

PREDICTING PRESERVICE AGRICULTURE TEACHERS' INTENTIONS TO
TEACH UTILIZING PERSON INPUTS, CONTEXTUAL INFLUENCES, TEACHER
EFFICACY, AND OUTCOME EXPECTATIONS

By

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by

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This document is dedicated to my parents.

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Abstract of Dissertation Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy

**PREDICTING PRESERVICE AGRICULTURE TEACHERS' INTENTIONS TO
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The purpose of the study was to describe the influence and predictive nature of person inputs, contextual influences, self-efficacy, and outcome expectations on preservice agricultural teachers' intentions to teach, and intended length of teaching tenure. The dependent variables were preservice teachers' intentions to teach, and the number of years they expected to remain in the profession. The independent variables consisted of person inputs, contextual influences, self-efficacy, and outcome expectations. A causal-comparative design was used to accomplish the purpose of the study. A purposive sample of 262 preservice agriculture teachers representing 42 different institutions was selected. This sample represented all preservice agriculture teachers completing their final field experience during the fall of 2004. Participants completed a questionnaire, which measured their teaching intentions, teacher efficacy, teaching expectations, career barriers, career support, and demographics.

Data were analyzed using descriptive statistics and stepwise multiple regression was used to construct prediction models. Results showed that participants were predominately Caucasian, from rural areas, and approximately half were female. Most participants had been actively involved in 4-H, FFA, and enrolled in agricultural education. Nearly all participants had grade point averages greater than 2.5 and possessed some type of agricultural occupational experience. The findings provided partial support for the posited relationships of the Social Cognitive Career Theory, which served as the theoretical frame for this study. Analyses showed that preservice agriculture teachers who had greater teaching intentions reported higher teacher efficacy, more positive outcome expectations and support systems, and fewer perceived career barriers. Additionally, participants who perceived longer teaching tenures reported higher teacher efficacy, more positive outcome expectations and support systems, fewer perceived career barriers, and stronger agricultural backgrounds. Results of stepwise regression analyses produced two prediction models. Perceptions of teacher efficacy and teaching expectations were significant predictors of intentions to teach agriculture accounting for 44% of the variance. Gender, years in agricultural education, and teaching expectations were significant predictors of intended length of teaching tenure accounting for 24% of the variance. Based on these findings, recommendations for practitioners and researchers were presented.

CHAPTER 1 INTRODUCTION

The agricultural education community envisions “a world where all people value and understand the vital role of agriculture, food, fiber, and natural resource systems” (National Council for Agricultural Education, 1999, p. 3). Ultimately, agricultural education has sounded the call to make all students agriculturally literate. In order to reach this vision for the future, the strategic plan for agricultural education called for an abundant supply of highly motivated, well-educated teachers in all academic disciplines from pre-kindergarten through adult levels providing some type of agricultural education (National Council for Agricultural Education, 1999).

Although this is a valiant plan, it faces a difficult challenge. Agricultural education has suffered from a shortage of qualified candidates to accept teaching positions for at least the last 37 years (Camp, Broyles, & Skelton, 2002). In 2001, Camp et al. (2002) reported that nationwide 67 agricultural teaching positions went unfilled and 35 agricultural programs were closed due to the lack of a qualified teacher candidate. Similarly, in 1995 and 1998, respectively, 41 and 55 departments did not operate after failing to hire a qualified agriculture teacher.

Agricultural education is not alone in its struggle for an ample supply of qualified teachers. The entire educational system of the United States is faced with hiring millions of new teachers. The National Center for Educational Statistics (NCES) reported that during the period of 1998 to 2008, an estimated 1.7 to 2.7 million new teachers would need to be hired to fulfill the demand created by historically high student enrollment,

teacher retirement, and teacher attrition (Hussar, 1998). NCES projections show that this trend will continue through the next decade. By 2013, the NCES estimates that the national demand for teachers will be 182,000 greater than in 2004 (Gerald & Hussar, 2003). The difficulty of meeting the 2013 demand for teachers will be compounded by the retirement of approximately one million “baby boomer” teachers nationwide over the next ten years (Nebraska State Education Association, n.d.). Even conservative estimates call for an increase in teaching positions of two percent per year over the next decade (Wayne, 2000). Based on the 2001 study conducted by the American Association for Employment in Education, shortages of qualified teachers are already present in subject areas such as language, special education, math, science, computer science, and English as a Second Language. Shortages also exist in high-poverty communities and in certain regions of the country where enrollment growth is large (American Association for Employment in Education, 2001). Compounding the need for additional teachers, one-fourth of all beginning teachers leave the profession by their fifth year. In high poverty areas, teacher attrition rates climb as high as 50% (Bandiera de Mello & Broughman, 1996; Whitener, Gruber, Lynch, Tingos, & Fontelier, 1997).

Unlike the decisions that are often made regarding elective programs, school administrators cannot decide to close academic programs due to the lack of qualified teachers. As a result, schools are forced to lower standards to fill teaching positions, inevitably increasing the number of under-qualified teachers and lower school performance (Ingersoll, 2001).

Although none argue the existence of a problem, there are several schools of thought regarding a solution to the teacher shortage. Many believe the shortage is a

problem of insufficient supply, while others see it as a teacher retention issue. Ingersoll (2001) suggested that teacher shortages are primarily due to the “revolving door” that exists in many schools, in which large numbers of teachers leave the profession for reasons other than retirement. Empirical evidence supports such a belief as studies have shown factors such as job satisfaction can influence teacher attrition, absenteeism, and burnout (Cano & Miller, 1992; Davis & Newstrom, 1989; Lawler, 1977; Porter & Steers, 1973). Ingersoll (2001) stated that popular educational initiatives, such as teacher recruitment programs, would not solve teacher shortage problems without addressing the organizational sources of low teacher retention.

Teacher recruitment programs are the product of another school of thought held by those who believe the shortage is simply a matter of an insufficient supply. This includes state and federal agencies that have funded numerous initiatives to help recruit new teachers, including programs such as Teacher Corps, Teach for America (Cruickshank et al., 1996), and Troops-to-Teachers (Defense Activity for Non-traditional Educational Support, n.d.). Most states have resorted to alternative means of teacher certification in hopes of recruiting more teachers into the field. In 2005, 47 states and the District of Columbia reported having some type of alternative certification process for certifying elementary and secondary teachers. As a result, a total of 122 routes other than the traditional approved college teacher education program exist for certifying teachers in the United States (National Center for Education Information, 2005). In spite of these recruitment initiatives and alternative certification programs, the teacher shortage has not been eliminated.

Research in agricultural education has proposed yet another possible solution. In 1979, Parmley, Bowen, and Warmbrod examined data from previous national supply and demand studies and concluded that the teacher shortage in agricultural education was not a result of a shortfall in the number of graduates from teacher preparation programs, but rather too few of those graduates choosing to enter the teaching profession. Brown (1995) supported this conclusion, finding that approximately half of agricultural education graduates had elected not to pursue teaching positions. Brown (1995) found that although there were ample numbers of graduates, the problem lay in insufficient recruitment of those qualified graduates into the profession. In their national supply and demand study, Camp et al. (2002) reported that the percentage of newly qualified agricultural education graduates entering the teaching profession from 1994 to 2001 ranged from 48.4 to 63.8%. Conversely, a 2004 report issued by the American Association of Colleges for Teacher Education (AACTE) stated that highly ranked colleges of education reported 90% or greater placement rates in educational jobs for 2002 graduates who elected to teach.

Camp et al. (2002) provided additional pertinent information in the percentage of newly qualified agriculture teachers who were rated by their teacher educators as those who “probably wanted to teach” (p. 11). Of this group, Camp et al. (2002) found that 72.5 to 77.9% were placed in teaching positions between 1994 and 2001. With these numbers being higher than those of qualified teacher candidates finding placement (48.4 to 63.8%), it raises the question of why there is such a disparity between the percentage of those who wanted to teach and those who actually found a teaching position.

Hillison, Camp, and Burke (1987) reported that some graduates naturally decide to seek employment outside of teaching. They concluded that the flexibility of the agricultural education major both permits and prepares graduates to pursue a broad range of careers in the agricultural industry. However, no matter what their major is, some graduates may opt to not enter the workforce at all. According to the United States Department of Labor (2001), only 84.4% of 20 to 24 year olds who received bachelor's degrees or higher were members of the work force.

These questions and disparities have received little attention in the agricultural education literature. Related research has primarily focused on follow-up studies of recent graduates. Results of such studies comparing agricultural education graduates who taught with those who chose not to teach have been inconclusive. Graduates who entered teaching were found to be distinguishable from those who chose not to do so by academic achievement (Baker & Hedges, 1991; McCoy & Mortensen, 1983). However, Muller and Miller (1993) showed agricultural education graduates entering the teaching profession were not distinguishable academically from their peers who chose to seek employment in other professions.

Although these studies provided valuable information, much is still unknown about this phenomenon. Additional research is warranted to better understand the career decision-making process of agricultural education students. Related research and theories from other disciplines may provide tested methods to guide such inquiries. One such theory served as the basis for this study.

The Social Cognitive Career Theory (SCCT) posited by Lent, Brown, and Hackett (1994) was used as the theoretical basis for this study. SCCT was chosen as the guiding

framework for several reasons. First, SCCT is a relatively recent addition to the career development literature and it builds upon a large body of previous research and integrates other tested theories to help explain career and educational choices of adolescents and young adults (Lent et al., 1994). Second, the central tenets of SCCT have been well defined and articulated in the literature, and most importantly, have been shown to have an influence on the career and educational choices of college students. Third, the central constructs of SCCT are task and environment specific, and can be adapted to the specific characteristics of different environments and educational tasks. Therefore, SCCT can be used to describe the specific social and cognitive mechanisms that are important in the career decision-making process of preservice agriculture teachers. Last, what might possibly be the most valuable attribute of this theory is that the central constructs of SCCT are amenable to change and ultimately have promise for the design of interventions (Rasheed, 2001). If, for example, preservice teachers who decide not to pursue teaching positions are found to be lacking confidence or self-efficacy in their teaching ability, then interventions can be designed to help boost preservice students' confidence and perceptions of their ability to teach. Such interventions could provide a means of increasing the percentage of agricultural education graduates pursuing teaching positions, and ultimately contribute to the elimination of the present teacher shortage in agricultural education.

