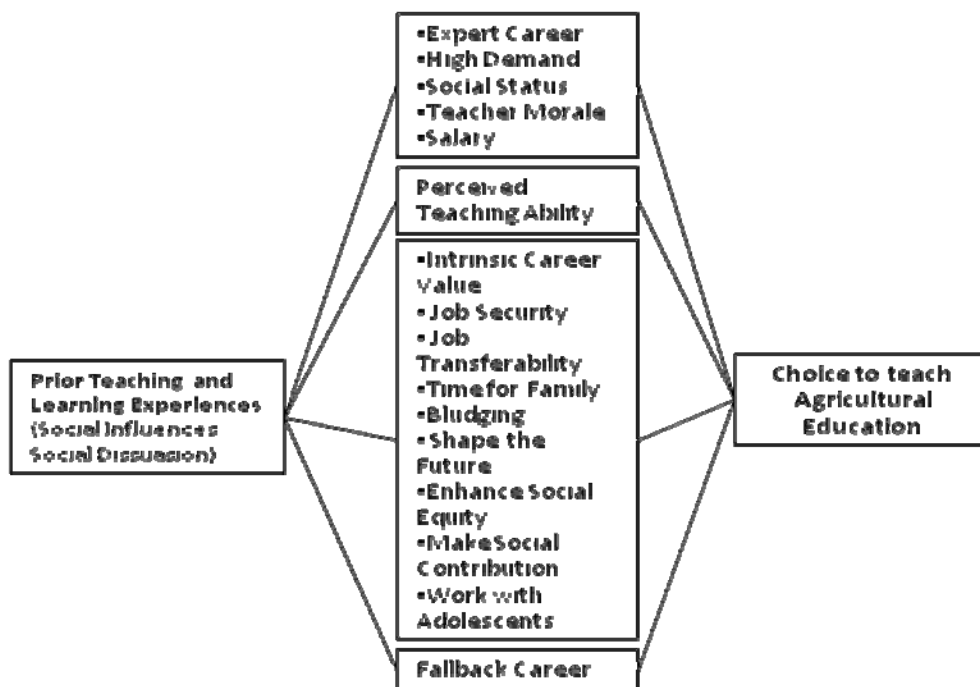

Figure 1. Ag Ed FIT-Choice Model, adapted from the FIT-Choice model by Watt & Richardson (2007).

Purpose and Research Objectives

The purpose of this study was to determine the factors that influence agricultural education students' choice to become secondary agriculture teachers. The following research objectives were developed to guide the study:

1. Describe characteristics of students majoring in agricultural education (sex, perceived agriculture experience compared to their peers, years enrolled in school-based agricultural education courses, years of FFA membership, participation in SAE, and years of 4-H membership).
2. Determine the amount of unique variance in intent to teach (satisfaction with choice) that can be accounted for by the students' demographic characteristics.
3. Predict students' intent to teach (satisfaction with choice) from the belief factors (expert career, high demand, social status, teacher morale, salary).
4. Predict students' intent to teach (satisfaction with choice) from the attitudinal factors education (ability, intrinsic career value, fallback career, job security, time for family, job transferability, shape the future of adolescents, enhance social equity, make social contribution, work with adolescents, prior teaching and learning experiences, social influences).
5. Determine the amount of unique variance in intent to teach (satisfaction with choice) that can be accounted for by the students' attitude where controlling for beliefs.

Methods/Procedures

This study utilized a nonexperimental descriptive-correlational research design method to meet the purpose and research objectives of the study. This type of research often uses questionnaires to gather information from groups of subjects (Ary, Jacobs, & Razavieh, 2002). The target population was senior-level agricultural education students enrolled in a teacher preparation program. Institutions with teacher preparation programs in Agricultural Education were selected from states contiguous to Missouri by reason of proximity, ease of contact, cost, and familiarity with the teacher education programs within each state. Twenty-six teacher education programs within Arkansas, Illinois, Iowa, Kansas, Kentucky, Missouri, Nebraska, Oklahoma, and Tennessee were initially identified from the American Association for Agricultural Education Directory (2007). Of the 26 teacher education programs within the nine-state area, 19 programs were included in the study. The 19 teacher education programs were selected based upon a single criterion established *a priori*. The selection criterion was access to senior-level level agricultural education majors who were to participate in student teaching during the fall of 2008 or spring of 2009. Because students in these programs tend to be defined cohort groups, arguably, cohorts for subsequent years are likely to represent similar dispositions. Oliver and Hinkle (1982) argued that defined student cohorts could be considered representative of future similarly defined cohorts. Consequently, this study is viewed as a time and place sample.

The data collection instrument was adapted from the FIT-Choice® Scale (Watt & Richardson, 2007). The FIT-Choice® Scale was developed to measure beliefs, attitude and intention of teacher candidates (Richardson & Watt, 2006). Dr. Helen Watt provided written permission allowing the FIT-Choice® to be utilized and adapted for this study. Section one of the instrument included 40 statements designed to collect data related to students' attitude toward becoming a secondary agricultural education teacher. These questions began with the stem "I want to become a high school agriculture teacher because," and included questions such as "I like teaching about agriculture," "it will allow me to shape children's values," and "I have had good teachers as role models." The questions are grouped into 13 sub-constructs to measure attitude

included "make a social contribution," "prior teaching and learning," "ability," "work with adolescents," "intrinsic career value," "job security," "enhance social equity," "shape the future," "social influence," "job transferability," "time for family," "fallback career," and "bludging." Section two of the instrument was designed to collect data related to students' beliefs about teaching. These 15 items began with the stem, "Compared with other professionals," and included questions such as "teaching agriculture is a highly skilled occupation" and "agriculture teachers are perceived as professionals." The questions are grouped into five sub-constructs that measured beliefs included "expert career," "social status," "teacher morale," "salary," and "high demand." Section three included six statements related to students' intent to teach and are measured by two sub-constructs, "satisfaction with choice" and "social dissuasion." For each item, students were asked to identify their level of agreement. The response scale was a five-point Likert scale with the following choices: 1 = definitely disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = definitely agree.

A panel of experts was utilized to review the instrument and address face, construct, and content validity. The panel consisted of seven university faculty members representing higher education intuitions from across the United States and Australia. A pilot study was conducted in September of 2008 with freshman level agricultural education students ($n = 29$) at the University of Missouri. This group of students was selected because of their similarity in teaching interests to that of the target population. As a result of the pilot test, modifications were made to the final instrument including clarification of questions and minor formatting. The pilot test also served to estimate the reliability for each construct where "shape the future of adolescents" was .90, "job security," "work with adolescents", and "social influence" was .86, "salary" was .84, "ability" and "enhance social equity" were .78, "prior teaching and learning" was .77, "intrinsic career value" was .76, "time for family" and "expert career" were .75, "make social contribution" and "satisfaction with choice" were .67, "high demand" was .65, "social status" and "social dissuasion" were .63, "fallback career" was .60 and "job transferability" was .52.

Data were collected using five points of contact. Agricultural education faculty members at the 19 institutions were contacted via email in early September of 2008 and asked to assist in the data collection process. Faculty members were asked to identify one primary faculty contact and the number of senior-level agricultural education students who would be able to participate. Once consent was obtained from the faculty members and students were identified, instructions for the study were sent via email. This pre-notice letter explained the purpose of the study, the process of completing the instrument, the responsibility of the faculty member, specified timeline and, IRB information. The second contact with the selected faculty members included a mailed packet of questionnaires, instructions and self addressed, stamped return envelope. The responsibility of the primary faculty contact was to distribute, collect, and return the questionnaires to the researcher. An email was sent two weeks later that contained information similar to the third contact and served as either a thank you or reminder for those who had not yet returned questionnaires. The fourth contact was made with institutions that were missing data via email to determine whether or not they needed additional time or additional copies of the questionnaires. Following responses from those institutions, a packet was mailed to the primary faculty contact that had either not yet begun the instrument or to those who requested additional copies. The final contact was made via email February 2, 2009. Results include a response rate of 93% as 18 of the 19 institutions that initially agreed to participate returned questionnaires for a total of 145 data points ($n = 145$). Data were analyzed using SPSS® 15.0 for Windows.

Results

Research objective one sought to analyze the characteristics (sex, perceived agriculture experience compared to their peers, years enrolled in school-based agricultural education courses, years of FFA membership, participation in SAE, and years of 4-H membership) of senior agricultural education students (see Table 1). The majority of respondents were female 77 (53.47%). In regards to perceived agriculture related experience compared to their peers 67 (47.53%) respondents identified themselves as having more agriculture experience when compared to their peers, 57 (39.58%) respondents identified themselves as having the same amount of agriculture experience and 20 (13.89%) respondents identified themselves as having less agriculture experience than their peers. More than 86% (125) of the respondents took one or more school-based agriculture classes while in high school. Those respondents reported a mean of 4.05 years of enrollment in secondary agricultural education (SD = .88). A majority of the respondents 127 (87.59%) had been members of the National FFA Organization. The mean number of years of membership in FFA for those respondents was 5.52 (SD = 1.91) years. Nearly four-fifths of the respondents 112 (78.32%) reported having a Supervised Agricultural Experience (SAE) project. The majority of the respondents 103 (71.74%) were members of the 4-H. The respondents who were members of the 4-H reported a mean of 7.27 (SD = 3.71) years of membership.

Table 1
Characteristics of Senior Level Agricultural Education Students (n = 145)

Characteristic	f	%	M	SD
Sex				
Female	77	53.47		
Male	67	46.53		
Agriculture Experience[a]				
More than Others	67	46.53		
Same as Others	57	39.58		
Less than Others	20	13.89		
Enrolled in School Based Agricultural Education				
Yes	125	86.21		
No	19	13.10		
Years of Enrollment			4.05	.88
FFA Membership				
Yes	127	87.59		
No	17	11.72		
Years of FFA Membership			5.52	1.91
Supervised Agricultural Experience Project				
Yes	112	78.32		
No	31	21.68		
4-Membership				
Yes	103	71.53		
No	41	28.47		
Years of 4-H Membership			7.27	3.71

[a]Perceived agriculture experience compared to their peers

Research objective two utilized stepwise multiple linear regression to identify predictors of students' intent to teach (satisfaction with choice) from the following antecedent variables: selected characteristics of sex, perceived agriculture experience compared to their peers, years enrolled in school-based agricultural education courses, years of FFA membership, participation in SAE, and years of 4-H membership. Intercorrelations were calculated to check for multicollinearity in the analyses. When inspecting the test for multicollinearity of bivariate correlations .80 was set *a priori* as the cutoff value for concern. According to Berry and Feldman (1991), bivariate correlations between independent variables yielding a .80 or higher were considered to display a high degree of multicollinearity. Multicollinearity was not a violation of the statistical assumptions. The analysis revealed that none of the selected student characteristics were significant ($p < .05$) predictors of students' intent to teach agriculture education.

Stepwise multiple linear regression was used to predict students' intent to teach from the sub-constructs of beliefs about teaching ("expert career," "high demand," "social status," "teacher morale," and "salary"). Multicollinearity was checked and satisfied the assumption of the test. Table 2 displays the regression model which depicts the sub-construct found to be significant predictors of beliefs about teaching. Eleven percent of students' intent to teach can be explained by the belief sub-constructs of "teacher morale" and "expert career" (Adjusted $R^2 = .11$; $F(df = 2,140) = 3.06$; $p < .05$).

Table 2
Stepwise Regression of Predictors of Intent to Teach from Beliefs about Teaching (n = 145)

Construct	R	R^2	b	β	t-value	p- value
	.34	.12				
Teacher Morale			.26	.24	2.99	.03*
Expert Career			.21	.20	2.40	.02*
(Constant)			2.48		5.83	.01*

Adjusted R^2=.11; $F(2,140) = 3.06$, *$p < .05$

Research objective four utilized stepwise multiple linear regression to predict the dependent variable, students' intent to teach ("satisfaction with choice") from the independent variables, sub-constructs of attitude toward teaching ("ability," "intrinsic career value," "fallback career," "job security", "time for family", "job transferability," "shape the future of adolescents," "enhance social equity," "make social contribution," "work with adolescents," 'prior teaching and learning experiences," and "social influences"). Multicollinearity was checked and satisfied the assumption of the test. Table 3 displays the regression model which depicts the four sub-constructs found to be significant predictors of students' attitude about teaching agriculture. Table 3 also highlights that 61% of students' intent to teach can be explained by the sub-constructs of "fallback career," "working with adolescents," "intrinsic career value," and "job security" (Adjusted R^2= .61; $F(4, 138) = 2.43$; $p < .05$).

Table 3
Stepwise Regression of Predictors of Intent to Teach from Attitude towards Teaching (n = 145)

Construct	R	R^2	b	β	t-value	p- value
	.79	.62				
Fallback career			-.33	-.38	-5.48	.01*
Work with Adolescents			.38	.32	5.60	.01*
Intrinsic Career Value			.29	.24	3.39	.01*
Job Security			.21	.17	3.10	.01*
(Constant)			1.42		2.70	.01*

Adjusted R^2= .61; $F(4.138)$ = 2.43, *p < .05

A hierarchical regression as used to determine the amount of unique variance in the students' intent to teach that can be accounted for by attitude toward teaching agricultural education when controlling for beliefs about teaching (see Table 4). Hierarchical regression is used when controlling for variables that are known to impact the dependent variable, this allows the researcher to identify the amount of unique variance accounted for by a particular independent variable of interest. The independent variable that is entered first is what the researcher wants to control for, in this case beliefs about teaching, then enter the next independent variable (attitude toward teaching) to find out what it contributes above and beyond the independent variable that first went in (Huck, 2008). Controlling for beliefs about teaching, students' attitude toward teaching uniquely explained eight percent of the variance in students' intent to teach ($F(2, 140)$ = 3.06; p < .05).

Table 4
Hierarchical Regression of Intent to Teach Controlling for Beliefs (n = 145)

Variable	R	R^2	R^2Change	b	β	t-value	p-value
Control Variable							
Beliefs	.31	.11	.11	.36	.19	2.23	.03*
Variable of Interest							
Attitude	.43	.18	.08	.76	.31	3.59	.01*
(Constant)				.30		.42	.67

Adjusted R^2=.17; $F (2,140)$ = 3.06, *p<.05

Conclusions, Implications and Recommendations

Conclusions and recommendations were derived from the findings of the study. Selected student characteristics (sex, perceived agriculture experience compared to their peers, years enrolled in school based agricultural education courses, years of FFA membership, participation in SAE, and years of 4-H membership) failed to predict significant variance in students intent to teach. This suggests that these characteristics should not be utilized as clues to students' intent to teach. This begs the question, what additional characteristics should be measured? Could the lack of variance in these student characteristics lead to this conclusion? The majority students in this study had similar backgrounds. What would the results have been with a population of students who had an atypical background? It is important to note that recruitment efforts from traditional sources should not be discouraged or abandoned. Exploring recruitment from areas outside of

school-based agricultural education and diverse populations as suggested by Darling-Hammond and Sykes (2003) should be investigated.

The belief about teaching sub-constructs "teacher morale" and "expert career" were significant predictors to students' intent to teach. "Teacher morale" indicates that the students' intent to teach is based on their belief that teachers have high enthusiasm, confidence and loyalty to the profession; they are valued by society, and have a well-respected career. Teaching high school agricultural education could be promoted in this fashion. Organizations such as the National Association for Agricultural Educators and state agriculture teacher associations should create programs and promote the profession as one that teachers enjoy and one that is well-respected.

"Expert career", as a predictor of intention to teach suggests students value the complexity of the skill set that teaching requires and appreciates the high level of specialized and technical knowledge they need to be successful. The data implies that students believe that a career in teaching agriculture will give them the opportunity to share their personal knowledge and expertise about the subject which is supported by the sub-construct "expert career." Richardson and Watt (2006) agreed with the notion that individuals are attracted to teaching as an intellectually demanding and cognitively stimulating career. Current teacher preparation programs should continue to prepare students' adequately for the profession in the technical content areas in which they are expected to teach. However, which areas of technical agriculture do students feel least prepared to teach, and what improvements should be made to current teacher preparation curriculum? Teacher educators must be aware that students' appreciate this characteristic of teaching agriculture education, and maintain or update current curriculum to incorporate technical content. Students' should also be aware of the variety of skills needed as an agriculture teacher and pursue opportunities to gain the technical skills they need. Academic advisors should tailor students' program of study to incorporate technical coursework from areas that they are least experienced in or encourage students' to seek out additional learning opportunities. For example, students' could be encouraged to take a welding or woodworking class at a local community college if such coursework is not available from their institution or seek employment and volunteer opportunities to gain skills and experience in areas they are lacking.

Four attitude toward teaching sub-constructs: "fallback career," "working with adolescents," "intrinsic career value," and "job security" were significant predictors of students' intent to teach. The four sub-constructs accounted for 61 percent of the variance in students' intent to teach. The sub-construct "fallback career" was comprised of questions that indicate students did not choose a career in teaching agricultural education because they planned on a different career path. Therefore "Fallback career", as a predictor, would indicate that students are confident about their choice of career and did not choose teaching secondary agricultural education as a fallback career. "Working with adolescents", as a predictor, indicates that having the opportunity to work with adolescents and helping them learn is an additional factor that influences students' choice to teach. Stiegelbauer (1992) and Hayes (1990) concluded that one of the main reasons students choose to teach is based on the opportunity to work with young people. "Intrinsic career value" indicates that students have an instinctive passion about teaching and genuinely enjoy it. Harms and Knobloch (2005) support this finding as teachers who choose formal education as a career had intrinsic motives. Finally, "job security" offers students' a steady career path, reliable income and secure job. This implies students' understand and value the security that a career in teaching

provides. As a result, careful attention to these sub-constructs will assist in the development of recruitment materials and should be considered, in addition to current recruitment plans and marketing initiatives, to attract students to agriculture education. Secondary agriculture teachers and teacher educators should promote agricultural education as a career that is a match for students' if they have a passion for teaching, want to work with adolescents, and want a job that offers a steady career path. Although, many secondary agriculture teachers and teacher educators promote the profession as a "fallback career" to students; it may be worthwhile to promote the profession as one that has potential instead.

Belief about teaching agricultural education seems to moderate students' attitude toward teaching as an influence to their intent to teach. Approximately eight percent of the variance in students' intent to teach can be accounted for by attitude about teaching when controlling for beliefs. Fishbein and Ajzen (1975) stated an individual will hold a positive attitude toward a given behavior if he/she believes that the performance of the behavior will lead to mostly positive outcomes. These findings suggest that the students' possess a positive attitude toward teaching agricultural education, not only are they confident about their career choice, they are comfortable teaching about agriculture. This level of comfort may be attributed to the early field experiences, reflective teaching and other teaching and learning experiences these students have had. Teacher educators should continue to support the students' confidence in their career choice. This can be done through positive teaching and learning experiences that capitalize on students' teaching abilities. Teacher educators must continue to provide opportunities for students' to work with adolescents and encourage students to acquire the technical and expert knowledge needed to be a successful agriculture teacher. Nevertheless, 92 percent of the variance remains unaccounted for. What other factors explain students' intent to teach agricultural education?

Identifying the factors that influence students' choice to enter a career in teaching agricultural education in the current climate of teacher shortages can provide valuable information for national and state agricultural education, FFA, teacher education, and secondary agriculture teachers. These findings indicate that students' perceive themselves as having the abilities to teach well and can utilize expert and technical knowledge, that teaching is intrinsically gratifying and is a satisfying occupation, they perceive that teaching agricultural education will provide them with a high level of job security, that teaching is a well respected career, and has the potential to influence adolescents. Finally, this study of senior level agricultural education majors at 18 institutions suggests that there is a variety of factors that influence students' choice to teach. It is critical for all parties interested in agriculture education teacher recruitment to target the diversity of factors that collectively impact the decision to enter the agricultural education teaching profession.

The National Council for Agricultural Education's (2008) 10 x 15 initiative is the most ambitious effort ever to address critical issues affecting teacher quality and recruitment of teachers into agricultural education. According to Team Ag Ed and the National Council for Agricultural Educations February, 2009 Status Report, the first phase of the 10 x 15 initiative must be to research the factors that affect recruitment into agricultural education. Therefore, several recommendations are being made for further research and evaluation concerning to teacher recruitment.

First, a comparison of students' beliefs, attitudes and intentions to teach agricultural education prior to and immediately after student teaching is warranted. This may offer insight into potential changes in attitude or beliefs students have during the course of their student teaching experience. Second, investigations into the factors that influence teacher retention would be beneficial. This may result in the development of retention programs or materials to encourage sustained employment in agricultural education. Finally, continued evaluation of the factors that influence students' choice to teach is essential, perhaps a different approach to teacher recruitment, induction and retention is needed.

This study has identified the factors that influence students' choice to teach agricultural education. The variety of factors that were identified is important when determining how to promote the profession and recruit quality students. With collaboration from Team Ag Ed, the National Council for Agricultural Education, the American Association for Agricultural Education and the renewed importance of identifying the factors that influence students' choice to teach, progress towards creating a plentiful supply of well trained, highly qualified agriculture teachers and is within reach.

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Factors that Influence Agricultural Education Students' Choice to Teach

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Abstract

The purpose of this study was to identify and describe the factors that influence senior-level agricultural education students' choice to become secondary agricultural education teachers. The study focused on the extent to which students' beliefs and attitude about teaching influenced their intent to select teaching secondary agricultural education as a career. An adaptation of the FIT-Choice® Scale instrument was distributed to senior-level students enrolled at post-secondary institutions with teacher development programs to certify secondary agriculture teachers within a nine state area. One-hundred forty-five students completed the instrument. Overall, negligible to low relationships were found between students' beliefs about teaching and selected characteristics. Negligible to low relationships were found between students' attitude toward teaching and the selected characteristics. A moderate relationship was found between students' participation in high school agricultural education courses and their intent to teach. Additionally, negligible to low relationships were found with the remaining student characteristics and their intent to teach.

Introduction

The strength of the agricultural education profession hinges on several variables including state and federal legislation, funding, public perception and local administration, but also on the recruitment of graduates into the profession (Kantrovich, 2007). In the current National study of the supply and demand for Agricultural Education, it was reported that almost half of new agricultural education graduates who were certified to teach, chose careers other than teaching (Kantrovich). This is problematic as those unfilled positions either are left unfilled, programs are closed entirely, or administrators are forced to hire uncertified or alternatively certified teachers (Roberts & Dyer, 2004).

A number of studies have been conducted to determine undergraduate choice to major in agricultural education. Park and Rudd (2005) stated that secondary agriculture teachers influence many decisions about a student's career and further education through their actions, comments, and instruction. The interactions between teacher and student influence students' choice of career that may lead to a career in teaching agricultural education. When agriculture teachers employ encouraging attitudes and behaviors, they may help recruit new teachers into the profession (Park & Rudd). Stiegelbauer (1992) identified the importance of being a role model for adolescents, continual learning and growth, sharing personal knowledge and expertise, and creating a positive learning environment as motivation to choose a career in teaching. In a study conducted much earlier, Cole (1984) concluded that students who were actively involved in SAE and FFA activities were more encouraged to choose agricultural education as a college major. Additional reasons for majoring in agricultural education, as identified by Hillison, Camp and Burke (1986), were the

flexibility of the program that allows majors to enter jobs other than teaching. Moreover, Esters and Bowen (2005) suggested that parents and friends were most influential on students' career choice.

Recruiting students to the profession is important to maintain and grow secondary agricultural education programs across the country. Insight into the factors that influence students' choice to teach will offer additional assistance and guidance when developing recruitment efforts. The question remains: Why do students' choose a career in teaching? Students enter the teaching profession expecting to make a difference in the lives of students (Hayes, 1990; Stiegelabauer, 1992). Brunetti (2001) found that the most important motivation for experienced teachers' choice to teach was the opportunity to work with young people and watching their students learn and grow. Harms & Knobloch (2005) identified several factors to explain career choice for those in agricultural education and career and technical education, in general. The factors included, serving others, touching people's lives/making an impact, the "calling' to the career, salary and benefits, balance between career and personal time, and opportunities for advancement.

Theoretical Framework

Fishbein and Ajzen (1975) provide the framework for which to better understand antecedents to behaviors. According to Fishbein and Ajzen, in general, an individual will hold a positive attitude toward a given behavior if he/she believes that the performance of the behavior will lead to mostly positive outcomes. Fishbein and Ajzen suggest that many researchers fail to distinguish between beliefs, attitudes and intentions and stated that behavior is a result of intentions. Intentions, then, are a function of one's attitude which are a result of one's beliefs or expectations that the behavior will lead to a particular outcome. Additionally, the Expectancy-Value theory is directly linked to Fishbein and Ajzen's theory with the core belief that behavior is a function of the expectancies an individual has and the value of the goal toward which the individual is working (Watt & Richardson, 2007). The Expectancy-Value theory is the overarching theory in which this study is based upon. Understanding students' motivations for choosing a teaching as a career has implications for teacher education, curriculum design, and recruitment.

The FIT-Choice framework provides a comprehensive model to guide systematic investigation into the question of why people choose teaching (Richardson & Watt, 2006). Richardson and Watt developed a FIT-Choice® framework model which organizes the themes from the teacher education literature and locate them within the Expectancy-Value framework to explain students' choices to teach. The FIT-Choice® model (see Figure 1) contains antecedent socialization influences, followed by more proximal influences of task perceptions, self perceptions, values, and fallback career. The task constructs include *expert career*, *high demand*, *social status, teacher morale* and *salary*. Similarly, *values* constructs contain first order component constructs. The values constructs in the model are *intrinsic career value, job security, time for family*, *job transferability, shape future of children/adolescents, enhance social equity, make social contribution, bludging,* and *work with children/adolescents.* These constructs ultimately lead to the choice to become a secondary agriculture teacher. The term bludging is an Australian expression meaning the laziest approach possible and was use as a construct identifier, not used in the instrument as to avoid misunderstandings. The FIT-Choice® scale determines the strength of influence for a range of attitude, motivation and intent from individuals choosing teaching as a

career, this framework, founded on the Expectancy-Value theory, provides a comprehensive model to guide systematic investigation into the question of why people choose teaching as a career (Richardson & Watt).
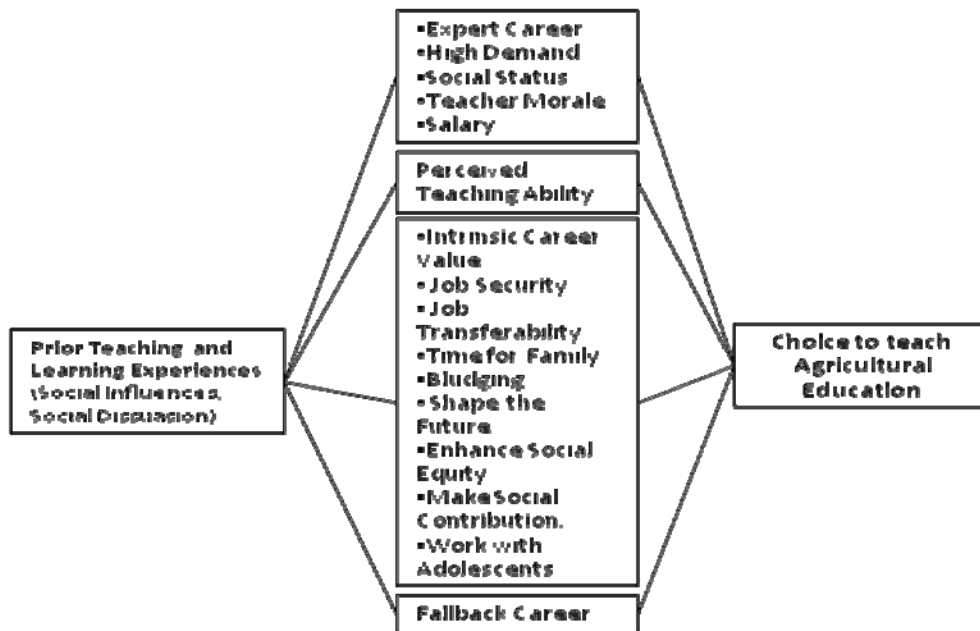
Figure 1. Ag Ed FIT-Choice Model, adapted from Richardson and Watt (2006).

Purpose and Research Objectives

Without a doubt, quality teachers are needed to fill positions at a time where teacher shortages are apparent and teacher education program recruiters stand to gain from this study. Thus, the purpose of this study was to determine the factors that influence agricultural education students' choice to become secondary agriculture teachers. The following research objectives were developed to guide the study:

1. Describe characteristics of students majoring in agricultural education (sex, perceived agriculture experience compared to their peers, years enrolled in school-based agricultural education courses, years of FFA membership, participation in SAE, and years of 4-H membership).
2. Describe students' beliefs about teaching secondary agricultural education (expert career, high demand, social status, teacher morale, salary).
3. Describe students' attitude toward teaching secondary agricultural education (ability, intrinsic career value, fallback career, job security, bludging, time for family, job transferability, shape the future of adolescents, enhance social equity, make social contribution, work with adolescents, prior teaching and learning experiences, social influences).
4. Describe students' intent to teach secondary agricultural education (social dissuasion, satisfaction with choice).

5. Determine the relationship between students' beliefs about and attitude about teaching secondary agricultural education, their intent to teach secondary agricultural education and their sex, perceived agriculture experience compared to their peers, years enrolled in school-based agricultural education courses, years of FFA membership, participation in SAE, and years of 4-H membership.

Methods/Procedures

This study utilized a nonexperimental descriptive-correlational research design method to meet the purpose and research objectives of the study. This type of research often uses questionnaires to gather information from groups of subjects (Ary, Jacobs, & Razavieh, 2002). The target population was senior-level agricultural education students enrolled in a teacher preparation program. Institutions with teacher preparation programs in Agricultural Education were selected from states contiguous to Missouri by reason of proximity, ease of contact, cost, and familiarity with the teacher education programs within each state. Twenty-six teacher education programs within Arkansas, Illinois, Iowa, Kansas, Kentucky, Missouri, Nebraska, Oklahoma, and Tennessee were initially identified from the American Association for Agricultural Education Directory (2007). Of the 26 teacher education programs within the nine-state area, 19 programs were included in the study. The 19 teacher education programs were selected based upon a single criterion established *a priori*. The selection criterion was access to senior-level level agricultural education majors who were to participate in student teaching during the fall of 2008 or spring of 2009. Because students in these programs tend to be defined cohort groups, arguably, cohorts for subsequent years are likely to represent similar dispositions. Oliver and Hinkle (1982) argued that defined student cohorts could be considered representative of future similarly defined cohorts. Consequently, this study is viewed as a time and place sample.

The data collection instrument was adapted from the FIT-Choice® Scale (Watt & Richardson, 2007). The FIT-Choice® Scale was developed to measure beliefs, attitude and intention of teacher candidates (Richardson & Watt, 2006). Dr. Helen Watt provided written permission allowing the FIT-Choice® to be utilized and adapted for this study. Section one of the instrument included 40 statements designed to collect data related to students' attitude toward becoming a secondary agricultural education teacher. These questions began with the stem "I want to become a high school agriculture teacher because," and included questions such as "I like teaching about agriculture," "it will allow me to shape children's values," and "I have had good teachers as role models." The questions are grouped into 13 sub-constructs to measure attitude included "make a social contribution," "prior teaching and learning," ability," "work with adolescents," "intrinsic career value," "job security," "enhance social equity," "shape the future," "social influence," "job transferability," "time for family," "fallback career," and "bludging." Section two of the instrument was designed to collect data related to students' beliefs about teaching. These 15 items began with the stem, "Compared with other professionals," and included questions such as "teaching agriculture is a highly skilled occupation" and "agriculture teachers are perceived as professionals." The questions are grouped into five sub-constructs that measured beliefs included "expert career," "social status," "teacher morale," "salary," and "high demand." Section three included six statements related to students' intent to teach and are measured by two sub-constructs, "satisfaction with choice" and "social dissuasion". For each item, students were asked to identify their level of agreement. The response scale was a five-point Likert scale

with the following choices: 1 = definitely disagree, 2 = disagree, 3 = neutral, 4 – agree, 5 = definitely agree.

A panel of experts was utilized to review the instrument and address face, construct and content validity. The panel consisted of seven university faculty members representing higher education intuitions from across the United States and Australia. A pilot study was conducted in September of 2008 with freshman level agricultural education students (*n* = 29) at University of Missouri. This group of students was selected because of their similarity in teaching interests to that of the target population. As a result of the pilot test, modifications were made to the final instrument including clarification of questions and minor formatting changes. The pilot test also served to estimate the reliability for each construct where "shape the future of adolescents" was .90, "job security, work with adolescents and social influence" was .86, "salary" was .84, "ability" and "enhance social equity" were .78, "prior teaching and learning" was .77, "intrinsic career value" was .76, "time for family" and "expert career" were .75, "make social contribution" and "satisfaction with choice" were .67, "high demand" was .65, "social status" and "social dissuasion" were .63, "fallback career" was .60 and "job transferability" was .52.

Data were collected using five points of contact. Agricultural education faculty members at the 19 institutions were contacted via email in early September of 2008 and asked to assist in the data collection process. Faculty members were asked to identify one primary faculty contact and the number of senior-level agricultural education students who would be able to participate. Once consent was obtained from the faculty members and students were identified, instructions for the study were sent via email to those institutions who agreed to participate as a pre-notice letter which explained the purpose of the study, the process of completing the instrument, the responsibility of the faculty member, specified timeline and, IRB information. The second contact with the selected faculty members included the packet of questionnaires, instructions and self addressed, stamped return envelope. The responsibility of the primary faculty contact was to distribute, collect, and return the questionnaires to the researcher. For those faculty contacts who had not returned the completed questionnaires, an email was sent to the two weeks later that contained information similar to the third contact and served as either a thank you or reminder. The fourth contact was made with faculty contact for which data was missing via email to determine whether or not they needed additional time or new copies of questionnaires. A packet was mailed to the primary faculty contact that had either not yet begun the instrument or those who requested additional copies. The final contact was made via email February 2, 2009. Results include a response rate of 93% as 18 of the 19 institutions that initially agreed to participate returned questionnaires for a total of 145 data points (*n* = 145). Data were analyzed using SPSS® 15.0 for Windows.