Statement of the Problem

To fulfill the goals set forth in the agricultural education strategic plan, the profession must have an ample supply of well-prepared, qualified teachers. However, the present situation in agricultural education is one of teacher shortages and of hiring under-qualified instructors. Although this dilemma weighs heavily on the minds of many in the

profession, little attention has been given to understanding the factors contributing to the shortage. Whereas researchers in the profession have proposed explanations for the teacher shortfall, these explanations have spurred few investigations. With further research, a better understanding of this problem is possible.

This study was conducted to examine why newly qualified preservice teachers decide not to enter the teaching field, a phenomenon that is believed to contribute to the shortage of agriculture teachers. By investigating the career decision process of preservice agriculture teachers within the constructs of the SCCT, efforts can be made to assist in providing a solution to this problem. Therefore, the following questions were addressed by this study: “What factors contribute to the career decision-making process of preservice agriculture teachers?” and “Which factor, if any, is predictive of preservice teachers’ intentions to enter the teaching field?”

Purpose of the Study

The purpose of the study was to describe the influence and predictive nature of person inputs, contextual influences, self-efficacy, and outcome expectations on preservice agricultural teachers’ intentions to teaching, and on their intended length of teaching tenure. The dependent variables for this study were agricultural preservice teachers’ intentions to pursue a teaching position, and the number of years they expected to remain in the profession. The independent variables consisted of person inputs, contextual influences, perceived self-efficacy, and outcome expectations.

Objectives

The following three objectives guided this study:

1. Describe the person inputs (demographics), contextual influences, self-efficacy, and outcome expectations of preservice agriculture teachers in selected collegiate agriculture teacher preparation programs.
2. Describe the variance in preservice agriculture teachers' intentions to teach attributed to person inputs (demographics), contextual influences, self-efficacy, and outcome expectations.
3. Describe the variance in preservice agriculture teachers' intended length of teaching tenure attributed to person inputs (demographics), contextual influences, self-efficacy, and outcome expectations.

Research Hypothesis

Based on the reviewed literature and research, the following research hypotheses were developed.

1. Preservice agriculture teachers who have greater intentions to teach agriculture report perceptions of higher self-efficacy, more positive outcome expectations, more positive support systems, fewer perceived career barriers, stronger agricultural backgrounds, and higher academic achievement.
2. Preservice agriculture teachers who perceive longer agriculture teaching tenures report perceptions of higher self-efficacy, more positive outcome expectations, more positive support systems, fewer perceived career barriers, and stronger agricultural backgrounds, and higher academic achievement.

Definition of Terms

A number of important terms appear throughout this study. To ensure these terms are understandable and considered in the proper context, the following operational definitions were constructed.

1. Agricultural education – the scientific study of principles and methods of teaching and learning as they relate to agriculture (Barrick, 1989; Williams, 1991)
2. Career barriers – “events or conditions, either within the person or in his or her environment, that make career progress difficult” (Swanson & Woitke, 1997, p. 446)

3. Career decision-making efficacy – confidence in one's ability to make career-related decisions (Hackett, 1995)
4. Career goal mechanisms – operationalized as career plans, aspirations, decisions and expressed choices (Lent et al., 1994)
5. FFA – National FFA Organization, formerly known as the Future Farmers of America. A national youth leadership organization dedicated to “making a positive difference in the lives of young people by developing their potential for premier leadership, personal growth and career success through agricultural education” (National FFA Organization, n.d., ¶ 1).
6. Goal – “the determination to engage in a particular activity or to effect a particular future outcome” (Bandura, 1986, p. 468)
7. Instructional efficacy – see teacher efficacy
8. Outcome expectations – personal beliefs about the probable response outcomes or consequences of performing an activity (Lent et al., 1994).
9. Preservice teacher – a prospective teacher enrolled in teacher preparation courses, who has not yet received teaching certification or licensure (Knobloch, 2002).
10. Self-efficacy – “beliefs in one’s capabilities to organize and execute the course of action required to produce given attainments” (Bandura, 1997, p. 3)
11. Student teacher – a preservice teacher placed in a public school for a clinical experience over an extended period of time under the supervision of a cooperating teacher and a university supervisor (Knobloch, 2002)
12. Supports or support systems – “environmental variables that can facilitate the formation and pursuits of individuals’ career choices” (Lent, Brown, & Hackett, 2000, p. 42)
13. Teacher efficacy – self-perceived belief in one’s capabilities to bring about desired outcomes, even with students who are unmotivated or present discipline problems (Bandura, 1977)
14. Teacher preparation – comprehensive university programs in which students receive instruction on technical, professional, and pedagogical subjects and participate in various clinical experiences

Limitations of the Study

Like any other scholarly work, the results, conclusions, and implications of this study have limitations. These limitations are primarily determined by the research design utilized to answer the research question. The following are limitations of this study:

1. This study utilized a causal-comparative research design. Therefore, determining a true cause-and-effect relationship is impossible (Ary, Jacobs, & Razavieh, 2002).
2. The sample of preservice teachers used in this study was not randomly selected. Therefore, caution is warranted when attempting to generalize these findings beyond this specific population at the approximate time this study was conducted.
3. The instrumentation used in this study was developed and/or modified for this study from existing assessments. However, these instruments have not been used in this context prior to the pilot test conducted for this study.
4. Data were collected from preservice agriculture teachers with the assistance of teacher educators at the participating institutions. This situation could have influenced students' responses on the questionnaire.
5. Participants in the study reported their intention to teach at the time of data collection. This assessment may not reflect their actual decision to pursue a teaching position.

Assumptions of the Study

Assumptions have been made prior to and during this study. The assumptions of this study are listed below.

1. A self-assessment instrument can accurately measure person inputs, contextual influences, self-efficacy, outcome expectations, and teaching intentions of preservice agriculture teachers.
2. Participants in this study honestly and accurately completed the instrument without outside influences.
3. Preservice agriculture teachers completing their teaching internship experience in the fall semester or quarter are similar to those completing in the spring semester or quarter.

Summary

Agricultural education is faced with an ongoing shortage of qualified candidates to fill teaching positions. Although teacher preparation programs produce an adequate number of graduates each year, too few of these candidates decide to enter the teaching profession. Little is known about why agricultural education graduates choose not to teach; therefore, further research is needed regarding this phenomenon. A better understanding of this problem could provide an opportunity to design and test interventions that may increase the proportion of agricultural education graduates who enter the teaching profession. This study examined the factors that contribute to preservice agriculture teachers' intentions to enter the profession by describing the influence and predictive nature of person inputs, contextual influences, self-efficacy, and outcome expectations. The chapter concluded by presenting the three guiding objectives of the study, the research hypotheses, providing operational definitions of key terms, describing the limitations, and outlining the assumptions of the study.

CHAPTER 2

REVIEW OF THE LITERATURE

Chapter 1 provided an introduction and basis for this study. The current teacher shortage in agricultural education was discussed and a need for further research was established. The purpose of this research study was presented as well as the research questions and objectives. The chapter concluded by defining key terms, stating limitations, and outlining the assumptions of the study.

A review of the career choice related literature in agricultural education yielded very limited results. For the most part, such literature examined agricultural education graduates' career choices relative to their academic ability, and their perceived professional and technical competence.

McCoy and Mortensen (1983) compared the academic performance of three groups of agricultural education graduates. The groups consisted of (1) those who entered and remained in teaching ($n = 53$), (2) those who began teaching and quit after one or more years ($n = 40$), and (3) those who chose a vocation other than teaching after graduation ($n = 60$). After examining the cumulative grade point averages and student teaching grades of each group, it was concluded that students who remained in the teaching profession had both higher cumulative grade point averages and grades in student teaching than those who left teaching or never entered the profession. These findings were supported by a later study conducted by Baker and Hedges (1991) of 160 agricultural education graduates at The Ohio State University. These researchers found that graduates who entered the teaching profession could be distinguished from those deciding not to teach

based on their cumulative grade point average, grades in student teaching and professional preparation coursework, and certification status.

Likewise in 1993, Muller and Miller examined whether more academically able agricultural education graduates were entering and remaining in the teaching profession or opting for other career options. Their follow-up of 294 Iowa State graduates found that those graduates who chose to teach were just as academically able as those who accepted positions in other fields.

The most comprehensive study found in the agricultural education literature was the graduate follow-up study conducted by Cole (1984) at Oregon State University. The study's sample consisted of all agricultural education graduates who were certified to teach over a twelve-year period between 1971 and 1982. Of the 151 respondents, 40% reported still being agriculture teachers, 35% had started teaching and quit during this time, and 25% of the graduates had never taught agriculture. Cole concluded that teacher educators and teacher preparation programs can have the greatest impact on improving agriculture teacher placement and retention by ensuring quality student teaching experiences, quality professional and technical preparation, and by reducing specific concerns pertaining to negative outcomes associated with the agricultural teaching profession. Graduates mentioned concerns such as, spousal support, low salary, long hours, and time for hobbies and recreation (Cole, 1984).

McGhee and Cheek (1990) found more favorable results in their follow-up of 189 agricultural education graduates between 1975 and 1985 at the University of Florida. They reported that over 60% of graduates entered and remained in the agricultural teaching profession, while 12% began teaching and left the profession. Yet, the

percentage of graduates that indicated never teaching agriculture was similar to that of the 1984 Cole study at 28%.

In 1994, a theory emerged that may provide a means for further study of the processes and challenges that agricultural education graduates face when making the decision to enter the teaching profession. The Social Cognitive Career Theory (SCCT) as posited by Lent et al. (1994) outlined a process whereby people form academic and occupational interests, make academic and career choices, and achieve in their educational and vocational pursuits. This theory may be important to understanding the factors that most significantly influence the career choice decisions of agricultural education graduates because of its emphasis on the reciprocal interaction of environmental factors, personal factors, and an individual's behavior.

Proposed by Lent and colleagues (1994), SCCT represents an effort to understand the processes through which people develop interests, make choices, and achieve varying levels of success in academic and occupational pursuits. SCCT stems primarily from Bandura's (1986) general Social Cognitive Theory (SCT). Bandura (1997) viewed individuals as dynamic self-systems capable of exercising self-regulation of their behavior, not as mere simple reactive beings. Bandura's (1986) conception of "reciprocal determinism" explains how three important factors interact and influence one another. In doing so, these factors determine an individual's behavior pattern. These three factors consist of personal attributes (cognitive and affective states and biological events), external environmental factors, and overt behavior (Bandura, 1986). This interaction, termed "triadic reciprocity," is depicted in Figure 2-1.