Results

Research objective one sought to analyze the student selected characteristics (sex, perceived agriculture experience compared to their peers, years enrolled in school-based agricultural education courses, years of FFA membership, participation in SAE, and years of 4-H membership) (see Table 1). The majority of respondents were female 77 (53.47%). In regards to perceived agriculture related experience (as compared to their peers) 67 (47.53%) respondents identified themselves as having more agriculture experience, 57 (39.58%) respondents identified themselves as having the same amount of agriculture experience and 20 (13.89%) respondents

identified themselves as having less agriculture experience than their peers. The majority of respondents 125 (86.21%) took one or more school-based agriculture courses while in high school. Additionally, those respondents reported a mean of 4.05 (SD = .88) years of enrollment in secondary agricultural education. The majority of respondents 127(87.59%) had reported having been a member of the National FFA Organization. The mean number of years of membership in the FFA for those respondents was 5.52 (SD = 1.91) years. Nearly four-fifths of respondents (78.32%) reported having a Supervised Agricultural Experience (SAE) project. The majority of the respondents 103 (71.74%) were also members of 4-H. Those respondents who were members of 4-H reported a mean of 7.27 (SD = 3.71) years of membership.

Table 1
Characteristics of Senior-level Level Agricultural Education Students (n = 145)

Characteristic	f	%	M	SD
Sex				
Female	77	53.47		
Male	67	46.53		
Agriculture Experience[a]				
More than Others	67	46.53		
Same as Others	57	39.58		
Less than Others	20	13.89		
Enrolled in School-Based Agricultural Education				
Yes	125	86.21		
No	19	13.10		
Years of Enrollment			4.05	.88
FFA Membership				
Yes	127	87.59		
No	17	11.72		
Years of FFA Membership			5.52	1.91
Supervised Agricultural Experience Project				
Yes	112	78.32		
No	31	21.68		
4-H Membership				
Yes	103	71.53		
No	41	28.47		
Years of 4-H Membership			7.27	3.71

[a]Perceived agriculture experience compared to their peers

Research objective two sought to analyze the beliefs of senior-level agricultural education students about teaching. Students were asked to indicate their level of agreement regarding statements of beliefs about teaching secondary agricultural education (see Table 2). Five sub-constructs were identified from the beliefs about teaching construct. The following sub-constructs fell into the agree category (3.60 – 4.50): "expert career", having the highest mean (M = 3.98; SD = .69), followed by "social status" (M = 3.79; SD = .62), and "teacher morale" (M = 3.67; SD = .67). The sub-construct "salary" (M = 2.94; SD = .97) fell into the not sure (2.60 – 3.50) category and "high demand" (M = 2.54; SD = .56) fell into the disagree category (1.60 – 2.50).

Table 2
Sub-constructs of Beliefs about Teaching (n = 145)

Construct Item	M	SD
Expert Career	3.98	.69
Social Status	3.79	.65
Teacher Morale	3.67	.67
Salary	2.94	.97
High Demand	2.54	.56

Note: 1 = definitely disagree, 2 = disagree, 3 = neutral, 4 – agree, 5 = definitely agree

Research objective three sought to determine the attitude about teaching agriculture education held by senior-level agricultural education students. Students were asked to indicate their level of agreement to each statement regarding attitude about teaching secondary agricultural education (see Table 3). Thirteen sub-constructs were identified for which none of the sub-constructs fell into the definitely agree category (4.60 – 5.00). Ten sub-constructs fell into the agree category (3.60 – 4.50). Those sub-constructs included, arranged from highest mean to lowest mean, "make a social contribution" (M = 4.38; SD = .46); "prior teaching and learning" (M = 4.27; SD = .63); "ability" (M = 4.20; SD = .48); "work with adolescents" (M = 4.13; SD = .61); "intrinsic career value" (M = 4.12; SD = .57); "job security" (M = 3.94; SD = .58); "enhance social equity" (M = 3.83; SD = .58); "shape the future" (M = 3.80; SD = .46); and "social influence" (M = 3.78; SD = .72). The sub-constructs "job transferability" (M = 3.26; SD = .70) and "time for family" (M = 3.07; SD = .71) fell into the not sure category (2.60 – 3.50). The sub-construct "fallback career" (M = 2.25; SD = .81) fell into the disagree category (1.56 – 2.50). Finally, the sub-construct "bludging" (M = 2.02; SD = .75) fell into the definitely disagree category (.00 – 1.50).

Table 3
Sub-construct of Attitude about Teaching (n=145)

Construct Item	M	SD
Make a Social Contribution	4.38	.46
Prior Teaching and Learning	4.27	.63
Ability	4.20	.48
Work with Adolescents	4.13	.61
Intrinsic Career Value	4.12	.57
Job Security	3.94	.58
Enhance Social Equity	3.83	.58
Shape the Future	3.80	.46
Social Influence	3.78	.72
Job Transferability	3.26	.70
Time for Family	3.07	.71
Fallback Career	2.25	.81
Bludging	2.02	.75

Note: 1 = definitely disagree, 2 = disagree, 3 = neutral, 4 – agree, 5 = definitely agree

Objective four sought to identify students' intentions to teach secondary agricultural education upon graduation (see Table 4). Two sub-constructs for intent to teach were identified. The sub-construct "satisfaction with choice" (M = 4.29; SD = .72) indicated the students agreement

in their choice to teach. The sub-construct "social dissuasion" ($M = 3.48$; $SD = .70$) indicated the extent to which others advised against pursuing a career in teaching agriculture.

Table 4
Intent to Teach Sub-constructs (n = 145)

Construct Item	M	SD
Satisfaction with Choice	4.29	.72
Social Dissuasion	3.48	.70

Note: 1 = definitely disagree, 2 = disagree, 3 = neutral, 4 – agree, 5 = definitely agree

Objective five sought to determine the relationship between students' beliefs about, attitude about teaching secondary agricultural education, intent to teach secondary agricultural education and their sex, perceived agriculture experience compared to their peers, years enrolled in school-based agricultural education courses, years of FFA membership, participation in SAE, and years of 4-H membership (see Table 5). Pearson's Product Moment and point-biserial correlations were used to calculate the correlation coefficient. The findings indicate a positive, low relationship between beliefs about teaching and the number of years students were members of the FFA ($r = .20$) and years enrolled in high school agricultural education ($r =. 18$). There was a negative, low correlation between students' intent to teach and sex ($r_{pb} = -.13$) and students' participation in FFA ($r_{pb} = -.10$) and beliefs. Students' participation in 4-H ($r_{pb} = .09$) had a positive, negligible relationship with beliefs, while students' agriculture experience compared to their peers ($r = -.09$) had a negative, negligible relationship with beliefs. Students' participation in high school agricultural education ($r_{pb} = -.08$), SAE participation ($r_{pb} = -.04$), and years of membership in 4-H ($r = -.03$) had a negative, negligible relationship with beliefs.

The findings indicate a positive, low relationship between attitude about teaching and the number of years students were FFA members ($r = .25$) and the number of years enrolled in high school agricultural education ($r =.18$). Students' participation in SAE ($r_{pb} = -.13$) and the number of years of membership in 4-H ($r = -.10$) had a negative, low relationship with attitude. Students' agriculture experience compared to their peers ($r = .07$) and students' participation in 4-H ($r_{pb} = .03$) had positive, negligible relationship with attitude. While sex ($r_{pb} = -.07$), students' participation in high school agricultural education ($r_{pb} = -.02$) and students' participation in the FFA ($r_{pb} = -.02$) had negative, negligible relationships with attitude.

A positive, moderate relationship between students' participation in high school agricultural education ($r_{pb} = .38$) and students' beliefs about teaching was reported. Students' years of enrollment in high school agricultural education had a positive, low relationship ($r = .15$) with intent to teach. Sex ($r_{pb} = -.12$) and SAE experience ($r_{pb} = -.12$) had a negative, low relationship with intent to teach. Students' participation in FFA ($r_{pb} = -.09$), students' agriculture experience compared to their peers ($r = -.07$) and years of 4-H membership ($r = -.05$) reported a negative, negligible relationship with intent to teach. The number of years students were members of the FFA ($r = .03$) and students' participation in 4-H ($r_{pb} = .01$) reported a positive, negligible relationship with intent to teach.

Table 5

Bivariate Correlations between Selected Student Characteristics and Beliefs, Attitudes, and Intentions (*n* = 145)

Characteristic	Beliefs[c]	Attitude[c]	Intent[c]
Years of FFA Membership	.20	.25*	.03
Years Enrolled in High School Agricultural Education	.18	.18	.15
Sex[a]	-.13	-.07	-.12
Participated in FFA[b]	-.10	-.02	-.09
Participated in 4-H[b]	.09	.03	.01
Agriculture Experience	-.09	.07	-.07
Participated in High School Agricultural Education[b]	-.08	-.02	.38
Participated in SAE[b]	-.04	-.13	-.12
Years of 4-H Membership	-.03	-.10	-.05

Note: [a]Female=1; Male=2, [b]Yes=1; No=2; [ab]point biserial coefficients reported; [c]1 = definitely disagree, 2 = disagree, 3 = neutral, 4 – agree, 5 = definitely agree; *p* < .05

Conclusions, Implications and Recommendations

Based upon the finding of the study, the following conclusions and recommendations are offered. Overall, students held a positive belief about teaching. Two sub-constructs in the agree category for beliefs about teaching, first is "expert career" or the beliefs about what teachers need to know or be able to do. Stiegelbauer (1992) supports this statement identifying that students wish to share personal knowledge and expertise about the subject. These findings suggest that students' beliefs about teaching regard it as a highly skilled occupation that is emotionally demanding, and requires technical and expert knowledge. Students believe that agricultural education is a highly expert career, but are they prepared to teach the content they are expected to? The second sub-construct was "social status". This is reflected in a study by Hayes (1990) who suggested that students thought teaching was a highly respected career. Contrary to the findings of Richardson and Watt (2006) who found that participants thought of teaching as a career that was low in return, where individuals did not receive much respect or reward from their career.

If agricultural education desires to tap into the talents and interests of students across the U.S. and recruit the best possible candidates into the classroom, then promoting teaching as a professional career is imperative. Teacher educators must continue to provide students' with the opportunity to gain the technical expertise they will need to become quality agriculture educators. National and state FFA organizations should continue to reward the quality agriculture teachers and continue to promote the profession. The National Association of Agricultural Educators and American Association for Agricultural Education should also continue to recognize the outstanding teaching efforts of the quality teachers in the profession. Secondary agricultural education teachers should acknowledge the recommendations made by Park and Rudd (2005) and be professional, respect students, mentor, and exhibit positive teacher attitudes as these behaviors tend to produce future teachers, while the opposite attitudes and practices tend to discourage students from teaching.

The beliefs about teaching sub-constructs "salary" and "high demand" were rated as not sure by the students'. This might suggest that students remained unsure of the financial rewards of becoming an agriculture teacher, and are uncertain of the demands placed on teachers. This study obtained data from students prior to student teaching; consequently they may not be aware of the actual demands placed on agriculture teachers; even though they feel they have the skills necessary to perform the job. Teacher educators must provide opportunities for students' to observe agriculture teachers prior to student teaching and give them the chance to reflect on what they have seen. Perhaps a belief about salary is a reflection of Herzberg's (1968) two-factory theory. Salary is an element of the hygiene factors and does not necessarily provide positive satisfaction and motivation to choose a career, however, true satisfaction comes from having a sense of achievement (Herzberg). Teacher educators should capitalize on this belief where students can showcase their skills and provide a service to others regardless of the salary they expect to earn.

Overall, student tended to display a favorable attitude toward teaching. Five of the 13 sub-constructs emerged as being most important. They include "making a social contribution," "prior teaching and learning," "ability," "work with adolescents," and "intrinsic career value." Accordingly, students value the social contribution they make as a teacher and the ability to give back to society. Local agricultural education programs are known for community service projects therefore, promoting service to others through agriculture education is vital. Perhaps a service learning project should be an additional assignment in the teacher preparation coursework. Both prior teaching and learning experiences and being able to work with adolescents were positive for these students, and were significant in determining their attitude toward teaching agricultural education. Based on these findings, it is suggested that current high school agricultural education teachers and teacher educators make a conscious effort to create positive learning environments. Additionally, programs that give high school students early experience teaching others about agricultural should be completed. Promotion of SAEs in the agricultural education area could provide additional recruitment opportunities for institutions. Finally, early field experiences in teaching are essential in agricultural education teacher preparation programs in order to give pre-service teachers prior teaching experience and the opportunity to work with adolescents.

These findings suggest that because of students' past experience and preparation in agriculture, agricultural education, FFA, SAE, and 4-H, they are confident in their ability to teach agriculture. This further supports the belief that agriculture education is a highly expert career where a significant amount of technical knowledge is needed. While the majority of these students have extensive experience in agriculture through FFA activities, SAEs, and 4-H membership, do these (and related) experiences alone contribute to the technical knowledge that is needed to teach? Technical content coursework should be encouraged and modified based on student needs especially areas where students are deficient. Teacher educators should work carefully to advise students' on the appropriate courses needed to enhance and strengthen their knowledge base.

It has been well documented in the literature that students choose a career in teaching to make a positive difference in the lives of adolescents, have a desire to be a role model for students, and enjoy working with adolescents (Hayes, 1990; Stiegelbauer, 1992). Capitalizing on the opportunity to work with adolescents is an additional factor that should be utilized in developing marketing and recruitment aids. The development of the agricultural education SAE and proficiency award area is a step in the right direction when marketing teaching to high school

students. National FFA should continue to develop strategies that target high school students and focus on agriculture teacher recruitment. An increased restoration of programs such as Partners in Active Learning Support (PALS) will also provide students the opportunity to work with children. Once more, an increasing emphasis on early, positive field experiences should be planned by teacher educators.

Students' intrinsic career value was rated high as well. With regard to teaching it is suggested that these students simply enjoy teaching about agriculture. Hayes (1990) identified that students majoring in education were strongly drawn to teaching for reasons other than monetary rewards. In regards to recruitment of teachers into agricultural education the enjoyment and passion about teaching could be considered another area to focus marketing efforts. Harms and Knobloch (2005) support the sub-construct "intrinsic career value," identifying that individuals teach to satisfy their needs. The students' intent to teach may be due to the enjoyment they get from teaching about agriculture. Promoting teaching as a career that one can obtain fulfillment and enjoyment out of is an additional item that can be used in recruitment. National FFA, NAAE, state associations, teacher educators and high school teachers should encourage students' to enter a profession they can take pleasure in.

Students indicated that they have carefully thought about the decision to teach, are satisfied and happy with the choice to teach and indicated that others influenced their decision to become an agriculture teacher. Important to note is that students' disagreed that teaching agriculture education was considered a "fallback" career. In addition, there are minor concerns about "time for family," and "job transferability." At this point in their undergraduate program students are finalizing their decisions about their future and their career. While it is extremely positive that these students' have a solid hold on their future career choice, discouragement from others was not a strong factor in students' choice of teaching as a career. This contradicts finding by Richardson and Watt (2006) who reported strong experiences with social dissuasion from teaching. Perhaps the design of teacher education coursework has created a positive impact on assisting students with their career decisions. Students' were unsure about the amount that others dissuaded them from a career in teaching agricultural education. It is necessary that secondary agriculture teachers make certain they are not discouraging students who want to become agriculture teachers. A joint effort to market and promote the profession is needed by all those involved in agricultural education. Secondary agricultural education teachers should acknowledge the recommendations made by Park and Rudd (2005) and be professional, respect students, mentor, and exhibit positive teacher attitudes as these behaviors tend to produce future teachers, while the opposite attitudes and practices tend to discourage students from teaching.

The relationships between students' beliefs about, attitude toward teaching secondary agricultural education, intent to teach secondary agricultural education and sex, perceived agriculture experience compared to their peers, years enrolled in school-based agricultural education courses, years of FFA membership, participation in SAE, and years of 4-H membership were found to be low or negligible. These findings indicate inconsequential relationship between their characteristics and their beliefs, attitude, and intent to teach agricultural education. This may support the idea of recruiting students from outside of the typical agriculture background. The strongest relationship was a moderate, positive relationship between participation in high school agricultural education and the students' intent teach. The question remains, if past agriculture

experience does not affect students' beliefs, attitude, or intent in a career in teaching, should recruitment efforts be focused outside of local agricultural education programs? Obviously, the majority of students majoring in agricultural education have past experience, but are there others who would be interested in teaching agriculture that do not fit the typical profile of students. What other characteristics factor into students' intent to teach?

Continuing to make teacher recruitment a priority in agricultural education is vital to its growth and recruiting from the traditional source has proved to be successful. National and State FFA should make it a priority to recognize students who excel in agricultural education by continuing to provide sponsorships in the agricultural education proficiency award area. Recruitment materials or workshops designed to teach students about a career in agricultural education are also called for. The factors identified in this study should be incorporated into these materials promoting agricultural education as a career that taps into students' experience, provides a steady career, contributes to society, supports the idea that agriculture teachers are considered professionals, and is a career where they get to work with kids.

Lack of prior experience in agricultural education should not be considered a detriment to future recruitment efforts. Although expert and technical knowledge are needed as an agriculture teacher, it is the responsibility of teacher educators to assist in developing a well rounded professional. National and state staff and teacher educators should develop recruitment strategies that reach out to the non-traditional audiences that highlight the positive characteristics of teaching high school agriculture education. As well as continue to recruit from the traditional source of students in high school agriculture education programs. Not only would this effort bring about diversity in agriculture education but has the potential to reach out to communities wanting to incorporate agriculture programs into their existing curriculum and to students' who have a passion to teach agriculture.

Future research should go beyond this study to continue evaluation of the specific factors that influence students' intent to teach. Studies focused on atypical agricultural education student that assess the factors that influence their choice to teach agricultural education. Such a study would allow comparisons of typical and atypical agricultural education students. This would help determine what factors are influential to atypical students and assist in the development of initiatives and materials to attract a diverse population into agricultural education. Additionally, future studies should focus factors that influence teacher retention.

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Relationship between Teacher Efficacy and Job Satisfaction Among Secondary Agricultural Educators

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Abstract

The teacher shortage in the United States is a continuous problem for the American education system. Maintaining a high level of job satisfaction of teachers is an important goal for administrators, superintendents, and school systems. It is understood that employees who are more satisfied are generally more productive and committed to the profession. Beliefs in competence can play a major role in job satisfaction. The purpose of the current study was to determine the relationship between teacher efficacy factors and job satisfaction factors among secondary agricultural educators. Survey research methods were utilized to collect data for the study. A random sample of agricultural educators was sent a questionnaire which included items regarding perceptions of teacher efficacy and job satisfaction. Overall, agricultural educators possessed a high level of teacher efficacy and were satisfied with their jobs. Moderate and substantial relationships were found between teacher efficacy factors and job satisfaction factors. Teacher efficacy should be a focus of teacher professional development programs in order to increase job satisfaction and ultimately teacher retention.

Introduction/Theoretical Framework

The teacher shortage in the United States is a continuous problem for the American education system. It appears, and has long been reported, that the shortage is due to the high number of teachers retiring, coupled with the demand for more teachers from the increasing number of school age children (Ingersoll, 2004). The teacher shortage, however, is much more than a supply and demand problem. Ingersoll (2004) suggested that the shortage of teachers is due to attrition—the number of teachers who leave one teaching job for another or leave the teaching profession to pursue other activities. Why else could teachers be leaving the profession? Is it possible that whenever a teacher leaves the profession a level of dissatisfaction may be implied?

Maintaining a high level of job satisfaction among teachers is an important goal for administrators, superintendents, and school systems. It is understood that employees who are more satisfied are generally more productive and committed to the profession. The cost of hiring, training, and development of new teachers and staff members into an existing school culture can be even more costly when the process has to be repeated on a regular basis because of teachers seeking employment in other systems or leaving the teaching profession (Hoy & Miskel, 2008).

In an answer to the shortage of agricultural educators in the United States, the National Council for Agriculture Educators has undertaken an initiative known as 10x15. The goal of this initiative is to have 10,000 quality agricultural education programs in place throughout the United States by the year 2015 (National Council for Agricultural Education, 2007). In order to meet this

goal and to understand why teachers leave the profession, it is necessary to understand factors that affect job satisfaction.

Job Satisfaction

Job satisfaction refers to the "extent to which a person can meet individual personal and professional needs as an employee" (Gorton, 1982, p. 1904). Many theories have played an influential role in the research of job satisfaction. Maslow's hierarchy of needs (Maslow, 1954) is a theory that many administrators use to motivate teachers and increase satisfaction. The psychological needs of Maslow's theory includes a feeling of belonging to a group as well as being respected by the group which increases self esteem (Woolfolk, 2004).

Another theory guiding job satisfaction is the Herzberg motivator-hygiene theory (Herzberg, 1966). This theory states that motivator factors contribute to job satisfaction while hygiene factors contribute to job dissatisfaction. The motivator factors lead to satisfaction because they satisfy the psychological needs of the employee including self-actualization (Hoy & Miskel, 2008). At the same time, but working independently of job satisfaction, is dissatisfaction. The hygiene factors tend to produce dissatisfaction such as negative attitudes and loss of production.

Research in job satisfaction has focused mainly on teacher effectiveness as being a large predictor of job satisfaction and retention (Berns, 1990; Bruening & Hoover, 1991; Grady & Burnett, 1985). Previous studies have looked to determine the extent to which teachers are satisfied with their jobs (Beavers, Jewell, & Malpiedi, 1987; Bennett, Iverson, Rohs, Langone, & Edwards, 2002; Cano & Miller, 1992; Flowers & Pepple, 1988; Grady & Burnett, 1985; Newcomb, Betts, & Cano, 1987; Walker, Garton, & Kitchel, 2004). Walker, Garton, & Kitchel (2004) looked specifically at the change in job satisfaction level of beginning teachers over a five year period and determined that teachers, both those who left the profession and those who stayed, were generally satisfied with their first year of teaching. Berns (1990) examined the relationship between job satisfaction and retention in regard to professional dispositions. Cano and Miller (1992) studied the relationship between gender and job satisfaction. Cano and Miller also posited that it is not merely enough to know what level of job satisfaction that teachers hold but that more research needs to be done looking at individual factors of job satisfaction. Castillo, Conklin, and Cano (1999) studied the factors of achievement, advancement, recognition, responsibility, and the work itself, as well as, interpersonal relations, policy and administration, salary, supervision, and working conditions.

Berns (1990) identified factors of job satisfaction among vocational educators in Northwest Ohio. Berns' study included 38 job satisfaction indicators divided into eight different constructs including teacher assignments, attributes of the job and school, students, teaching, teaching as a profession, competence, career, being appreciated, and administration. Berns determined that the teachers, for the most part, were satisfied with their jobs, but certain aspects of the job were less satisfying than others. These factors that were less satisfying included conditions related to teaching as a profession and school administration.

Bennett et al. (2002) used the constructs from the Berns (1990) instrument to determine the level of job satisfaction among agricultural educators in the state of Georgia and the percentage of

teachers who were at risk of leaving the teaching profession. It was concluded that the Georgia teachers were satisfied with their jobs as well, but the factors resulting in less satisfaction included salary, appropriate students placed in their classes and the status of teaching within society.

Teacher Efficacy

Beliefs are important when considering motivation and goal setting. Beliefs in competence can play a major role in job satisfaction. Teachers who believe in their ability to positively affect students are generally more satisfied with their job. According to Hoy and Miskel (2008), teacher efficacy is a sound predictor of job satisfaction.

Bandura developed the theory of self-efficacy out of his social cognitive theory. Self-efficacy is defined by Bandura (1997) as the "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). It is more easily defined as the feeling that someone has about her/his competence on a certain task or area; self-efficacy is a motivating factor. The motivation and actions are based on what people believe they are capable of accomplishing instead of what they are capable of accomplishing in reality. If a person has a high sense of self-efficacy, this will lead to more effort and persistence when faced with undesirable consequences. On the other hand, those with a low sense of self efficacy are more apt to give up easily or avoid a difficult task altogether (Woolfolk, 2004). Based upon social cognitive theory, self-efficacy can be the largest motivating factor in a person's success.

When self-efficacy is studied in the context of teaching, it is referred to as the teacher's sense of efficacy, and is the belief that the teacher's capabilities can determine the outcomes of student engagement and learning among even the most difficult or unmotivated students. This belief can directly affect the behaviors of the teacher in the classroom when related to decision making, goal setting, evaluation, developing of new ideas for teaching, and persistence when facing setbacks. Three factors for determining a teacher's sense of efficacy include instructional strategies, classroom management, and student engagement (Tschannen-Moran & Woolfolk Hoy, 2001). Self-efficacy can reasonably be applied to the teaching profession and more specifically, to agricultural education to determine if teachers who have a high sense of self-efficacy are more satisfied with their jobs.

Teacher efficacy in agricultural education has been studied to determine the self-efficacy of student teachers (Edgar, Roberts, & Murphy, 2007; Harlin, Roberts, Briers, Mowen, & Edgars, 2007; Knobloch, 2006; Roberts, Harlin & Ricketts, 2006; Wolf, Birkenholz, & Foster, 2007). Knobloch and Whittington (2003) found that teachers with lower efficacy have less of a career commitment to teaching. Rocca and Washburn (2006) studied teachers' efficacy in relation to alternative methods of certification. Rocca and Washburn determined no difference between traditional and alternative certified teachers in the perception of their ability to teach. Duncan and Ricketts (2008) researched overall self-efficacy as opposed to teacher efficacy when comparing traditional and alternative methods of certification. Duncan and Ricketts found that traditionally certified teachers have a higher level of self-efficacy than those who are alternatively certified.

While job satisfaction and teacher efficacy have been studied among secondary agricultural educators independently, the review of literature did not yield an examination of the two constructs

together. Moreover, a current study is warranted to determine the relationship teacher efficacy has with job satisfaction among secondary agricultural educators in the United States.

Purpose/Objectives

The purpose of the study was to determine the relationship between teacher efficacy factors and job satisfaction factors among secondary agricultural educators. Specifically, the study sought to achieve the following objectives:

1. Describe secondary agricultural educators on selected demographic characteristics.
2. Describe the level of teacher efficacy and job satisfaction among secondary agricultural educators.
3. Describe the relationship between the level of teacher efficacy and level of job satisfaction among secondary agricultural educators.

Methods/Procedures

Population and Sample

The population for the current study was comprised of secondary agricultural educators who were members of the National Association of Agricultural Educators (NAAE) as of October 2008, and included 5290 secondary agricultural educators. A random sample of individuals was drawn from the population. The random sample consisted of 361 individuals based on an alpha level of .05. To draw the random sample from the population, individual names were sorted alphabetically by last name in ascending order and assigned a sequential identifier that began with number one. A table of random numbers was constructed using the website www.randomizer.org. Individual cases were randomly selected for the sample based on the numbers from the table that corresponded to the assigned identifiers.

Instrumentation

Two pre-existing instruments were utilized to create the questionnaire for the current study. The instrument used by Berns (1990) to determine the level of job satisfaction among vocational education teachers and modified by Bennett et al. (2002) was used to determine the level of job satisfaction among secondary agricultural educators. Bennett et al. (2002) established content validity through a panel of experts. Additionally, instrument reliability was established and a Cronbach's alpha of .95 was calculated (Bennett et al., 2002). The instrument consisted of 44 job satisfaction items that used a 5-point Likert type scale with responses including 1-strongly disagree, 2-disagree, 3-undecided/no opinion, 4-agree, and 5-strongly agree. The 44 job satisfaction items were organized into nine constructs: their (teacher's) assignments, attributes of the job and school, students, teaching, teaching as a profession, their own (teacher's) competence and effectiveness, their own (teacher's) careers, being appreciated, and school administration.

The 24 item Teachers' Sense of Efficacy Scale, long form, (Tschannen-Moran & Woolfolk Hoy, 2001) was utilized to collect data on secondary agricultural educators sense of teacher efficacy in terms of the factors instructional strategies, classroom management, and student

engagement. The instrument, a summated rating scale, asked respondents to indicate their level of agreement to the response "How much can you do?" for each of the 24 items related to teachers' beliefs about their abilities. Responses included nine possible choices which ranged from 1-nothing to 9-a great deal. Tscahnnen-Moran & Woolfolk Hoy (2001) reported Cronbach's alpha coefficients of .86 for the instructional strategies factor, .86 for the classroom management factor, .81 for the student engagement factor, and a coefficient of .90 for the overall instrument to establish instrument reliability.

In addition to data collected on job satisfaction and teacher efficacy, the instrument included five demographic questions that asked respondents to report age, gender, number of years in their current position, total years teaching agriculture, and total years teaching (all subjects).

Institutional Review Board approval was granted for this study. Data were collected in two waves following Dillman's (2000) recommendations for mail surveys. A total of 178 individuals returned instruments, resulting in a response rate of 49%. The researchers controlled for non-response error by comparing early to late respondents (Miller & Smith, 1983) on the demographic characteristics age, number of years in the current position, total years teaching agriculture, and total years teaching as well as each of the construct scores for job satisfaction and teacher efficacy; no significant differences were found between the two groups. Early respondents were defined by the researchers as individuals who responded to the first wave (n = 135) and late respondents as the individuals who responded to the second wave (n = 43). Since no significant differences were found between the groups, the data were collapsed to a single set.

Results/Findings

Objective one sought to describe the sample of agricultural educators. The mean age of the sample was 41.7 years (SD=11.6; Range: 21-69). A majority of the respondents were male (74%, N=132) while 44 respondents (25%) were female. Agricultural educators reported they were in their current teaching position for an average of 12.8 years (SD=10.2; Range: 0-36.5). Additionally, agricultural educators had total agriculture teaching experience on average of 16.2 years (SD=11.0; Range: 0-40), and had total teaching experience (included all subject areas) on average of 16.7 years (SD=11.1; Range: 0-49).

The focus of the second objective was to describe the level of teacher efficacy and job satisfaction among agricultural educators. Overall, agricultural educators reported the highest level of efficacy with instructional strategies and the lowest level of efficacy with student engagement. Table 1 reports the mean scores of the level of agricultural educators' teacher efficacy.

Table 1.

Teacher efficacy scores of agricultural educators.

Teacher efficacy factor	Mean	SD
Instructional strategies	7.1	0.9
Classroom management	7.2	1.0
Student engagement	6.4	1.0

Scale: Response to "How much can you do?" 1-nothing, 3-very little, 5-some influence, 7-quite a bit, 9-a great deal.

In terms of the level of job satisfaction, agricultural educators reported the highest level of agreement with statements related to the teaching and competence and effectiveness aspects of their jobs. Job factors with the lowest level of agreement included teaching as a profession and careers. A summary of the mean scores for each of the factors related to job satisfaction is reported in Table 2.

Table 2.

Job satisfaction scores of agricultural educators.

Job factor	Mean	SD
Assignment	3.9	0.7
Attributes	3.7	0.7
Students	3.6	0.6
Teaching	4.0	0.6
Teaching as a profession	3.2	0.7
Competence and effectiveness	4.2	0.6
Careers	3.5	0.9
Appreciation	3.8	0.8
Administration	3.7	0.8

Scale: 1-strongly disagree, 2-disagree, 3-undecided/no opinion, 4-agree, 5-strongly agree.

The purpose of objective three was to determine the relationship between the teacher efficacy factors and the job satisfaction factors. A Pearson Product Moment Correlation was calculated to determine the relationship between each variable. A substantial association (Davis, 1971) was found between the teacher efficacy factor instructional strategies and the job factor competence and effectiveness. Similarly, substantial relationships (Davis, 1971) were discovered between the teacher efficacy factor classroom management and the job factors teaching and competence and effectiveness. Substantial relationships are denoted in Table 3 with a ^ symbol. A summary of the correlations is reported in Table 3. Moderate relationships (Davis, 1971) are denoted in Table 3 with an asterisk (*).

Table 3.

Correlations between teacher efficacy factors and job satisfaction factors.

	Teacher Efficacy factors		
Job Satisfaction factors	Instructional strategies	Classroom management	Student engagement
Assignments	.27	.38*	.27
Attributes	.26	.29	.31*
Students	.29	.44*	.48*
Teaching	.46*	.57^	.42*
Teaching as a profession	.22	.22	.35*
Competence and effectiveness	.58^	.52^	.44*
Careers	.41*	.34*	.43*
Appreciation	.35*	.37*	.38*
Administration	.28	.27	.31*

Conclusions/Recommendations/Implications

In terms of teacher efficacy, agricultural educators felt they had quite a bit of influence, or were most efficacious with the factors classroom management and instructional strategies, while believing they had some influence with regard to the factor student engagement. Overall, agricultural educators possessed a high level of teacher efficacy.

Agricultural educators had no opinion or were undecided regarding the level of satisfaction with the job factor teaching as a profession. Overall, agricultural educators agreed with the statements related to the level of satisfaction with the job factors assignments, attributes, students, teaching, competence and effectiveness, careers, appreciation, and administration. For the most part, agricultural educators were satisfied with their jobs.

While the student engagement efficacy factor yielded the lowest score, the factor correlated moderately (Davis, 1971) with eight of the nine job satisfaction factors. Secondary agricultural educators' efficacy in engaging students will result in moderate increases in their overall job satisfaction.

The three teacher efficacy factors (instructional strategies, classroom management, and student engagement) all correlated moderately or substantially (Davis, 1971) with the job satisfaction factors teaching, competence and effectiveness, careers, and appreciation. Interestingly, the efficacy factors instructional strategies and classroom management substantially (Davis, 1971) correlated with the job factor competence and effectiveness, while the efficacy factor student engagement correlated moderately (Davis, 1971) with competence and effectiveness. The teacher efficacy factors appear to have the greatest relationship with the teaching, competence and effectiveness, careers, and appreciation aspects of secondary agricultural educators' jobs. An increase in teacher efficacy will result in a substantial increase in teachers' feelings of competence and effectiveness as related to their job satisfaction.

Conversely, the lowest relationships were found between the three efficacy factors and the job factors assignments, attributes, teaching as a profession, and administration. Ultimately, teacher efficacy has little influence on these specific aspects of secondary agricultural educators' level of job satisfaction.

Particular attention should be directed to the fact that the lowest teacher efficacy score was on the factor student engagement and the lowest job satisfaction score was on the factor teaching as a profession. The researchers were surprised that the lowest efficacy score was on the factor student engagement as secondary agricultural education is often thought of as a "hands-on" subject area. The findings led the researchers to believe that more pre-service and in-service education must take place in order to increase the level of teacher efficacy related to student engagement. Pre-service teacher educators may also be interested in the fact that secondary agricultural educators' were least satisfied with the teaching as a profession aspects of job satisfaction. In order to retain quality teachers, the profession must consider what can be done to increase the level of satisfaction with how secondary agricultural educators' view teaching as a profession in relation to their level of job satisfaction. A more positive view of the profession one is engaged in may lead to a longer term commitment in the profession.

The data from this study support the notion that, for the most part, higher levels of teacher efficacy will result in higher levels of job satisfaction. The next step is to determine how to increase the level of teacher efficacy among in-service secondary agricultural educators. Local school administrators, teacher preparation units, and private organizations providing professional development programs should consider planning professional development opportunities for in-service teachers based on the teacher efficacy factors (instructional strategies, classroom management, and student engagement). Of particular emphasis should be activities focused on student engagement, since this was the lowest score found in this study, but had the most consistent relationships with the job satisfaction factors. Pre-service teacher preparation programs should also consider how the teacher efficacy factors are incorporated into the coursework of the initial teacher preparation program.

Future studies should examine efficacy and job satisfaction scores between teachers with less than five years experience and those with experience of five years and more, in order to determine if differences exist between these groups since many teachers leave the profession within the first five years (Ingersoll, 2004). Also, since nearly 75% of the individuals surveyed were male, an analysis of the differences between efficacy and job satisfaction scores between men and women may uncover useful findings for the profession.

Ultimately, local school administrators and teacher preparation units should be aware of the relationships between the teacher efficacy factors and job satisfaction factors in an effort to increase teacher retention. To this end, future studies on secondary agricultural educators' level of teacher efficacy and job satisfaction should include data collection on teachers' plans for staying in or leaving the teaching profession. What relationship exists between teacher efficacy, job satisfaction, and retention? Alternately, a longitudinal study utilizing a cohort group of secondary agricultural educators may yield useful findings in the efficacy, job satisfaction, and career intentions of this group of teachers. Finally, additional constructs should be examined to

determine the relationship with job satisfaction, which may be one of the critical components to teacher retention.

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Comparing Agriscience Education Student Achievement in Science to the General Student Population in a Midwestern State

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Abstract

The purpose of the study was to investigate agriscience education student achievement on the Michigan science assessment test compared to the general student population score on the same measure of achievement. Science integration in agriscience programs is a trend in response to federal mandates for increased student academic achievement and elevated teacher certification standards in relation to Public Law 107-110, the No Child Left Behind Act. The sample consisted of completers of Michigan high school agriscience programs with science scores taken from the state's educational assessment program. The agriscience population science test mean was not found to be statistically different from that of the general student population. Recommendations were to offer life science credit for agriscience coursework and to conduct item analysis on the science test into the various domains of science.

Introduction/Conceptual Framework

Education is important to our country because it influences the earning potential of individuals within the labor force (United States Bureau of Labor Statistics, 2006). In recent years, the emphasis on competency testing throughout the United States has focused on the knowledge students possess at different points in their educational experience (Education Commission of the States, 2008a). The ever-increasing focus on grade level testing has also garnered attention from individuals involved with teacher preparation and certification (Education Commission of the States, 2008b).

Agriscience education programs have a tradition of serving students through classroom education, leadership development and experience-based learning opportunities (Hoover, Scholl, Dunigan & Maontova, 2007). These programs often implement leadership development through the National FFA Organization and develop experience-based learning opportunities through Supervised Agricultural Experience (SAE) Programs. Classroom education is developed through theoretical and laboratory instruction in the production, science, business and technology of agriscience (Hoover et al.).

In 1988, many Michigan public high schools (N=119) started offering agriscience classes for science credit. Since then, greater demands have been placed on science-based objectives in addition to the existing career and technical education standards within each agriscience course

(C. Arensmeier, personal communication, May 20, 2004). The need for science certification in addition to agriscience certification of teachers became necessary as a number of agriscience programs shifted their instruction from a vocationally-oriented approach to a more science-oriented approach. The additional certification was also necessary to ensure that teachers were competent in the expanded technical knowledge in the sciences (C. Arensmeier).

The Michigan Department of Education assesses student knowledge of the Michigan Curriculum Framework using the Michigan Education Assessment Program (MEAP). The high school MEAP test is traditionally given during the 11th grade of high school, but 10th grade students may request to be tested as well (Michigan Department of Education, 2008a). The MEAP test assesses the areas of language arts, mathematics, science and social studies. Raw scores of science determine placement into four scale score levels (2008a). Testing cycles during spring of 2003 and 2004 were investigated in this study. During that cycle, MEAP Science scores were classified into four levels (2008a):

- Level 1 is labeled *Endorsed and Exceeded Michigan Standards* with raw scores of 637 and above out of a total of 1136 points.
- Level 2 is labeled *Endorsed and Met Michigan Standards* with a score range of 530 – 636.
- Level 3 is labeled *Endorsed at Basic Level* with raw scores of 500 – 529.
- Level 4 is labeled *Not Endorsed* with scores of less than or equal to 499.

In addition to school assessment of student achievement, individual students who score at Level 1 or Level 2 in all subject areas earn a $2500 scholarship (State of Michigan, 2008).

Michigan State University (2008a) houses the only teacher certification program for individuals to become certified to teach secondary agriscience education in the state. The Department of Community, Recreation and Resource Studies within the College of Agriculture and Natural Resources administers this program (2008a). Students traditionally complete a Bachelor of Science degree in Environmental Studies and Agriscience with a concentration in Teacher Certification in Agriscience and Natural Resources (ANR) Education and then complete a yearlong teaching internship following undergraduate graduation for completion of a five-year teacher preparation program. Students also complete a teaching minor in academic areas such as biology, earth science, physics or chemistry. Other teaching minors include mathematics, language arts, and social studies. A majority of the agriscience teachers included in this study completed a science-related minor. Upon completion of the five-year agriscience teacher preparation program, students emerge from Michigan State University with a provisional teaching certificate in agriscience education and a teaching minor in addition to vocational certification (Michigan State University, 2008b).

Currently, the increased demand on high school performance has been affected by a "report card" that is released by the Michigan Department of Education (2008b). The Michigan Department of Education report card assigns each school a letter grade based on an index of performances. One-third of the grade is based on school and community activities and outreach. The other two-thirds of the grade is based on student performance on the MEAP test (2008b).

According to the United States Department of Education (2008a), state assessment of a local school's performance in student achievement is driven by the federal government's increased expectations on student learning and teacher certification. The Elementary and Secondary Education Act of 1965 (Public Law 89-10) was re-authorized in 2002 with Public Law 107-110, also known as the "No Child Left Behind" Act (NCLB). The law places strict mandates on student performance and teacher qualifications (United States Department of Education, 2008b). A component of the legislation is to close achievement gaps of under-achieving students measured by student assessments at the state level. In Michigan, student assessment is measured with the Michigan Education Assessment Program (Michigan Department of Education, 2008a).

Another component of No Child Left Behind is in the area of teacher certification (United States Department of Education, 2008b). Federal policy outlines that schools comply with the federal law and that they carefully analyze their staff's qualifications and certifications. Specifically, teachers must be certified as "highly qualified" within a specific field in order to teach within that field according to the federal guidelines. They meet the "highly qualified" criteria if they pass a basic proficiency test and subject area tests of that certifying area (Michigan Department of Education, 2008d). Current Michigan teachers meet certification requirements of No Child Left Behind if they are granted a degree from a certifying unit and are teaching within their certification area (Michigan Department of Education, 2008c).

A majority of Michigan agriscience programs offer science credit for their classes (R.J. Showerman, personal communication, June 25, 2007). As agriscience students acquire science credit for these courses, federal and state mandates call for accountability for the qualifications of teachers and the performance of students (United States Department of Education, 2008b). Based of the endorsement of science credit for agriscience courses, teacher qualifications and student achievement, this study analyzed the results of a standard measure of achievement in science and compared those student completers of an agriscience program with the general student population. Connors and Elliott (1995) found no significant difference within sub-groups of a sample of Michigan high school senior students on a science achievement test. Chiasson and Burnett (2001) revealed Louisiana high school students enrolled in agriculture courses scored significantly higher on a state science assessment and that they were more likely to pass the science assessment.

Purpose/Objective

The purpose of the study was to investigate the science achievement between agriscience education student and the general student population as measured by the Michigan science achievement test. To specifically address the purpose of the study, the following objectives were outlined:

1) *identify completers of high school agriscience programs*
2) *determine their categorical score and raw score on the MEAP science test*
3) *compare the agriscience program completer population to the general population*

Agriscience programs were defined as programs situated in formal high schools and program completers were classified as students completing a sequence of agriscience courses as defined by the Michigan Department of Education. For testing purposes, null and alternate

hypotheses were developed. The hypotheses outlined were non-directional. The null hypothesis was:

H$_0$ There is no difference in mean scores of the agriscience program completer population and the general student population as measured by achievement in MEAP science test scores.

The alternate hypothesis was:

H$_1$ There is a difference in mean scores of the agriscience program completer population and the general student population as measured by achievement in MEAP science test scores.

Methods/Procedures

This study utilized a causal-comparative design. When considering the hypothesis for the study, the null hypothesis was that no difference exists between MEAP science mean scores of the agriscience program completer and the general student population. The alternative hypothesis was there is a difference between the two populations. Because an experimental design would be impractical in manipulating the variables to answer this question, the causal-comparative design was the best fit for the study (Raudenbusch, 2008). A correlation study was not in order because there is only one dependent variable and categorical data was used in the analyses throughout the study (Ary, Jacobs, & Razavieh, 1996). A challenge related to causal-comparative design is that randomization does not occur as it would in experimental design (Bernard, 2002).

The agriscience program completer population data included test scores from completers of agriscience programs in Michigan high schools who completed the MEAP science test from the 2003-2004 and 2004-2005 academic years (N=593). This sample was drawn from the population of all Michigan high school students (N=65,535) who completed the MEAP science test during the same time period. The agriscience program completer population was limited to Michigan high schools with agriscience programs. Agriscience program completers from career and technical centers were excluded from the sample population due to collection limitations of the available data sources.

The main instrument was a database to collect student data from the Michigan Department of Labor and Economic Growth Office of Career and Technical Preparation on completers of agriscience programs from the academic years of 2003-04 and 2004-05 in Michigan. This instrument provided student data from the Michigan Department of Education school district codes and high school building code number along with a unique student identification number. The instrument also included data on student science scores and placement levels from the Michigan Education Assessment Program housed by the Michigan Department of Education's Office of Educational Assessment.

The Michigan Department of Labor and Economic Growth Office of Career and Technical Preparation housed the necessary demographic data on program completers. A request with Human Subjects Approval was submitted and approved by the Director. The data included a list of all agriscience program completers for the time period of the study. Primary information included a Unique Identifying Code (UIC) number for each student. Other data gathered included gender,

school district code and building code. The Michigan Department of Education Office of Educational Assessment housed the data on student science scores from the Michigan Education Assessment Program. Upon approval, the Manager of General Assessment provided access to science test score information including test cycle, science raw score defined as numerical data, and science placement level defined as categorical data. The data on the program completers was cross-referenced with the science test score data to create a database of 593 students. Numerical data expressed as raw scores on the MEAP science test determined the categorical data expressed in four levels on a scale of "1" through "4"with "1" representing highest proficiency and "4" representing lowest proficiency.

Statistical analysis procedures utilized the Statistical Package for Social Science (SPSS v. 15, 16 and 17) in consultation with a university statistical consulting service. Because the null hypothesis was non-directional, a two-tailed t-test with alpha set *a priori* at 0.05 was used to compare the mean science score of the agriscience program completer population in the study (N=593) with that of the general population (N=65,535) of Michigan high school students taking the MEAP science test during the same period.

Results/Findings

The number of subjects in the general population was 65,535 and the agriscience program completer population was 593. The mean science score for the general population was 529.68 with a standard deviation of 59.39 ($M = 529.68$, $SD = 59.39$) versus the study population with a mean science score of 526.13 and a standard deviation of 50.13 ($M = 526.13$, $SD = 50.13$). Both the general and agriscience program completer populations had a median of 528. The general population had a spread of 794 versus the agriscience program completer population with a spread of 302. The general population had a minimum score of 69 and a maximum score of 863. The agriscience program completer population had a minimum of 387 and a maximum of 689.

Descriptive statistics of the general population of students and the agriscience program completer population who took the Michigan Educational Assessment Program science test during the 2003-04 and 2004-05 years are listed in Table 1.

Table 1. M*EAP Science Achievement Test Descriptive Statistics of Michigan High School Students*

Statistic	General Population	Agriscience Program Completers
	N = 65535	N = 593
M	529.68	526.13
Mdn	528	528
SD	59.39	50.13
Range	794	302
Minimum	69	387
Maximum	863	689

Histograms organizing the distribution of science scores were created to show the frequency of scores for the general population and the agriscience program completer population. Figure 1 shows the frequency of scores for both populations with science raw scores on the x-axis and frequency on the y-axis. When comparing the distribution of scores on the histogram, both populations showed a symmetric, unimodal distribution. It is important to discern if score distribution in the agriscience program completer population is similar to the distribution of scores within the general population. The frequency distribution was included to illustrate that the agriscience program completer population was similar to the general population in distribution of scores.

General Student Population Science Score Distribution
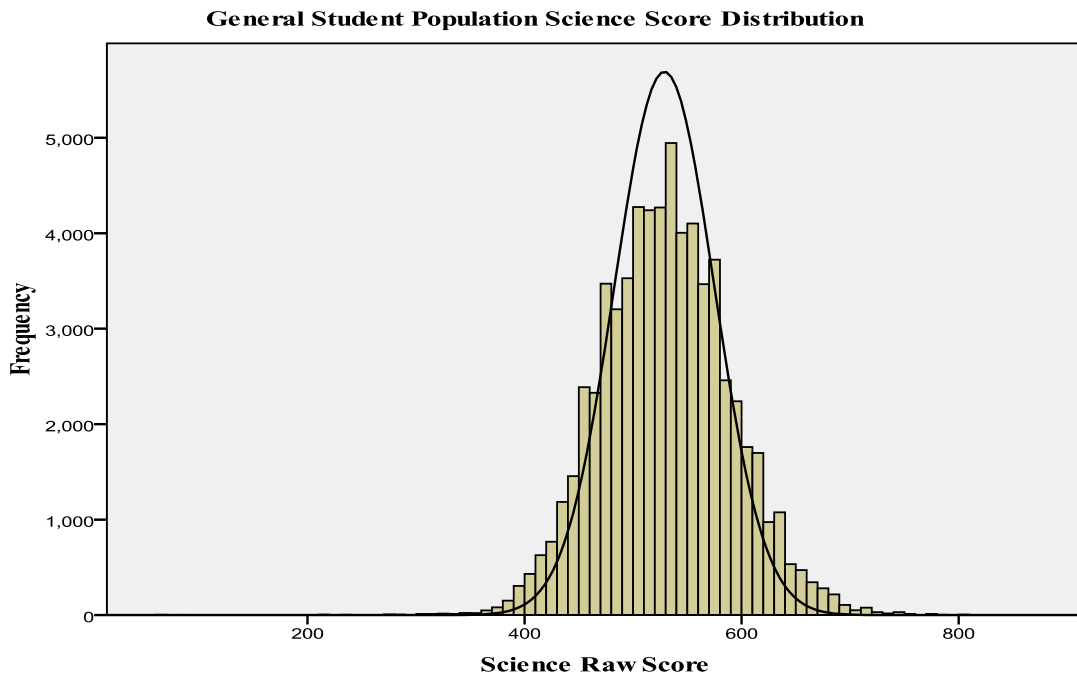
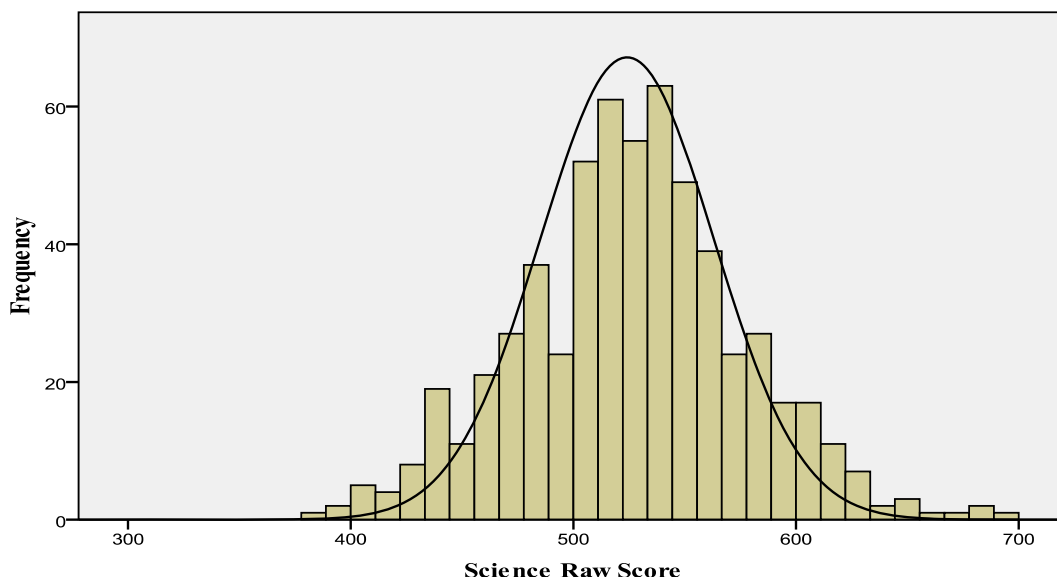**Agriscience Program Completers Science Score Disribution**

*Figure 1. M*EAP Science Achievement Test Score Frequencies of Michigan High School Students

A two-tailed t-test was conducted to determine if there was a statistically significant difference in mean science scores between the general population and the Michigan agriscience program completer population. This was the appropriate analysis method as mean differences were being investigated and also because the hypothesis for the study was non-directional. The general population test score mean (*M* = 529.68, *SD* = 59.39) was not statistically significantly different from the agriscience program completer population test score mean (*M* = 526.13, *SD* = 50.13), *p* = 0.9253 (two-tailed). Table 2 is a summary of the two-tailed t-test. Based on the statistical analysis, the alternate hypothesis was rejected and the null hypothesis was retained for the research objective.

Table 2. *MEAP Science Achievement Test Two-tailed t-test Between the General Overall Population and Michigan Agriscience Program Completers*

	General Population	Agriscience Program Completers	Difference
Population	N = 65,535	n = 593	
M	529.68	526.13	3.55
SD	59.39	50.13	59.31
t	8.91	10.49	0.06
df	65,534	592	66,126
95% Confidence Interval			
Lower Bound	413.28	427.68	-112.70
Upper Bound	646.08	624.58	119.80
P-value	4.84E-19	9.50E-24	0.9523

Conclusions/Recommendations/Implications

The study objective identified completers of Michigan high school agriscience programs and determined their categorical score and raw score on the MEAP science test and compared the agriscience program completer population to the general population. The agriscience program completer population was exclusively comprised of completers of Michigan high school agriscience programs in a traditional setting, and did not include program completers from career and technical centers, career academies, or other programs offered outside of the traditional high school concept. Descriptive statistics of the general population and the agriscience program completer population produced variation in maximum and minimum scores which resulted in the general population with a larger spread of scores (794) than the agriscience program completer population (302). It is concluded that the agriscience completer population had fewer extreme scores resulting in a smaller spread of scores. Both populations' scores appeared to be normally distributed when plotted on a histogram. Because the hypothesis used for this objective was non-directional, a two-tailed t-test was used. The results revealed no statistically significant difference between the agriscience completer population and general overall population mean scores on the MEAP science test.

The finding was consistent with earlier research in the area of student performance on science achievement in similar studies in the field of agriscience education. Connors and Elliott (1995) found no significant difference within sub-groups of a sample of Michigan high school senior students on a science achievement test. One difference between this study and the Connors and Elliott study is this study utilized census data and Michigan Department of Education data compared to a sample of four Michigan high schools and a general science knowledge test used in the Connors and Elliott study (1995).

The findings from this study did not support the Chiasson and Burnett (2001) study where Louisiana high school students enrolled in agriculture courses scored significantly higher on a state science assessment and that they were more likely to pass the science assessment. This study and the Chiasson and Burnett study are similar in datasets as both employ census data studies, but the two differ in that this study investigated a unique subpopulation of agriscience students in Michigan compared to a census of all agriscience students in Louisiana. This study defined the sample population as completers of Michigan high schools that offered agriscience programs. The Chiasson and Burnett study included all 11th grade agriscience students' test scores on the Louisiana state science proficiency test.

The findings revealed no statistically significant difference in the mean scores of the agriscience completer population and the general overall populations. This finding was supportive of the statement that all agriscience program completers achieve equal scores to the state general student population. Science test scores are used to categorize students into four levels. Level 1 is the highest proficiency and Level 4 is the lowest proficiency. Levels 1 and 2 meet state science standards, whereas Levels 3 and 4 do not meet state science proficiency standards. The agriscience completer population had a lower percentage of students in Level 1 and 4 and a higher percentage of students in Levels 2 and 3 when compared to the general population. Based on the findings in this study, agriscience programs did not have as many high achieving students, such as Level 1

type. Shelley-Tolbert, Conroy and Dailey (2000) revealed that agriscience teachers anticipated more high achieving students as a result of science integration.

High school students who achieve a Level 1 or 2 rating in all core areas of the Michigan Educational Assessment Program earn a $2500 scholarship (State of Michigan, 2008). In addition, the aggregate test data for each school is used to evaluate schools as a part of No Child Left Behind (Michigan Department of Education, 2008b). These two factors create a situation where state assessment is "high stakes" for both students and schools. Students are working to earn scholarship money and schools are being evaluated based on the same assessment. As students and entire schools receive increasing publicity for their ability in local, state and federal assessments, parents and administrators are looking for programs that can positively influence student success in these assessment tools.

As state curricula change, so do measurement and assessment practices of students and schools. Michigan assessments are changing to include the Michigan Core Curriculum tests of mathematics, language arts, science and social studies along with an assessment by the American College Testing (ACT) Program (Michigan Department of Education, 2008e). The ACT assessment is an additional indicator of student performance and is correlated to future success in post-secondary education (ACT, Inc., 2008). Additional assessment components add another dimension to better understanding the impact of the educational process. The science component of the ACT assessment includes science interpretation that is linked to reading and reasoning proficiency. Because of this change in future science assessments, it is recommended that agriscience programs include additional emphasis on reading to help students excel on the science component of the ACT assessment with its increased focus on reading.

The findings of research objective one provided baseline data for further research. Additional research should compare achievement of agriscience students to students in other career and technical programs. This study was limited to Michigan high school agriscience program completers. Future research should include science test item analysis to better understand which domains of science are taught and assessed through the Michigan Agriscience and Natural Resources Curriculum. Biology is the primary domain integrated in the curriculum. Chemistry and earth science are also integrated in the curriculum, but to a lesser extent.

Michigan high school graduation requirements include life science, physics or chemistry, and one additional science class (Michigan Department of Education, 2008f). Examples of the additional science classes include advanced levels of biology, chemistry or physics, advanced placement courses, specialized courses such as microbiology, ecology or genetics, or agriscience courses with a science emphasis. The Michigan Department of Education should grant life science credit to students for successful completion of an agriscience program with an emphasis in courses such as animal science, plant science and natural resources assuming life science standards are met. Agriscience programs should review their content area and align their courses to meet science credit requirements of their school.

Contingent upon the Michigan Department of Education granting life science credit to agriscience program completion, community colleges and universities should accept agriscience coursework as entrance credit in the area of life science. It is also recommended that all agriscience

programs in Michigan develop articulation agreements with community colleges and universities for courses that align with technical training programs in agriculture. An example of this is an agreement where a high school student completes a secondary agriscience course in horticulture and the community college or university accepts completion of the secondary agriscience course as completion of its equivalent at the post-secondary level.

The analysis of the agriscience program completer population and the general population showed no statistical difference in mean score on the Michigan Educational Assessment Program Science test. Based upon this finding, it is concluded that agriscience students have an equivalent science experience through assessment from their agriscience courses. High schools should look to the agriscience program as an option for students who have interest in the field of agriculture for contextual learning in science. Future research should focus on the efficacy of student preferences in regards to science curriculum choices in agriscience and student achievement in science.

Ricketts, Duncan and Peake (2006) investigated science achievement in Georgia as affected by degree of involvement in the agriscience program. This study considered science achievement as one score. Additional investigation including mapping test items to science domains on the EAP science test would help better understand if there are certain domains of science where agriscience students have more, or less, of an advantage. Additional research on subject matter content including mathematics and language arts would also contribute to the understanding of the impact of agriscience education efforts in the state.

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Gearing Students for Employability: A Qualitative Descriptive Study on How Secondary Agricultural Education Teachers in a Southern State Motivate Their Students to Participate in Career Development Events

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Abstract

Research conducted in agricultural education revealed a lack of participation among FFA members. However, of those FFA members who are participating in FFA events, students were most satisfied with their experiences in Career Development Events (CDEs). The purpose of this qualitative study was to describe how secondary Oklahoma agricultural education teachers motivated their students to participate in CDEs. To understand how teachers motivate students, this study used the expectancy-value theory of motivation Findings revealed six themes teachers drew upon to motivate students These findings included 1) drawing upon the traditions and successes of the chapter, 2) providing opportunities for students to compete, 3) promising students that they would gain life skills, 4) enabling students to have fun, 5) actively recruiting members who showed potential for doing well with CDEs, and 6) making CDEs an integral part of the classroom curriculum.

Introduction/Theoretical Framework

Talbert and Balschweid (2006) found that youth involvement in Career Development Events (CDEs) offered benefits such as fostering citizenship, moral development, academic involvement, and community involvement. As such, Talbert and Balschweid recommended that students should be involved in intra-curricular activities. Unfortunately, only 56% of FFA members participated in CDE events; a lost opportunity that results in a breakdown of the FFA purpose and mission for preparing youth for leadership roles in society.

When asked what part(s) of the FFA program students most enjoyed, Reis and Kahler (1997) reported that students were most satisfied with their experiences related to FFA organization and CDEs. Given students' propensity for enjoying CDEs, why are so few (56%) actively participating in them? Does motivation (or a lack of) rest upon the teacher to encourage students to participate? If so, what motivational factors can be identified to help focus teachers' efforts toward engaging more students in CDEs?

Beekley and Moody (1980) found that students were extrinsically motivated to participate in CDEs. Elliott and Knight (2005) reported that teachers would be more successful at motivating students if they utilize both extrinsic and intrinsic motivational techniques. Moreover, Dolisso and Martin (1999) stated an individual is more motivated to participate in an activity if he or she knows they will receive a reward for their participation.

Regardless of the type of motivation employed (i.e., intrinsic or extrinsic), effective agricultural education instructors have the ability and obligation to motivate students to prepare for CDEs (Roberts & Dyer, 2005). One means of motivating students is through the expectancy-value theory (Schunk, Pintrich, & Meece, 2008). According to Schunk et al. (2008), "expectancies are people's beliefs and judgments about their capabilities to perform a task" (p. 44). "Values refer to the beliefs students have about the reasons why they might engage in a task" (Schunk et al., 2008, p. 44). Students will not participate in an activity if they expect to fail. If students value a task, they may try the activity; however, if they fail, they will not longer participate in the activity. The same is true for how students value an activity. If students value an activity, they will participate. However, if students are successful at an activity but do not value it, they will not participate (Schunk et al., 2008). By teachers utilizing the expectancy-value theory, they can predict a student's future behavior, engagement, persistence, and achievement based on both the students' expectancies and values (Schunk et al., 2008).

Two models including Lewin's level of aspiration and Atkinson's achievement motivation model have had great influence on expectancy-value theories of motivation (Schunk et al., 2008). Level of aspiration refers to the kinds of previous experience(s) an individual has encountered with achieving a similar task and the goals he/she sets for accomplishing the task at hand. Schunk et al. (2008) found several implications with this model. These implications include "participants felt more successful from meeting the goals they set for themselves than from attaining an objective goal" (p. 45). Second, prior experiences played a role in the level of aspiration. Third, individuals are affected by groups and adjust their goals to the groups' level. Atkinson's achievement motivation believed behavior was composed of three components including motives, probability for success, and incentive value (Schunk et al. 2008).

The current expectancy-value model "proposed that education, vocational, and other achievement related choices are more directly related to two sets of beliefs: the individual's expectations for success, and the importance or value the individual attaches to the various options perceived by the individual as available" (Eccles, 2007, p. 105). Expectancies are influenced by an individual's experiences over time. The value an individual places on the task is based on attainment value, intrinsic and interest value, utility value, and cost.

Attainment value is defined as "personal importance attached to doing well on, or participating in, a given task" (p. 109). Individuals will participate in an activity when they see it represents them. Individuals can express themselves or conform within a group with their participation. It allows individuals to show their mastery or competence of a given task. Eccles, Barber, Hunt, and Stone (2003) found the attainment value allowed individuals to fill identity needs.

Social and personal identities have the most influential value for an individual on the value an individual places on a specific task. Intrinsic and interest value refers to the pleasure or expected pleasure one gains from a specific task (Eccles, 2007). Utility value is the usefulness of a task. At times, utility value can be viewed as similar to extrinsic motivation. Cost is "what the individuals has to give up to do a task" (Eccles, 2007, p, 113).

Purpose

The purpose of this study was to qualitatively describe how secondary agricultural education teachers in a southern state motivated their students to participate in CDEs using the expectancy-value theory as a framework for collecting and interpreting data (Schunk et al., 2008).

Methods/Procedures

The study used a qualitative case study design advocated by Merriam (1998). Merriam (1998) stated "qualitative researchers are interested in understanding the meaning people have constructed, that is how they make sense of their world and the experiences they have in the world" (p. 6). The study focused on gaining an in-depth understanding of a phenomenon based on the perceptive of the participants, known as emic or insider's perspective (Merriam, 1998).

Participants were purposively selected from this states' agricultural education teachers who had won the most CDE events at annual competitions. The sample frame used to select the teachers was obtained from this states' CDE chairperson. The list of sweepstakes winners was ordered by placement for the years 2008, 2007, 2005, 2004, and 2003. The 2006 list could not be located. The researchers selected the teachers who had the highest averages for top rankings within the specified years. According to Ary, Jacobs, and Razavieh, (1972) "purposive sampling is a nonprobability sampling technique in which subjects are judged to have the sought after characteristic are included in the sample" (p. 180-181). In this case, the "sought after characteristics" were the ability to win the most CDE event competitions, known as sweepstakes, consistently. Eight teachers (five men and three women) were identified and agreed to participate in the study ($n = 8$).

The researcher served as the instrument throughout the study (Guba & Lincoln, 1989) by conducting long interviews with the participants face-to-face. The interviews were conducted using a highly structured interview protocol (Dooley, 2007). However, the researcher diverged from the interview protocol in order to probe the participants to gain an in-depth understanding of their responses.

The interview protocol was developed by the researchers, guided by the research question and theoretical framework for the study. The instrument was pilot tested on four individuals who previously taught secondary agricultural education for a minimum of five years each.

Credibility was established in this study by conducting member checks throughout and after the interviews, which is the single most important technique a researcher can use to establish credibility (Guba & Lincoln, 1989). Specifically, throughout the interview, the interviewer summarized the statements made by the respondents to confirm the interviewer was interpreting the statements of the participant correctly. At the conclusion of each transcription, the researcher sent participants a copy of the transcription by e-mail to ensure the interview reflected the voices and intent of the participants.

Dependability was established by the researchers following rigorous guidelines for conducting the study during each interview (Guba & Lincoln, 1989), and confirmability was

established by the researcher checking the data throughout the entirety of the study (Guba & Lincoln, 1989). Further, the researcher guaranteed an audit trail to ensure dependability and credibility of the data (Trochim, 2006) by archiving all documents related to the study

The data collected for this study consisted of field observations and interviews. The participants received a phone invitation from the researcher asking them to participate in the study. Once participation was confirmed, a date was selected. The researcher met the participant and observed each teacher in their classroom setting. At the conclusion of the observation, each teacher was interviewed for approximately one hour.

Data were analyzed and coded line-by-line ". . . to identify core consistencies and meanings" of the data (Patton, 2002, p. 453). Through the process of coding, repetitive themes, which occurred throughout the data, were sorted out (Patton, 2002). Further, similar words, sentences, phrases and paragraphs were grouped into categories, known as themes (Dooley, 2007). At the conclusion of the coding process, memoing was used to capture important findings emerging from the study. Memos were written on a separate sheet of paper in order to summarize the data from each interview.

Results/Findings

The purpose of the study was to describe how secondary agricultural education teachers in this southern state motivate students to participate in CDEs. In all, six distinct themes were identified to respond to the studies' purpose. The eight teachers who participated in the study motivated students by 1) drawing upon the traditions and successes of the chapter, 2) providing opportunities for students to compete, 3) promising students that they would gain life skills, 4) enabling students to have fun, 5) actively recruiting members who showed potential for doing well with CDEs, and 6) making CDEs an integral part of the classroom curriculum.

In general, teachers representing these successful FFA chapters had a long tradition of participation in CDEs. Further, these chapters had won numerous awards over the years and had the support of community members and parents. Moreover, the students who participated in CDEs practiced several hours each week, set goals for their teams and learned valuable life skills that could be used after graduating high school. Students also had fun when participating in CDEs. In addition, very little money was required from the students or their parents to participate. Finally, participating in CDEs was seen as a reflection of the instructor's competency.

The participants in this study included five men and three women. However, to keep all respondents confidential, pseudonyms using one gender have been used to describe the findings. The researchers will report the data using rich, thick descriptions. The direct quotes from the interview include the pseudonym along with a line number from the transcription to serve as an audit trail.

Theme: Tradition and Success of the Chapter

Secondary Oklahoma agricultural education instructors reported that students need to experience some kind of success in order to continue their participation in CDEs.

Being successful was discussed by all eight participants during the interviews. Sarah stated "students have to have success to be motivated. If they are not having a little bit of success, they are not going to go [to practice for the contests]" (111). If students do not experience success, they will move on to another task either within or outside of the FFA chapter. Monica added "everybody wants to be part of something successful. If you are not successful, they are not as likely to be a part of it" (98). Joyce commented, "Once they [the students] get [to the competition] the first time they tried it and did well or okay, they will want to do it again" (98). According to the expectancy-value theory, if students expect to fail they will not participate in an activity. Therefore, they must experience early and continued success in order to participate (Schunk et al. 2008). As well, success is a strong motivating factor for students to continue with an activity (Newcomb, McCracken, Warmbrod, & Whittington, 2004).

Further, the teachers who had success with CDEs, had a long tradition of participation in CDEs within their school. Joyce, stated "It is a tradition [at our school to participate in CDEs]" (95). Jaime added, "We have done this [participated in CDEs] for so long that they [the students] have an idea of what they want to do" (47). Students want to carry on the tradition of success within the chapter. Students may have had family members who were part of a successful CDE team and want to continue with that tradition.

Observation Notes: When entering each of these eight participant's classrooms, the lead researcher noticed that numerous awards and trophies were displayed both in the classroom and throughout the school building, further verifying a rich and long tradition of success. Numerous schools displayed all of the previous awards won by former students at both national and state level contests to serve as motivating factors for current students. For Joyce, these awards served as a constant reminder for students because, as she stated, "If you look at the wall in there, all of those trophies represent state championships" (91).