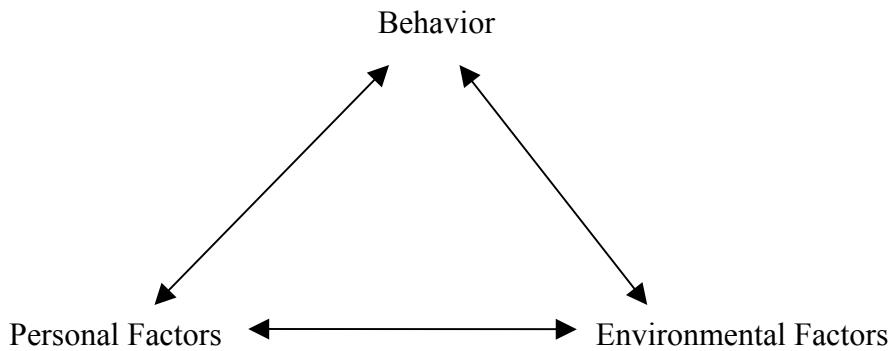


Figure 2-1. Model of triadic reciprocity (Bandura, 1997)

The reciprocal interaction of the determinants of human functioning in social cognitive theory provides for the possibility of treatment efforts to be directed at personal, environmental, or behavioral factors (Pajares, 2002). In education for example, teachers are faced with the challenge of improving student learning and increasing test scores. Using the social cognitive theory as a framework, a teacher can correct a student's negative self-beliefs and habits of thinking (personal factors), improve self-regulatory practices (behavior), and also modify the school and classroom structures (environmental factors) that may hinder student success (Pajares, 2002).

Social cognitive theory is grounded in a view of human agency. As agents, individuals are proactively engaged in their development and can make things happen by their own actions (Bandura, 1986). Thus, individuals are seen as both products and producers of their own environment and of their social systems (Pajares, 2002). Bandura's social cognitive theory is a clear contrast to behaviorist theories of human functioning that place a greater emphasis on environmental factors in the development of human behavior and learning (Pajares, 2002). For Bandura (1986), "a theory that denies that thoughts can regulate actions does not lend itself readily to the explanation of complex human behavior" (p.16).

Lent et al. (1994) drew from Bandura's general SCT (1986) to adapt, elaborate, and extend the aspects that seem most relevant to the career development process. The result, the Social Cognitive Career Theory, provides a framework for understanding the three intricately linked aspects of career development: (1) forming and elaborating career interests, (2) selecting academic and career choice options, and (3) performance and persistence in educational and vocational pursuits (Lent et al., 1994). This framework is conceptualized as being relevant to both academic and career behavior. Lent et al. (1994) saw academic development as "dovetailing" with career development. Models of academic choice and career development often contain similar important causal mechanisms. Additionally, interests and skills developed during an individual's school years later translate into career selections (Lent et al., 1994).

SCCT appears to be an ideal theory for explaining the development of career interests and decisions of agricultural education graduates because it focuses on specific mechanisms that shape interests and choices related to entry into the profession. Figure 2-2 depicts the model hypothesized by Lent et al. (1994) to explain the development of career and academic interests over time, participation in career and academic activities, and the acquisition of career related skills. In the model, Lent et al. (1994) assert that throughout childhood and adolescence, people are exposed to a wide array of activities that have potential career relevance. Additionally, they are exposed vicariously to various tasks related to potential occupations. During this period of life, individuals are differentially reinforced for pursuing certain activities and for their performance.

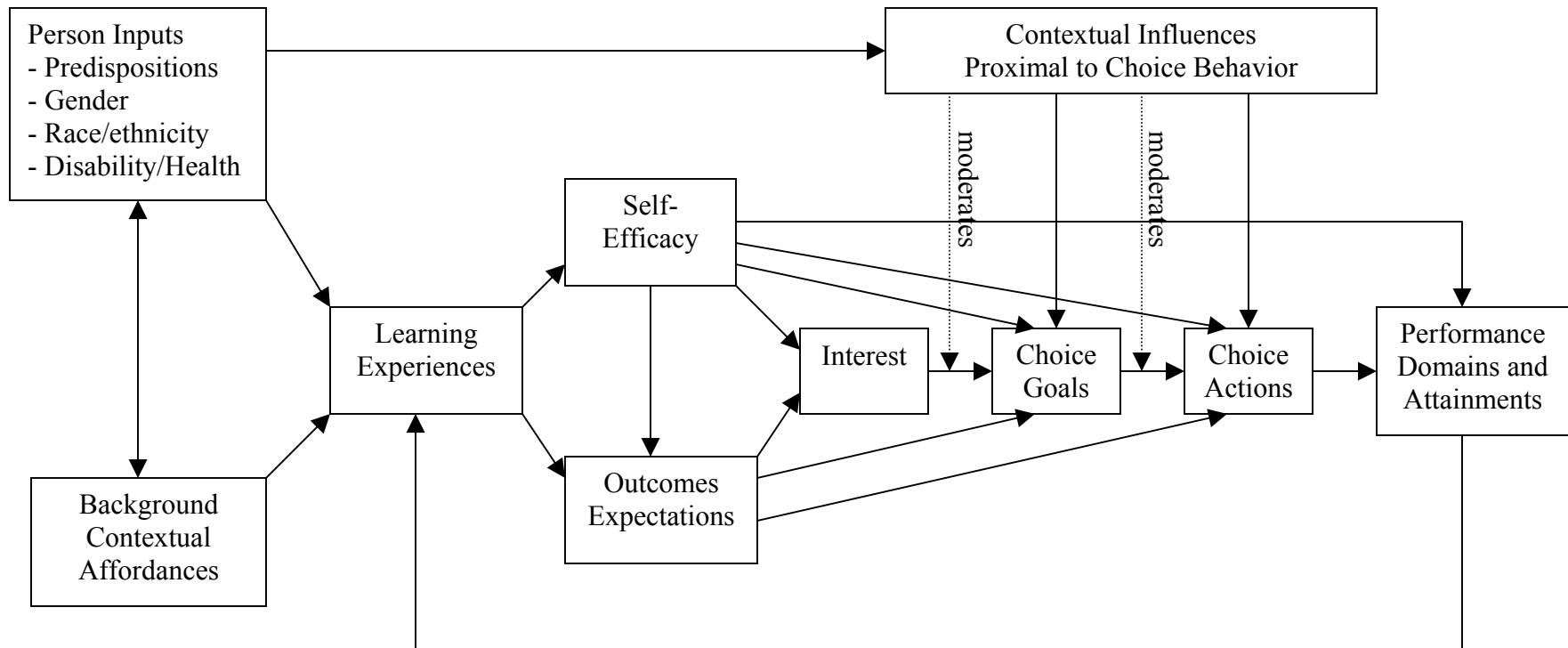


Figure 2-2. Model of person, contextual, and experiential factors affecting career-related choice behavior (Lent et al., 1994, p. 93).
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With continued engagement in activities, modeling, and given feedback from others, children and adolescents begin to refine their skills, form their own performance standards and perceptions of their level of efficacy, and develop expectations about the outcomes of their performance (Lent et al., 1994).

The SCCT framework presents three social cognitive mechanisms as the most relevant to career development: (1) self-efficacy, (2) outcome expectations, and (3) goals (Lent et al., 1994). These three factors are the central core of the SCCT model through which individuals develop, pursue, and modify their career interests. The Lent et al. (1994) model hypothesizes that both self-efficacy beliefs and outcome expectancies predict career interests. This is based on Bandura's (1986) assertion that interests arising from activities are more likely to persist over time when the person feels he or she is effective and successful in completing those activities. Likewise, when an individual believes the outcome of an activity will not be positive, he or she will tend to lose interest in that activity (Sharf, 1996). These interests, together with a person's perceptions of efficacy and outcome expectancies lead to goal formulation. The goals an individual sets affect their actions, or in this case, career decisions (Sharf, 1996). The development of interests in a career would then lead an individual to pursue that chosen career (Lent et al., 1994; Smith & Fouad, 1999). In 2000, Lent and colleagues further contributed to the model by providing a better understanding of the impact contextual influences, such as support systems and barriers had on career development. The following sections will provide a more detailed explanation of the theory and a review of the scholarly literature related to the constructs within SCCT model.

Self-Efficacy

Bandura (1997) defined self-efficacy as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 3). Self-efficacy is believed to be at the very core of social cognitive theory (Pajares, 2002). Pajares (2002) asserted that “self-efficacy beliefs provide the foundation for human motivation, well-being, and personal accomplishment” (¶ 14). Without a belief in one’s ability to produce a desired outcome, there is little incentive to pursue or persevere when faced with difficulties (Pajares, 2002). Bandura (1997) contended that “people’s level of motivation, affective states, and actions are based more on what they believe than on what is objectively true” (p. 2). An individual’s perception of his or her ability is often a better predictor of their capabilities than what he or she can actually accomplish, since self-efficacy beliefs help determine what a individual does with the knowledge and skills that he or she possesses (Pajares, 2002). People’s behaviors are sometimes incongruent with their actual capabilities. According to Pajares, a person’s beliefs and reality are seldom matched perfectly. Consequently, perceived beliefs about a person’s accomplishments are generally better predictors than their previous performance, knowledge, and attainments (Pajares, 2002).

An individual’s efficacy beliefs can influence and enhance their accomplishments and well being in numerous ways. A person’s beliefs also influence the choices he or she makes and the courses of action a person pursues (Pajares, 2002). The choices made during formative periods, such as childhood and adolescence shape the course of a person’s life (Bandura, 1997). Choices are made to pursue certain occupations and stay clear of others based on a person’s perception of his or her capabilities and conceptions of those occupations (Bandura, 1997).

Self-efficacy beliefs are domain specific, meaning they are tied to specific performances and tasks. An individual may feel efficacious in his or her abilities and knowledge about one topic but non-efficacious about another (Pajares, 1996). For example, an agriculture instructor may feel efficacious about teaching within his or her discipline, but if assigned to teach a mathematics course he or she may have a low perceived level of efficacy. Although both assignments call for similar skills, the differing subject matter (domain) may cause the person to feel differently about his or her ability to teach the course effectively.

Self-Efficacy Research Relevant to Career Development

A large body of research exists showing that self-efficacy plays a key role in career development (Bandura, 1997). Most of the research testing the SCCT has been supportive, however these studies have examined the relationships between self-efficacy, outcome expectations, interests, and goals primarily within the domains of math and science. Little is known about the support of the SCCT model in other subject areas (Smith & Fouad, 1999).

In 1981, Betz and Hackett extended Bandura's (1977) self-efficacy construct into career development theory. Betz and Hackett's (1981) research provided a conceptual framework for understanding the career development of women. In their study of 235 undergraduate men and women, Betz and Hackett found that the level of self-efficacy of women was relative to the traditional nature and range of careers they considered viable. Hackett (1985) later extended this study and made the argument that self-efficacy expectations were more important than a student's actual ability in their decision of a math or science related major. Numerous other studies have continued to extend this line of research and consistently link efficacy perceptions to decision-making processes that

are important to the choice of a math or science related major (Fassinger, 1990; Lapan & Jingoleski, 1992; Lapan, Shaughnessy, & Boggs, 1996; Lent et al., 1994; Lent & Hackett, 1987; Lent, Lopez, & Bieschke, 1991, 1993; O'Brien & Fassinger, 1993). In general, research has shown a wider range of career options and a greater interest in those options was exhibited by those persons with a higher perceived efficacy to fulfill educational requirements and job functions (e.g., Betz & Hackett, 1981; Lent, Brown, & Larkin, 1986; Matsui, Ikeda, & Ohnishi, 1989).

In addition to the research conducted in the math and science domains, many other studies have linked self-efficacy with numerous career-related variables, such as career exploration (Betz & Voyten, 1997; Rasheed, 2001), career choice making indecision (Taylor & Betz, 1983; Taylor & Pompa, 1990), career salience (Matzeder & Krieshok, 1995), specific occupational tasks (Rooney & Osipow, 1992); vocational interests based on inventory instruments (Betz, Harmon, & Borgen, 1996; Lent, Brown, & Larkin, 1989; Matsui & Tsukamoto, 1991) and academic performance (Betz & Luzzo, 1996; Hackett & Betz, 1989; Multon, Brown, & Lent, 1991).

Self-Efficacy Research Relevant to Teaching

The challenge of creating a learning environment that is conducive to the effective development of the cognitive competencies of students is heavily influenced by an educator's perceived efficacy. A teacher's efficacy beliefs affect their view of the entire education process and impact their instructional activities (Bandura, 1997). Teacher efficacy is a self-perceived belief in one's capabilities to bring about desired outcomes, even with students who are unmotivated or present discipline problems (Bandura, 1977). Teacher efficacy has been found to influence teacher behavior, such as effort, innovation, planning and organization, persistence, resilience, enthusiasm, willingness to work with

difficult students, and commitment to teaching and career longevity (Tschanne-Moran, Woolfolk Hoy, & Hoy, 1998).

Teacher efficacy has implications on a teacher's management of the learning environment as well. Teachers who are highly efficacious tend to rely on persuasory means rather than authoritarian classroom control; in turn they support the development of students' intrinsic interest and promote academic self-directedness (Bandura, 1997).

Miller, Kahler, and Rheault (1989) found motivated and confident teachers were more effective. Students achieved more, exhibited greater motivation, and had a higher level of perceived self-efficacy when their teacher possessed a higher level of perceived teacher efficacy (Guskey & Passaro, 1994).

Teacher efficacy has also been examined and found to affect teachers' level of professional commitment and teacher attrition. Links have been found between low levels of teacher efficacy and increased stress, lack of coping abilities, and burnout (Bandura, 1997; Chwalisz, Altmaier & Russell, 1992). As a means of coping with stress, teachers may avoid engagement in certain instructional activities (Bandura, 1997). Ultimately, teachers who have a low sense of instructional efficacy show a weak commitment to the teaching profession (Evans & Tribble, 1986), they spend less time teaching the subject areas in which they feel less efficacious (Enochs & Riggs, 1990), and also dedicate less total time to academic matters (Gibson & Dembo, 1984). In a study of 170 elementary teachers, Coladarci (1992) found the best predictor of a teacher's commitment to the profession was their sense of instructional efficacy. These findings were supportive of earlier work by Glickman and Tamashiro (1982) who compared self-efficacy of first year ($n = 50$) and fifth year teachers ($n = 49$), as well as teachers who had

left the profession ($n = 30$). They concluded that teachers who have low levels of self-efficacy are the most likely to drop out of the profession.

In summary, self-efficacy is a dynamic set of self-beliefs that are specific to a domain and that continually interact in a complex manner with other personal, behavioral, and contextual factors (Lent et al., 1994). In the teaching profession, teacher efficacy has continually been found to have a positive relationship with a teacher's performance, commitment to the profession, and ultimately student achievement.

Numerous studies incorporating self-efficacy have significantly contributed to our understanding of the career development process. However, the recent introduction of the SCCT has caused researchers to examine the interaction between efficacy beliefs and the other contextual and individual variables that influence the career development process (Rasheed, 2001). The SCCT provides a means to better understand the importance of efficacy beliefs and demonstrates the impact these beliefs have on outcome expectations, career interests, goal formation, actions, and accomplishments.

Outcome Expectations

Outcome expectations are personal beliefs about probable response outcomes. That is, where self-efficacy beliefs are concerned with one's perceived abilities to complete tasks or activities (i.e., "Can I do this?"), outcome expectations involve the perceived consequences of actually performing the activity [i.e., "If I do this, what will happen?"] (Lent et al., 1994, p. 83).

In his social cognitive theory, Bandura (1986) suggested that people act not only on their beliefs about what they are capable of doing but also on their beliefs about the likely effects of their actions. Although both self-efficacy and outcome expectations are seen as influencing career related behavior, Bandura (1986) has argued that these two factors are

often differentially potent, with self-efficacy being the most influential in determining behavior (Lent et al., 1994). In situations where the quality of performance guarantees a desirable outcome, self-efficacy is seen as the most influential causal factor. However, when outcomes are not completely tied to quality of performance, the outcome expectations may exert an independent contribution to motivation and behavior (Bandura, 1989; Lent et al., 1994).

Outcome Expectations Research Relevant to Career Development

Unlike self-efficacy, few studies have been conducted focused on outcome expectations and career related behavior (Diegelman & Subich, 2001). The reported research has provided significant findings supporting Lent and colleagues' (1994) hypothesized relationship of outcome expectations to formation of interests, intentions, and setting of goals (Diegelman & Subich, 2001). However, SCCT is not the only theory to place heavy emphasis on the relationship between expected outcomes and actions. Vroom's (1964) model presented choice behavior as being highly dependent upon an individual's perception of the probability that certain actions will produce particular outcomes and of the value placed on those outcomes. Irwin's (1971) theory of intentional behavior and motivation is based on act-outcome expectancies. According to these and other theorists, an individual's level of performance is a function of his or her expectancy that behaving in a certain way will lead to a desired outcome (Atkinson, 1964; Feather, 1982; Vroom, 1964).

Among a sample of 350 undergraduate college students, Betz and Voyten (1997) found that career decision-making efficacy and outcome expectations were good predictors of academic and career indecision, and intentions to engage in career exploration. In their study of 380 middle school students, Fouad and Smith (1996) found

results supporting the SCCT model. Their analysis showed a strong association existed between self-efficacy and outcome expectations. Additionally, outcome expectations were found to be strongly associated with career exploration intentions.

Swanson and Woitke (1997) looked specifically at the effect of negatively perceived outcomes and barriers on women's career choices. These researchers concluded that although an individual may have a high level of self-efficacy and interest in a career, he or she might end their pursuit of that career path if he or she perceived substantial barriers and negative outcomes.

In 2001, Diegelman and Subich conducted an experiment with 85 college students that examined the function of self-efficacy and outcome expectations as posited in SCCT by Lent et al. (1994). By manipulating perceptions of outcome expectations for a given major, the researchers found that increased outcome expectations significantly predicted increased intentions to pursue that major. The results of this study supported SCCT, demonstrating the hypothesized relationship of outcome expectations to interest, intentions, and self-efficacy (Diegelman & Subich, 2001).

Outcome Expectations Research Relevant to Teaching

The educational literature is nearly void of research that examines outcome expectations within the teaching profession. However, one such study found in the literature provided a very thorough statistical test of the SCCT in a minority teacher recruitment program. Schaffner and Jepsen (1999) surveyed 243 African American, Hispanic American, and Native American secondary students participating in the first year of a minority teacher recruitment program. The researchers' findings provided mixed support for the SCCT model. Outcome expectations and interests were both found to have a direct effect on choice behavior; however the negative relationship found in the

study contradicted the positive relationship hypothesized by the SCCT (Schaffner & Jepsen, 1999).

In order to fully explore the importance of outcome expectations of teachers, this literature review was extended to include research that examined reasons why preservice teachers choose to teach. Webster's New Reference Library (1984) defines a reason as a "basis or motive for an action, decision, or conviction" (p. 349). Outcome expectations are defined by Lent et al. (1994) as "personal beliefs about probable response outcomes" (p. 83). Presumably, a person's reasons for entering the teaching profession would be similar and consistent with his or her beliefs about the probable outcomes that would result from that decision. For example, a preservice teacher's reasons for not entering the teaching profession may be based on his or her belief that agriculture teachers are poorly paid and have little time off. Similarly, he or she may perceive the probable outcome of the decision to teach as receiving a low salary and little time for recreation and family.

A consistent set of reasons for wanting to teach can be found in the literature (Snyder, Doerr, & Pastor, 1995). In a study of 248 preservice students at the University of New Hampshire, Andrew (1983) found that the most important factor for students to pursue a career in teaching was their motivation for social service. Students felt the enjoyment of working with children and their love for the subject were the next most important factors contributing to their decision (Andrew, 1983). Bontempo and Digman (1985) found very similar reasons for choosing to teach when surveying 356 education undergraduates at West Virginia University.

Book, Freeman, and Brousseau (1985) examined the differences between education ($n = 258$) and non-education ($n = 146$) majors' reasons for pursuing their chosen fields of

study. They cite the following are the most common reasons education majors choose to teach: (1) desire to help others gain a sense of personal achievement, (2) love to work with children, (3) opportunity to help others gain knowledge and an understanding of content they believe to be important, (4) can make better use of their abilities in the teaching field, (5) provides opportunity to apply what they learned in their major course work, and (6) to help others less fortunate than.