The display of awards provided students a clear image of how successful they could be if they were willing to put in the time, dedication and work needed to be successful. Not only were awards displayed throughout the school, but students were also awarded individual rewards at practices, contests, or at their chapter banquet. These rewards consisted of food, beverages, and trophies. The teachers motivated the students by the rewards students could earn as a result of their success. Reilly gazed at the students who were walking into the classroom and stated, "People want to be a part of something bigger than themselves and they want to succeed at something, so if they have a class that already is offering that material and that information, why not compete in a contest so they can receive recognition for it" (117)? The excitement was heard in Cori's voice as she added, "We give rewards at our banquet to those teams and individuals who succeed at higher levels. We give special awards to the ones who compete, are doing extra, and giving extra [by competing in CDEs]" (190). Kali commented, "Sometimes, I bring them food when it [practicing] is getting old to them. I will bring in cookies or I will bring in drinks" (179).

Students are encouraged when they see they can win scholarship money, pins to sport on their FFA jackets, special treats, and trophies and plaques to be displayed in the classroom for all to see. According to the teachers, these rewards provide students a sense of pride, and they motivate them to do well because students are more likely to participate in an activity if they know they are going to be rewarded for their efforts (Dollisso & Martin, 1999). Beekley and Moody

(2001) stated that students are being rewarded for their success in CDEs. The behavioral approach to motivation rewards students based on a specific behavior (Woolfolk, 2004).

The majority of respondents had community members including former students, parents, and industry experts assist with preparing the teams to enhance their success. Sarah posited "I definitely always have a mom or two or dad who comes. Sometimes I will have some older kids who have been through the program come in and listen to reasons" (349). Monica added "We have to use people that have expertise in those areas that we don't in order to be competitive on a year-to-year basis" (122). Jaime commented, "We have a lot of former students come back and help [prepare teams that they were a part of]" (146).

While preparing for CDEs, several schools have community members come into the classroom and assist with preparing the teams. Reilly stated, a key is to "find someone that is successful in that CDE area [where you are lacking] and get help" (313). By and large, each community wants to continue the tradition of CDEs and assist with the success of the current CDE teams.

In summary, students are motivated by experiencing success and recognition by the teacher and community for their involvement in CDEs. Students need to experience some type of achievement in order to continue with an activity. If students are not experiencing success, they will find another activity they can participate and be successful in, either within or outside of the FFA chapter in order to be a part of something that is successful.

Theme: Opportunities for Competition

Teachers reported that today's students are very competitive, which serves as a driving factor for their desire to participate in CDEs. The students are also goal or task oriented and winning CDEs was seen as the goal.

Six agricultural educators (Sarah, Monica, Cori, Joyce, Reilly, Kali) stated students enjoyed competition. Cori added, "The competing I think they [the students] enjoy" (100). Additionally, not only do students compete against one another at interscholastics offered throughout the state, they also compete with one another in their high school. For example, Joyce stated,

> Here we have a very active ag mechanics class and part of that education, in training of the requirements for the class, I try to stimulate and motivate those kids to use those skills that they are learning in a competitive way. What they learn in class is what I try to highlight and enhance to use in competition (52).

Edwards and Booth (2001) stated it is imperative for students to learn competitive skills. Talbert and Balschweid (2004) stated competition can have benefits for students who participate. Wilson and Anderson (1986) found that a good teacher will provide students with the information they need to be competitive and instill in their students a winning attitude.

All respondents reported students spend time practicing for the contests before school, during school, after school, on weekends, and at home on their own time. Commenting about practice, Kali stated, "All CDEs are competitive so they need to learn that they can't just show up, they have to do preparation, they have to get ready, they have to practice, they have to get ready on their own, so they have to learn that stuff" (113). Further, Kali added, "They learn more preparation equals more success and some kids are pushed harder by competition and if it's not competitive, they are not going to work as hard and it is not as fun. The more competitiveness there is, the harder they work and the more they get out of it in the end" (238). At the start of each competition season, the teams set goals for themselves. Jennifer said "We set goals in steps all the way up [to the contest]" (175). Jaime affirmed,

> If we are just starting with a brand new bunch and it is a team that neither of us are real familiar with, we just may set a goal to try and maybe improve scores from the first contest to the last. Now with that same token, we have some kids that we knew were pretty good in some areas so we have a little higher expectations for them. (134).

Sarah stated, "We are trying to win the state" (260). "It is always dealing around those two days of state interscholastics with our teams" (270). Cori responded "to win state championship. That would be our main goal and I would say on every team and some of them may have higher goals than that but that would certainly be the goal every year" (160).

The goals are both long term and short term. The overall long term goal for the majority of CDE teams in Oklahoma is to win the state contest. Monica commented, "We always start with the goal to win and be state champions" (189) so that the team can represent this state in Indianapolis at the National FFA Convention on the national level.

Additionally, throughout preparing for the contests, students and teachers set goals at the beginning of each practice, and those goals need to be met prior to the conclusion of practice. Some students post their goals for the duration of practice to serve as a reminder and to keep them motivated and focused while preparing for the contest. Kali stated,

> A lot of times we will write their goals down. Some teams will make a big poster and they may write the team down that they want to beat. A lot of times we just have them write down their goals . . . [and] stick [them] up on the wall during practice so they can see [them]. Or we will have a picture of something to remind them of their goal (169).

If there is ever a lack of motivation when preparing for a contest, reminding the students about the goals they set can serve as a tool to regain motivation. Joyce added "They want to do well and compete well because that's instilled by the goals that were made." (232). Principle four of the Principles of Teaching and Learning states "that students are motivated through their involvement of setting goals" (Newcomb et al. 2004, chap. 2).

Theme: Life Skills

All teachers reported that students, as a result of participation in CDEs, were more prepared for their futures by gaining life skills.

All eight agricultural educators discussed the numerous benefits their students gained as a result of CDE competition. The teachers believed that CDE competition prepared students for life after high school. Sarah stated "[They] obviously will leave with some of the skills that they will carry right on into their colleges and careers" (153). Discussing the life skills students will gain, Monica commented "Responsibility, time management, communication, work ethic, and all of the hard work is a by-product of those skills that are learned that we use" (134). Jaime added "They become more confident in public speaking and visiting with people at interviews" (98). Further, Joyce stated, "They gain a sense of pride in themselves, sense of accomplishment that they can do it, sense of teamwork that they can share work with another person and both be successful and then they accomplish abilities to succeed in life after school" (254). Additionally, Reilly stated, "To gain those life skills, be able to gain leadership and teamwork skills, and be able to speak in front of the public, they [CDEs] help people prepare for their future by giving them skills that will be useful in their careers" (247). Cori added,

Life skills, team working, how to get along with the members of your team. Leadership, there is a certain amount of that, that goes on with a team. The cohesiveness of the team. It brings a lot of that out that you don't realize it but it does (121).

Finally, Kali concluded,
I feel like just a positive dedication that they have learned, the work ethic they have learned and their contribution. Just the main thing they have learned how to work for something and not just to have it handed to them (244).

Possible life skills students gained as a result of participating in CDEs include greater knowledge of agriculture, communication skills both written and verbal, interviewing skills, responsibility, dedication, and a positive work ethic. Further, by participating in CDEs, students have items they can list on their resume to showcase their involvement within an organization. Placing in competitive events is two-fold for the individual. Students can be on a successful team or students may place where they would have hoped to have done a little better. This lower placement can serve as a motivating factor because students want to be part of success and will work harder to place in a higher spot at the next competitive event.

Talbert and Blaschweid (2004) found that students who participate in CDEs did indeed acquire life skills. Further, Daily, Conroy, Shelley-Tolbert (2001) found participation in CDEs allowed students to engage in teamwork, speak publicly, debate, write and prepare for future careers in agriculture.

Theme: Enabling Students to Have Fun

Students must enjoy the activity and have fun with it or they will not continue to devote their extra time to CDEs.

Six interviewees (Sarah, Monica, Jaime, Cori, Kali, Jennifer) commented that participating in CDEs must be fun for students. Teachers felt it was their responsibility to make the students' experiences enjoyable. Jaime said, "The only way you can involve kids is to make it fun" (236). Joyce added "I try to make it fun" (269). Cori smiled and commented "I think it is fun for them"

(99). Kali expressed friendliness and added "Let them have fun and they will spread the word to other kids" (270). Jennifer said "A lot of my kids do it just because it is fun" (93). If the event that students will be participating in is far enough away from the school, teachers will plan an overnight trip. Sarah stated, "They [the students] like going out and meeting other students and becoming involved that way. They do meet a lot of friends and maintain those friendships through the competitive season" (143). Further, students are able to visit places they would not have ever gone had it not been for their involvement in CDEs. As a result of students' participation in CDEs, teachers will reward the students. Monica commented,

> If you only have one kid that shows up to go [to the contest], take them. Feed them a big steak, take them on go-kart rides and when they come back [to school] and talk about those things, next time there will be three or four [students] who want to go. Just have fun when they go and let the other things [awards] take care of themselves (322).

Theme: Recruitment of Members

Several Oklahoma secondary agricultural education teachers recruited students who had potential to excel in a specific CDE area into the program.

The livestock industry is a big part of many rural people's lives, as beef production is the number one cash crop in this state (USDA, 2007). Therefore, six teachers (Sarah, Monica, Jaime, Joyce, Reilly, Cori) recruited pre-high school youth who they know had an active role in this states' livestock industry to participate in the livestock judging CDE. Sarah stated, "The younger kids that are coming up in the 4-H program will run [hang-out] with us. So a lot of times, I will identify those students and get them judged a bit [so they have experience judging] before they become freshmen" (53). Teachers will recruit younger members to be on a team that has more experienced members in order to pass knowledge from one class to the next. Joyce commented "I try to use juniors so that if their skills are there, and in the hopeful event that we win the state contest, they will come back next year as seniors to go to the interscholastics at Indianapolis at the National FFA Convention" (75) with the hope that when CDE team members graduate high school, younger members will understand what is expected to be successful as a team.

Students are also recruited based on their interests. Jennifer stated "My philosophy is simply whatever the kids are interested in, we are going to try it" (38). Monica added

> We may encourage them strongly that this is where we need you, this is where you can help us the best, the quickest, and if they still decide to do this, that is fine, and if they still want to go to a different area, that's fine too. (77).

Further, Reilly added
We just try to find a place that fits those students and their interests because we find that they are going to have the most success because they are going to be more interested in learning the material, and a lot of times those students come to the classes that they may be interested in like my agricultural communications class. That is their interest, so we tend to participate in the CDEs toward the classes (38).

For example, if a student is in a floriculture class and the instructor notices they have a real interest in floriculture, they may recruit that student for the floriculture CDE.

The pleasure students gain as a result of participating is the utility value portion of the Expectancy-Value Theory (Schunk et al., 2008). Therefore, if students are having fun or gaining pleasure, they will place a high utility value on the task. Bajema, Miller, and Williams (2002) found participation in the FFA develops students' socialization skills.

Theme: An Integral Part of the Curriculum

The teacher presents information on CDEs to students within the first year of enrolling in an agricultural education class.

All eight participants build CDE lessons into the curriculum so all students are aware of the possibilities in which they can participate. Jennifer stated, "In November, regardless of age, we go over the types of CDEs. Even if they have heard it before, they hear it again" (33). Monica added "I may teach a soil and water lesson to a class that has three CDE members in it so that everybody gets exposed to it, so they're a little father ahead for after-school practices" (142). Sarah stated, "I know some people say you shouldn't teach CDEs and I say well, they call it *career development events* and if these students are learning skills for careers, that probably beats teaching them something they will never use" (219). Further, participation in CDEs is an extension of classroom learning for the students. It is an opportunity for students to take what they have learned in the classroom and apply it to a competitive event. Joyce stated, "What we learn [in class] is what we do for competitions" (153). However, not all preparation for CDEs is completed during the school day. The teachers reported students spend a great deal of time preparing for CDEs before school, after school, during study halls, and at home.

Additionally, because CDEs are integral to the curriculum in Oklahoma, secondary agricultural education instructors feel students' participation and success in CDEs is a reflection on them as an instructor. Kali stated,

> Not every kid is going to be successful and that is not necessarily our fault, but our job is to push them to reach and so I feel that somehow it reflects on us as teachers to getting them to that point, pushing them, motivating them that far (254).

Joyce added "I only look good as a teacher if my kids look good first. So if we as teachers take care of our jobs, teach well and motivate well and inspire well and the kids come through and they do well, yes, the teacher looks good, but only if kids look good first" (345). Additionally Jennifer stated "If they don't do good, then I am thinking we should have been up here studying more or I should have gone and got more resources" (267).

CDEs serve as a connection between what students learn in the classroom and career success (Connors & Mundt, 2001). Beekley and Moody (1980) stated teachers can organize the curriculum based on CDEs and work with students after or before school and on weekends to prepare them for contests. Edwards and Booth (2001) stated teachers need to "tie it [curriculum] to the event" (p. 24).

Conclusions

In conclusion, the findings from this study upheld the Expectancy-Value Theory (Schunk et al., 2008). Teachers reported that their students were motivated by the existing tradition and success of the FFA chapter. All of the teachers who participated in the study were experienced, had rapport with both the community and students, and have had students compete on the national level. Tradition and success of the chapter relates to the attainment value portion of the Expectancy-Value Theory (Schunk et al., 2008). Participating in CDEs was important to the individual because they had a desire to maintain the rich tradition and success present within the community. Moreover, students expected to be successful when they participated and had a high expectancy for the task as reported by the teachers. Fortunately for students, FFA is a place where they can find success (Croom & Flowers, 2001). Teachers stated students were motivated to participate in CDEs because they were provided the opportunity to participate in competition. Students found the task to be useful, and they expected to do well. Therefore, students had a high utility value for the task as well as a high expectancy (Schunk et al., 2008) for achieving success.

Talbert and Balschwied (2004) posited that competition in youth activities has numerous benefits to the youth involved. On the other hand, Croom and Flowers (2001) found that competition can be discouraging to some youth enrolled in the FFA. However, Edwards and Booth (2001) opined that it is important for students to learn competitive skills as part of cultural expectations.

Students were also motivated to participate in CDEs because the teachers made it fun for them. In order for students to compete, they must have fun while practicing and participating. The pleasure students gained as a result of their participation prescribes to the utility value of the Expectancy-Value Theory (Schunk et al., 2008). Therefore, students who have fun or gain pleasure and have a high utility value for the task will be motivated to continue with the task. Bajema et al. (2002) found participation in the FFA develops students' socialization skills.

Teachers reported that their students participated in CDEs based on the rewards they would receive at the conclusion of the event, either intrinsic or extrinsic. Rewards were of personal importance to each individual, accounting for one characteristic of the attainment value (Schunk et al., 2008), which states the more important the reward is to the student, the higher attainment value that participant will seek.

Agricultural educators recruit members to participate on specific CDE teams within the chapter. The recruitment process can be based on students' interests or strengths. If the recruitment is based on the individual's interest, then the individual would have a high utility value because the task would be more useful for them. This finding supports research by Edwards and Booth (2001) who stated teachers need to "probe for interest" from the students when recruiting for a specific CDE (p. 24).

CDEs should be an integral part of the curriculum and serve as a tool for students to showcase what they have learned in the classroom. Further, CDEs are an extension to what students learn daily in the classroom. Therefore, the task of participating in CDEs is useful to

students. Therefore, students will have a high utility value (Schunk et al., 2008) for participating in CDEs, if it is an area that was included in their classroom curriculum (Edwards & Booth, 2001).

Implications and Discussion

CDEs are a link to what students learn inside the agricultural education classroom (Connors & Mundt, 2001). With competition, students obtain life skills which prepare them for college and careers (Talbert & Balschweid, 2004).

This study described experienced teachers who had won multiple state-level competitions on a consistent basis, which begs the question, what can early career teachers learn from this study to build a tradition of success within their chapter? Building tradition takes time to develop. As such, perhaps early career teachers should focus on a few select CDEs to "perfect" in an effort to more quickly build tradition in their respective programs.

In addition to building tradition in individual FFA programs, this study also established that in order to motivate students to participate in CDEs, they must have opportunities to participate in competitions, gain life skills, have fun. Perhaps the teachers in this study are using different techniques or methods to motivate their students. Are these teachers creating local competitions in which students participate? Are they stressing to students the life skills they will develop through participating in CDEs? Is there something about their personalities that makes them more motivational to secondary students? Further, this study found that successful teachers actively recruit members to be on CDEs and that they teach CDEs in the classroom. Perhaps these teachers are more adept at understanding certain student personalities or strengths which will resonate to success in various CDE competitions. Also, perhaps these teachers devote much effort, and at times, overemphasize CDE training during class time.

Recommendations for Practice

It is recommended that all teachers build rapport with community members, key stakeholders, parents, and students. This will serve as a motivating factor for students to participate in CDEs. Further, these relationships will allow for the construction of a tradition-rich and successful program by getting industry people involved.

Agricultural education teachers should write curriculum based on relevant information of the CDEs in which they are preparing students to compete (Beekly & Moody, 1980). Enhancing the curriculum to more adequately relate the information presented in a CDE could increase student achievement in the classroom (Talbert & Balschweid, 2006). However, teachers should also be cautioned not to turn into "coaches." As such, they should integrate concepts of CDE competitions into their existing curriculum whenever in naturally emerges.

It is recommended that teachers hold competitive CDE contests on the local level within the chapter to instill a competitive attitude within their students. This will serve as a motivating factor for students to participate in CDEs. Further, since students like to be rewarded for their participation, it is recommended that teachers provide their students with rewards at practices, contests, the banquet, or at the conclusion of the CDE season.

Recommendations for Future Research

This study revealed students like competition and being rewarded for their efforts. While rewards are a form of extrinsic motivation for students, what are intrinsic motivating factors for students? Further research should be conducted to determine how students are internally motivated to train for and compete in CDEs.

As for recruiting select students to compete on CDE competitions, it is recommended that all secondary agricultural education teachers have students complete an interest survey each year they are enrolled in agricultural education to better "fit" students with CDEs according to strengths and interests. This also will eliminate students getting omitted who really wanted to compete on a specific CDE.

Further research should be conducted to identify levels of interest or motives for students in agricultural classes (Talbert & Balschweid, 2004). This study found, tradition and success of the chapter, opportunities for competition, gaining life skills, enabling students to have fun, recruiting members, and CDEs are an integral part of the curriculum teachers to be how teachers motivate their students. Further research should empirically test these variables using a student population.

Talbert and Balschweid (2006) recommended further research be conducted to see why students are not participating in CDEs. This study determined what teachers are doing to motivate students. Further research should look closely at non-participating students within successful programs to see what barriers prevent those students from participating.

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The Meaning Students Ascribe to College Major Choice:
Toward a Model for Minority Student Recruitment

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Abstract

The purpose of this study was to understand the reasons students of a different ethnicity, other than White, made the decision to pursue a career in the field of agriculture, primarily agricultural education. The administration of a phenomenological study allowed the researchers to obtain the overall phenomenon of what thought processes occur that encompass minority students' decisions regarding an academic major in agricultural sciences and related disciplines. Findings described that minority students have external and internal value orientations toward college major choice. When a value is increased toward an academic major prior to college, a student was found to be more apt to pursue a degree in that area. However, value orientations come with barriers selecting agricultural education as a college major. While these are only a few of the themes that emerged from the interview process, they provided insight into how minority students select their academic career major in agriculture.

Introduction/Theoretical Framework

The population of the United States continues to grow and expand into a diverse cultural melting pot (Census, 2006). In 2000, the United States Census Bureau (USCB) issued a report detailing population numbers by ethnicity for 1980, 2000, and predicted values in 2020. The USCB reported the White population to be the only race to decline over the 40-year time-period. The Hispanic population experienced the largest increase in population growth at 11.5% followed by the Asian population at a 3.5% increase growth and African American at a 1.3% increased growth.

With the total population of the United States continuing to diversify, one can easily assume the same trends hold true for the population of students enrolled in secondary schools. However, the same prediction and assumption is not true regarding the diversity of teachers within US schools. In 1991, 7.6% of the total teacher population were African American (nearly 232,000), yet African American students constituted 15% of the total enrollment in secondary schools (National Center for Educational Statistics, 1991). The same data are mirrored for other diverse populations. Hispanic student enrollment in public and private secondary schools accounted for 11% of the population and Asian student enrollment totaled 3%. Hispanic teachers represented 3.4% of all secondary school teachers and Asian teachers represented 1.1% of all teachers in secondary schools. Conversely, the White student population represented 69.6% of the students enrolled in secondary schools, while White teachers represented 87.2% of the teacher population in secondary schools (National Center for Educational Statistics, 1991). As evidenced by the data, one can conclude that the demographics of the teaching population are not representing the demographics of the population of students enrolled in secondary schools

Since 1991, research in multicultural education has described recruitment efforts to increase the diversity of the teaching population (Jeria & Roth, 1992; King, 1993; Hudson & Holmes, 1994; Shipp, 1999; Talbert, Larke, & Jones, 1999). However in 2006, White teachers still comprised of 87.5% of the total teaching population, followed by Black teachers at 7.9% and Hispanic teachers at 4.6% of the total teacher population (Census, 2006). While multicultural literature acknowledged this problem nearly twenty years ago, according to the data, little has changed. Given that 95% of teacher education students come from rural and suburban areas and they intend to go back to those areas on the completion of their degree (Dilworth, 1989), it is reasonable to assume that the discrepancy between the ethnicity of student and teacher population demographics will continue to grow in the United States.

While it can be argued that White teachers can teach non-White students, and vice versa, research has indicated that in order to promote a social change and improve the life circumstances of minority students, minority cultures must be represented in educational roles (Joint Center for Political Studies, 1989). For example, the largest group of African-American professionals to provide leadership within the African-American community has been educators (Franklin, 1990). Furthermore, minority students who are characterized as at risk benefit the most from relationships with minority teachers (Southern Education Foundation, 1990). Furthermore, research explains that children of color need role models (Martinez, 1991; King, 1993). Again, when controlling for student and teacher ability, students of color scored higher on an economic literacy test with the presence of an African-American role model in the classroom (King, 1993b).

The same results hold true for agriculture professions. Minority agriculturalists have been identified as key role models in helping minority students overcome stereotypes about agricultural sciences (Larke & Barr, 1987). Teachers have an impact on students, but all students are different. In secondary agricultural education programs, students of various races scored differently in the areas of 'need for achievement', 'need for affiliation', and 'need for power' (Turner & Herren, 1997). Teachers may not understand these different levels, which could lead to decreased enrollment numbers of minority students. Other factors have been noted to contribute to the deficiency of minority student enrollment such as the perceptions about the agricultural sciences, job availability in agriculture, lack of knowledge of the opportunities available, existence for advancement in a career (Jones & Bowen, 1998; Shipp, 1999; Jones & Larke, 2001) and the FFA-NFA merger in 1965 (Bowen, 2002). One study reported that the race of the teacher had minimal influence on the enrollment of secondary agricultural education classes (Jones & Bowen, 1998). However, the results of the study were limited due to small sample size, unequal variance in the sample, and the results could not be generalized beyond the scope of the participants in the study. As evidence by this literature, it stands to reason that the lack of minority students in agricultural education is influenced by the lack of minority agriculture teachers.

Secondary agriculture programs that have experienced increased minority enrollments have also been found to successfully transition students to college (Esters & Bowen, 2005). These successful transition efforts were primarily in urban secondary school settings, and it has been noted that recruitment and retention efforts need improvement in rural secondary schools (Jones & Bowen, 1998). In order for minority students to be recruited to and attend a post-secondary school, various factors must be implemented (Oliver & Etcheverry, 1987; King, 1993; Esters & Bowen, 2005).

Low minority enrollment in colleges of agriculture in return affects the agricultural industry as a whole (Leatherberry & Wellman, 1988) and Colleges of Agriculture are acknowledging the absence of minority students by implementing strategies to increase awareness, enrollment, and understanding. Youth organizations, such as Minorities in Agriculture, Natural Resources, and Related Sciences (MANRRS), are described as successful routes to increase participation, provide recruitment possibilities and gain success in retaining minority students (Talbert, Larke, & Jones, 1999). However, an attempt to gain a deeper understanding from MANRRS regarding the difficulties in recruiting and retaining minorities into the agriculture profession is limited. Research, in agricultural education, has revealed various factors that contribute career choices and motivational habits of under-represented student populations at the high school and college levels. Examples of such contributers are parental education level, parental income level, father's employer, substantive early exposure, and career opportunities. (Talbert & Larke, 1995; Turner & Herren, 1997; Jones & Bowen, 1998; Terry, 1999; Jones & Larke, 2001; Esters & Bowen, 2004; Esters & Bowen, 2005, Anderson & Kim, 2009). On the opposite end of the spectrum, literature has described the factors that contribute to the decline of minority teachers in American schools. These factors include: 1) *The decline in the number of college students declaring teacher education majors; 2) The decline in minority college students; 3) Widening career options for minorities, especially females; and 4) The institutionalization of teacher competency tests* (Irvine, 1988). Although note worthy, the Irvine study is dated and does not specifically examine minority students who wish to enter the secondary agriculture teaching profession.

With the lack of teachers in the agricultural education profession with a multi-cultural background, agriculture educators seek a deeper understanding as to why minority students seek to overcome the obstacles in pursuing a degree in agricultural education. Researchers realize that a challenge lies in recruiting minority students to the teaching profession and offering them the appropriate incentives for retention (King, 1993). All this begs the question, "What motivates minority students to pursue a career in agricultural education?" One could assume that motivation could be a part of the reason.

Self-Determination Theory

Ryan and Deci (2000b) define self-determination theory (SDT) as a macro-theory of human motivation concerned with the development and functioning of personality within social contexts. In other words, the theory focuses on the degree to which human behaviors are selected based on internal inducements (i.e. intrinsic motivation), external inducements (i.e. extrinsic motivation), or the absence of an inducement (i.e. amotivation). Individuals make their selections based upon reflection of how engagement in a task will fulfill the three basic psychological needs of *autonomy* (self-rule), *competence* (cognitive growth), and *relatedness* (emotional bonding).

Furthermore, Deci and Ryan (1985) introduced a subtheory within SDT, the *organismic integration theory* (OIT), to detailing the different forms of extrinsic motivation and the contextual factors that either promote or hinder internalization and integration. The four types of extrinsic motivation are (a) external, (b) introjected, (c) indentified, and (d) integrated regulation (Vallerand & Bissonette, 1992). *External regulation* occurs when the behavior is regulated with outside inducements, typically with rewards or constraints. *Introjected regulation* occurs when behavior is internally regulated and the individual is self-imp osing rewards or constraints. *Identified regulation* occurs when a behavior is valued by the individual and is perceived as self-chosen.

Finally, *integrated regulation* occurs when the behavior is performed because it fits within the individual's self-concept.

Although the theory uses traditional empirical methods for exploring personality development and behavioral self-regulation (Ryan, Kuhl, & Deci, 1997), it was implemented conceptually in this study to frame participants' motives for academic major selection. Through the course of the study, the researchers sought to understand the reflected events and activities in which minority students engaged in that led to the self-determination to pursue a particular career. The researchers analyzed the responses to identify participants' motives for career selection, within agriculture professions.

Purpose and Objectives

The purpose, or central question, of this phenomenological study was, "What are the central reasons college minority students selected agriculture as their academic major?" The objectives/sub-questions were: (1) Why did minority students select teaching agriculture at the secondary level as their profession; and (2) Why did minority students not select teaching agriculture at the secondary level as their profession? The researcher sought to describe the essence of the reasons for minority students' selection of agricultural professions.

Methods and Procedures

In this study, the self-determination theory was utilized. The researchers evaluated the theory through the steps of a phenomenology. The procedures for phenomenology, as illustrated by Moustakas (1994), consist of identifying a phenomenon to study, bracketing out one's experiences or biases, and collecting data from several persons who have experienced the phenomenon.

Sample

A purposive sample of ten minority college undergraduates (seven females and three males) participated in this phenomenological study. Polkinghorne (1989) suggests that a true phenomenological study consist of the researcher interviewing 5 to 25 individuals who have all experienced the phenomenon. The ethnicities of the participants were African American (five students) and Latino American (five students). Each of the participants was an undergraduate student within the United States. However, one participant represented the non-traditional student. The participants comprised mostly of agricultural education (eight out of ten) students with a majority of the population (seven out of ten) from rural or suburban America.

Research Design

In phenomenology, the researcher seeks to describe the meaning for several individuals of their lived experiences of a concept or phenomenon (Creswell, 2007). Phenomenology is an attempt to approach a lived experience and future vision of an experience with a sense of "newness" in order to elicit rich and descriptive data into a firm interpretation. In the process of bracketing, the researcher has the opportunity to treat the data in all its forms equally by setting aside one's beliefs, feelings, bias, and perceptions to be more open or faithful to the phenomenon (Denzin & Lincoln, 2000). The two researchers participating in this study acknowledged and attempted to bracket any possible biased experiences such as being a former minority undergraduate student in agricultural education and the perceptions of rural bias based upon one of the researcher's upbringing. No participant was a student of either of the researchers.

Procedures

After approval from the university's Institutional Review Board and the advisor of the National organization of Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS), undergraduate students attending the MANRRS conference were approached and asked to participate in a nine-question semi-structured interview of about one hour. After obtaining informed consent, ten students from the conference participated in the research. The interview took place during the first day of the MANRRS conference at a designated area appointed by the advisor of the National MANRRS Organization (March 27, 2009). The interviews were audio-recorded and transcribed verbatim. A homogeneous type of sampling was utilized. Miles and Huberman (1994) explained this form of sampling that focuses, reduces, simplifies, and facilitates group interviewing.

A semi-structured interview protocol was prepared to assess minority student's passion for following a degree path in agricultural education or the reason for not following an agricultural education degree path. Two researchers moderated the question and interview session. All of the students' names were coded and a reflective journal was kept throughout the process in order to bring any research biases to light. The journal helped in organizing thoughts and strategies as well. A follow-up email asking for verification to responses and additional information was sent to each participating subject to validate the findings.

Data Analysis

Moustakas' (1994) phenomenological method was employed in analyzing the transcripts of the participants. In this method, eight systematic steps in the data analysis procedures and guidelines were set for assembling the textual and structural descriptions.

Trustworthiness

The process of validation followed the format set by Creswell and Miller (2000). The researchers made use of multiple and different sources, methods, and investigators to provide corroborating evidence including different research sources, follow-up interviews, and diverse methods of questioning to triangulate the responses. An outside source was utilized to review the transcription and coding to validate the process described the end sought as the peer debriefing process. The researcher provided all respondents with the findings and asked for a confirmation/approval of the results as member checks. A detailed and thorough process of coding took place through separation of comments, highlighting key remarks, and writing of common themes. Finally, an audit trail was created of all recorded transcriptions, sketched ideas, developed notes, summarized field notes, and identified codes. These audits kept a consistent flow of research and discussion limiting the amount of error in the findings.

Results and Findings

Minority students identified several areas of the agricultural education profession as factors leading to their selection of an academic major in college. Minority students seemed to select their agriculture profession, primarily agricultural education, due to internal and external values. However, barriers must be transversed before minority students will choose a major related to agriculture, including agricultural education. Figure 1 illustrates a conceptual model for recruiting

minority students into agricultural education profession, as outlined from the major themes identified in this study.
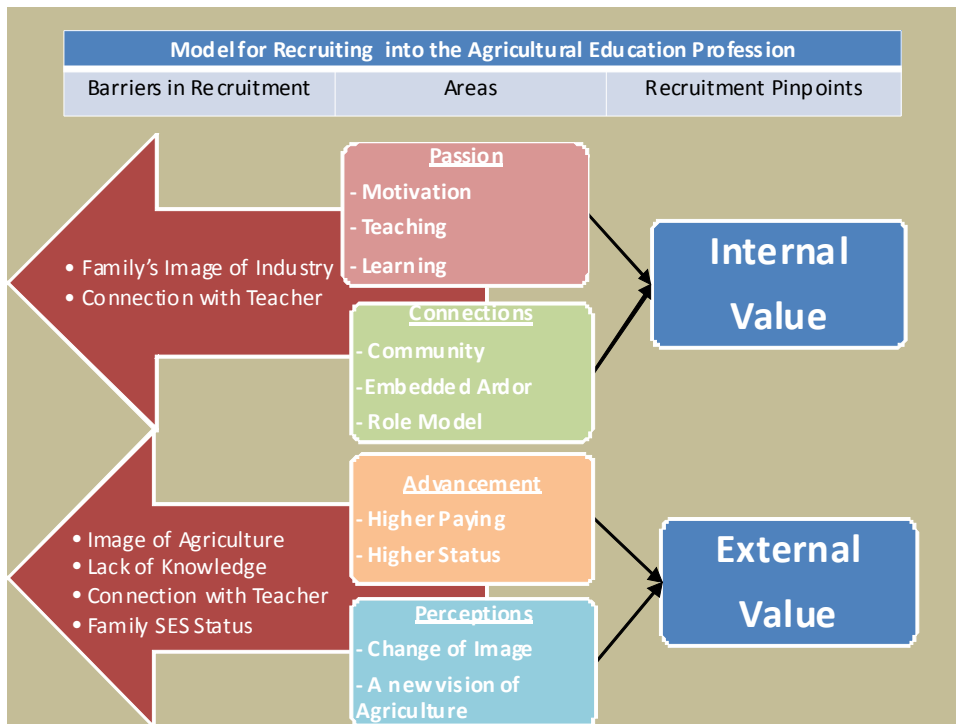

Figure 1. Model for Recruiting (Minority Students) Into the Agricultural Education Profession

Internal Value

Internal value emerged from the coding as a major thematic area and was defined by the researcher as the inherent worth of an act in a decision coming to fruition. In this study, participants were motivated to choose agricultural education and other agriculture majors due in part to the internal value they placed on the profession, and the internal worth they could glean from working in that profession in the future. Participants who selected agricultural education for an internal value were driven by the fun or challenge associated with the profession rather than on external accolades, recognition, or money. In this study, the researchers found two areas that represented the theme of internal value: passion and connection.

P*assion*

Whether students had graduated from a secondary agricultural education program or had entered agricultural education or other agriculture majors relatively uninformed about the profession, students of different minority groups expressed a passion for agricultural education making a positive difference through teaching and philanthropic activities. For participants who indicated that they had specifically chosen to go into teaching, they noted a passion for motivating others, a passion for teaching, and a passion for learning. This was noted by several quotes by participants throughout the interview:

"I love students and I love learning myself."

"I enjoy learning and the only way to continue learning is by teaching."

"…the only thing I had interest in was education so I said, okay, I'll take Ag education."

"It is really important for me to teach, it's just my passion."

"…I want to be there to just push them and help them get up and walk."

"…but then again, I want to love what I am doing."

"…a passion to help people with what they need and so on."