Joseph and Green's (1986) study of 234 preservice teachers also found that students chose teaching because of their desire to work with people and to be of service. They also added other important reasons, such as their desire to continue in the academic setting, favorable working hours and vacation allowances, and feeling of security that teaching provides as something to fall back on. Likewise, Kemper and Mangieri (1985) found that job security was an important factor in a student's decision to teach. They also provided further support of the factors already mentioned, as did Zimpher (1989), Serow (1994), and King (1993), who found similar reasons reported by African American students.

In their study of agriculture teacher concerns, Burke and Hillison (1991) reported several rewarding outcomes experienced by a sample of 76 agriculture teachers in Virginia. These actual outcomes may provide further understanding of the possible outcome expectations perceived by preservice teachers. The most rewarding outcome reported by teachers in this study was their being a part of the growth and development of students, closely followed by the satisfaction felt from students' achievement in leadership and FFA events. Teachers also reported other rewarding experiences, such as, teaching and interacting with students, professional development, developing quality

agricultural education programs and receiving recognition for their teaching (Burke & Hillison, 1991). The researchers provided negative outcomes reported by the agriculture teachers in this study as well. Teachers' most frustrating experiences were: students' lack of interest, poor administrative support, difficulties with student management and lack of student guidance support, large time demands, inadequate facilities and supplies, excessive paperwork, and poor program and student quality.

In an earlier study, Coughlin, Lawrence, Gartin, and Templeton (1988) identified agriculture teachers spouses' perceived benefits of a career teaching agriculture. A survey was administered to 96 spouses of agriculture teachers in West Virginia. Spouses appreciated the job security, benefits, extended contracts, and additional pay. They enjoyed seeing the excitement, dedication, satisfaction, and pride that their spouse felt from their experiences teaching students (Coughlin et al., 1988). The negative outcomes of their spouses' teaching positions were the tremendous number of extra hours they worked, great deal of time spent away from home and family, stress and fatigue on family, too little pay, lack of appreciation from administration, and a feeling that agriculture was viewed as less important than other school programs.

In summary, outcome expectations are a person's beliefs in the probable outcomes of his or her actions and are another important component of the SCCT. Little research has been conducted investigating the influence of outcome expectations on one's career decisions. Further research is warranted, especially in the field of education, so that a better understanding of how outcome expectations interact with self-efficacy, interests, and goal mechanisms can be achieved.

Goals Mechanisms

According to social cognitive theory, goals play an important role in self-regulation of behavior (Lent et al., 1994). SCT presents the view that humans are seen as more than simple responders to deterministic forces. Through the process of setting goals, people organize and guide their own behavior in order to increase the likelihood that desirable outcomes can be attained (Lent et al., 1994).

Bandura (1986) defined a goal as “the determination to engage in a particular activity or to effect a particular future outcome” (p. 468). Goals function principally through an individual’s ability to symbolically represent desired future outcomes and to react to his or her own behavior in a self-evaluative manner based on the individual’s own internal standards for performance (Lent et al., 1994). The self-motivating qualities of goals are achieved by linking self-satisfaction to goal fulfillment and by enacting those behaviors that are consistent with a person’s internally set standards (Lent et al., 1994). However, setting a goal does not automatically activate the self-influence mechanisms that govern an individual’s behavior. Certain goal properties exist that affect an individual’s performance towards achieving that goal (Bandura, 1986). Bandura (1986) mentioned three factors that have the greatest affect on the motivating nature of goals: specificity, challenge, and proximity.

Goal specificity contributes to the degree to which a goal creates incentives and guides one’s actions (Bandura, 1986). The specificity of a goal serves as a source of motivation, and goals also foster positive attitudes towards activities associated with goals (Bryan & Locke, 1967).

The challenge of attaining a goal is dependent upon the level at which it is set. When self-satisfaction is dependent upon attainment of challenging goals, an individual

will exert more effort than if they perceive the goal to be easy to achieve (Bandura, 1986). If goals are set unrealistically high, most efforts to achieve are disappointing.

After repeated efforts produce failure, self-efficacy perceptions are weakened and the motivation to perform an activity is greatly reduced (Bandura, 1986).

The effectiveness of goal mechanisms in regulating behavior depends greatly on how far into the future the attainment of the goal is projected (Bandura, 1986). Goals that are perceived to be too distant in the future do not provide effective incentives and guides for one's present behavior. The setting of subgoals (incremental goals) has been found to reduce the risk of self-demoralization that results from an individual comparing his or her current performance to lofty future performance goals (Bandura, 1986).

In the career development literature, career goal mechanisms are commonly operationalized as plans, aspirations, decisions, and expressed choices. The differences between these goal terms are related to their degree of specificity and proximity to actual choice implementation (Lent et al, 1994).

As in the case of outcome expectations, the career development research provides very few studies examining variables related to goal mechanisms. In the agricultural education field, one such study was found. Bajema, Miller, and Williams (2002) compared the career aspirations of 883 urban and rural high school seniors in 17 schools in Iowa. They found no differences between the two groups in their diversity of educational and occupational aspirations. The researchers also reported a high level of congruence existed between students' occupational aspirations and their educational goals, demonstrating that many students were pursuing their chosen career paths.

Students viewed the school environment as being supportive of their aspirations, and barriers to their goals were perceived to be minimal (Bajema, Miller & Williams, 2002).

Perrone, Sedlack, and Alexander (2001) examined barriers to and facilitators of career goals among college students within the context of the SCCT. The researchers surveyed 2,743 college freshman measuring gender and ethnicity differences related to factors influencing career goals, perceptions of barriers to attaining goals, and academic resilience. Their findings reported gender and ethnicity differences exist in perceptions of barriers to career goals. Perceptions of facilitators of career goals differed by ethnicity as well. These findings were consistent with those of McWhirter (1997a) who examined differences of perceived barriers between ethnicity and gender in 1,139 high school juniors and seniors. McWhirter demonstrated that female participants anticipated more barriers to career goals than did males, and that Mexican Americans anticipated more barriers than European American participants.

Nauta, Epperson, and Kahn (1998) investigated 546 undergraduate women's aspirations toward leadership and advanced positions within their chosen occupation. The researchers stated, "social-cognitive theory suggests that higher level career aspirations can be predicted by ability via self-efficacy" (p. 484). These higher-level aspirations may be influenced by role models as well. Role models affect aspirations by increasing self-efficacy and by vicariously demonstrating how they perform multiple life roles (Nauta, Epperson, & Kahn, 1998). The study found that self-efficacy mediated the relationship between ability and women's aspiration to advance in their chosen career fields. These researchers also concluded that self-efficacy was an important predictor of

higher-level career aspirations and they suggested that interventions could be designed to increase students' self-efficacy (Nauta, Epperson, & Kahn, 1998).

In summary, career goals and aspirations have been given limited attention in the career development literature. However, studies have shown that goal formation and attainment is influenced by self-efficacy, outcome expectations, and environmental factors. Goals play an important role in SCCT, as they provide much of the motivation and guidance in the career choice process. Given the essential nature of goals and aspirations in the choice process and the lack of related research in agricultural education, a deeper examination of the influence of career-related goals on an individual's decision to teach agriculture education is warranted.

Learning Experiences, Person Inputs, and Contextual Influences

In an effort to further elaborate on the role of the three sociocognitive mechanisms of self-efficacy, outcome expectations, and goal mechanisms, Lent et al. (1994) presented a more comprehensive account of the career development process by addressing another set of important model components. Person inputs, such as inherited affective and physical attributes, contextual features of the environment (social, physical, and cultural) that may support or limit development, and career-relevant learning experiences may influence career interests and choice behavior (Lent et al., 1994). While the model acknowledges the interdependent relations among these components, Lent et al. (1994) envisioned three causal pathways through which person, contextual, and experiential factors may influence career interests and choices. These factors may serve as (a) precursors of sociocognitive variables, (b) moderators of interest-goal and goal-action relationships, and (c) direct facilitators or deterrents of goal activity.

Influence of Learning Experiences

According to social learning theorists, such as Krumboltz, and Lent and colleagues, learning experiences play a very crucial role in the career-decision process (Sharf, 1996). Krumboltz's social learning theory postulated that career decision is heavily influenced by genetic endowment, environmental conditions, task-approach skills, and learning experiences (Sharf, 1996). Krumboltz (1994) presented the following:

People acquire their preference for various activities through a multitude of learning experiences. They make sense of their activities because of ideas they have been taught. They acquire beliefs about themselves and the nature of their world through direct and indirect educational experiences. They then take action on the basis of their beliefs using skills that they have developed over time. (p. 17)

In the SCCT model, Lent and colleagues (1994) posited that experience contributes directly to an individual's sense of efficacy and outcome expectations. Bandura (1997) posited that four types of learning experiences influence the development of one's self-efficacy and outcome beliefs. These include vicarious learning, personal performance accomplishments, social persuasion, and physiological and affective states and reactions.

Performance accomplishments, or what Bandura (1997, p. 80) refers to as "mastery experiences," are the most influential source of self-efficacy. This is due to the authentic evidence such experiences provide, and in doing so, build upon an individual's sense of efficacy. Successful experiences are known to raise an individual's sense of efficacy, while failure tends to cause a decrease in self-efficacy (Bandura, 1997; Lent & Brown, 1996). The actual effect of mastery experiences (performance accomplishments) on self-efficacy depends on several factors, such as the variety of conditions under which the task was performed and the consequences of the task performance (Lent et al., 1994). For example, a preservice teacher may feel very confident in teaching a lesson to his or

her peers, but may have a low sense of efficacy when faced with an actual class of high school students.

The impact of a mastery experience will also depend on the perceived difficulty of the task (Bandura, 1997). Success in a task that is perceived to be easy may not have any affect on an individual's efficacy beliefs. However, successfully completing a task that is perceived as being difficult conveys new information for raising an individual's beliefs in his or her capabilities (Bandura, 1997).

Vicarious learning is also believed to have an effect on one's self-efficacy, especially if a person has had little direct experience to estimate his or her own competence at that task (Lent et al., 1994). Observing others succeed or fail at a task (modeling) serves as another effective tool for promoting an individual's sense of efficacy (Bandura, 1997). In the absence of direct experience with a task, people must appraise their capabilities in relation to the attainment of others. For example, a student may enter a required academic course hesitantly and with a low sense of efficacy based on his or her observation of classmates' struggles and failures in that course. Through social comparative inferences, the student judges his or her classmates' attainments to be similar to his or her own capabilities. This phenomenon can persuade individuals that they have the capabilities to raise their performance, or inversely, lower their sense of efficacy by observing those with similar competence fail (Bandura, 1997).

Social persuasion can further strengthen a person's beliefs that he or she has the capabilities to achieve desired outcomes. People who are persuaded verbally (feedback) that they can achieve desired tasks are more likely to put forth greater effort. Additionally, they sustain that effort longer when faced with difficult tasks, than those

who doubt their abilities and dwell on their personal deficiencies (Bandura, 1997). Put another way, evaluative feedback highlighting personal capabilities and improvement enhances perceived efficacy.

Luzzo and Taylor (1993-1994) found that college freshman who received encouragement from a career counselor demonstrated higher levels of career decision making self-efficacy than their counterparts who received no such encouragement. These results are supported by additional studies showing the effect of verbal persuasion on self-efficacy (Luzzo, Funk, & Strang, 1996; Schunk, 1989).

In judging his or her own capabilities, a person's physiological and emotional states when performing a task may also have an impact on self-efficacy (Bandura, 1997). People often read physiological states, such as stress or fatigue, as a sign of vulnerability or weakness. For example, a person feeling anxiety, fatigue, or depression while performing a task may suffer a lowered sense of efficacy, while feelings of composure, stamina, or exhilaration may increase perceptions of competence and self-efficacy (Lent et al., 1994).

Although not substantiated in the literature, Lent et al. (1994) proposed that performance accomplishments, vicarious learning, social persuasion, and physiological and affective states also influenced outcome expectations. They opined that:

People likely anticipate future response-contingent outcomes by (a) recalling the extrinsic and intrinsic (e.g., self-evaluative) outcomes that attended for their own relevant past actions (e.g., studying produced good grades and self-approval); (b) observing the consequences experienced by similar others (modeling), and (c) attending to third-person accounts of reinforcement contingencies. (p. 103)

In summary, four types of learning experiences influence self-efficacy and outcome expectations. Performance accomplishments are considered to be the most influential learning experience (Bandura, 1997). Vicarious learning also influences self-efficacy

through observations of similar others' successes and failures. Through studies using encouragement and discouragement, social persuasion has been found to impact efficacy beliefs (Luzzo & Taylor, 1993-1994). Physiological and affective states, such as levels of composure or stress, also affect the way a person perceives his or her capabilities (Lent et al., 1994). The following sections elaborate on person and contextual factors that affect an individual's learning experiences and in turn his or her perceptions of self-efficacy and outcome expectations.

Influence of Person Inputs

A vast array of career-relevant person inputs can have an impact on the career choice process (Lent et al., 1994). These personal characteristics have been found to have direct effects on self-efficacy and outcome expectations (Fouad & Smith, 1996) and indirect effects through their influence on learning experiences (Lopez, Lent, Brown, & Gore, 1997). These inputs include, but are not limited to, genetic predispositions, gender, ethnicity, socioeconomic status (SES), and disability or health status (Lent et al., 1994). Social cognitive career theorists view person variables such as gender, ethnicity, and SES as being linked to the learning experiences that shape an individual's beliefs of self-efficacy and outcome expectations. Gender and cultural factors may further influence career development by their effect on people's view of, and attempts to, implement their goals expectations (Lent, Hackett, & Brown, 1996).

Gender and ethnicity

Gender and ethnicity have been found to relate to self-efficacy, outcome expectations, interests, and career choice in a number of ways. Gender differences in self-efficacy and career-related choice have been reported in diverse samples of university, community college, and trade school students (Betz & Hackett, 1981; Church,

Teresa, Rosebrook, & Szendre, 1992; Clement, 1987; Matsui & Tsukamoto, 1991; Rooney & Osipow, 1992; Wheeler, 1983). According to SCCT, gender and race differences arise primarily through differential access to opportunities, supports, and socialization processes (Lent et al., 1994). Differences in gender and race influence career development and career choices by mediating a person's learning experiences. The consequences of these learning experiences give rise to one's self-efficacy and outcome expectations (Lent et al. 1994).

Additionally, gender and cultural factors have been found to be linked to opportunity structures, which impact the academic and career goals an individual considers (Lent et al., 1994). Barriers such as gender stereotyping may strongly influence a person's career choice behavior whether or not the person perceives it. Since SCCT assumes individuals are active agents in the career choice process, the effect of stereotyping often depends on the individual's perception and response (Lent et al., 1994). Betz and Hackett (1981) provided a demonstration of the effects that gender stereotyping can have on women considering nontraditional occupations. Although women in the study exhibited equal levels of mathematical ability, the effects of stereotyping may have led them to feel less efficacious in pursuing careers related to math and science. Betz and Hackett (1981) concluded that family, the educational system, the mass media, and the culture at large shaped women's beliefs about their capabilities and their career aspirations. Since this landmark study, other researchers have found similar results further demonstrating the impact of stereotyping on women's career aspirations (Hackett, 1995; Lucas, 1997). In more recent studies, evidence suggested that occupational gender stereotyping might be weakening. In their study of

108 college bound high school students, Post-Kammer and Smith (1985) revealed that a smaller disparity existed between male and female students' efficacy to pursue varied careers (Bandura, 1997). Similarly, when Lent, Brown, and Larkin (1984) examined self-efficacy in 42 high ability men and women with similar past performance, they found that differences in achievement and persistence were more attributable to self-efficacy differences rather than gender.

Gender stereotyping not only has a potential effect on an individual's view of opportunities, but on that individual's parents as well. Parents' beliefs about their children's capabilities and their achievement expectations can differ according to their child's gender (Bandura, 1997). In a longitudinal study by Eccles (1989), results showed that parents' beliefs were consistent with cultural stereotypes that girls were less capable in mathematics than boys, even when their grades were equivalent. Parents' gender-linked beliefs have given rise to children's differing patterns of self-appraisal (Bandura, 1997). Phillips and Zimmerman (1990) found striking developmental gender differences existed between children's ability and their perceived capabilities. Their results showed boys tended to have an inflated sense of competence, whereas girls were more likely to disparage their capabilities. Fouad and Smith (1996) also found differences between middle school students' career expectations that were inconsistent with their actual math and science capabilities. Although female students reported having stronger interests in math and science occupations, their male counterparts had higher outcome expectations for math and science occupations.

These studies provide evidence of the differences that exist between males and females in terms of their self-efficacy and outcome expectations. Additional research on

these differences, specifically perceptions of barriers and supports are provided in subsequent sections.

Unlike the extensive literature that exists on gender differences related to self-efficacy, little research has been done examining ethnicity (Bandura, 1997). Some studies have found differences in students' perceptions of career and academic self-efficacy and outcome expectations between ethnic groups (Lauver & Jones, 1991; Noble, Hackett, & Chen, 1992). Bandura (1997) believed ethnicity could exert its' effect on an individual's psychosocial functioning in several ways. Through a culture's customs and social practices, values and standards are molded. Social networks are formed that help shape and regulate major aspects of one's life. This socialization process helps to promote a sense of collective identity (Bandura, 1997). A person's cultural background may influence the experiences that shape his or her efficacy beliefs, however self-efficacy relates more directly than ethnicity to an individual's career and academic attitudes and choices. For instance, Noble et al. (1992) found that students with high academic self-efficacy were more likely to aspire to higher levels of education and consider advanced occupational training regardless of their ethnicity.

Bores-Rangel, Church, Szendre, and Reeves (1990) found in their study of 35 migrant Hispanic students that stronger academic efficacy related to higher educational aspirations and academic achievement. The researchers found that highly efficacious students considered a wider range of occupations regardless of the required level of education. Students also exhibited stronger interest in these occupations than did those who lack confidence in their capabilities (Bores-Rangel et al., 1990).

Comparative studies of ethnic minorities have further shown the generalizability of efficacy effects (Bandura, 1997). Findings from studies of career self-efficacy with Caucasian Americans appear to be generalizable across ethnic minority groups within the United States (Bores-Rangel et al., 1990; Church et al., 1992; Rotberg, Brown, & Ware, 1987), as well as other Western and non-Western countries (Clement, 1987; Matsui, Matsui, & Ohnish, 1990; Matsui & Onglatco, 1991; Matsui & Tsukamoto, 1991; Wheeler, 1983).

Bandura (1997) provided a thorough explanation of the role of ethnicity in SCCT:

The combined influence of low academic expectations and downgrading of scientific aspirations in the students' schooling, deficient academic preparation, lack of occupational role models and support systems for pursuits in scientific and technological fields, and social barriers in opportunity structures will constrain perceived occupation efficacy in various minorities and nonminorities alike (p. 438).

Socioeconomic status

Socioeconomic status (SES) is another important factor that is largely void in the career literature (Rasheed, 2001). However, the research that has been conducted, demonstrates that SES can have an influence on an individual's choice of academic endeavors and the amount of education he or she expects to achieve (Hanson, 1994; McWhirter, Hackett, & Bandalos, 1998; Trusty, 1998; Trusty, Ng, & Plata, 2000; Trusty, Robinson, Plata, & Ng, 2000).

Bandura (1997) posited that the effect of SES on an individual's career-related self-efficacy is indirect. By affecting parental and family efficacy beliefs, SES indirectly influences the support structure for children's educational development and aspirations. Parents' and family's sense of efficacy and aspirations raise their children's educational aspirations and in doing so, raise the child's own academic, social, and self-regulatory

self-efficacy (Bandura, 1997). Children from various socioeconomic backgrounds differ very little in terms of their occupational aspirations, however, differences have been found to exist based on their perceptions of personal control. Children with high-perceived efficacy are more likely to take preparatory steps toward achieving their educational goals, while those who feel they have little personal control over their occupational future tend to believe that working hard is not worth the effort (Bandura, 1997).

Although believed to be an indirect influence, SES has been shown to have predictive power in determining college major. Trusty, Robinson et al. (2000) sampled 7,645 adolescents examining their post-secondary educational aspirations. Their findings revealed that SES was a fairly strong predictor of the type of college major considered by male and female students. In another related study, gender, SES, and ethnicity were found to have a three-way interactive relationship. Ethnicity had the strongest effect on males' choice of major and the weakest effect for females with high SES (Trusty, Ng et al., 2000).