Connection

Participants were found to have an internal value for connecting to individuals who represented their lifestyle or embedded ardor for or devotion to agricultural education or other agriculture disciplines. Participants identified with agricultural education as a connection to some key facets such as giving back to their home community, or serving as a role model. These facets allowed these students to derive a purpose for the major constituting as an internal value. In order to provide these key facet, the participants noted that a connection with a leader in the agriculture industry served as a motive for selecting their academic major. It was noted that representatives from the USDA, the extension service, and the university were all beneficial in motivating the participants' interest toward the agriculture industry. These connections were illustrated through the following quotes:

"I never saw myself or immersing myself in agriculture, but because of her (secondary agriculture teacher), I see that."

"Six years after I graduated from high school, I still have that connection with him (secondary agriculture teacher)…he influenced me to appreciate agriculture and the diversity of agriculture."

"It's worth it if you're giving back to something that put so much into you."

"I could influence others or the world to a better environment, wait a minute, I can still teach and teach agriculture? Why didn't I think of this in the first place?"

"I just could feel the connection because I feel comfortable speaking Spanish with my teacher, not in English."

"I would love to talk to those students and steer them in the right direction."

"My high school teacher convinced me to go into agriculture."

"Well my mom motivated me. She is a single parent and raised me and my little brother so that is what motivates me to go to school."

External Value

The second major thematic area that emerged from the coding was External Value. External value was referred to as the regulation or act of advancement in a social setting. External value was identified as a thematic area where minority students were motivated toward a particular major, specifically because of the perceived professional advancement they could acquire in that major. Specifically, participants with an External Value orientation were motivated into

agricultural education by the possibility of advancement and the perceptions they had for agricultural education and related disciplines.

Advancement

Externally, minority students were influenced by the advancement options following their initial career selection in agriculture or agricultural education. Individuals who were able to persuade the participants to select agriculture or agricultural education provided these students with an insight that a degree in agriculture and agricultural education was a stepping-stone for advancement in pay or status. Each participant, regardless of their ethnicity, understood the need for diversification and each felt that their contribution to the profession would be unique for and diversify the industry. Through the conference interviews and follow-up interviews, the following quotes represented the theme of advancement:

"Agriculture business is a form of business and I diversify myself. Because when you go to mark universities, like Harvard, they want you to diversify."

"YES. My goal is to eventually receive my PhD and teach at Cal Poly."

"I don't want to do it for the rest of my life. I want to be a professor, maybe a dean at a college."

"I could actually see myself teaching at Virginia State University and teaching there."

"I see myself in the agricultural education field for a good five years and ultimately getting my masters in administration and becoming a principal."

Perceptions

The majority of the participants in the study were either not aware of the spectrum of opportunities in agriculture or they believed that a shadow covered agriculture with a negative connotation as discussed later in the barrier themes. However, after someone provided them with a better understanding of the industry, they began to value a major in agriculture or agricultural education. This area served as a stimulus to external value once the students understood that a degree in agriculture or agricultural education opened a door to more than the speculated farming or teaching career option. Direct quotations to represent "perceptions" were as follows:

"The fact that it is everything. It is food, clothes, and everything we need come from Ag. So you don't have to be just a farmer to be in Ag. You can practically work anywhere and be in Ag."

"See, a lot of people don't understand that a degree in agriculture can, actually, do so many different things."

"They (minority students) get exposed to what agriculture science and technology is. After the exposure, they begin thinking about a higher education."

"I am traveling all over the US, they are paying for my college, and I get to spend some time in Arizona."

"I told him (husband) that this would benefit us as a family."

"For me I will stay forever. There are so many opportunities for me in agriculture."

Barriers

Internal Value Barriers

As previously stated, passion and connection are the primary areas of Internal Value. However, the researchers discovered barriers that exist in reducing the value of one's internal reason for selection in agriculture and agricultural education. These barriers, although resembles intrinsic motives from the Self-Determination Theory, are regulated by more self-determined external motives (i.e. introjected and identified regulation) affecting the extrinsic motivation of the student's academic career choice (Ryan & Deci, 2000b). One Internal Value barrier theme that emerged was overcoming the family's image of the industry. Specifically, participants were influenced heavily by what their families did for a living or by what they perceived was worthy in a profession or area of work. The following quotes through personal interviews, conference interviews, and follow-up interviews illustrated the Internal Value barriers:

> "If my family support was not present, I would probably taken over my father's business in Mexico and receive my degree in accounting."

> "My brother steered me toward agriculture even though I did have that negative image."

> "So joining FFA and agriculture, my family is extremely proud because my great grandparents worked in the fields and that is what got them where we are today."

> "…teenagers are in a lost direction and with the right influence, can be on the right direction."

> "That is because since we were young, agriculture is something not encouraged or linked to positive motivation, so most students don't see the need of why to promote agriculture, which is a huge part of agriculture education."

A major theme that emerged within the findings in regards to overcoming internal and external barriers were the attempt to understand, connect with, and communicate among the culture of minority students. To reiterate this message, a few direct quotes were derived from the focus groups such as:

> "It is understanding the culture that you are in. It does not matter whether you are Caucasian or Mexican, African-American or whatever…as long as you understand the culture, you will understand how to influence the students."

> "We look at teachers as a role model. As a person of respect, not saying that other cultures don't, but when my agriculture teacher says that agriculture is a good thing, check it out. What did I do? I checked it out because it is a good thing. He understood what the culture was."

External Value Barriers

The External Value Barriers theme emerged in the findings as the way participants (and those they interact with) perceived about agriculture. These barriers limit the external value orientation to selecting a major in agriculture. The participants' negative perceptions of

agriculture, lack of knowledge about agriculture, and the family's socio-economic status were factors that discouraged a student from considering careers in agriculture and subsequently choosing a major related to agriculture in college (Figure 1). These barriers can be linked to the least self-determined extrinsic motives of external regulation and introjected regulation. During the conference interviews, participants discussed these External Value barriers.

"You are not thinking in high school about how agriculture touches every aspect of life."

"I believe that a lot of Latinos/Hispanics still have a negative perception about agriculture. Most of our ancestors and to this day family members still work in the fields from sun up to sun down with minimal pay. Agriculture is sometimes related to illiteracy, extreme working conditions and very little reward."

"A lot of people have that mindset, maybe not negative, but they think about farms and stuff like that. You have to get them (minority students) past that so they understand it is something different. Even when I came to college at my freshmen orientation class, I still thought of agriculture as being farming."

"As far as law school is concerned, both of my parents want this and they been teaching this since the cradle."

"She convinced me to go into Ag and she pretty much convinced my parents. They were like, Ag, what is that? Agriculture Education, what is that?"

"Then my family, my mother, they all wanted to know, what is a city boy trying to do in agriculture? They thought I was learning about farms and all that stuff.

Participants noted that they had developed negative images of agriculture initially due to a lack of knowledge in or ignorance about the opportunities within agriculture professions. When asked to explain the images of agriculture that the participants had prior to selecting their agriculture academic major, the following perceptions were received:

"Farming"

"Manual labor"

"…a lack of diversity"

"Boom, like, harvesting crops!"

"Which means it takes you back to slavery; it takes you back to manual labor; and that is the first thing you think of."

Conclusions/Recommendations/Implications

The agriculture industry, primarily agricultural education, must strive to close the gap of minority isolation in the high school and university classrooms. The statistical data of the race gap in the industry illustrates this need (Census, 2006). It was concluded from the results of this study that to recruit minority students into agriculture and agricultural education as a major choice, one must address core values of a major choice as they are conceptualized both externally and internally.

Intrinsic motivation is defined by the self-determination theory as doing of an activity for its inherent satisfaction. Students that are intrinsically motivated engage in an act out of curiosity or exploration as in a college major only for the intellectual understanding (Ryan & Deci, 2000b). From the results of this study, internal value was defined as the inherent worth in a decision coming to fruition. It was concluded that internal value that a minority student placed on choosing a major in agriculture or agricultural education was connected to the student's personal views and attachments. Thus, the passion they felt toward working in a particular profession or the connections made to them by individuals in the profession served as sub-themes to the overarching theme of internal value. This is consistent with motivation theory in that passion is developed and nurtured as a result of perceived autonomy support and competence (Mageau, Vallerand, Charest, Salvy, Lacaille, Bouffard, & Koestner, 2009) and connections are representative of relatedness. Agricultural educators must provide various opportunities that allow minority students to believe they have a role in the profession and can be successful in that role. The implication of this finding suggests that there is a need for agriculture educators to become immersed in various cultures by making personal connections with the students, the students' parents, and their communities. This connection would aid in better understanding the internal values that regulate students of different cultures as well as the impact these cultures have on the agricultural industry (Warren & Alston, 2005).

Extrinsic motivation is an activity done in order to attain some separable outcome that leads to avoiding failure or reaching a point of success (Ryan & Deci, 2000a). From the results of this study it was concluded that having an external value toward agriculture or agricultural education as a major was with the textbook definition of extrinsic motivation. Further, it was concluded that students with an external value orientation toward agriculture or agricultural education as a major understood the opportunities for advancement and the perceived thoughts others may have toward their work in the profession. Thus, they selected their major based upon perceptions of how they might advance in the profession. For some of the participants, secondary teaching was seen as a means to an end for becoming an administrator or a professor, rather than being viewed as a terminal career. This is clearly representative of identified regulation because the participants chose this career option as a way to reach a goal (Ryan & Deci, 2000a). This finding implies that to recruit minority students into agricultural education that are regulated by identification, the diversity of career options within the discipline and opportunities for advancement should be outlined.

Recruiters for the agricultural education profession must face and rise above the barriers that limit a minority students Internal and External Value toward agricultural education. In both value areas, the positive connection the secondary agriculture teacher or agriculture liaison has with the student is critical in overcoming these barriers. In this study it was concluded that the barriers to minority recruitment consisted of, but were not limited to, family's image of the agriculture industry, personal perceptions of agriculture, and a lack of understanding of availability. These barriers are similar to the findings from Dyer and Breja (2003). Agricultural educators must implement better strategies that allow minority students to see the available opportunities in agriculture, such as career exploration activities and internship experiences, so that they know agriculture is a viable career option in which they can have experience growth and success (Esters & Bowen, 2003; Esters, 2008; Anderson & Kim, 2009).

Currently, 1890 land grant institutions are utilizing this method of increasing the external and internal value and overcoming barriers with a better success rate than 1862 land grant

institutions (Alston & Westbrook, 2006). This success may be inherent to the type of institution because of the higher minority faculty rate and student population. However, 1862 land grant institutions can create this welcoming environment and overcome the barriers that currently exist by working to diversify the faculty and student population. In addition, teacher education programs must immerse rural pre-service teachers in situations that build understanding (Talbert & Edwin, 2008) and breakdown stereotypical barriers. In order to support the literature, it is recommended that agricultural education put-forth extra efforts in expanding into school districts with diverse populations. This would allow minority students that are not in rural schools to understand the vast amount of opportunities that exist in the agriculture profession. Prior to the expansion, agricultural education, teacher preparation programs must educate and immerse pre-service teachers in an atmosphere that provides them with the necessary tools to teach in a multicultural classroom.

As noted in previous literature, perceptions regarding agriculture and agricultural education creates barriers that minority students must overcome before they can identify the internal and external value of pursuing the academic major (Leatheberry & Wellman, 1988; Dobbins, et.al., 2002). These barriers must be acknowledged as early as possible to provide adequate time for a student to process the career and academic major decisions.

The study provided evidence that the ethnicity of the role model was not a major influence in the internal and external value of a minority student in their decision to pursue a degree in agriculture. Respect for the agriculture industry is present among minority students (Mullinix, Garcia, & Qazi, 2006), but the effort being made to recruit and retain these students are dismal (Bowen, et.al., 1991). Minority students desire to enroll in a class and major in a profession that they can relate with and one that contains a teacher that understands their culture, regardless of that teacher's particular culture. Minor differences were noted between minority groups. All Hispanic students came from a high school where agricultural education was present; while the opposite was true for the African-American students, only two were provided an opportunity to enroll in secondary agricultural education. Agricultural education should extend their service arms to minority students and serve as a link to college and the education profession through urban collaborative projects and academic preparation workshops.

There is a need for similar research at the secondary level between rural and urban students to determine if a difference does exist in rural and urban students as well as white and non-white student populations. It is recommended that a quantitative study is needed toward the efforts placed by universities and high school programs in recruiting and retaining students of diverse cultures. It is further recommended that the level of competence each school and university have in working with and teaching under-represented student populations is needed for the advancement of the profession in this cultural gap. Finally, a mixed methods study should be conducted using the Academic Motivation Scale (Vallerand, Pelletier, Blais, Briere, Senecal, & Vallieres, 1992) and a similar focus group to determine if the measures of intrinsic and extrinsic motivation match the motives identified by participant interviews.

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The Relationship Between Student Teacher Heart and Career Intent

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Abstract

Students enter an agricultural teacher preparation program planning to teach agriculture. However, career intent appears to change during the preservice program for many students. The teacher's "heart" is the combination of a teacher's: mission, faith in teaching, caring for their students, and enthusiasm displayed in the classroom. There is no published research that examines the development of the teacher's "heart" and how it relates to career intent. Further, Palmer (1998) stated that teacher "heart" cannot be developed; only diminished. However, Peterson and Seligman (2004) stated that the virtues of care, enthusiasm, hope, faith, and mission can be developed. No published research exists to discern the "heart" of a teacher, its development or lack thereof, and its change during the preservice program. The purpose of this descriptive correlational study was to determine the level of a teacher's "heart". The study also investigated whether the level of the teacher's "heart" explained the intent to pursue a career in agricultural education. The study found at the conclusion of the student teaching experience, 26% of the variance in career intent was due to the level of the teacher's "heart". Over the period of the student teaching experience, the level of teachers' "heart" significantly increased.

Introduction/Theoretical Framework

The interaction between a teacher and a student in the classroom determines the quality and effectiveness of the instruction, and is often measured by student achievement. Above socio-economic status, educational level of parents, and the school in which the student was enrolled, the teacher has been identified as making the greatest difference, when considering the source of student achievement (Brophy & Good, 1970; Good, 1987; Good & Weinstein, 1986; Darling-Hammond, 1997; Alvidrez & Weinstein, 1999). Since teachers make the greatest difference, teachers are an invaluable asset to the learning experience. Palmer (Intrator, 2002) shared that:

> Teaching, like any truly human activity, emerges from one's inwardness, for better or worse. As I teach, I project the condition of my soul onto my students, my subject, and our way of being together. The entanglements I experience in the classroom are often no more or less that the convolutions of my inner life. (p. 2)

In considering the teaching experience, the core human experience must also be acknowledged. In this study, the innate qualities a teacher possesses is referred to as a teacher "heart", in addition to their skills and perceptions that shape the teaching experience, and by extension, the experience of the learners they instruct. Each factor likely plays an instrumental role in the longevity and success of each teacher (Hoy, 2000; Tschannen-Moran, Hoy, & Hoy, 1998; Palmer, 1998).

Initially, it appears that the number of undergraduate students enrolling in teacher education programs is promising in regards to meeting the expected shortfall in the teacher supply for the next decade (Kantrovich, 2007). However, through their preservice teacher preparation program experience, a very large number of students discontinue their quest to become teachers before they begin their first teaching job. The lack of program completers puts a major responsibility on teacher education programs across the country to retain and prepare preservice teachers to fill the positions.

The most recent national attrition rates available for preservice agricultural education teachers indicated that those teachers who became qualified to teach, compared to those who actually entered the teaching profession, was 59.4% in 2001 (Camp, Broyles, & Skelton, 2002), and was projected by Kantrovich (2007) to reach 53% in 2007. Further, Camp et al. (2002) found that 35 secondary agricultural education programs across the United States closed in 2001, 55 in 1998, and 41 in 1995 due to the lack of highly qualified teachers. According to Rocca and Washburn (2005) "…agricultural education literature provides little explanation of the factors that contribute to the teacher shortage" (p. 270).

The student teaching experience is the capstone in the preparation process to launch successful teaching careers. Pfister (1983) strongly believed that the student teaching experience had to be of the highest quality because it was the most important piece in preparing teachers. Thus, the changes that occur during the student teaching experience are central to the understanding of what makes quality teachers who have successful careers.

Palmer (1998) asserted that the "heart" of the teacher was the key to vitality of both the teacher and learner within any classroom. Korthhagen (2004) identified the most central notion of a teacher's "heart" as the mission of the teacher. The teacher mission illustrated by Korthhagen (2004) is similar to Palmer's (1998) "heart" of a teacher. Palmer suggested that the level of a teacher's "heart" cannot increase, but through discouragement and lack of edification, the level of a teacher's "heart" could decrease.

The theoretical foundation of this study was based upon Social Cognitive Theory (Bandura, 1986; 1997) and explains how personal factors such as the teacher's "heart", interacted with their environment. Further, individual's behaviors were shaped by the environment they encountered as well as the personal factors they possessed (Bandura, 1986; 1997). Social Cognitive Theory utilized a triadic reciprocity to illustrate (*Figure 1*) how behavior was shaped through personal and environmental factors. To tie these factors and behaviors together, Bandura theorized that people were producers and products of their environment (1986).
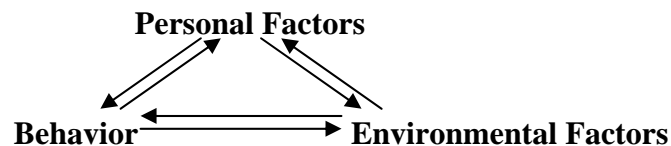

Figure 1: Triadic Reciprocity Illustrating Social Cognitive Theory (Bandura, 1986).

The Social Cognitive Theory can be utilized within the context of student teachers and their student teaching experience. Personal factors are characteristics that student teachers bring to the student teaching experience such as learning style, personality, gender roles, level of motivation, level of cognition, level of "heart", and personal beliefs. Environmental factors are characteristics such as interactions with students, cooperating teacher(s), other faculty, administrators, and student's parents. In addition, other environmental factors include school and community environments. Behavior is the observable action of the student teacher. Interaction between the three areas of personal factors, environmental factors, and behavior occurs constantly and simultaneously.

The interaction of personal factors, environmental factors, and behavior transcends into how a teacher teaches and who they are in their "heart" (Palmer, 1998). The Teacher Heart Model illustrated the components of a teacher's "heart" in relation to the classroom environment in which the teacher interacted with the students. The Teacher Heart Model *(Figure 2)*, developed out of Korthagen's (2004) Onion Model (p. 80) by the researchers, which illustrated the environment interacting with the teacher's behavior (first layer), followed by subsequent interior layers: competencies, beliefs, identities, and mission (at the core).

The teacher's "heart" is the combination of a teacher's mission, the teacher's faith in teaching, the teacher's caring for the students they teach, and the teacher's enthusiasm they display in the classroom (Palmer, 1998; Intrator, 2002). The teacher's mission is at the core of the teacher's "heart". The teacher's mission underlies the teacher's faith, in that what the teacher does, impacts the student's lives for their future. The teacher's faith in teaching underlies the level of care and enthusiasm observed in the classroom environment by students and evaluators. Within the model there are two areas within the teacher's "heart", the teacher's inner-landscape (teacher mission and faith) and the teacher's observable behaviors (caring and enthusiasm).
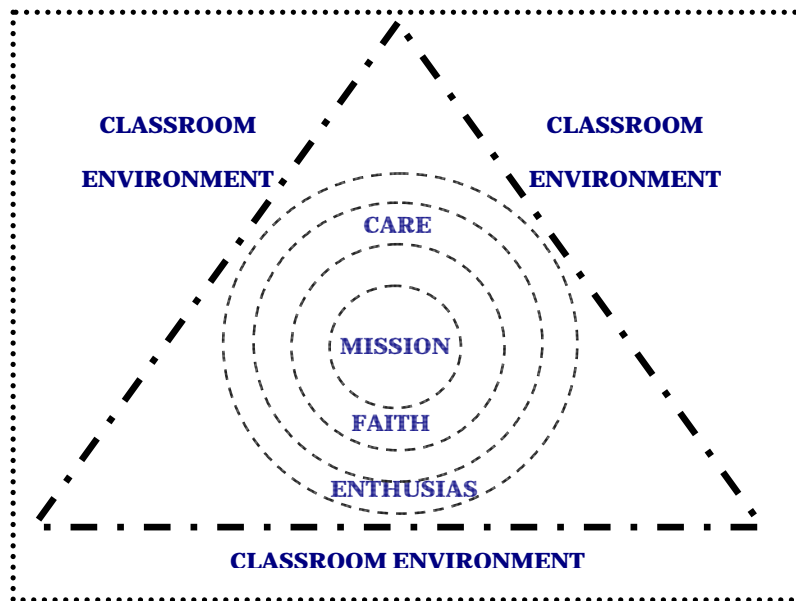

Figure 2: Teacher Heart Model.

While the source of enthusiasm comes from within, the related behavior is observable. Thus, a teachers' enthusiasm is tied to the investment in the hopes of ensuring that students become successful in learning in the classroom today, and for their future ahead (Intrator, 2002). A yearning and passion for teaching and maintaining that passion, and is a prerequisite to remaining in the profession for any length of time (Intrator, 2002). Effective teachers display a high level of enthusiasm (Rosenshine & Furst, 1971).

Another observable behavior of teachers is the level of care with which they treat their students. The quantity of care a teacher extends to the students is reflective of the degree to which the teacher believes the student's success depends upon the teacher (Intrator, 2002). Caring entails:

> The assertion of a common humanity in which others are worthy of attention and affirmation for no utilitarian reasons but for their own sake. The affective or emotional ground of such kindness distinguishes it from a merely dutiful or principle-based respect for other persons"… (example: caring) …"that are not based on an assurance of reciprocity, reputational gain, or any other benefits to self. (Peterson & Seligman, 2004, p. 326)

The National Commission on Teaching and America's Future (NCTAF, 1996) proposed that by the year 2006, every child in America would have access to qualified, competent, and caring teachers. In addition to this report, the No Child Left Behind Act (United States Department of Education, 2002) followed-up on the NCTAF report by stating that a need existed to decrease the barriers that qualify people to get credentials and to increase the competence (subject knowledge) level people must have to join the teaching profession. Noddings (2001) shared that the amount a teacher cares for their students cannot be legislated nor coerced. However, care should be measured and used as one of several measures to allow or not allow entry into professional standing. Further, Noddings believed that the care a student receives is only as good as the level of care the student believed they receive.

In addition to the belief that teachers' efforts will benefit students in the future, they have a faith and self confidence that the advice given to students is correct. It is therefore desirable for students to seek out and accept advice. As Intrator (2002) stated, teachers enjoy the opportunity for "…young people [to] look to [them] for direction, support, and guidance" (p. xxxvi). Naturally, teachers with faith desire to make a difference in the lives of students and seek opportunities to interact for the purpose of enrichment (Intrator, 2002).

In terms of student teachers' career intent between the beginning and end of student teaching, no data existed that examined a change. With approximately only one-third of agricultural education qualified preservice teachers committing to teaching agriculture as a career in the recent past, establishing whether these students career intent changes is important. Negative changes, as a result of the student teaching experience, would warrant investigation into the student teaching experience itself.

Purpose and Objectives

The purpose of this descriptive correlational study was to determine the level of a preservice teacher's "heart" and how these levels changed through the preservice student teaching experience. The study also investigated to what degree the level of the preservice teacher's "heart" explained the student teacher's level of career intent to enter a career in education.

The following research objectives guided this study:

1. Determine if changes in teacher "heart" occurred between post-spring term block, pre-student teaching experience, and post-student teaching experience.
2. Determine if change occurred in student teachers' career intent from pre-student teaching experience to post-student teaching experience.
3. Determine if the relationship between the levels of student teacher "heart" and career intent at the end of the student teaching experience.

Methods and Procedures

This descriptive correlational study examined the level of student teachers' "heart" at three benchmark points (post-spring block, pre-student teaching experience, and post-student teaching experience) in their development as potential teachers. The population for this study was the 34 preservice teachers of who student taught in the fall at a Land Grant University (N=34). This study only included one teacher preparation program, perhaps limiting the findings of this study.

The study utilized the Pulse of a Teacher (PT) Instrument. The PT instrument was developed by the researchers as an interpretation of the work by Intrator (2002) and Palmer (1998). The PT utilized an anchor scale on 20 items. The 9-point scale was anchored with a 1 = "none/nothing", 3 = "very little", 5 = "some", 7 = "quite a bit", and 9 = "a great deal". The instrument was reviewed by six teacher educators at three universities for face and content validity. To determine reliability, a group of 33 preservice teachers, none of which were in the study, completed the instrument. The overall reliability of the PT instrument produced a Cronbach's alpha of .77.

There were three points of measurement during the study. Point I (conclusion of the 2004 Spring Quarter block), Point II (1st week of the student teaching experience), and Point III (2nd week of November at the conclusion of the student teaching experience). At all three points of measurement, the PT instrument was administered to the student teachers, allowing 10 minutes to complete. At the third and final point of measurement, the group was asked to circle only one number for each of the following two questions: "Prior to your student teaching experience, on a scale of 1 to 10, how likely were you to enter a career in teaching?" and "Now that your student teaching experience is completed, on a scale of 1 to 10, how likely are you to enter a career in teaching?" The end of the scale with a corresponding 1 indicated "not likely at all" and the opposite end with a corresponding 10 indicated "highly likely".

The twenty items of the PT instrument measuring a teacher's "heart" were summated and then divided by 20 to give a summated mean PT score. To detect changes of teacher "heart"

between the three points (Objective 1): post-Spring block, pre-student teaching experience, and post-student teaching experience, analysis of variance (ANOVA) was used and set *a priori* at .05. To determine if change occurred in student teachers' career intent from pre-student teaching experience to post-student teaching experience (Objective 2), means were calculated for both pre and post student teaching experience. To determine if the level of student teacher "heart" influenced the student teacher career intent at the end of the student teaching experience (Objective 3), linear regression was utilized. Teacher "heart" was identified as the independent variable, and the dependent variable was career intent at the end of student teaching.

Results and Findings

Objective 1 was to determine if changes in teacher "heart" occurred between Point I, II, and III. The group of student teachers' *(N = 34)* "heart" score decreased between points I and II by -.0103, moving from 7.304 to 7.294, but increased over the student teaching experience (between points II and III) by .306, changing from 7.294 to 7.600. The "heart" scores increased between Point I and III by .296, changing from 7.304 to 7.600. *Table 1* represents the scores of teacher "heart" in the study.

Table 1
Teacher "Heart" Mean Scores Between Points I, II, and III.

Measure	Point I to II	Point II to III	Point I to III
	▲ **1** *M (SD)*	▲ **2** *M (SD)*	▲ **3** *M (SD)*
Teacher "Heart"	7.294 (.678)	7.600 (.699)	7.600 (.699)
	- 7.304 (.713)	- 7.294 (.678)	- 7.304 (.713)
Mean Change	-.0103	+.306	+.295
Effect Size	.015	.450	.419

Note. Scale: 1 = none/nothing, 3 = very little, 5 = some, 7 = quite a bit, 9 = a great deal.

To determine if the Teacher "Heart" mean scores were significantly different between Points I, II, and III, a paired-samples t-test was completed for every set of points, set at the .05 level. Teacher "Heart" mean scores were significantly different between Points I and III, and between Points II and III, both at the .05 level. *Table 2* illustrates the levels of statistical significance for the Teacher "Heart" between Points I, II, and III.

Table 2
Statistical Significance Between Points I, II, and III on the Teacher "Heart" Summated Mean Scores.

Measure	Points	Df	Significance (2-tailed)
	I & II	33	.894
Teacher "Heart"	I & III	33	.002*
	II & III	33	.003*

*Note. *Significant at the .05 level*

Objective 2 was to determine if change occurred in student teachers' career intent from pre-student teaching experience to post-student teaching experience. The group (*N=34*) increased its' desire to enter education as a career score from 8.18 to 8.82 on a scale of 1 = not likely at all, to 10 = highly likely. Pre-student teaching experience responses ranged from 2 to 10, while post-student teaching experience responses ranged from 1 to 10. *Table 3* represents the scores in the student teacher's career intent.

Table 3.
Career Intent from Pre-Student Teaching Experience to Post- Student Teaching Experience.

		Career Intent		▲ In Response
		Pre-S.T.E. Point II	Post-S.T.E. Point III	Point III – Point II
Overall (N=34)	Mean	8.15	8.82	+.67
	S.D.	1.925	2.067	D = -.335

Note. Likelihood of entering education profession: 1="not likely at all" and 10 ="highly likely"
*Note. *Significant at the .05 level*

Objective 3 determined if the student teachers' level of "heart" influenced the student teachers' career intent at the end of the student teaching experience. The student teachers' "heart" mean score explained 26.0 % of the variance in explaining their career intent (*Table 4*).

Table 4
ANOVA of Teacher "Heart" Mean Score and Teacher Career Intent.

	Adjusted R Square	F	Significance
Teacher "Heart" Mean Score	.260	12.605	.001

Conclusions, Recommendations and Implications

The teacher "heart" mean scores significantly increased between Points I and III, and Points II and III. All "heart" mean scores indicated that the student teaching group had "quite a bit" of teacher "heart". By employing the Teacher Heart Model, since the teacher "heart" increased over the student teaching experience, it can be projected that the level of care and enthusiasm in the classroom could be observed at the end of the student teaching experience.

Further research, following the current study's group of novice teachers through their careers would track the development of their teacher "heart". In addition, investigating teacher "heart" at earlier transition points in the pre-service curriculum would also be beneficial in tracking development. Investigating the relationship between teacher "heart" and teacher burnout in relation to teacher experience would also be a worthwhile venture.

Utilizing the Social Cognitive Theory (Bandura, 1986, 1997), it can also be concluded that the student teachers' behavior and interaction within the classroom environment developed a positive change in the teacher "heart". Although the actual factors within the teacher "heart" model through factor analysis are not known, we do know that teacher "heart" can be developed

and changed positively (Peterson & Seligman, 2004). Steps can be taken to improve and strengthen the teacher "heart. The question now becomes how much can teacher "heart" increase?

It is recommended that a factor analysis of the Pulse of a Teacher instrument be conducted. In order to perform factor analysis on the Pulse of a Teacher instrument, the instrument would need to be completed by a larger group of education professional, providing an adequate sample size of at least 300. Interpreting factors from the instrument will greatly assist the development of the Teacher Heart Model. Understanding the interaction between components of the Teacher Heart Model (Mission, Faith, Care, and Enthusiasm) will give better direction to teacher educators on how best to develop and sustain novice teachers in pre-service and in-service education.

It is also recommended that the Positive Psychology framework (Peterson & Seligman, 2004) be utilized to guide the interpretation of the emerging factors at the completion of the factor analysis. Catapulting novice teachers past the critical third year of their teaching career is essential. Since it is known that teacher "heart" is increasable (Peterson & Seligman, 2004), components of the Positive Psychology framework (Peterson & Seligman, 2004) shared within the Teacher Heart Model should be investigated.

At the conclusion of the student teaching experience, an overwhelming majority (88%) intend to enter education as a career. The level of teacher "heart" at the end of the student teaching experience explained 26% of the variance in the score of the group's career intent to enter the education profession. This leaves 74% of the variance unexplained. Since the program has recently only had one third of the graduates enter the teaching profession, it does not align with 88% intending to enter the profession at the conclusion of the student teaching experience. Perhaps there are experiences or factors that contribute to much less than 88% of the candidates going into the profession.

It is recommended that future studies evaluating the potential connection between career intent and actual job attainment in education, and more specifically agricultural education, be completed. Additional research may reveal more information regarding the nature of career intent as it relates to teacher "heart".

Further recommendations for this line of inquiry would be the utilization of the Pulse of the Teacher instrument as a counseling tool regarding recruitment and career redirection. High school teachers and counselors could administer the instrument to high school students who show potential for teaching. These students could easily be identified as participants with an Agricultural Education Supervised Agricultural Experience related to teaching, and those students participating in future educator student organizations. Teacher educators could administer the instrument before admitting students into professional standing in conjunction with an interview and screening of grade point average to provide a gate keeping mechanism. And lastly, if a pre-service teacher appears to be a poor teacher, perhaps re-administering the instrument to the individual may be in order. Based on the results of this follow-up, counseling the individual to redirect their career choice would be in everyone's best interest.

As teacher preparation programs are charged with providing an abundance of highly qualified preservice teachers for successful careers, teacher educators must be keenly aware of the

teacher's "heart". Students need teachers: with a strong sense of purpose (mission), that have faith in what they are doing will make a difference, that deeply care about them and that are enthusiastic about what occurs in the classroom.

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An Investigation of the Academic Advising Needs
of Undergraduate Students in a College of Agriculture

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Abstract

Currently, many higher education institutions struggle to address issues of student satisfaction and retention. Coupled with already limited institutional budgets, a loss of students poses increased concern. A component of most student retention efforts involves an emphasis on student-faculty interaction. Faculty advising is one of the primary types of such interaction and has been cited as a powerful tool for increasing student satisfaction and retention. However, in order to provide appropriate advising, one must first assess students' needs. As a result, this study sought to investigate the academic advising needs of undergraduate students enrolled in the College of Agriculture, Food and Natural Resources (CAFNR) at the University of Missouri (N = 1619). A total of 726 students (44.8%) completed the instrument in the Spring of 2008. Overall, students indicated a high level of importance for many academic advising characteristics. The advising construct which yielded the highest summated mean rating was the Availability/Accessibility construct, indicating students desire an advisor who is easily available to assist them with their individual needs. The construct with the lowest summated mean rating was the Knowledge/Helpfulness construct. When mean importance ratings were compared by sex, academic level, and undergraduate degree program, little variation was noted.

Introduction

As indicated in the recent publication entitled, *A test of leadership: Charting the future of U.S. higher education* (U.S. Department of Education, 2006), lawmakers and educators alike should be recognized for efforts to increase the number of young people seeking a college education. However, "too little attention has been paid to helping them graduate" (U.S. Department of Education, p. 13). Indeed, many higher education institutions continually struggle to address issues of student satisfaction and retention.

What can be done to address these issues? Without a doubt, to adequately satisfy and thus retain students in institutions of higher education, proactive measures should be taken. Research has indicated a definite link between student involvement and student satisfaction (Tinto, 1985). Specifically, Astin (1984) and Pascarella (1985) suggested that regular, meaningful interaction with faculty members may impact student motivation and involvement. Frost (1991) expanded on the positive benefits of such involvement, stating "involved students are more likely to be academically and socially integrated into a college community" (p. 2). Such integration is likely to increase students' success in college (Tinto, 1987).

When students are motivated and involved in their college experience, they are more likely to persist. One study, conducted by Janasiewicz (1987), sought to identify reasons for students to

leave college. The findings indicated that dissatisfied students appeared to be "discouraged" (Janasiewicz), confused, unsuccessful in the classroom, and likely to withdraw from college (Frost, 1991, p. 12-13). Chickering and Gamson (1987) offered that "frequent faculty-student contact in and out of classes is the most important factor in student motivation and involvement. Faculty concern helps students get through rough times and keep on working" (p. 4). Astin (1984) suggested increased student-faculty interaction "could be a highly productive activity on most college campuses" (p. 304).

Academic advising certainly provides such an opportunity for meaningful interaction with faculty. In some cases, academic advising may provide the only structured opportunity for a relationship between a student and an institutional representative (Frost, 1991). Mohr, Eiche, and Sedlacek (1998) found senior students with meaningful relationships with faculty and advisors were more likely to finish their degree program than those who were referred to student services.

According to Gordon (1992), academic advising is a "dynamic process that can have a significant impact on both student and institution" (p. 47). Frost (1991) indicated that quality academic advising programs provide an opportunity for systematic academic planning and enhance retention through student involvement. Metzner (1989) found similar findings, reporting that academic advising can increase students' satisfaction with college and reduce institutional attrition. Cox and Orehovec (2007) explained that when students engage with faculty, they feel valued and important. As one student explained, "You become more than just a number. ...You're no longer just another one, you're an individual, you have a name..." (Cox & Orehovec, p. 355). Conversely, according to Gardiner (1998), "the poor quality of academic advising they receive must surely have a powerful retardant effect on our students' development" (p. 81).

The question remains, what is successful advising? What do students need, or desire, in an advisor-advisee relationship? Studies have revealed four major factors most often cited as important to students with regard to academic advising (Crockett, 1982; Frost, 1991; Gordon, Habley & Associates, 2000; Ender, Winston & Miller, 1982; Winston, Grites, Miller & Ender, 1984). Though the descriptions may vary slightly from publication to publication, the four factors include accessibility, specific and accurate information, advice and counsel, and a personalized relationship (Crockett; Cuseo, 2008). Belcheir (2000) found when students were asked about the greatest problem in the current advising system at Boise State University, the top two responses could be categorized into "lack of knowledge or help when conferring with the advisor" and "accessibility of advisors and time" (p. 5). Similarly, according to Creamer and Scott (2000) the ability to provide accurate guidance in a timely manner is one of the most important characteristics students desire in an academic advisor.

While the academic advising characteristics described previously are desirable to most students, a definite challenge exists trying to meet the diverse needs of an institution's study body (Kramer, 2000). Today's students are quite different from students forty years ago. Demographic differences exist in terms of race, ethnic diversity, sex, enrollment status, age, residence, disabilities, and sexual orientation (Upcraft & Stephens, 2000). According to Barrow, Cox, Sepich, and Spivak (1989) students' need perceptions were found to vary by race, sex and class standing. However, in addition, students of today very likely possess different attitudes and values, have experienced society's changing family structure, have been impacted by mental and/or physical

health, may have diminished academic preparation, and be struggling to finance their college education (Upcraft & Stephens). How does an academic advisor adequately meet students' needs considering such student differences? Certainly, trying to do so can be quite frustrating for advisors who may struggle to understand the current generation of students (Upcraft & Stephens).

The truth is students have a variety of needs relating to advising which often change as they proceed through college (Berdahl, 1995; Gordon, 1992). Particularly, Strommer (1995) noted first-year students, especially first-generation college students, face unique struggles becoming acclimated to college. Gordon described freshman as typically more dependent, distracted, and require greater assistance with academic planning. In addition, freshman often need assistance determining educational and career goals, while sophomores may begin to question their initial choice and require guidance working through that dilemma (Gordon). Kramer, Taylor, Chynoweth, and Jensen (1987) suggested advisors could also assist sophomores experiencing the "sophomore slump" by arranging appointments to review degree plans, formalize career plans and encourage them in their educational pursuits.

Most upperclassmen have learned to navigate through the college requirements and procedures and have begun taking more responsibility for their futures (Gordon, 1992). In many cases, this means upperclassmen are more focused on learning ways to improve their academic performance and enhance their post-college marketability, as opposed to being concerned with schedule planning or course registration (Gordon). Strommer (1995) also noted seniors often need guidance relating to the next stage of life and decisions related to career plans and continued education.

According to Kramer et al. (1987), "advisors who recognize academic-class differences and who successfully coordinate institutional resources to promote students development will be in a position to anticipate needs and discriminately offer students information and planning assistance" (p. 26). Based on the differing needs, it would seem logical students would have differing preferences and expectations regarding the advising they receive.

Wilbur (2003) explained, "academic advising, when done right, offers students and faculty an additional opportunity to connect in meaningful ways" (p. 201). But, how can we be sure academic advising is being "done right" at our institutions? How can quality academic advising be assured? According to Boers (2001), the only way educators can meet students' expectations is if the exact nature of the expectations are known. The same can be said for academic advising expectations. In order for academic advisors, faculty or others, to meet expectations of their advisees, they must first know advisees' expectations and seek to understand how the expectations are formed (Propp & Rhodes, 2006). To that end, the primary problem addressed in this study was to determine students' academic advising needs.

Theoretical Framework

Few, if any, specific frameworks apply directly to the process of academic advising. However, a number of theoretical and conceptual frameworks contain aspects or components relevant to academic advising. Much existing research and literature on the topic of academic advising are based on student development or career development theories, however learning and personality theories, theories about meaning making and identity theories have also been used (Creamer, 2000).

For this particular study, two frameworks were utilized. Specifically, the frameworks selected included Terenzini and Reason's (2005) model for studying college impact and Tinto's (1975) theory of social integration. Each framework recognizes the complexity of the college experience and the multitude of factors that contribute to the success and/or failure of college students. Each also reinforces the important role academic advising plays in a student's college experience.

Terenzini and Reason's (2005) model for studying college impact was developed based upon their research, in addition to the work of Pascarella and Terenzini (1991, 2005). The framework takes into consideration a multitude of forces which help to shape students' first year of college and, ultimately, identifies three primary components of variables involved in the study of college impact. The three components include: pre-college characteristics and experience, the college experience, and outcomes. The initial framework was adapted to meet the needs of studying college student development and success from an agricultural perspective. The specific aspect of the college impact model that incorporated academic advising focuses on the institutional environment of the college experience.

Terenzini and Reason's (2005) model contains many components based upon the work of Tinto (1975, 1993) as evidenced by the many factors and variables in their studies of college impact and the college experience. Not surprisingly then, Tinto's studies of academic persistence and causes of attrition (1975) also suggested interactions with faculty, peer groups and extracurricular activities are quite important to students success. Tinto referred to such interactions as "mechanisms of social integration" (p. 107). Therefore, Tinto's (1975) theory of social integration served as a framework for this study. Social integration refers to the level of congruence between an individual and the social system they are a part of (Sullivan & Johnson, 1997). Tinto's (1993) theory also suggested the contact a student has with faculty and staff is extremely important. According to Tinto (1993), while such "interaction by itself does not guarantee persistence; the absence of interaction almost always enhances the likelihood of departure" (p. 117).

Purpose/Objectives

This study sought to assess the importance of academic advising characteristics as perceived by undergraduate students in the College of Agriculture, Food and Natural Resources at the University of Missouri. The following objectives were developed to guide the study:

1. Describe the demographic characteristics of undergraduate students in the College (sex, academic level, undergraduate degree program).
2. Describe the importance of academic advising characteristics as perceived by undergraduate students.
3. Compare the importance of academic advising characteristics by undergraduate students' sex, academic level, and undergraduate degree program.

Methods/Procedures

This study utilized survey research methods. The target population consisted of undergraduate students enrolled in 11 of the 15 academic degree programs housed within the

College of Agriculture, Food and Natural Resources during the spring 2008 semester (N = 1,619). Because of differences in program structure and advising processes, the four academic degree programs offered through the School of Natural Resources were not included in the population. The frame for this study was obtained from the College's Academic Programs Office and was scrutinized for errors, omissions, and duplicates to address potential frame error and ensure accuracy.

One source was utilized for the collection of data. An online instrument, the Faculty Advising Instrument, was distributed via email to all currently enrolled students using Hosted Survey™, a web-hosted software application. Respondents were asked to rate the level of importance for 34 items relating to faculty advising using a 5-point Likert scale (1 = *Not Important*, 2 = *Of Little Importance*, 3 = *Somewhat Important*, 4 = *Important*, 5 = *Very Important*). Each item aligned with one of four academic advising constructs (Availability/Accessibility, Knowledge/Helpfulness, Personable/Approachable, and Counseling/Mentoring), as identified by Cuseo (2008).

The instrument was reviewed by a panel of experts for face, content, and construct validity. The panel consisted of 11 university faculty members representing higher education institutions from across the United States. Members were selected based upon faculty advising experience and expertise and/or extensive knowledge about faculty advising within colleges of agriculture. A pilot test was conducted with recent graduates of the College to determine the instrument's reliability. The resulting Cronbach's alpha coefficients for the four constructs ranged from .82 to .94. As a result, the instrument was deemed reliable. Subjects were also asked to provide demographic information, including sex, academic level, whether or not the student's parents, siblings, or legal guardians graduated from college, and race/ethnicity.

Miller and Smith (1983) stated, "data gathered from self-selected respondents may represent the opinions of the entire sample or population" (p. 45). To address the issue of non-response, several steps were taken. Multiple contacts were used, according to a modified version of the Dillman (2007) *Tailored Design Method*, emails were personalized, and a link to the instrument was included with each reminder email. A total of 726 students completed the entire instrument for a 45% response rate.

To ensure respondents represented the target population, additional steps were taken. Respondents were compared to the entire CAFNR student enrollment on selected demographic variables including sex, ethnicity, academic level and undergraduate degree program to ensure the accepting sample was representative of the total undergraduate population of the College. Frequencies and percentages for the accepting sample were then compared with frequencies and percentages for the CAFNR population. Differences between the two percentages which were less than or equal to 10% were considered acceptable.

Results/Findings

Research objective one sought to analyze the demographic characteristics (sex, academic level and degree program) of undergraduate students. Because the characteristics were nominal or ordinal in nature, each was reported using frequency and percentages. Table 1 displays respondents' sex by undergraduate degree program. A total of 401 (55.23%) respondents were female, while the remaining 325 (44.77%) were male.

Table 1
Students' Sex by Academic Degree Program (n = 726)

	Sex			
	Female		Male	
Degree Program	*f*	%	*f*	%
Agricultural Economics	10	31.25	22	68.75
Agri-Business Management	30	39.47	46	60.53
Agricultural Education	52	77.61	15	22.39
Agricultural Journalism	20	90.91	2	9.09
Agricultural Systems Management	0	0.00	42	100.00
Animal Science	140	79.55	36	20.45
Biochemistry	57	53.27	50	46.73
Food Science	13	68.42	6	31.58
General Agriculture	2	10.00	18	90.00
Hotel & Restaurant Management	54	51.43	51	48.57
Plant Science	15	31.91	32	68.09
Undeclared	8	61.54	5	38.46
Total	401	55.23	325	44.77

With regard to students' academic level, the greatest percentage of respondents, 31.54% (229 of 726), were seniors. Both freshmen and sophomores accounted for 20.66% of the total respondents, with 150 from each academic level completing the Faculty Advising Instrument. Juniors accounted for 27.13% (197 of 726).

Research objective two sought to describe the importance of academic advising characteristics as perceived by undergraduate students using a five point Likert scale. For added clarity in reporting means and standard deviations, each of the 34 academic advising characteristics were grouped by the four advising constructs and then ranked, in order of importance, based on the mean importance rating. Of the six academic advising characteristics included in the Availability/Accessibility construct, three were found to have mean importance ratings of 4.50 or greater (see Table 2). These items included *available when I need assistance*, *responds to my requests in a timely fashion*, and *on time for advising appointments with me*. The item with the lowest mean importance within the Availability/Accessibility construct was *provides an effective process for scheduling advising appointments*.

Table 2

Perceived Importance of Advising Characteristics within the Availability/Accessibility Construct (n = 730)

Construct Item	M	SD
Available when I need assistance	4.59	.61
Responds to my requests in a timely fashion (email, phone calls, etc)	4.58	.59
On time for advising appointments/meetings with me	4.51	.72
Maintains an open line of communication	4.49	.68
Provides sufficient time for advising appointments	4.43	.69
Provides an effective process for scheduling advising appointments	4.22	.80
Summated Score	4.47	.52

Note. Scale: 1.00 – 1.50 = Not Important, 1.51 – 2.50 = Of Little Importance, 2.51 – 3.50 = Somewhat Important, 3.51 – 4.50 = Important, 4.51 – 5.00 = Very Important.

Fourteen academic advising characteristics were included in the Knowledge/Helpfulness construct, of which three items had mean importance ratings of 4.50 or greater (see Table 3). The three items included *communicates degree requirements*, *encourages academic success*, and *aware of my academic progress*. Six items within the Knowledge/Helpfulness construct reported mean importance ratings less than 4.00.

Table 3

Perceived Importance of Advising Characteristics within the Knowledge/Helpfulness Construct (n = 730)

Construct Item	M	SD
Communicates degree requirements	4.73	.57
Encourages academic success	4.56	.70
Aware of my academic progress	4.54	.67
Assists in identifying potential areas of employment after college	4.41	.82
Knowledgeable about general education courses	4.39	.74
Helps clarify life goals	4.18	.90
Provides information about educational opportunities beyond my Bachelor's degree	4.11	.93
Provides information about obtaining financial assistance	4.02	1.04
Assists in selecting/changing my academic major	3.95	1.19
Encourages involvement in co-curricular student activities	3.86	1.11
Provides information about using myZou	3.50	1.06
Helps obtain employment on campus	3.46	1.29
Suggests academic resources	3.43	1.07
Provides information regarding study skills	3.37	1.15
Summated Score	4.04	.55

Note. Scale: 1.00 – 1.50 = Not Important, 1.51 – 2.50 = Of Little Importance, 2.51 – 3.50 = Somewhat Important, 3.51 – 4.50 = Important, 4.51 – 5.00 = Very Important.

The Personable/Approachable construct consisted of six academic advising characteristics. Of the six items, two had mean importance ratings of 4.50 or greater, while only one item had a

mean importance rating of less than 4.00 (see Table 4). The two items which yielded mean importance ratings over 4.50 included *easy to talk with*, and *respects my decisions*. The item, *acknowledges me in social settings* yielded a mean importance rating of 3.78.

Table 4
Perceived Importance of Advising Characteristics within the Personable/Approachable Construct (n = 730)

Construct Item	M	SD
Easy to talk with	4.59	.64
Respects my decisions	4.50	.68
Provides a caring, open atmosphere	4.38	.77
Seems to enjoy advising	4.32	.82
Familiar with my academic background	4.29	.74
Acknowledges me in social settings	3.78	1.08
Summated Score	4.31	.56

Note. Scale: 1.00 – 1.50 = Not Important, 1.51 – 2.50 = Of Little Importance, 2.51 – 3.50 = Somewhat Important, 3.51 – 4.50 = Important, 4.51 – 5.00 = Very Important.

Eight academic advising characteristics were included in the Counseling/Mentoring construct. One item, *helps select courses that match my interests,* resulted in a mean importance rating which exceeded 4.50 (see Table 5). Conversely, only one item, *willing to discuss personal problems,* generated a mean importance rating less than 4.00.

Table 5
Perceived Importance of Advising Characteristics within the Counseling/Mentoring Construct (n = 730)

Construct Item	M	SD
Helps select courses that match my interests	4.53	.66
Encourages me to assume an active role in planning my academic program	4.35	.79
Encourages me to explore career areas of interest	4.24	.85
Expresses concern for my personal development	4.16	.94
Helps me identify obstacles to overcome before I reach my educational goals	4.14	.87
Stimulates my interest in an academic discipline	4.08	.91
Suggests strategies to cope with academic challenges	4.07	.97
Willing to discuss personal problems	3.14	1.27
Summated Score	4.09	.63

Note. Scale: 1.00 – 1.50 = Not Important, 1.51 – 2.50 = Of Little Importance, 2.51 – 3.50 = Somewhat Important, 3.51 – 4.50 = Important, 4.51 – 5.00 = Very Important.

Summated mean importance ratings for each of the four academic advising constructs are also reported in the preceding tables. The greatest summated mean importance rating was reported for the Availability/Accessibility construct (M = 4.47; SD = .52), with the lowest summated mean importance rating reported for the Knowledge/Helpfulness construct (M = 4.04; SD = .55).

The third research objective sought to compare the perceived importance ratings of academic advising characteristics by students' sex, academic level, and undergraduate major. To compare importance ratings by students' sex, means and standard deviations for each construct are provided in Table 6. Cohen's *d* was then utilized to compare the means for females and males, with the effect size reported. The magnitude of effect sizes were calculated and interpreted using Thalheimer and Cook's (2003) descriptors. Small effect sizes were found for all constructs, except the Personable/Approachable construct, which yielded a medium effect size (Cohen's *d* = 0.44).

Table 6
A Comparison by Sex of the Perceived Advising Needs by Constructs (n = 726)

| | Sex | | | | |
| | Female n = 401 | | Male n = 325 | | |
Advising Construct	M	SD	M	SD	Cohen's d
Personable/Approachable	4.42	.51	4.18	.59	0.44 [c]
Availability/Accessibility	4.56	.46	4.36	.56	0.39 [b]
Knowledge/Helpfulness	4.11	.54	3.95	.57	0.29 [b]
Counseling/Mentoring	4.17	.60	3.98	.64	0.29 [b]

Thalheimer & Cook's (2003) descriptors for describing relative size of Cohen's *d*: [b] = small, [c] = medium.

Three academic advising characteristics exhibited medium effect sizes, including *provides a caring, open atmosphere* (Cohen's *d* = 0.48), *maintains an open line of communication* (Cohen's *d* = 0.47), and *respects my decisions* (Cohen's *d* = 0.44). Twenty-three items had small effect sizes, ranging from 0.16 to 0.38. A comparison of the means for the remaining academic advising characteristics resulted in negligible effect sizes.

To compare importance ratings by students' academic level, means and standard deviations for each construct are provided in Table 7. To appropriately compare means using Cohen's *d*, freshmen and sophomores were grouped as underclassmen and juniors and seniors were grouped as upperclassmen. Cohen's *d* was then utilized to compare the means for underclassmen and upperclassmen, with the reported effect size.

Table 7
A Comparison by Academic Level of the Perceived Advising Needs by Constructs (n = 726)

| | Academic Level | | | | |
| | Underclassmen n =300 | | Upperclassmen N = 426 | | |
Advising Construct	M	SD	M	SD	Cohen's d
Knowledge/Helpfulness	4.13	.53	3.97	.56	0.28 [b]
Counseling/Mentoring	4.15	.59	4.04	.64	0.18 [b]
Personable/Approachable	4.32	.54	4.30	.58	0.03 [a]
Availability/Accessibility	4.47	.51	4.47	.52	0.02 [a]

Note. Thalheimer & Cook's (2003) descriptors for describing relative size of Cohen's *d*: [a] = negligible, [b] = small.

Negligible effect sizes were found for two constructs, including Availability/Accessibility and Personable/Approachable. A comparison of means on the Knowledge/Helpfulness construct yielded a small effect size (Cohen's d = 0.28) as did the Counseling/Mentoring construct (Cohen's d = 0.18). Ten academic advising characteristics' means, when compared by academic level, resulted in small effect sizes, ranging from 0.15 to 0.28. The remaining 24 academic advising characteristics resulted in negligible effect sizes when means were compared based on academic level.

To further analyze potential differences by academic level, the perceived advising needs of freshmen and seniors were compared in Table 8. One of the academic advising constructs, the Knowledge/Helpfulness construct, resulted in a medium effect size (Cohen's d = 0.59). The Counseling/Mentoring construct resulted in a small effect size (Cohen's d = 0.32). Availability/Accessibility and Personable/Approachable constructs yielded negligible effect sizes.

Table 8
A Comparison by Academic Level of the Perceived Advising Needs by Constructs (n = 379)

| | Academic Level | | | | |
| | Freshmen n =150 | | Seniors N = 229 | | |
Advising Construct	*M*	*SD*	*M*	*SD*	Cohen's *d*
Knowledge/Helpfulness	4.23	.50	3.91	.57	0.59 [c]
Counseling/Mentoring	4.20	.59	4.00	.66	0.32 [b]
Availability/Accessibility	4.53	.45	4.46	.52	0.14 [a]
Personable/Approachable	4.34	.53	4.28	.57	0.11 [a]

Note. Thalheimer & Cook's (2003) descriptors for describing relative size of Cohen's *d*:
[a] = negligible, [b] = small, [c] = medium.

To compare importance ratings by students' undergraduate degree program, means and standard deviations are provided in Table 9. To compare means using Cohen's *d*, degree programs were dichotomized and grouped as either physical/biological science or social science. Specifically, the degree programs considered physical/biological science included Ag Systems Management, Animal Science, Biochemistry, Food Science, and Plant Science. Agricultural Economics, Agri-Business Management, Agricultural Education, Agricultural Journalism, and Hotel & Restaurant Management were classified as social science. Because of the nature of the dichotomy, students who were General Agriculture majors or undecided on a major were removed from the analysis (*n* = 693).

Table 9

A Comparison by Academic Degree Program of the Perceived Advising Needs by Constructs
(n = 693)

	Major				
	Physical/ Biological Science n =391		Social Science n = 302		
Advising Construct	*M*	*SD*	*M*	*SD*	Cohen's *d*
Personable/Approachable	4.28	.58	4.37	.51	0.16 [b]
Knowledge/Helpfulness	4.02	.60	4.07	.49	0.10 [a]
Counseling/Mentoring	4.07	.67	4.12	.55	0.09 [a]
Availability/Accessibility	4.47	.54	4.50	.46	0.05 [a]

Note. Thalheimer & Cook's (2003) descriptors for describing relative size of Cohen's *d*:
[a] = negligible; [b] = small.
Negligible effect sizes were found for all but one of the advising constructs,
Personable/Approachable, when summated mean importance ratings were compared. The effect
size for the Personable/Approachable construct was considered small
(Cohen's *d* = 0.16).

A total of eight academic advising characteristics resulted in small effect sizes, including
provides information educational opportunities beyond my Bachelor's degree, *communicates
degree requirements*, *assists in identifying potential areas of employment after college*,
acknowledges me in social settings, *provides a caring, open atmosphere*, *provides information
about using myZou*, *knowledgeable about general education courses*, and *seems to enjoy advising*.
A comparison of the remaining 26 academic advising characteristics resulted in negligible effect
sizes.

Conclusions/Recommendations/Implications

With nearly a 50% response rate, it can be concluded academic advising is an issue of
importance to many students; however one would question why females would be more willing to
participate than males. Could this suggest female students place a larger priority on advising?
Additionally, because academic advising is needed to adequately complete a degree program, why
are all degree programs not equally represented by respondents? Could this indicate some degree
program areas and academic departments are doing very well and therefore, students do not feel
the need to complete an assessment of the services provided? Or, conversely, could it suggest
certain areas are not providing appropriate academic advising services and students do not care to
provide feedback?

A total of 26 academic advising characteristics were rated between important and very
important by students in this study, with all 34 characteristics rated at least somewhat important.
Based on these findings, one could presume the instrument included academic advising
characteristics relevant to students' needs. Since the instrument was developed based upon existing
literature and academic advising instruments, this should be expected.

With regard to the four academic advising constructs, students rated Availability/ Accessibility and Personable/Approachable as the most important, while Knowledge/Helpfulness and Counseling/Mentoring were rated as less important. Based on these ratings, it could be suggested that faculty advisors make a conscious effort to convey their availability and take the time to meet students' needs. Although faculty advisors must juggle many priorities and obligations, making students feel valued and cared for is essential. These findings also suggest students appreciate an open door policy and friendly atmosphere. Perhaps faculty advisors should be reminded of the quote by Maya Angelou when she said: "I've learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel" (Maya Angelou quotes, n.d.). As indicated by the importance rankings, students in this study seem to concur.

Interestingly, the lowest rated item was *willing to discuss personal problems*, which may be considered similar in nature to the constructs which students rated the highest. Could this finding indicate students desire to maintain a professional relationship with their faculty advisor? This could be a reflection that many students will seek personal advice from friends and family. Items relating to professional needs, including educational opportunities and career related knowledge were rated higher.

Students selected *communicates degree requirements* as the most important academic advising characteristic. This would indicate that although students desire an advisor who is available and approachable, it is still critical they are familiar with the degree requirements and able to assist students in meeting the requirements for graduation. Interestingly, Myers and Dyer (2003) found faculty advisors in colleges of agriculture identified their three most important roles as dealing with degree requirements, career counseling, and course scheduling. Conversely, the least important advising roles identified by Myers and Dyer were assisting with student organizations, helping students prepare for activities/competitions, and addressing personal issues. It seems as though the perceptions of college of agriculture faculty advisors in that particular study are comparable with the importance ratings of students in this particular study; however, how would the respective faculty advisors compare?

Few differences were found when academic advising characteristics' level of importance was compared by sex, academic level and undergraduate degree program. Primarily, the only difference noted indicated female students expressed greater academic advising needs in all four constructs than did their male counterparts. This may suggest female students expect more from their advisor. This finding supports Upcraft and Stephens (2000) and Barrow et al. (1989) who found students academic advising needs varied by sex.

Each of those studies also found advising needs to vary by academic level, which was not the case with this particular study (Barrow et al., 1989; Upcraft & Stephens, 2000). As a general rule, it can be noted that ultimately students are students. Regardless of academic level, students prefer advisors who are available and accessible. While prior research has indicated academic advising needs may vary by academic level, findings in this study did not concur. The indifference could possibly be attributed to the initial use of a dichotomous categorization of underclassmen and upperclassmen. Specifically, when freshmen students were compared to seniors, results indicated freshmen place greater importance on the Knowledge/Helpfulness and

Counseling/Mentoring constructs than senior students. This potentially suggests freshmen are more concerned with receiving academic advising information and guidance than seniors. Is this because they are just learning the ropes at the institution, or could such findings imply something else?

Between physical/biological and social science degree programs, no differences were identified in mean ratings. This would indicate most students value and need the same types of academic advising support. However, because of the generally high importance ratings found for all advising characteristics and limited differences found within student subgroups, it becomes all the more important to evaluate how faculty advisors are currently doing. In order to be able to improve faculty advising, it is critical to compare what students *want* with what students actually *receive*.

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Piaget's Stages of Cognitive Development:
Have College Students Reached Formal Operations?

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Abstract

Piaget's theory purports that Concrete Operations and Formal Operations are the highest stages of cognitive development and that learners reach the uppermost stage by age 15. However, Woolfolk (2007) stated, "Some students remain at Concrete Operations throughout their school years, even throughout life. . . . " (p. 35). The research questions guiding the study were: Is a paper-pencil instrument valid and reliable to measure Piaget's stages for undergraduates? Does a sample undergraduate class align with previous findings? The Bakken Test (1995) consisted of 20 multiple-choice questions composed of Piagetian tasks. The Bakken instrument was determined to have content validity by a panel of experts, while face validity was determined by a field test with a like audience. Less than half of the undergraduates in the study (n = 109) were found to be at the Formal Operation stage aligning with Pascarelli and Terezeni's (1991) findings. Professional development seminars should be taught that assist instructors in teaching their students in ways that both address their current stage of development, while assisting in their further cognitive development.

Introduction

Knowledge of the stages of cognitive development and their implications in student abilities can assist instructor's in developing strategies and techniques to improve student learning. Piaget (1964) stated "learning is subordinate to development and not vice versa" (p. 184). Hudak and Anderson (1990) found in a study of statistics and computer science courses, the need to examine the cognitive development of students in relation to academic success at the college level. The level of cognitive development of a student may impact the level of difficulty in the transition to the undergraduate environment (Markwell & Courtney, 2006). Markwell and Courtney (2006) defined cognitive development as the capacity for reasoning, problem solving, and critical thinking stating that major theories of cognition report these emerging in stages.

In 2001, Kuh wrote, "Sooner or later, colleges and universities are either going to demonstrate what students are learning or some external entity will impose its own approach" (p. 12). Policymakers, parents, and students are demanding solid evidence of student learning results (USDE, 2006). Institutional examination of educational outcomes is critical to guaranteeing that institutions are meeting the needs of their stakeholders including, ". . . a more intense reexamination of the tried and true methods of instruction . . ." (Bess, 1998, p. 3).

What are these consumers of education seeking? If transfer of learning is not the primary objective of our institutions of higher education, the question begged is, "What is the relevance of formal schooling?" (Pugh & Bergin, 2006, p. 156). Institutions of higher education have a

responsibility to work towards achieving the goals of education as stated by Piaget:

> The principle goal of education is to create men [*sic*] who are capable of doing new things, not simply of repeating what other generations have done – men [*sic*] who are creative, inventive, and discoverers. The second goal of education is to form minds which can be critical, can verify, and not accept everything they are offered…we need pupils who are active, who learn early to find out by themselves…(Duckworth, 1964, p. 5).

Therefore, justification exists for the "disturbing feeling that our colleges are not as effective as they need to be" (Boggs, 1995, p. 24). As Bess (1998) noted, stakeholders in higher education want to see quality from their institution. However, "many traditional instructional approaches respond ineffectively to the learning needs and life situations of today's college students" (Weimer, 2003, p. 49). "One purpose of postsecondary education is preparing students for their future professional lives" (Thompson, Licklider, & Jungst, 2003, p. 133). To meet this purpose, students' critical thinking abilities must be examined and explained in the context of teaching and learning in higher education.

Ewing and Whittington (2007) found that instructors and students must work together to increase the level of student cognition during a class session. Exploring the Piagetian stage of cognitive development of post-secondary students will provide insight into the techniques and methods that should be used for teaching at various stages. The theoretical foundation for the study was Piaget's Theory of Cognitive Development, which is often used to gauge and monitor progress of individual student outcomes (Skar, 1998).

Piaget's work serves as the theoretical foundation of the line of inquiry, *Improving the Cognitive Capacity of Students by Fully Engaging Professors in the Teaching and Learning Process* (CRIS #OHO01145, IRB protocol #2004B0374) and, as stated previously, as the foundation for this study. Piaget introduced his biologically motivated work early in the last century, and from that time to today, educators and researchers have eagerly worked to exhibit a link between students' level of development and their capacity for learning (Markwell & Courtney, 2006). Piaget spent the last 60 years of his life working in developmental psychology and researching his theory of cognitive and affective development yielding over 50 books and hundreds of articles (Wadsworth, 2004).

Piaget's theory on stages of cognitive development is presented in Table 1. Piaget did not believe that individuals advance one distinct step at a time through the stages, nor that progress was automatic. In fact, Piaget suggested that cognitive development be viewed as a continuum involving the interaction of four factors including: maturation, active experience, social interaction, and a general progression of equilibrium (Piaget, 1961). Wadsworth (2004) stated, "Movement within and between stages of development is a function of these factors and their interaction" (p. 28). There is a fixed element to Piaget's theory: every student must pass through the stages of cognitive development in the same order with rates of passing varying according to experiential and hereditary factors (Wadsworth, 2004). Interestingly, Berger (1994) stated that not all individuals achieve the stage of cognitive development by the age Piaget lists, with individuals reaching stages much later in life, if at all.

Piaget theorized that teachers can have little impact on the maturation influence, but through the activity influence teachers provide exploration, observation, testing, and information organization, all of which are likely to alter thinking processes. In addition, teachers can impact the social transmission influence, learning from others, depending on the stage of cognitive development the student has reached. Building upon Piaget's (1970) activity influence from his cognitive development theory, classroom activity is likely to have impact upon *student cognition*.

Table 1: Piaget's Stages of Cognitive Development (Wadsworth, 2004).

Stage	Age Range	Description
Sensorimotor intelligence	0-2 years	Cognitive development is observed as schemata are developed. Behavior is primarily Sensory and motor.
Preoperational thought	2-7 years	Language development and other forms of representation with rapid conceptual development. Reasoning dominated by perception.
Concrete Operations	7-11 years	Ability developed to apply logical thought to concrete problems in the present.
Formal Operations	11-15 years or older	Greatest level of development. Capable of applying logical reasoning to all classes of problems.

The two levels which most college students are operating are Concrete Operations and Formal Operations (Cohen & Smith-Gold, 1978). Piaget (1964) stated the following regarding the third stage, Concrete Operations:

> In a third stage, the first operations appear, but I call these concrete operations because they operate on objects, and not yet on verbally expressed hypotheses. For example, there are the operations of classification, ordering, the construction of the idea of number, spatial and temporal operations, and all the fundamental operations of elementary logic of classes and relations, of elementary mathematics, of elementary geometry, and even of the elementary physics (p. 177).

The Concrete Operations stage of development is characterized by four elements of logical thinking: (a) the logic of classes, (b) the logic of relations, (c) the principle of conversation, and (d) the reversibility of thought process. At the same time, four concrete group-like structures are beginning to emerge: (a) combinativity, (b) reversibility, (c) associativity, and (d) identity or nullifability (Muuss, 1988). Group-like structures are cognitive processes that enable logical thinking. Logical thinking nor cognitive processes could occur without the other existing, and thus are developed simultaneously (Dunn, 2006). Due to the development of logical thinking and the

corresponding group-like structures, students no longer think impulsively, yet still do not think systematically.

Piaget (1964) stated the following regarding the fourth stage, Formal Operations:

Finally, in the fourth stage, these operations are surpassed as the child reaches the level of what I call formal or hypothetic-deductive operations; that is, he [sic] can now reason on hypotheses, and not only on objects. He [sic] constructs new operations, operations of propositional logic, and not simply the operations of classes, relations, and numbers. He [sic] attains new structures that are on the one hand combinatorial, corresponding to what mathematicians call lattices; on the other hand, more complicated group structures. At the level of concrete operations, the operations apply within an immediate neighborhood: for instance, classification by successive inclusions. At the level of the combinatorial, however, the groups are much more mobile (p. 177-178).

The significant difference between the final stage, Formal Operations, and the third stage, Concrete Operations, is the ability to reason abstractly (Dunn, 2006). Students in the stage of Concrete Operations can reason about objects, where as students in the Formal Operations can reason with thoughts and words alone (Muuss, 1988). Formal Operations may begin around 11 years of age and continues through adulthood. Research (Crain, 2005) suggests that formal education may be necessary to achieve Formal Operation theory.

Cohen and Smith-Gold (1978) cited several studies that show that the transition through the developmental stages occurs at much later ages, and some individuals never obtain Formal Operations. Schwebel (1975) in a study of first-year college students at Rutgers University found that Formal Operations, such as thinking in abstractions and logically, occur much later in some people or not at all and that many college students fail to attain full operational thinking. Pascarella and Terenzini (1991) stated that evidence suggests that close to half of entering college students are not operating at advanced stages of cognitive development and that postsecondary education plays a key role in exposing students to experiences that encourage development.