The results of these studies demonstrated that SES can interact with person inputs such as gender and ethnicity, thus influencing career choice. Bandura (1997) believed this influence is one of an indirect nature, stemming from parental and environmental influences. However, given that the majority of students from rural areas are from middle to lower SES backgrounds (U.S. Census Bureau, 2000, as cited in Rasheed, 2001) it may be important to examine how SES, ethnicity, and gender may interact with the key sociocognitive mechanisms and contextual factors considered in SCCT to influence career development and choices.

Influences of Contextual Affordances

In addition to person inputs, environmental influences also have been found to affect learning experiences and to have an indirect influence on self-efficacy and outcome expectations. Lent et al. (1994) posited that contextual factors have an impact on learning experiences. These factors affect socio-cognitive mechanisms that drive a person's interests and career choices and comprise the opportunity structure in which an individual forms and implements their career plans. Additionally, certain environmental factors may also have a direct effect on choice formation and implementation.

In order to conceptualize these environmental influences, Lent and colleagues (1994) have adapted the constructs of perceived "structure of opportunity" (Astin, 1984) and "contextual affordance" (Vondracek, Lerner, & Schulenberg, 1986). Vondracek et al. (1986) stated, "The concept of affordance centers on the idea that environments offer, provide, and/or furnish something to the organism as long as the organism can perceive 'it' as such" (p. 38). In SCCT, Lent et al. (1994) incorporated the constructs of contextual affordances and structure of opportunity to show how the differential emphasis of perceived and actual aspects of the environment can influence an individual's academic and career behavior. According to Lent et al. (1994), certain behavioral patterns, such as gender role stereotyping, may have an effect on one's goals and implementation of those goals, regardless of whether those patterns are actively perceived by the individual. The actual effect of a contextual factor was found to depend on the individual's appraisal and response to the particular factor (Vondracek et al., 1986). This emphasis on personal perceptions is consistent with the importance SCT places on cognitive appraisals that are believed to guide behavior (Lent et al., 1994).

For conceptual convenience, Lent et al. (1994) divided contextual affordances into two subgroups. They based this division on the proximity of influence to career choice points: (1) more distal, background influences, and (2) proximal influences. Background influences are those that influence the learning experiences through which self-efficacy and outcome expectations are developed, such as exposure to tasks or role models, the nature of support or discouragement one receives for engaging in activities, and cultural and gender socialization. Proximal influences are those that operate during the critical choice junctures. These included support systems, such as personal network contacts, and structural barriers, like discriminatory hiring practices (Lent et al., 1994). In the SCCT, Lent et al. (1994) posited that proximal contextual factors may moderate the relations of interest to choice goals and goals to actions. According to the model, if a person perceives environmental barriers will impede his or her efforts, they are less likely to translate his or her career-related interests into goals and goals into actions (Lent et al., 2000). Conversely, an individual's perception of ample support and few barriers is predicted to facilitate the process of transforming his or her interests into goals and ultimately, goals into actions.

Within these two sets of influences some elements tend to overlap. Although their influence may vary over time, contextual influences such as family and social inputs may play key roles throughout an individual's academic and career progression (Lent et al., 1994). Given the importance of contextual influences in shaping and moderating career choices, the following sections will describe in greater detail, career-related barriers, support systems, and specific contextual factors related to agricultural education.

Environmental barriers

In recent years, career barriers have been introduced in the literature primarily focusing on women's career development (Swanson, Daniels, & Tokar, 1996; Swanson & Woitke, 1997). Researchers believed studying barriers for women might provide a means of explaining the restriction of woman's career aspirations and the gaps between their abilities and achievement (Betz & Fitzgerald, 1987). Subsequently, the construct of career barriers has since been expanded to include the study of racial-ethnic minority groups and men's career development (Lent et al., 1994).

Swanson and Woitke (1997) defined career barriers as "events or conditions, either within the person or his [her] environment, that make career progress difficult" (p. 446). Lent et al. (1994) incorporated contextual influences into the SCCT model. However, not until recently (Lent et al., 2000) did they expand on the role and specific location of barriers and supports with the model. In 1997, Swanson and Woitke suggested that barriers moderated relationships between socio-cognitive variables and that the nature of a particular barrier would determine its role and location in the SCCT model. Lent et al. (2000) concurred and expanded on the model by conceptualizing career barriers as either background contextual factors that may influence self-efficacy and outcome expectations through learning experiences and also as moderators of the interest-to-goal and goal-to-action process. However, empirical tests of this relationship suggested that barriers and supports are linked to choice goals and actions indirectly, through self-efficacy (Lent et al., 2001; Lent et al., 2003). Based on the limited number of studies related to contextual influences, Lent et al. (2003) recommended that further research be conducted studying:

(a) the SCCT contextual hypotheses, (b) relations of support and barrier precepts to

choice behavior within different cultural contexts, and (c) the dimensionality of contextual influences.

Environmental supports

In addition to barriers, supports or support systems are also conceived within SCCT as environmental variables that exert an influence on formation and implementation of career pursuits (Lent et al., 2000). Research pertaining to contextual support mechanisms has been rare, largely due to the interest in exploring barriers to women's career development (Lent et al. 2000). Lent et al. (2000) suggested this barrier-focused view might have constricted research on contextual effects. Lent et al. (2000) further purported that to thoroughly study contextual roadblocks, it is essential to also study the environmental factors that can facilitate career choice and development. Only a few studies in the career development literature have examined the impact of contextual support systems, such as parental, peer, and teacher support.

In a study of 1,863 high school students, Farmer (1985) found that parental support was a significant predictor of the career aspirations of ninth graders, while twelfth graders were more influenced by teacher support. Wall, Covell, and MacIntyre (1999) found that high school males' and females' perceived peer, family, and teacher support was predictive of students' perceptions of opportunity. In their investigation of 126 tenth through twelfth graders, Lapan, Hinkelmann, Adams, and Turner (1999) found that students' perceptions of parental support were significant predictors of differences in self-efficacy, perceived value, and vocational interests across four out of six groups representing each of the types established by Holland (1966). Even in undergraduate college students, parental encouragement has been found to have a significant effect on

learning experiences, self-efficacy, and outcome expectations (Ferry, Fouad, & Smith, 2000).

Additionally, Paa and McWhirter (2000) found in their study of 464 high school students that differences between genders existed with regard to their perceived influence of career expectations. Female students reported more positive influence from their female parent, peers, and teachers, whereas, males perceived positive influence from their father, as well as their mother, peers, and teachers. The influence of peers is also demonstrated in Novi and Meinsters (2000) study of 500 adolescent girls. High cohesion peer groups were found to exert a greater influence upon girls' academic achievement efforts than lower cohesion peer groups.

Contextual influences relevant to Agricultural Education

In order to more fully understand the impact of background and proximal contextual influences upon a preservice teacher's decision to enter the agriculture teaching profession an expanded search of the literature was conducted. A number of contextual factors were identified as possible supports and/or barriers to one's decision to teach agriculture.

Gender Discrimination. The teaching profession is commonly considered a traditional occupation for women. However, agricultural education differs in that it is viewed as a male dominated field (Foster, 2001). In his 1987 national study, Knight found that only 5.1% of agriculture teachers were women. While the United States Department of Labor (DOL) Women's Bureau (2000) reported that women made up 38% of the nation's labor force in 1970 and 42% in 1980. This total is expected to reach 48% by the year 2008. In recent years, the percentage of males and females in secondary agricultural education has shifted in a more equitable direction. In a 1998 nationwide

survey, Camp (2000) reported that the percentage of female teachers had risen to 15.8% and more recently the survey showed that the number had reached 22% (Camp et al., 2002). The Camp et al. (2002) study also noted that 43% of the newly qualified teachers of agriculture were female, which is much more in line with the Department of Labor estimate.

As the number of women in the field increased, researchers began to examine the potential barriers faced by women entering the profession. In a study of 369 male agriculture teachers in Ohio, Cano (1990) found perceptions of sexual discrimination were evident and brought upon by male agriculture teachers. Data indicated that female teachers perceived instances of sexual harassment by students and parents. Female teachers also expressed concerns of gender bias in nominations for leadership positions within their professional organization. A study by Foster, Pikkert, and Husman (1991) found gender bias to be a definite deterrent to women considering the agricultural education profession.

In 2001, Foster surveyed 579 female agriculture teachers from across the nation. The results of the study showed that 61.7% of respondents reported experiencing barriers or challenges as a teacher due to their gender. When asked what they felt was the greatest barrier faced by female agricultural education teachers, the most common response was “acceptance by peers and other males in industry” (p. 392). Other areas that produced significant responses were: “balancing family and career, acceptance by administrators, acceptance by community, and gender-related issues” (p. 392).

Teacher Preparation. Little research investigating the contextual influences associated with teacher preparation programs exists in the current body of literature. For

the most part, the teaching internship experience has received the most attention. This focus on field experience may be due to the commonly held belief that this component is the “most important phase of teacher education” (Cruickshank & Armaline, 1986, p. 35). The student teaching experience has been found to have a positive impact on preservice teachers’ perceived self-efficacy (Fortman & Pontius, 2000; Knobloch & Whittington, 2002).

Braswell and Cobia (2000) found that there was a significant increase in the instructional self-efficacy of preservice teachers following their internship period. Subjects’ sense of performance accomplishment was also a significant predictor of changes in self-efficacy. Fortman and Pontius (2000) found similar results in their study of 100 preservice teachers in a variety of student teaching settings. Self-efficacy was assessed using a pretest/post test method. Data analysis showed that the group of preservice teachers made significant gains in efficacy as a result of their student internship experience.

In 2002, Knobloch and Whittington analyzed the percent of variance in teacher efficacy of 106 student and novice agriculture teachers in Ohio. Using selected variables related to collective efficacy, teacher preparation quality, and student internship experiences, they explained 17% of the variance in teaching efficacy. Teachers’ perceptions of their student internship experience accounted for 2.8% unique variance.

Cole (1984) provided a different perspective, suggesting that the quality of technical agriculture preparation may contribute to an agricultural education graduates’ decision to enter teaching. Cole stated, “technical knowledge and hands-on skills are important criterion to vocational agriculture [teacher] placement and retention” (p. 11).

He also added that teachers stay in the profession because of “acquisition of technical skills, (from whatever source), professional preparation, and they enjoy the work and student relationships” (p. 8).