Cohen and Smith-Golden (1978) stated that a study with paper-pencil tests of cognitive tasks and found that "at Metropolitan State College, an inner-city, open-door, four-year institution, research indicates that more than 75 percent of students entering the college have not reached the level of formal operations" (p. 32). Piaget (1964) stated regarding the stages of cognitive development that, "although the order of succession is constant, the chronological ages of these stages varies a great deal" (p. 178). Piaget (1964) further stated that these age variations exhibited that maturation alone does not explain everything.

Woolfolk (2007) defined maturation as "the unfolding of biological changes that are genetically programmed" (p. 27) of which Piaget stated teachers have little impact. Woolfolk (2007) stated, "Some students remain at the concrete operations stage throughout their school years, even throughout life. However, new experiences, usually those that take place in school, eventually present most students with problems they cannot solve using concrete operations" (p. 35).

The implication that students, regardless of education level, are not reaching Formal Operations, suggests that the US education system is not significantly contributing to the intellectual development (abstract logical reasoning) of students (Arons & Karplus, 1976). Inhelder and Piaget (1958) stated that, "the growth of formal thinking…remains dependent on social as much as and more than neurological factors" (p. 337.

Purpose and Objectives

The purpose of this descriptive study was to describe the stage of cognitive development of students enrolled in an undergraduate class session as measured by a paper-and-pencil Piagetian Test (Bakken, 1995). The research questions guiding the study were:

(1) Is a paper-pencil instrument valid and reliable to measure Piaget's stages of cognitive development for undergraduate students?
(2) Does a sample undergraduate class session support previous research findings?

Methods

The constitutive definition for stage of cognitive development used in this study was the capacity for reasoning, problem solving, and critical thinking (Markwell & Courtney, 2006), or capacity for what can be learned (White & Sivitanides, 2002). For this study, the Piagetian stage (Piaget, 1964) at which a student is cognitively operating: sensorimotor intelligence, preoperational thought, concrete operations, or formal operations.

The operational definition for stage of cognitive development used in this study was the Piagetian stage (Piaget, 1964) at which a student was cognitively operating: sensorimotor intelligence, preoperational thought, concrete operations or formal operations stage determined by a paper-and-pencil instrument developed by Bakken (1995). Students completed a 20 question instrument. The correct answer correlated with the appropriate ordinal ranking of Piagetian stage of cognitive development.

To assess stage of cognitive development, Piaget created a series of tasks. The clinical method developed by Piaget was administered in a one-on-one setting. In order to simplify the process, a paper-and-pencil instrument was needed. In this study, to measure stage of cognitive development, the Bakken Test of Piagetian Stages (1995) was utilized. The test was designed to determine a student's stage of cognitive development (Bakken, Thompson, Johnson, & Dwyer, 2001) and consisted of 20 multiple-choice questions composed of Piagetian tasks (e.g. conservation of numbers, area, liquid, length, weight and volume). Other items included problem-solving involving classification, right-left relationship, perspective-taking, reasoning, and logic.

Dunn (2006) analyzed the results of previously collected data from three metropolitan schools of 279 students (ranging from third to twelfth grade). The students took the paper-pencil test, and then, each student completed the Piagetian tasks under the supervision of a trained task administrator in the traditional one-on-one format or was retested using the paper-pencil instrument. Some students participated in all three assessments. A bivariate correlation was conducted to analyze the validity and reliability. A t-test was calculated to test for significant

differences in the correlational coefficients between the two scoring methods. The instrument was found to be reliable and valid for those populations (Dunn, 2006).

To establish reliability for a post-secondary population, a test-retest procedure was conducted with a sample of twelve students (Ary, Jacobs, & Razavieh, 2002). Students completed the Bakken instrument, waited two weeks and completed the Bakken instrument again. Results from the test-retest procedure indicating Piagetian stage of cognitive development were compared and found to be within an acceptable range of 90% reliable.

Previous researchers had addressed instrument validity to measure Piagetian stage of cognitive development for the populations of elementary and secondary students. Piaget indicated that most people complete the final stage of cognitive development, formal operations, by the age of 15. To ensure content validity, however, the instrument was provided to a panel of expert scholars in educational psychology who deemed it valid for the purpose of measuring the Piagetian stage of cognitive development for post-secondary students. Face validity was determined by administering the instrument to pilot test of a like population (post-secondary students) and discussing afterwards.

A convenient accessible sample of a college-wide service class was selected to administer the Bakken (1995) paper-pencil test. The class roster indicted 133 students in the class. Completed instruments were returned by 118, of which, 109 were deemed usable. Scoring methods are exhibited in Table 2 from Dunn (2006). The test items were scored dichotomously, either correct (1 point) or incorrect (0 point). Data were entered into The Statistical Package for the Social Sciences 17.0 (SPSS 17.0). Measures of central tendency, variability, frequency counts, and percentages were generated for each of the characteristics of interest for the study.

Table 2: Scoring Methods for Bakken's (1995) Piaget Paper-Pencil Test.

Stage	Method
Preoperations	Failure to correctly answer four questions out of items 1, 3, 4, 7, 8 (score: less than 4)
Concrete Sub 1	Four correct answers from #s: 1, 3, 4, 7, 8 (score: 4,5)
Concrete Sub 2	Above, plus four answers from #s: 2, 5, 6, 9, 10 (score: 8, 9, 10)
Concrete Sub 3	Above, plus correct answers for both #s 11,13 (score: 10,11,12)
Formal Sub 1	Above, plus three correct answers for items 12, 14,15,16 (score: 13, 14, 15, 16)
Formal Sub 2	Above, plus correct answers #s 17, 18, (score: 16,17,18)
Formal Sub 3	Above, plus correct answers for both #s 19, 20 (score: 18,19,20)

Findings

There were two research questions guiding this study. The first question involved determining the validity and the reliability of the Bakken Test of Piagetian Stages (1995) for undergraduate students.

To determine reliability, a convenient, accessible sample of 12 post-secondary students in an upper division class in a college of agriculture was selected to complete the instrument. Twelve instruments were administered and ten instruments were determined to be usable. Students were administered the instrument and two weeks later retook the instrument.

The completed instruments were scored and compared. Eight out of ten were scored at the exact same sub-stage of cognitive development. Nine out of ten were within one sub-stage. One-hundred percent of the instruments were scored at the same Piagetian stage of cognitive development (i.e., preoperational, concrete operations, and/or formal operations). Thus, the instrument was deemed as reliable to this audience with a test-retest within the 90% range for Piagetian stage of cognitive development which was set *a piori.*

A majority of the students (50%) were scored at the concrete operations sub-stage 2. One student (10%) scored at the preoperational stage, six students (60%) scored at the concrete operations stage, and three students (30%) scored at the formal operations level. Tables 3 and 4 display pilot test results.

Table 3: Bakken Instrument Test-Retest Results.

Student ID #	Age	Gender	GPA	Piagetian Stage, First Test (Numeric Score)	Piagetian Stage, Second Test (Numeric Score)
1	22	Female	2.59	Concrete Sub 2 (19)	Concrete Sub 2 (18)
2	20	Male	3.37	Formal Sub 3 (19)	Formal Sub 3 (18)
3	24	Female	2.95	Concrete Sub 2 (16)	Concrete Sub 2 (17)
4	21	Female	3.38	Concrete Sub 2 (13)	Concrete Sub 3 (16)
6	39	Male	2.72	Concrete Sub 2 (15)	Concrete Sub 2 (15)
7	20	Male	2.93	Formal Sub 1 (17)	Concrete Sub 2 (15)
8	21	Female	2.90	Formal Sub 3 (20)	Formal Sub 3 (19)
9	20	Female	3.75	Concrete Sub 3 (16)	Formal Sub 3 (19)
10	21	Female	2.80	Concrete Sub 2 (14)	Concrete Sub 2 (14)
11	20	Female	3.49	Preoperations (14)	Preoperations (14)

Table 4: Piagetian Stage of Cognitive Development Pilot Test Results.

Piagetian Stage of Cognitive Development	Frequency First Test	Frequency Second Test	Percent Same
Preoperational	1	1	100
Concrete Operations	6	6	100
Formal Operations	3	3	100
Total	10	10	

The second research question asked was does the data from a sample undergraduate class support previous research findings? In the sample class, 109 instruments were completed and usable. The demographics of the class included having 51 different majors represented in the class, gender was represented at 57% female and 43% male while the average age of students was 19.54 with a range of 18 to 28. The self-reported grade point average was 3.26 on a 4.00 scale. In Table 5, the findings regarding Piagetian stage of cognitive development are presented, which align with the findings from previous studies (Schwebel, 1975; Cohen & Smith-Golden, 1978; & Pascarella and Terenzini, 1991) that a majority of students entering college are not operating at the Formal Operations stage of cognitive development.

Table 5: Piagetian Stage of Cognitive Development Sample Class Results.

Piagetian Stage of Cognitive Development	Frequency	Percentage of Sample
Preoperational	5	4.6
Concrete Operations	53	48.6
Formal Operations	51	46.8
Total	109	100

Conclusion

If learning is second to development (Piaget, 1964), then knowledge of a students' stage of cognitive development would be critical in achieving student success at post-secondary institutions (Markwell & Courtney, 2006). Knowledge of the stages of cognitive development and the stages of cognitive developments' implications in student abilities can assist instructors in developing strategies and techniques to improve student learning.

As a student's level of cognitive development may impact the success of transition for the student to the undergraduate environment (Markwell & Courtney, 2006), colleges and universities

should administer the Bakken paper-pencil test to a wider audience to determine if, in fact, college students are operating at formal operations upon entering college. If findings indicate that students have not reached formal operations, faculty development in using instructional strategies for teaching concrete operations level students would be helpful for further developing cognitive abilities.

Recommendation

Future research should occur regarding Bakken's paper-pencil test of Piagetian stage of cognitive development. As the instrument has been determined to be reliable and valid, the instrument needs to be utilized with a larger sample size to determine the stage of cognitive development of students in post-secondary classrooms. Knowledge of cognitive growth and development from the point of students entering an institution to the point of students matriculating could be beneficial when assessing outcomes of college instruction. Additionally, in future endeavors to explain student cognition during class sessions, students' stage of cognitive development should be loaded, as a student variable, in a regression model to explain student cognition.

Implications

As strategic partners in higher education continue to invest in the education process beyond the secondary level, evidence of productive outcomes and student success will be critical (USDE, 2006). Colleges and universities are going to be called upon to demonstrate student achievement (Kuh, 2001). Through this research, the groundwork is being laid for developing a model, a process, and a battery of instruments to assess the cognitive levels of students and instructors during class sessions, because what happens in our classrooms matter (Tinto, 1997). Knowledge of that which is occurring and those variables that have the greatest relationship to student cognition will be beneficial in accomplishing the primary mission of institutions of higher education, the transfer of learning (Pugh & Bergin, 2006). Successful transfer of learning allows institutions to accomplish one of the goals of preparing students for their future professional lives (Thompson, Licklider, & Jungst, 2003).

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Effects of Metacognitive Instruction on Secondary Students' Problem Solving Performance

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Abstract

A randomized, post-test only control group experimental design was used to determine the effects of regulatory self-questioning on secondary career and technical education students' electrical circuit theory test scores. Students who participated in the self-questioning group were given a list of regulatory questions and asked to answer them as they solved their problems. Differences in test scores between the experimental and control groups were not statistically significant (p = .053). Students participating in the treatment group on average outperformed students in the control group by ten percentage points. Cohen's d indicated a moderate effect size (0.5). Findings from this sample suggest that by requiring these students to engage in regulatory self-questioning they are more likely to solve electrical circuit theory problems correctly. Educators requiring the use of regulatory self-questioning could assist students in efficient and effective processing of information as well as achieving greater problem-solving outcomes. It is recommended that further research be conducted to investigate the effects of regulatory self-questioning when students are faced with increasingly complex problems. This study should be replicated to determine the effects of regulatory self-questioning with other students.

Introduction/Theoretical Framework

Students engaged in learning principles of electricity often have difficulty relating the abstract nature of the mathematical relationships involved with Ohm's Law. In particular how voltage, current, and resistance relate to one another in a circuit. Students tend to implement localized reasoning when challenged with the task of analyzing a circuit (Cheng & Shipstone, 2002). In McDermott and Shaffer's (1992) investigation of students understanding of electricity, they found that students would often, when computing electrical circuit problems, ignore or modify the mathematics when their results contradicted their expectations.

Cohen, Eylon, and Ganiel (1983) examined high school students' understanding of the relationships between the variables in an electrical circuit. Their study found that students often use Ohm's Law incorrectly. "Students have difficulties in analyzing the effect which a change in one component has on the rest of the circuit" (p. 407). Students were found to be inconsistent in their reasoning when they analyzed circuits. McDermott and Shaffer (1992) called for instruction that will promote the active mental participation of student in their learning process. An instructional strategy, regulatory checklist, has been suggested by researchers to improve students' problem solving (King, 1991a; Schraw, 1998).

Regulatory Checklist

Schraw (1998) suggests the use of an instructional strategy called regulatory checklist to improve student's regulation of cognition while attending to instruction and problem solving. The

regulatory checklist is considered a metacognitive strategy because it functions to help learners keep a continuous check on their progress (King, 1991a). The questions are designed to help students clarify the problem and to access their existing knowledge and strategies when relevant. King (1991a) states "truly self-regulated learners eventually learn and study alone" (p. 334) without the advantage of an external prompter. King found that ninth graders who used self-questioning to review had greater history lecture comprehension than students who used discussion groups and students who used independent study sessions on both practiced and unpracticed lecture material. King (1991b) found that fifth graders trained in guided questioning had greater problem-solving processes and outcomes when attempting to solve computer-assisted problems. This method may have taught the students how to internally ask for and obtain the explanations, justifications, information and methods needed for solving the problem. Cardelle-Elawar (1995) found that low achieving elementary and junior high school students who were instructed and had received practice in monitoring themselves during the act of problem solving by using guided questioning were more successful on achievement tests than students who were not engaged in guided questioning.

The theoretical framework for this study revolves around metacognition and its relationship to problem-solving.

Metacognition and Problem Solving

Active mental participation is called metacognition (Flavell, 1979). Metacognition has been defined as actively attending to one's thinking. Metacognitive knowledge "can lead you to select, evaluate, revise, and abandon cognitive tasks, goals, and strategies in light of their relationships with one another and with your own abilities and interests with respect to that enterprise" (p. 908). Metacognition involves two components: knowledge about cognition and the regulation of cognition (Schraw, 1998). The learner must have knowledge on how to perform a task and also how to plan, monitor, and evaluate their performance.

A problem is where an individual has identified an initial situation with a goal in mind but they have no clear means of achieving the end result (Chi & Glaser, 1985). Problems generally consist of three components; givens, obstacles, and a goal state (Anderson, 1985). Givens refer to the limitations and characteristics that define the initial state of the problem. Obstacles are those givens, which may or may not be known, that make it difficult to reach the desired solution. The goal state is simply the desired outcome or solution. Problem solving encompasses the individual efforts towards achieving the situational goal for which there is no direct solution path. Depending on the level of difficulty, these problem solving efforts are organized into hierarchal tasks where subordinate goals must be achieve before the final goal can be reach. When computing electrical circuit problems, the correct mathematical algorithm must be identified before the solution can be computed using Ohm's Law. The operation of transforming the initial situation into the desired goal requires mental and behavioral activities (Chi & Glaser). The amount and level of mental operations that students use can vary depending on the level of difficulty to formulate a solution (Andre, 1986).

Swanson (1990) suggests that students engaged in problem solving typically only have partial knowledge about a problem and its solution. This creates a situation for the student to

initiate a general search for information and possible solutions. This search is guided and controlled by students' metacognition. "Metacognition is especially important because it affects acquisition, comprehension, retention and application of what is learned, in addition to affecting learning efficiency, critical thinking, and problem solving" (Hartman, 1998, p. 1). In Swanson's study, high metacognitive ability positively influenced student's problem-solving performance. The advantage in problem-solving performance for the high-metacognitive students was linked to increased hypothetico-deductive reasoning and the prioritization of strategies. High-metacognitive students demonstrated efficient and effective processing of information by correctly monitoring right and wrong answers than were low-metacognitive students.

Pintrich (2002) argues that novices need to have a repertoire of different general strategies for learning and thinking in order to master new or challenging tasks. Metacognitive instruction would enable students to perform better and learn more in the classroom. This instruction needs to be taught explicitly by embedding it within the usual content-driven lessons in different subject areas. This explicit instruction helps students connect the strategies to other knowledge they may already have. According to Cardelle-Elawar (1995), metacognitive training through self-questioning induces students to self-regulate their learning. The metacognitive questioning encourages students to activate prior knowledge, analyze information, re-conceptualize the problem space by integration of information into a coherent representation as well as self-monitor their progress by evaluating and correcting their mistakes.

Most of the research documenting the positive effects of metacognitive strategies has been limited to the content areas of reading and mathematics (King, 1991b; Royer, Cisero, & Carlo, 1993). This creates contention as to whether metacognition is domain-specific or domain-general in nature (Royer et al., 1993; Schraw, 1998). Glaser (1984) suggested general metacognitive problem solving strategies has little benefit for teaching specific skill sets. Glaser argues that general problem solving methods are less powerful due to a lack of domain specificity. The difficulties novices face in problem solving is said to be linked to the inadequacies of their knowledge base and not their ability to use problem solving strategies. Riley, Greeno, and Heller (1983) concluded that children's success at solving simple word problems that require the use of addition and subtraction principles was influenced by their knowledge efficient counting procedures. This suggests that the implementation of a general metacognitive problem solving strategy may not assist students learning enough to make a difference if they possess extensive knowledge of a given content area.

Another point of concern with explicitly teaching metacognitive strategies within content driven lessons is that this may generate competition within cognitive capacities such as memory and attention. Perkins, Simmons, and Tishman (1990) argued that adding a metacognitive strategy during instruction may disrupt performance due to a cognitive overload. The use of the regulatory checklist during instruction may generate greater demands on attention and working memory. Explicit metacognitive training during instruction could be detrimental to students' acquisition of content knowledge. This could lead to a decrease in problem-solving performance.

Self-questioning during problem solving may hold promise for enhancing student performance, but no studies have been done in the context of secondary career and technical

education programs. Would secondary career and technical education students who are instructed to regulate their thinking with self-questioning be more successful at solving problems?

Purpose

The purpose of this study was to determine if the use of regulatory checklists during practice sessions improved success rates of secondary career and technical education students solving simple circuit problems using algebraic manipulation of Ohm's Law.

Hypothesis

There will be no significant difference in test scores for solving simple circuit problems using Ohm's Law between students who are taught to use a regulatory checklist and students who are not taught how to use the regulatory checklist.

Methodology

Participants

The study involved four secondary schools from a Midwestern State. The schools were chosen based on their accessibility to Iowa State University and the curriculum taught in their career and technical courses. Students enrolled in selected agriculture and industrial education courses dealing with electricity were selected to be the subjects for this study. A total of 68 students comprised the population for this study. Students' ages ranged from 14 to 17 years.

Research Design

This study employed a randomized, post-test only experimental design (Campbell & Stanley, 1966). This design, which is inherently resistant to most threats to internal validity, is illustrated in Figure 1. Possible threats to internal validity could be subject effects and diffusion. The behavior of the experimenter could unintentionally bias students' perception to perform better if explanations are given that they are receiving a treatment. To control for subject effects it was explained that the activity is a research project to try out two teaching methods to improve the course. The researcher explained that both methods are believed to have the same effect. Contaminating situational variables such as teaching efficiency and enthusiasm may affect the outcome of this study. To control for these extraneous variables the regular classroom instructor was briefed on procedures to follow for their role in the project. The classroom instructor was instructed to follow the given lesson plan. During the practice sessions and test administration, the teacher and researcher gave the same instructions, used the same practice problems and tests, and tried to assume the same attitudes with the students. The instructor's and researcher's interactions with students were audio recorded to compare and verify that the protocol was followed.

Using Ohm's Law		
R	C	O_s
R	X	O_s
O_s= Observation of Test Score, , X= Experimental Group, C= Control Group		

Figure 1. Illustration of randomized post-test only experimental design.

All students received instruction from their regular classroom teacher via a lesson plan adapted from CAERT's "Measuring and Calculating Electricity" (Agricultural Mechanics and Technology Lesson Plan Library CD-ROM, 2002). Instruction was given on basic electrical terminology including voltage, amperage, and resistance. The instructor also taught the components of Ohm's Law and how to solve simple circuit problems using manipulation of Ohm's Law. The next class meeting following instruction, the researcher randomly assigned students to either the experimental or control group for a practice session on how to use Ohm's Law. The groups received identical materials except for the experimental group students who received the metacognitive treatment. The metacognitive treatment involved the instruction on how to regulate their thinking via a regulatory checklist adapted from Schraw (1998). Details regarding treatments for each group will be explained further in the treatment section. For the practice sessions one group was randomly selected to be relocated to another classroom. This was to prevent diffusion of information between the groups. Two of the experimental groups were relocated, and two of the control groups were relocated. The groups remained separate until the completion of the test.

Each group was given an example problem worked by either the teacher or researcher depending on which group the students are assigned and a set of two practice problems to work independently. During the practice sessions the teacher and researcher assisted students via individualized coaching while students worked on the three practice problems. The individualized coaching involved discussion with the student regarding the possible manipulations of Ohm's Law. The teacher was provided an answer key for the practice problems to check students' answers. If students' answers were correct, it was confirmed by the teacher or researcher depending on which group the student was assigned. If students' answers were incorrect, the teacher or researcher explained to the individual student that the answer was incorrect. It was explained that the answer was either given in the incorrect units, calculated incorrectly, or calculated for the wrong component of the circuit. Students were told to redo the problem. When the student finished reworking the problem the teacher or researcher confirmed if the new answer was correct. Practice sessions were uniformly scheduled for 40 minutes.

Treatments

The only difference between groups was that students in the control group received no training, modeling, or instructions on how to use regulatory questioning. The teacher provided the control group a demonstration on how to use Ohm's Law. This allowed students to review what they learned from the lesson on Ohm's Law. Students worked the example problem on their worksheet while following directions from their teacher. After the demonstration by the teacher, students practiced independently by solving two simple circuit practice problems. During the control group's practice session the teacher monitored the students, assisted students via

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individualized coaching while students worked on the two practice problems, answered questions regarding correct answers, and reminded students to work on their questions independently.

Students assigned to the experimental group received instruction from the researcher on how to regulate their thinking via a regulatory checklist adapted from Schraw (1998). The checklist included questions grouped into three metacognitive categories. These categories were planning, monitoring, and evaluating. The regulatory questions can be found in Figure 2.

Students in the experimental group were given a regulatory checklist question card which was read and explained by the researcher. A demonstration on how to use regulatory questions with Ohm's Law was provided by the researcher. This allowed students to practice what they learned from the lesson on Ohm's Law. Students in the experimental group worked the example problem on their worksheet while following directions from the researcher. During the demonstration, the researcher verbalized his thought processes to answer the regulatory checklist questions while solving the example problem. Students followed along by observing their question cards. After the demonstration by the researcher, students practiced independently by solving the two simple circuit practice problems using their regulatory checklist.

Students in the experimental group were told that question asking and question answering is a way of managing and checking their thinking while problem solving. It was explained that this was a way of keeping themselves aware of what they are doing during problem solving so that they could monitor their path toward a solution. During the practice session the researcher monitored the students, assisted students via individualized coaching while students worked on the two practice problems, provided assistance regarding the use of the regulatory checklist, answered questions regarding correct answers, and reminded students to work on their questions independently.

Planning		
What is the problem?		
What am I trying to do here?		
What do I know about the problem so far?		
What information is given to me?		
How can this help me?		
What is my plan?		
Is there another way to do this?		
What would happen if ...?		
What should I do next?		
Monitoring		
Am I using my strategy?		
Do I need a different strategy?		
Has my goal changed?		
What is my goal now?		
Am I on the right track?		
Am I getting closer to my goal?		
Evaluating		
What worked?		
What didn't work?		
What would I do differently next time?		

Figure 2. Illustration of regulatory checklist questions.

Instrumentation

A test was developed from the CAERT (2002) lesson plan "Measuring and Calculating Electricity" to assess students' performance. The test involved only single load circuits. The questions were theoretical in nature and did not include voltage drop. The test contained six word problems for which students were asked to solve two problems for unknown voltage, two for unknown amperage, and two for unknown resistance. The test and lesson plan was reviewed by five professors who taught methods for teaching agricultural mechanics courses to determine content and face validity. Reviewers were asked to determine whether the lesson plan was typical of an electrical circuit theory lesson, if the test measured what was being taught in the lesson plan, if the test items were at a median level of difficulty, if three minutes would be an appropriate time limit to solve the problems, and if the items would be clear and unambiguous for students.

Correct answers were tabulated and recorded by the researcher for each student. For analysis each problem was assigned a point value of three points. Students were given one point for each of the following; the correct manipulation of Ohm's Law to isolate the unknown property

of the problem, the correct answer mathematically, and the correct units of measure for the answer. If students left the question blank no points were given.

 A pilot test was conducted with eight undergraduates at Iowa State University enrolled in an agricultural mechanics teaching methods course taught by the researcher to determine any unforeseen problems with the experimental protocol and determine the internal consistency of the electricity test. No problems were detected with the implementation of the experimental protocol. The Cronbach's alpha for the experimental group was .88. The alpha for the control group was 1.0.

Data Collection

 Upon completion of two practice problems, students were given the test to assess their performance. Students were allowed three minutes to complete each problem. This was deemed an appropriate time limit according to the expert panel. The time limit of three minutes is consistent in research examining mathematical word problem solution times (Mwangi, W., & Sweller, J., 1998; Sweller, J., & Cooper, G. A., 1985) Students received a nonprogrammable calculator to compute basic arithmetic. The students in the experimental group were asked to use the regulatory checklist procedure as they completed the test. Each student worked independently on the test. Students were separated by distance and monitored by either the teacher or the researcher depending on which group they were assigned to. This was to reduce the likelihood that students would observe other students answers during the test. Each student received each question separately. After three minutes the question was collected by either the teacher or the researcher and the next question was given to the students. Questions were handed out face down. Students were instructed not to turn the question over until given permission to start. Students who finished a question before the three minute time limit were asked to raise their hand to have their paper collected by the researcher or the teacher. Students were told to wait quietly until the next question was handed out.

Analysis

 The software package used for analysis was SPSS 16.0 ®. Means and standard deviations were used to describe problem solving scores. Independent *t*-tests were used to determine any significant differences in test scores between students in the experimental and control groups. The unit of analysis was the student. To check for scoring errors, the researcher performed a re-calculation of students' scores prior to data entry. To check for data entry error the researcher compared students' scores recorded on the data collection forms with the values entered in the computer to determine if any discrepancies existed. No data entry errors were detected. The alpha level was set at .05.

Results

 Due to random assignment of students to groups, it was assumed that any preexisting differences would fall within the range of expected statistical variation and would not confound the results. The oral audio recordings of the teacher and researcher were used to insure the fidelity of the treatment. It was verified that the protocol was followed. The frequency distribution of the control group test scores can be seen in Table 1. The frequency distribution of the regulatory self-questioning group test scores is illustrated in Table 2.

Table 1
Silent group students' test score distribution

Range in %[a]	f	%	Cumulative %
≤ 55	4	11.8	11.8
60 – 69	5	14.7	26.5
70 – 79	7	20.5	47.0
80 – 89	7	20.6	67.7
90 – 100	11	32.4	100.0
Total	34	100.0	

Table 2
Regulatory self-questioning group students' test score distribution

Range in %	f	%	Cumulative %
≤ 55	2	5.8	5.8
60 – 69	1	2.9	8.7
70 – 79	4	11.8	20.6
80 – 89	4	11.8	32.4
90 – 100	23	67.6	100.0
Total	34	100.0	

The control group and the experimental group distributions were negatively skewed. Test results showed that regulatory self-questioning students scored higher than students who worked silently. The proportion of regulatory self-questioning students with test scores between 90 and 100% was twice that of student who worked silently. Table 3 shows the mean percentage test scores by group. The regulatory self-questioning group test scores on average were ten percentage points higher than the silent group. The calculated Cohen's *d* indicated a medium treatment effect (Cohen, 1992). The difference in electrical circuit theory test scores between the control group and regulatory self-questioning group was not statistically significant, $t(62) = 1.96$, $p = .053$. Therefore, the hypothesis positing no significant difference in test scores for solving simple circuit problems using Ohm's Law between students who use a regulatory checklist and students who do not was not rejected.

Table 3
Differences between groups for percent scored on Ohm's Law Simple Circuit Test

Group	M	SD	% Difference	d
Control ($n = 34$)	78.8	20.5	10.0	0.5
Experimental ($n = 34$)	88.4	19.9		

$t(62) = 1.96$, $p = .053$

Conclusions/Recommendations/Implications

Students in the regulatory self-questioning group scored ten percentage points higher than the control group. While the *t*-test did not detect a statistically significant difference, Cohen's *d* indicates a moderate treatment effect between the regulatory self-questioning and control groups

on the Ohm's Law test for solving simple circuit problems. The trend shown in the distribution of test scores suggests that students who use regulatory self-questioning are more likely to solve Ohm's Law simple circuit problems correctly than students who work silently. This is similar to the findings of Cardelle-Elawar (1995), King (1991a, 1991b) and Swanson (1990) that regulatory self-questioning increases elementary and junior high school student problem solving achievement. In contrast to Perkin et al.'s (1990) conclusion, the adding of a metacognitive strategy during Ohm's Law instruction does not appear to disrupt secondary career and technical education students' problem solving performance. It was concluded that regulatory self-questioning is a promising instructional tool for improving secondary students' problem solving performance.

The skewed distribution for each group of test scores suggests that this activity may not have been at a level of difficulty that required a high level of problem solving activity. In the control group 53% of students achieved a test score of 80% or better on the Ohm's Law test while 79% of students in the regulatory self-questioning group scored 80% or better on the Ohm's Law test. The content of the test required secondary students to find and use the appropriate mathematical algorithm to produce the correct solution. Anderson (1985) noted that problem solving can vary in the amount and level of challenging tasks that develop into a solution. This can vary the mental effort needed to find a solution and apply it (Andre, 1986). Further research should be conducted to investigate the effects of regulatory self-questioning when students are faced with increasingly complex electrical circuit theory problems.

The effect size between treatments taken with the percentage of students with high test scores in the regulatory self-questioning group, suggests that the use of regulatory self-questioning may positively benefit teachers who teach principles of Ohm's Law. This may have implications for educators in other content areas that rely heavily on problem solving such as science and technology. According to Pintrich (2002) and Royer et al. (1993) these content areas rely heavily on specific skill sets such as troubleshooting and hypothesis testing. In contrast to Glaser's (1984) conclusion, using a general strategy like regulatory self-questioning may allow students to develop knowledge about these specific skill sets, how to use them, and when and why to use them (Schraw, 1998). Educators could incorporate this type of strategy into their instruction by calling on students to answer regulatory questions during class. This would benefit students by encouraging expert-like problem solving behavior. Because this sample consisted of only 68 secondary career and technical students, it is recommended that this study be replicated to determine if the effects of regulatory self-questioning are consistent across subject matter and populations.

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Stress Levels of First Year Teachers as Influenced by Their Perceived Ability to Manage Time

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Abstract

Monitoring the stress of teachers continues to be important – particularly stress levels of beginning teachers. The study sought to describe the relationship between beginning teachers' ability to manage their time and their level of stress. The Time Management Practices Inventory and the Job Stress Survey were used to collect the data. The study was comprised of 36 beginning teachers in Missouri. A highlight of the findings suggests that beginning teachers tend to perceive themselves as good managers of time when compared to norm data. Additionally, on average, these teachers are not in a state of stress. Low to negligible relationships exist between the seven time management constructs and teachers' levels on the stress, job pressure, and lack of support indices.

Introduction

The future of the agriculture teaching profession lies with the retention of effective, knowledgeable, and satisfied educators. As young adults transition from their role as pre-service teacher to members of a professional community of educators, they will encounter a plethora of new tasks, responsibilities, and roles. If teachers are unable to cope with their role as professional educators, the result will be teacher stress (Adams, 1999; Cruickshank & Callahan, 1983). Unfortunately, this is often the result. Roberts and Dyer (2004) found that traditionally-certified agriculture teachers were facing the issues of attrition and burnout, an indicator that teaching is a stressful and time-demanding job. According to Jensen (1986) and Marso and Pigge (1997), 50% of beginning teachers leave the profession before the end of their sixth year of teaching. Is teacher stress a major contributor to the decision to leave teaching?

Chapman and Hutcheson (1982) found that individuals who were less able to organize their time were more likely to leave the teaching profession. Many times teachers find time to be lacking and, therefore, the ability to organize their time as essential (Chapman & Hutcheson). Time and stress appear to be highly linked, but is there a relationship between a beginning teacher's ability to manage their time and their self-perceived stress level?

Few teachers are immune to stress. Beginning teachers are particularly susceptive to high levels of stress. Beginning teacher have little problem finding work to fill their schedules. The new demands of classroom teaching, managing student organizations, fulfilling district and state induction program requirements, supervising SAEP's, and managing an agricultural program can quickly overwhelm the first year teacher. The beginning teacher invests over 50 hours per week teaching, preparing to teach, completing other teaching roles, working with FFA members, and supervising the supervised agriculture experience (SAE) programs of the students (Joerger &

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Boettcher, 2000). Torres et al. (2007) noted that agriculture teachers typically have a greater workload and work longer hours than other secondary education teachers. It is, therefore, no surprise that beginning agriculture teachers experience a high-level of stress during the first seven or eight weeks of the school year (Joerger & Boettcher).

Conceptual Framework

Few beginning teachers can identify academic goals and the means to which those goals can be accomplished and until this skill is attained, time management can be a problem (Cruickshank & Callahan, 1983). Toward this end, Macan (1994) provides a conceptual framework for understanding the complexity of perceived time control (see Figure 1). Macan describes how one's perceived ability or inability to control time impacts to a variety of outcomes (job-induced tensions, somatic tensions, job satisfaction and job performance). Macan's model suggests that these outcomes are not independent of each other, but, rather are intertwined. Students who perceived control over their own time felt fewer school and somatic tensions, reported a higher perceived performance and experienced less role ambiguity and role overload (Macan, Shahani, Dipboye, & Phillips, 1990).

Schuler (1979) proposed that "time management means less stress for individuals, which means more efficient, satisfied, healthy employees, which in turn means more effective organizations" (p. 854). Schuler's assertion captures much of the traditional thinking of time management (Nonis, Hudson, Logan, & Ford, 1998). However, Macan (1994) argued that time management behaviors are not directly linked to these outcomes; rather these outcomes operate through a perception of control over time.
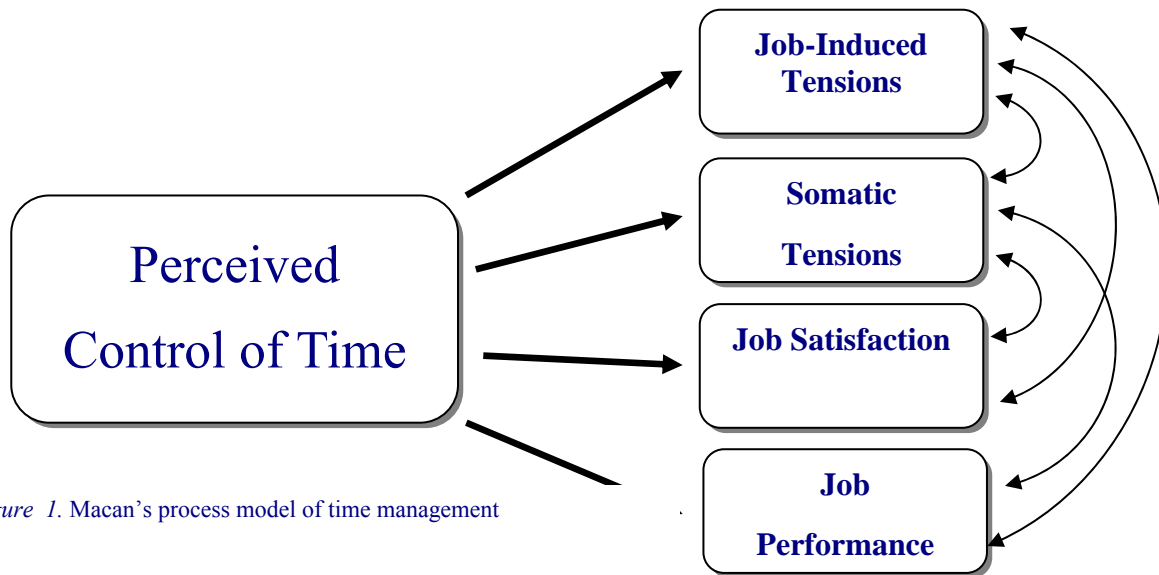

Figure 1. Macan's process model of time management

Review of Literature

The field of agricultural education faces a shortage of qualified secondary teachers to fill existing and future agricultural education program openings (Camp et al., 2002; Connors, 1998; Kantrovich, 2007). The shortage is perpetuated by teachers leaving the profession early because

they feel ineffective and overwhelmed (Bennett, Iverson, Rohs, Langone, & Edwards, 2002). One of the greatest challenges facing beginning teachers is time management. Beginning teachers identified managing stress, lack of preparation time at the beginning of the school year, and time management as three of the eleven major problems faced (Myers, Dyer, & Washburn, 2005). In a 1999 study of entry phase agricultural teachers in Texas, entry phase teachers rated 163 competencies based on self-perceived importance of the competency. Based on MWDS rankings, teachers self-identified important competencies including: balancing quality time among different life roles such as teacher, spouse, or parent (#3), identifying priorities and managing time efficiently (#9), managing and reducing work-related stress (#11), and learning how to say no (#13) (Edwards & Briers, 1999).

Similarly, Mundt and Connors (1999) identified problems and challenges associated with first year agriculture teachers. Seventy-six percent of first year teachers identified balancing professional and personal responsibilities and maintaining personal motivation and a positive outlook as very important. In addition, sixty percent of first year teachers identified properly managing your time, completing paperwork, and meeting required deadlines as very important. Similar findings regarding organizational problems were revealed in an earlier study of first year agriculture teachers in Idaho by Mundt (1991). The organizational and time management-problems included everything from the organization of the facility, the curriculum and the lesson planning to dealing with classroom management and discipline problems. Additionally, planning for the various FFA events took time and organization. All teachers reported problems with organization and time management (Mundt).

A common approach to dealing with the stress of beginning teachers has been training in time management (Heath-Camp, Camp, Adams-Casmus, Talbert, & Barber, 1992; Roberts & Dyer, 2004a). Both traditionally certified and alternatively certified teachers identified their greatest inservice needs to be in the area of professional development, including Managing and reducing work-related stress, time management tips and techniques, professional growth and development. Schuler (1979) stated that "time management means less stress for individuals, which means more efficient, satisfied, healthy employees" (p. 854). In a study on preservice teachers, Woolfolk and Woolfolk (1986) found even a small amount of training in time management can have both an immediate and a long term effect on the performance of pre-service teachers Furthermore, the participants of their study expressed excitement about training in time management.

Purpose and Research Questions

The notion that teacher stress is linked to time management practices leads to the purpose of the study. Recommendations for time management intervention have been suggested as a solution to managing teacher stress. However, there is a lack of research in agricultural education that highlights the relationship between teachers stress and their ability to manage their time. In light of a shortage of teachers in agriculture and the interest to retain them in the profession, beginning teachers are the focus of this study. Thus, the purpose of the study was to investigate the relationship between the time management skills of first year teachers and their stress levels. The study was guided by the following research questions:

1.) What are the characteristics (sex, hours of work per week, teaching experience) of the first year teachers?
2.) What is the time management profile of the first year teachers?
3.) What is the job stress profile of the first year teachers?
4.) What is the relationship between time management and job stress of first year teachers?

Methodology

This study was descriptive-correlational in design. The purposeful sample included all first year induction program participants in Missouri during the 2008-09 school year ($n = 36$). The frame was obtained from the coordinator of the induction program.

Two instruments were used in the data collection process. The first was the Time Management Practices Inventory (TMPI) developed by Pfaff and Associates (2000). The TMPI was designed to provide a brief assessment of current performance in the key areas of time management: setting priorities, resisting involvement, meeting deadlines, self-confidence, planning, taking action, and paperwork. Pfaff operationalized each time management strategy. The strategy of setting priorities is developing a system that prioritizes activities and completing activities in order of importance. The strategy of planning is described as being proactive and analyzing what needs to be done and planning your activities. Taking action involves determining the reasons for procrastination. Pfaff described risking involvement as the inability to say "no" when tasks are presented to you. Paperwork refers to the forms and documents a person must deal with in their occupation. Deadlines, refers to the basic courtesy of being "on-time". Self-confidence is another factor in time management. A low self-esteem can result in problems when trying to effectively manage time.

The TMPI was developed over a four-year period and was based on feedback from respondents and factor analysis of behaviorally-based statements. The TMPI contains 31 items and utilizes a 7-point Likert-type scale; a response of "1" means the person virtually never does what the statement describes; a response of "7" means that one performs the behavior virtually always. The TMPI manual also provides normative data compiled from 435 managers, professionals and office staff which is used in the comparison and interpretation of the results.

The TMPI measures time management using seven constructs. The constructs of Setting Priorities, Resisting Involvement, Meeting Deadlines, and Self-Confidence are summations of four items; while the constructs of Planning, Taking Action, and Paperwork are summations of five items. The TMPI manual reports reliability estimates for the seven constructs (see Table 1)

Table 1
Reliability Estimates on the TMPI

Construct	Alpha
Setting Priorities	.89
Planning	.90
Taking Action	.87
Resisting Involvement	.72
Paperwork	.71
Deadlines	.76
Self-Confidence	.85

Job stress data were then collected using the Job Stress Survey (JSS) developed by Spielberger and Vagg (1999). The JSS is a standardized and commercially available instrument designed to measure job stress as a function of job-related items that are perceived to be a source of severe and frequent stress. The JSS contained two sections. Section one sought to determine teachers' perceived level of severity of 30 common job-related stressors using a scale from 1-9; nine being the most stressful measure.

The second section sought to determine the frequency at which teachers encountered the job-related stressor at work during the previous six months using a scale that ranged from zero days experienced to more than nine occurrences in the last six months (0 – 9+). The two responses (severity and frequency) were used to produce three stress index scores: Job Stress Index, Lack of Support Index, and Job Pressure Index. Index scores were calculated by multiplying severity scores by frequency scores. A third section was added to the questionnaire that sought teachers' personal, home, and work-related information. The JSS was prepared for paper-pencil and electronic format.

Spielberger and Vagg (1999) reported that validity and reliability of the JSS were established through the results of previous studies. The creation of the instrument was detailed in the *Job stress survey: Professional manual.* The manual further reported that the job-related items in the JSS were analyzed for construct validity using factor analysis. Alpha coefficients of .80 or higher were reported for all three index scales including Job Stress, Job Pressure, and Lack of Support (Spielberger & Vagg). The manual also provides normative data for use in comparisons. The managerial professional normative data was chosen because it appeared to most closely approximate the teacher group.

Time Management data were collected online during the early part of January. One week after completion of the time management data collection process, the same group was used to collect job stress data. Two points of contact were used to collect the TMPI. All first year teachers were sent an email in January of 2009 with a link to complete the instrument online. Those not having completed the instrument one week later were sent a reminder email with the same embedded link. A total of 32 (88%) participants responded. This exceeded the necessary 85% response rate suggested by Lindner, Murphy and Briers (2001), therefore, no further attempts to collect data were implemented.

The JSS was collected immediately following the TMPI data collection and utilized three points of contact. First, a paper copy was distributed with a self-address, stamped return envelope and a signed cover letter. Within two weeks, there were 9 responses returned in the mail. At that point, for ease of response, the researchers launched an online version of the instrument and an email containing a unique link was sent to each of the participants. After one week, a reminder email was sent which included the link again. The online instrument yielded 24 responses total. One person completed both the online and the paper instrument. This yielded a total of 32 unique responses to stress management instrument. To address objective 4, only participants who completed both instruments were used ($n = 28$).

Data were coded by the researchers and analyzed using SPSS (v. 16). Frequencies, percents, and measures of central tendencies and variability were used to summarize the data. Pearson-Product moment correlations were also used. Davis' (1971) conventions were used to interpret effect size. These non-inferential statistics are assumed to only hold true for respondents in the study and are not intended to be generalizable.

Results

Table 2 displays the characteristics of our first year teachers. Years of teaching experience was not a constant, as first thought ($M = 1.52$, $SD = 1.39$). In reality, the group had a range of experience from one to seven years. This appeared because the first year teacher induction program is designed for all teachers completing their first year as an agriculture teacher in Missouri, or who have not previously completed an induction program. The group was split almost evenly between males ($f = 18$, 52.94%) and females ($f = 16$, 47.06%). Two thirds of these teachers report working more than 55 hours per week.

Table 2
Characteristics of First Year Teachers ($n = 34$)

Characteristic	f	%	M	SD	Range
Sex					
Male	18	52.94			
Female	16	47.06			
Hours per week at work					
35-45	1	3.23			
46-55	9	29.03			
56-65	13	41.94			
66-75	5	16.13			
75+	3	9.68			
Years Teaching Experience			1.52	1.39	1 - 7

Valid percents reported. Missing data

Table 3 reports the first year teachers' time management scores as well as comparative norm data. The first year teachers are above the norm data on all constructs. Teachers showed the highest mean on meeting deadlines ($M = 5.92$) followed by Self-Confidence ($M = 5.66$), Setting Priorities ($M = 5.59$), Planning ($M = 5.03$), Taking Action ($M = 4.67$), Paperwork ($M = 4.61$), and, lowest on Resisting Involvement ($M = 4.48$).

Table 3
Time Management by Construct of First Year Teachers (*n* = 34)

TMPI Construct	Teacher Data				M/P Norm Data	
	Grand Mean[c]	Mean Total	*SD*	Range	Mean Total	*SD*
Meeting Deadlines[b]	5.92	23.69	3.06	14-28	23.00	4.00
Self-Confidence[b]	5.66	22.66	3.03	16-27	21.00	3.50
Setting Priorities[b]	5.59	22.38	2.84	17-27	22.00	4.10
Planning[a]	5.03	25.13	5.36	14-35	23.00	7.00
Taking Action[a]	4.67	23.34	3.60	15-29	22.00	5.00
Paperwork[a]	4.61	23.06	4.10	14-31	21.00	5.00
Resisting Involvement[b]	4.48	17.94	3.23	9-23	17.00	4.00

Possible maximum values = [a]35; [b]28; [c]Scale= 1-7

The stress information on the first year teachers appears in Table 4. Data at or above the 70th percentile indicates a stressed group. The first year teachers did not meet that threshold on any of the three job stress indices. Teachers scored at the 52nd percentile on the Job Pressure Index (*M* = 25.51, *SD* = 8.77). The teachers were at the 41st percentile on the overall Job Stress measure (*M* = 17.14, *SD* = 6.12). The teachers were at the 32nd percentile on the Lack of Support Index (*M* = 11.48, *SD* = 7.90).

Table 4
Stress Indices of First Year Teachers (*n* = 34)

Index	*M*	*SD*	Range[a]	M/P Norm Data
Job Pressure	25.51	8.77	3.30 - 40.90	52nd %ile
Job Stress	17.14	6.12	2.83 - 27.37	41st %ile
Lack of Support	11.48	7.90	0.50 - 28.00	32nd %ile

[a]Maximum value equals 81

Correlations were completed to look for relationships between the seven constructs of time management and the three measures of job stress (see Table 5). There was one moderate correlation found between job stress and time management. This was a moderate negative correlation (*r* = -.36) between Self-Confidence and job stress. Four moderate correlations were found between Job Pressure and time management. Moderate negative correlations were found between job pressure and the constructs of Setting Priorities (*r* = -.43), Planning (*r* = -.35), Taking Action (*r* = -.36), and Paperwork (*r* = -.32). There were no moderate correlations with Lack of Support and time management; however, three low correlations were found. There was a low, positive correlation with Lack of Support and Meeting Deadlines (*r* = .11) as well as with Resisting Involvement (*r* = .28) while a low negative correlation was found with Self-Confidence (*r* = -.16).

Table 5
Pearson-Product Moment Correlation between Stress Indices and Time Management Constructs
(*n* = 28)

TMPI Construct	Job Stress		Job Pressure		Lack of Support	
	r	ES	*r*	ES	*r*	ES
Meeting Deadlines	-.07	negligible	-.27	Low	.11	low
Self-Confidence	-.36	moderate	-.50	substantial	-.16	low
Setting Priorities	-.16	low	-.43	moderate	-.01	negligible
Planning	-.27	low	-.35	moderate	-.05	negligible
Taking Action	-.10	low	-.36	moderate	.06	negligible
Paperwork	-.13	low	-.32	moderate	.09	negligible
Resisting Involvement	.01	negligible	-.27	Low	.28	low

Note. Usable paired data only

Conclusions/Implications/Recommendations

The first year teachers represented in the study were split across male and female. While the average years of teaching experience was a year and a half, all teachers studied were in their first year of teaching agriculture in Missouri. The data suggests that a first year Missouri agriculture teacher is putting in many hours in their job. In fact, 95% of first year teachers responded that they are working in excess of 45 hours per week.

Among the time management variables measured, the beginning Missouri agricultural teacher, along with having high self-confidence about their time management ability is most capable of handling deadlines and setting priorities. Perhaps the teaching profession has forced coping skills from these first year teachers. Since they appear to be doing well in these areas, no intervention is needed. However, they are least capable of resisting involvement at work and taking action. This suggests that beginning Missouri agricultural instructors have difficulty saying "no" to additional responsibilities and may tend to procrastinate. They also struggle with paperwork which supports findings from Torres, Lawver, and Lambert (2009) which showed that excessive paperwork was a high stress item for teachers in both Missouri and North Carolina. Focus should be given to the areas of resisting involvement, paperwork and taking action. Teachers should learn to say no. They also need to learn how to delegate when they have too much work and do not have the capacity to meet the demands. They should also work to minimize the amount of paperwork and implement strategies for managing correspondence. Strategies for taking action include setting priorities and dividing large projects into achievable steps with deadlines. This understanding and assistance could occur in a teacher preparation program for traditional teachers and could occur during the induction or mentoring program for non-traditional teachers.

While there is room for improvement and calls for intervention may be appropriate, it should be noted that compared to the normative data provided by the TMPI (2000), first year agriculture teachers in Missouri tend to be more effective at managing their time. These first year teachers scored higher than the normative data on each of the seven constructs measured. Does the structure of teaching school force beginning teachers to become managers of their time? Perhaps the six months of teaching experience sensitized the need for time management?

When looking at the stress profile for these beginning teachers, it is important to remember that most teachers were working in excess of 45 hours per week. According to Torres, Lambert, and Lawver (2009) this should be a predictor for stress. Despite the long hours beginning teachers work, they have not crossed the stress threshold (70th percentile) in the stress indices of job pressure (52nd percentile), job stress (41st percentile), or lack of support (32nd percentile). There are several possible arguments for why this group of first year teachers was not stressed. Perhaps, there is still some novelty, having only been in their teaching positions for about 6 months and they are still carrying around the superhero mentality that they can do anything. Perhaps at this young stage of their career they are not yet dealing with a lot of family-oriented stress at home with which later career teachers may have to contend. Or, more likely, perhaps, this underscores the effectiveness of the beginning teacher/mentoring program in Missouri. All beginning teacher should be encouraged to actively participate in the Missouri beginning teacher/mentor program.

Correlations checked for a relationship between time management skills and job stress. There was a moderate, negative correlation between self confidence and job stress indicating that the higher a person's self-confidence as a manager of their own time, the lower their stress levels will tend to be. Also interesting was the finding that there did not appear to be a strong link between time management skills and feelings of support from the teaching profession. However, the most obvious link among stress and time management was that there are more substantial and moderate correlations between job pressure and time management than with any other index of stress that was measured. This indicates that the higher the time management skills of the individual, the better they will be at handling the job pressure associated with teaching agriculture. This is yet another finding to support the benefits of time management as a skill for future teachers.

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The Relationship Between Perceived Time Management Behaviors of Agricultural Education Student Teachers and Their Selected Characteristics

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Abstract

Time management has been hailed as a desirable skill by many. Successful teachers are often associated with their ability to manage a variety of roles and responsibilities. As student teachers prepare to enter the teaching profession, do they possess the appropriate time management behaviors to become success? This question became central to this study. Agricultural Education student teachers at the University of Missouri were the focus of this study. The Time Management Practice Inventory was used to measure perceived time management practices. The key areas of time management were: setting priorities, resisting involvement, meeting deadlines, self-confidence, planning, taking action, and paperwork. The results reveal that student teachers are on par or better managers of time than the norm data. Moderate to substantial relationships exist between six of the seven time management practices and grade point average. Self-confidence was not related to grade point average.

Introduction

The student teaching experience is a critical element in the progression of an educator and is often viewed as the capstone experience of the teacher education program (Roberts, 2006). Student teaching provides an opportunity for teachers to transition from the role of student to the role of educator. For some pre-service teachers, student teaching offers the first opportunity to work with K–12 students (Sadler, 2006). In fact, first year teachers, university supervisors, and cooperating teachers all agreed student teaching was the most valuable component of the teacher education program (Rome & Moss, 1990) since the experiences during student teaching influenced the attitudes and perceptions of pre-service agriculture teachers regarding their future careers as educators (Briers & Byler, 1979; Byler & Byler, 1984; Harlin, Edwards, & Briers, 2002; Kasperbauer, 2005; Schumacher & Johnson, 1990).

The curriculum of a teacher education program provides the formal training pre-service teachers receive prior to their entry into the workforce. Preparation of individuals for teaching in school-based agricultural education programs remains the focal point of most agricultural education programs (Anderson, Barrick, & Hughes, 1992). However, curriculums differ widely among agriculture teacher preparation programs and surprisingly few items are taught in all programs (McLean & Camp, 2000). Noticeably absent from these pre-service curriculums was formal instruction on time management.

Not only have numerous studies suggested that early career teachers are often overwhelmed with the number of duties and responsibilities that are part of the teaching job (Fessler & Christensen, 1992; Huberman, 1993; Kagan, 1992), but research (Cole, 1991; Mundt,

1991; Myers, Dyer, & Washburn, 2005) has identified time management as a major problem faced by both beginning and experienced agricultural educators. A study of beginning teachers (Adams & Krockover, 1997) found all reported time management as a concern.

Learning how to balance time between the various responsibilities and duties appears to be a universal theme amongst beginning teachers concerned about managing time. Sadler (2006) found that management of both classroom and personal time was an issue for student teachers. These pre-service teachers had many issues including feeling overwhelmed by the amount of time required to develop lesson plans and classroom activities, burdened with grading and assessment, inundated with parental communications and email, and inadequate at estimating instructional time required for certain topics. Some individuals reported that they consistently under planned, and struggled to cover the amount of material expected by their cooperating teachers. This is consistent with findings from Adams and Krockover (1997) in which teachers identified balancing paperwork, grading, and personal lives as areas of concern.

Studies (Adams & Krockover, 1997; Sadler, 2006) have recommended that teacher preparation programs encourage students to develop strategies specific to time management and that there be more explicit integration of time management skills needs to occur in our current pre-service programs. Any intervention should focus on the specific time management needs of teachers rather than providing broad and general time management suggestions that are so common (Warren & Flowers, 1993).

Conceptual Framework

Beginning teachers have little problem finding work to fill their schedules. The demands of classroom teaching, managing student organizations, fulfilling district and state induction program requirements, supervising SAEP's, and managing an agricultural program can quickly overwhelm the first year teacher. The beginning teacher invests over 50 hours per week teaching, preparing to teach, working with the FFA, and supervising the supervised agriculture experience (SAE) programs of the students (Joerger & Boettcher, 2000). Torres, Ulmer, and Aschenbrener (2007) support the generally accepted notion that agriculture teachers have greater workloads and work longer hours than typical secondary education teachers. Beginning agricultural education teachers experience a high level of stress during the first 7-8 weeks of the school year (Joerger & Boettcher, 2000).

Macan (1994) provides a conceptual framework for understanding the complexity of one's perceived control of time (see Figure 1). Macan poised that one's ability or inability to control of time contributes to a variety of outcomes (job-induced tensions, somatic tensions, job satisfaction and job performance). Macan's model suggests that these outcomes are not independent of each other, rather are intercorrelated. Macan, Shahani, Dipboye, and Phillips (1990) found that students who perceived themselves to have control over their own time felt fewer school and somatic tensions than did students who did not perceive themselves to have control over their own time.

Schuler (1979) proposed that "time management means less stress for individuals, which means more efficient, satisfied, healthy employees, which in turn means more effective organizations" (p. 854). Schuler's assertion captures much of the traditional thinking of time

management (Nonis, Hudson, Logan, & Ford, 1998). However, Macan (1994) argued that time management behaviors are not directly linked to these outcomes; rather these outcomes operate through a perception of control over time.
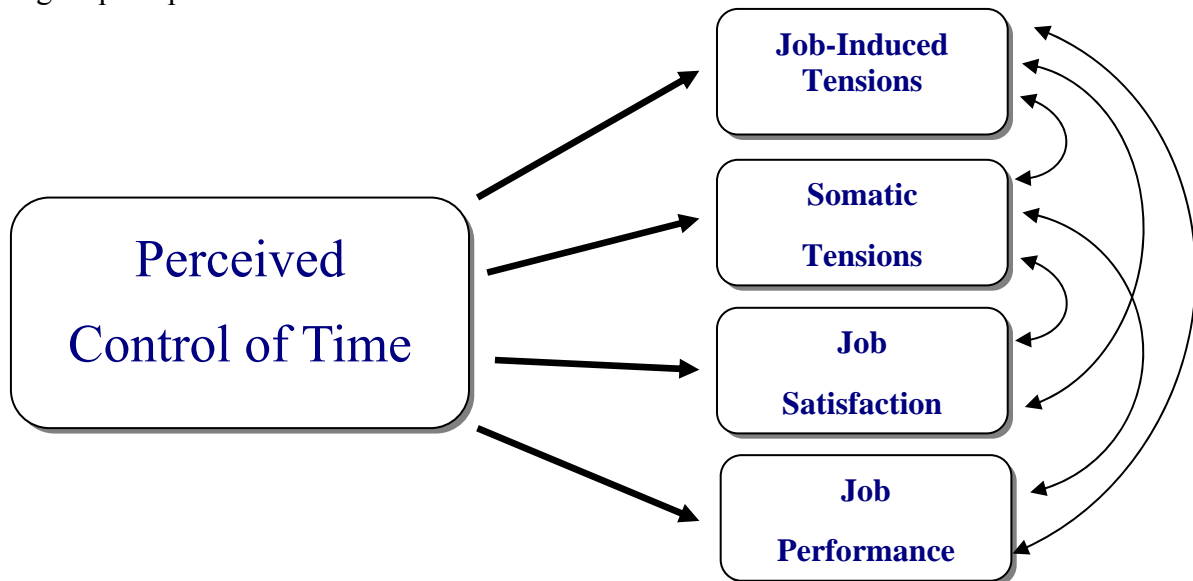

Figure 1. Macan's process model of time management

The concept of time management is generally defined as clusters of behavior which facilitate productivity and alleviate stress (Lay & Schouwenburg, 1993). A study (Britton & Tesser, 1991) specifically among college students, found that perceived control of time management was positively related to academic achievement. Further, the effects of time management are independent of SAT score and have a stronger relationship to academic achievement than SAT score. In addition, training in time management can have an effect on the performance of preservice teachers during a period of great time pressure (Woolfolk & Woolfolk, 1986).

Purpose and Research Objectives

Among the endless repertoire of teacher skills, time management is hailed as extremely important. Student teachers are at the threshold of becoming a professional educator. However, the question remains at the skill level of their time management behaviors. Additionally, what characteristic are associated with time management skill levels? There remains a lack of research that addresses these questions. Thus, the purpose of the study was to explore the relationship between agricultural education student teachers' perceived time management behaviors and their selected characteristics. The following research objectives were addressed in the study:

1. Describe the characteristics of the student teachers (sex, education level and cumulative GPA).
2. Describe the time management profile of student teachers.
3. Describe the relationship between student teachers' time management profile and their cumulative GPA.

Procedures

The design for this study was descriptive-correlational research. The purposeful sample included all agricultural education student teachers at the University of Missouri during the spring of 2009 ($n = 15$). Data were collected using the Time Management Practices Inventory (TMPI) developed by Pfaff (2000). The TMPI was designed to provide a brief assessment of current performance in the key areas of time management: setting priorities, resisting involvement, meeting deadlines, self-confidence, planning, taking action, and paperwork. Pfaff operationalized each time management strategy. The strategy of setting priorities is developing a system that prioritizes activities and completing activities in order of importance. The strategy of planning is described as being proactive and analyzing what needs to be done and planning your activities. Taking action involves determining the reasons for procrastination. Pfaff described risking involvement as the inability to say "no" when tasks are presented to you. Paperwork refers to the forms and documents a person must deal with in their occupation. Deadlines, refers to the basic courtesy of being "on-time". Self-confidence is another factor in time management. A low self-esteem can result in problems when trying to effectively manage time.

The TMPI was developed over a four-year period and was based on feedback from respondents and factor analysis of behaviorally-based statements. The factor analysis revealed the construct validity. The TMPI contains 31 items and utilizes a 7-point Likert-type scale; a response of "1" means the person virtually never does what the statement describes; a response of "7" means that one performs the behavior virtually always. The TMPI manual also provides normative data compiled from 435 managers, professionals and office staff which was used in the comparison and interpretation of the results.

The TMPI measures time management using seven constructs. The constructs of setting priorities, resisting involvement, meeting deadlines and self-confidence are summations of four items; while the constructs of planning, taking action, and paperwork are summations of five items. The TMPI manual reports reliability estimates for the seven constructs (see Table 1)

Table 1
Reliability Estimates on the TMPI

Construct	Alpha
Setting Priorities	.89
Planning	.90
Taking Action	.87
Resisting Involvement	.72
Paperwork	.71
Deadlines	.76
Self-Confidence	.85

Data were collected in the middle of the student teaching experience during the month of February using three points of contact. The student teachers were given a note card during seminar which would allow them to access the instrument online. After one week, any student teacher not having completed the TMPI received a reminder email. Finally, after two weeks, the two students who had not completed the instrument received a personalized email. All student teachers

completed the instrument so non-respondent error was not an issue. Participant characteristics (sex, level and GPA) were collected through enrollment records.

All returned and/or submitted questionnaires yielded usable data. Data were coded by the researchers and analyzed using SPSS (v.16). Frequencies, percentages, and measures of central tendency and variability were used to summarize the data. Pearson-Product Moment correlations were also used. Davis' (1971) conventions were used to interpret effect size. No attempts to generalize the findings beyond the sample were intended.

Results

As reported in Table 2, a majority of the student teachers in the study were female ($f = 13$; 86.67%) and undergraduates ($f = 12$, 80.00%). The mean cumulative Grade Point Average (GPA) for the group was 3.34 ($SD = 0.36$). There is a minimum requirement for admission to the student teaching phase that truncated the range for the GPA data.

Table 2
Characteristics of Student Teachers ($n = 15$)

Characteristic	f	%	M	SD	Range
Sex					
Female	13	86.67			
Male	2	13.33			
Level					
Undergraduate	12	80.00			
Graduate	3	20.00			
Cumulative GPA			3.34	0.36	2.72 – 3.89

Table 3 displays the time management scores for the student teachers as well as a comparison to normative data. The grand means is the best measure of comparison among constructs as it is a true average. The mean total is a simple summation of the scores in order to make comparisons to the normative data. Student teachers show the highest mean in Meeting Deadlines ($M = 6.23$). The other constructs, in order, were Setting Priorities ($M = 5.70$), Self-Confidence ($M = 5.43$), Planning ($M = 5.13$), Taking Action ($M = 4.70$), and Paperwork ($M = 4.63$). The lowest mean ($M = 4.28$) was Resisiting Involvment. Student teachers scores were higher than the norm in all constructs of time management.

Table 3
Time Management of Student Teachers (n = 15)

TMPI Construct	Grand[a] Mean	Mean Total	SD	Range	Mean Total	SD
	Student Teacher Data				Norm Data	
Meeting Deadlines[c]	6.23	24.93	2.55	20-28	23.00	4.00
Setting Priorities[c]	5.70	22.80	2.96	18-28	22.00	4.10
Self-Confidence[c]	5.43	21.73	2.69	16-26	21.00	3.50
Planning[b]	5.13	25.67	6.32	14-34	23.00	7.00
Taking Action[b]	4.70	25.53	2.17	20-27	22.00	5.00
Paperwork[b]	4.63	23.13	3.85	17-31	21.00	5.00
Resisting Involvement[c]	4.28	17.13	3.38	12-24	17.00	4.00

[a]Scale based on 1 = Never Does to 7 = Performs the Behavior Virtually Always
Possible maximum values = [b]35; [c]28

Pearson-Product Moment correlations were calculated between time management including each of the time management sub-constructs with cumulative grade point average (see Table 4). The data analysis was limited to investigation on GPA because of the homogeneous nature of the subjects. Interpreting these correlations using Davis' (1971) conventions, three areas show a substantial, positive correlation: Setting Priorities ($r = .56$), Planning ($r = .53$), and Meeting Deadlines ($r = .51$). Three constructs were found to be moderate positive correlates including Paperwork ($r = .49$), Resisting Involvement ($r = .48$), and Taking Action ($r = .47$). A negligible correlation was found with Self-Confidence ($r = .01$).

Table 4
Pearson-Product Moment Correlation of Time Management and Cumulative GPA (n = 15)

TMPI Construct	GPA	Effect Size
Setting Priorities	.56	Substantial
Planning	.53	Substantial
Meeting Deadlines	.51	Substantial
Paperwork	.49	Moderate
Resisting Involvement	.48	Moderate
Taking Action	.47	Moderate
Self-Confidence	.01	Negligible

Conclusions/Implications/Recommendations

The student teacher group was comprised primarily of female teachers. The group was primarily undergraduates completing their bachelor of science in agricultural education, but also included three graduate students completing their master of agricultural education. The cumulative grade point average of the group was 3.34.

Student teachers completing their coursework at the University of Missouri tend to be more effective than the norm at managing their time. Student teachers score higher than the normative data in each of the seven constructs measured. Within the seven time management areas, student teachers perform best at meeting deadlines, setting priorities, and self-confidence with time

management decisions. However, they are less competent, yet still above the norm, with the constructs of planning, taking action, managing paperwork, and resisting involvement. These are areas where assistance might be beneficial. Whether this intervention comes during their student teaching experience or as part of the states induction and mentoring program during their first year of teaching, teachers would not doubt benefit from improved time management skills. Teacher educator should continue to stress the importance of time management. Teaching can be a stressful career (Torres, Lawver, & Lambert, 2009), thus students who have higher time management skills will be better prepared to handle the pressures of teaching.

When investigating the relationship between student teachers' GPA and their perceived level of time management skills, there simply does not appear to be a relationship between GPA and self-confidence. However, substantial correlations can be drawn between GPA and the constructs of setting priorities, planning, and meeting deadlines. This conclusion is consistent with Britton and Tesser (1991) who found that among college students, self-reports of time management are related to academic achievement. However, the issue with this relationship is one of directionality: Do time management behaviors influence GPA, or does GPA influence time management behaviors? Are the students high performing because they have time management skills or are the time management skills developed by being a high performer? Regardless of directionality, an association does exist. While teacher educators do not regularly measure time management behaviors, they do monitor academic performance. Low achieving students should be monitored for time management practices. Where possible, opportunities for enhancing time management practices should be offered to low achievers. Arguably, the earlier these student are taught to management their time, the more success they are likely to enjoy.

Recommendations for Further Research

Studies that investigate effective teachers will undoubtedly consider their per-service education to explain their observations. Pre-service education arguably sets in motion teacher behaviors (good or bad) into one's career as teacher. Time management is a behavior that is formed and/or refined while in college. The structured demands of course requirements and assignments, membership in student organizations, work, and various other collegiate activities often times require students to use time management strategies. These strategies (or the lack thereof) can often be attributed, in part, to students' success in many things, including college. While this study identified that per-service teachers do relatively well managing their time, questions remain as to why this was observed. Retrospective research designs should be conducted to identify antecedents to time management behaviors. Specifically, research should investigate how pre-service students management their time while in college. For example, what are the time management strategies and themes that pre-service students use? Additionally, research should investigate how they plan the use of their time. Do they have a "to do list"; do they write things down, do they rely on electronic devices to track their time? Do they use daily/weekly planner to keep track of appointments, classes, and meetings on a chronological log book or chart? While time management strategies can be attributed to academic achievement, can time management strategies be attributed to selecting teaching over careers that do not have the time demands of teaching? These and other questions need to be explored to better prepare/refine per-service teachers with essential time management skills for a successful and a "stress-free" career in teaching.

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