Academic Achievement. Although no literature exists linking academic efficacy to one’s choice to teach agriculture, researchers have investigated the influence of academic ability on graduates’ decision to enter the teaching profession. Much of the research in this area stemmed from a 1981 study by Schlechty and Vance of all newly certified teachers in North Carolina between 1973 and 1980. These researchers concluded that graduates with high academic ability were more likely to not enter teaching than their lower performing colleagues.

Subsequent studies in agricultural education contradicted the findings of Schlechty and Vance (1981). Muller and Miller (1993) examined 294 agricultural education graduates who were certified between 1980 and 1989 at Iowa State University. Their findings suggested that academic ability and adequacy of the teacher education program provided no significant means of differentiating between graduates who enter teaching and those who do not.

In McCoy and Mortensen’s (1983) study of Pennsylvania agricultural education graduation, results suggested that students who entered and remained in the teaching profession actually achieved higher cumulative grade point averages and higher grades on their student teaching experience than those who chose not teach or had left the profession. Similarly, in 1991 Baker and Hodges found that agricultural education graduates ($n = 160$) who entered teaching could be distinguished from those who opted not to teach when compared by cumulative grade point average, grades in student

teaching and professional education courses, and certification status. In a multiple regression analysis, these variables were found to explain 16% of the variance in graduate career choice, with grades in student teaching and certification status being the most powerful discriminating variables.

Agricultural and FFA Background. Although no studies have been conducted examining the influence of contextual factors such as background and experience in agriculture and FFA, these factors may have an impact on career decisions by moderating self-efficacy, and interest-goal and goal-action processes.

As previously mentioned, Cole's (1984) study compared 151 agricultural education graduates from Oregon State University who never taught, those who taught and quit, and those who were still teaching. Cole examined graduates' experience with secondary agricultural education and work experience in the agricultural industry. Data analysis showed that a number of notable differences existed in these groups, especially between those who never taught and those still teaching. When examining membership in FFA (4 years), 80% of graduates who are still teaching reported being FFA members, compared to only 55% of those who never taught, and 74% of those who taught and quit. Another difference was found in Supervised Occupational Experience Program (SOEP) participation. Only 32% of graduates who chose not to teach had an SOEP for four years, while 72% of those still teaching had SOEPs. When these two groups were compared on the degree of activity in FFA and SOEPs, the results again showed that those still teaching were nearly 20% more active than those who never taught. Cole also looked at the number of years of agricultural work experience graduates possessed and found a difference of only one year, however, about 11% more of those still teaching reported

that this work experience was of excellent quality (37% still teaching vs. 26% never taught). The study also found virtually no difference when looking at the percentage of graduates from rural high schools.

In 1987, Hillison, Camp, and Burke compared 1980 and 1985 agricultural education graduates at Virginia Polytechnic Institute and State University. When they examined the influence of factors on graduates' decisions to become agricultural education majors, they found that 1985 and 1980 graduates rated their farm backgrounds as the second and fifth most influential, respectively. Graduates reported that their own agriculture teachers were influential in the process of choosing agricultural education as a major. Another important finding from this study was that the most influential factor for both groups of graduates was that the agricultural education major provided an opportunity to get into other agricultural jobs, besides teaching agriculture. Graduates found this flexibility to be the most influential aspect of the major.

Although a study by Edwards and Briers (2001) focused on longevity in teaching rather than on the decision to teach, they found that moderate relationships existed between expected years of teaching and agricultural work experience, and between FFA involvement and teachers' perceived level of competence. These researchers concluded that teachers with more years of agricultural work experience and FFA involvement expected to teach longer and were more confident in their abilities to do so.

Model Testing

The studies discussed in previous sections have primarily focused on specific SCCT constructs, however a number of researchers have chosen to examine the tenets of the SCCT as posited by Lent et al. (1994). In their monograph, Lent et al. posed a series of predictions in the form of twelve propositions and related hypotheses. These

propositions have provided a structure in which researchers have tested the SCCT model within different contexts. The following are the twelve prediction propositions posited by Lent et al. (1994) in their SCCT model:

Proposition 1. An individual's occupational or academic interests at any point in time are reflective of his or her concurrent self-efficacy beliefs and outcome expectations.

Proposition 2. An individual's occupational interests also are influenced by his or her occupationally relevant abilities, but this relation is mediated by one's self-efficacy beliefs.

Proposition 3. Self-efficacy beliefs affect choice goals and actions both directly and indirectly.

Proposition 4. Outcome expectations affect choice goals and actions both directly and indirectly.

Proposition 5. People will aspire to enter (i.e., develop choice goals for) occupations or academic fields that are consistent with their primary interest areas.

Proposition 6. People will attempt to enter occupations or academic fields that are consistent with their choice goals, provided that they are committed to their goal, and their goal is stated in clear terms, proximal to the point of actual entry.

Proposition 7. Interests affect entry behaviors (actions) indirectly through their influence on choice goals.

Proposition 8. Self-efficacy beliefs influence career/academic performance both directly and indirectly through their effect on performance goals. Outcome expectations influence performance only indirectly through their effect on goals.

Proposition 9. Ability (or aptitude) will affect career/academic performance both directly and indirectly through its' influence on self-efficacy beliefs.

Proposition 10. Self-efficacy beliefs derive from performance accomplishments, vicarious learning, social persuasion, and physiological reactions (e.g., emotional arousal) in relation to particular educational and occupationally relevant activities.

Proposition 11. As with self-efficacy beliefs, outcome expectations are generated through direct and vicarious experiences with educational and occupationally relevant activities.

Proposition 12. Outcome expectations are also partially determined by self-efficacy beliefs, particularly when outcomes (e.g., successes, failures) are closely tied to the quality or level of one's performance.

Proposition 1 has received the most attention in the literature. In this proposition, Lent et al. (1994) proposed that at any given time, an individual's career or academic interests are reflected by his or her self-efficacy beliefs and outcome expectations. Fouad and Smith were the first to formally test this proposition in 1996. Using an ethnically diverse sample of 380 middle school students, Fouad and Smith (1996) investigated whether students' vocational interests were reflective of their self-efficacy beliefs and outcome expectations. The study also included inquiries into propositions 3 and 4, which hypothesize that self-efficacy beliefs and outcome expectations affect choice, goals, and actions. Results of the structural equation modeling analysis supported the propositions of Lent et al. (1994). Self-efficacy beliefs were shown to have a direct influence on students' interests and an indirect influence on interests through outcome expectancies. The model also revealed outcome expectations were a determinant of interests and intentions, and interests were shown to be determinants of career intentions.

Schaffner and Jepsen (1999) conducted their own test of the SCCT model within the context of a minority teacher recruitment program. In this study, the researchers focused again on Lent et al.'s (1994) propositions 1, 3, and 4. This study also examined proposition 5, which hypothesizes that people aspire to enter career fields that are consistent with their interest areas. The sample consisted of 243 at-risk, minority high school students from various cities. In this case, data analysis yielded mixed support for propositions of the SCCT model. In support of proposition 1, self-efficacy was found to be strongly linked to interests. However, contrary to proposition 1, the independent effect of outcome expectancies on interests was not observed. Additionally, the influence of teacher self-efficacy on teaching goals was found to be only an indirect influence

rather than the direct influence predicted in SCCT proposition 3. Examining the influence of outcome expectations, researchers found that there was indeed a direct effect on choice actions, however the relationship was reported to be negative, rather than the positive nature predicted by SCCT. Lastly, results from the study also showed that interests directly influenced choice actions supporting proposition 5 and earlier findings by Lent et al. (1994).

In 2001, Smith tested propositions 1, 3, and 12 in an investigation of 289 undergraduates completing computer related coursework. Smith used path analysis to examine the relationship among career self-efficacy, outcome expectations, career choice goals, vocational interests, and career barriers. Findings were supportive of propositions 1 and 3; career self-efficacy had a significant relationship with vocational interest and career choice goals. Smith did not produce supportive findings related to proposition 12, in which no significant relationship between career self-efficacy and outcome expectations existed.

Model Comparison and Integration

Only recently has Bandura's (1977) general social learning theory been applied to career and academic behavior (Lent et al., 1994). In doing so, two distinct branches of social cognitive theories have emerged. These theories include the social learning theory of career selection posited by Krumboltz, Mitchell, and Jones (1976) and Betz and Hackett's (1981) self-efficacy theory. The SCCT integrates important aspects of both of these theories, yet it remains distinctly different from each (Lent et al., 1994).

Similar to the Krumboltz et al. (1976) social learning theory, the SCCT acknowledges the impact of factors such as genetic endowment, special abilities, and environmental conditions on career choice behavior (Lent et al., 1994). These theorists

also held similar views regarding the importance of learning experiences, and the influence of person inputs, and contextual factors in guiding an individual's career development. Where these theories differ is in what they attempt to explain. Krumboltz et al. (1976) primarily focused on choice behavior, whereas the SCCT examined the entire developmental process, choice behavior, and performance attainment (Lent et al., 1994). Additionally, the two theories differ in the emphasis placed on self-efficacy mechanisms. Social cognitive career theorists contend self-efficacy is a major mediator of career choice and development, however it is Krumboltz's position that self-efficacy plays a minor role in choice behavior (Lent et al., 1994).

The SCCT doesn't contrast the self-efficacy theory posited by Betz and Hackett (1981), but rather builds upon it. These two theories share views of the importance of self-efficacy and the moderating effect of perceived barriers. However, Lent and colleagues (1994) have broadened their view of choice behavior to include the influence of outcome expectations, interests, and performance.

The SCCT also has the potential to complement other popular theorists views of career development. Holland's Theory of Types (1966) viewed career choice and career adjustment as an extension of a person's personality (Sharf, 1996, p. 90). His theory hypothesized that people tend to gravitate toward careers that are compatible with their interests (Lent et al., 1994). Social Cognitive Career Theory shares a related view of career interests. However, it builds upon it by suggesting the relationship between interests and choice behavior is mediated by goals, and environmental features moderate the relation of those goals to actions (Lent et al., 1994). For instance, an individual may have an interest in a compatible career, yet he or she may be less likely to take action on

that interest due to an absence of support from a parent or other significant person in his or her life.

The SCCT also exhibits a degree of commonality with Super's (1990) career development theory. Like Lent et al., Super believed learning experiences were essential in the development of personality variables related to career development, such as career interests. Lent et al. (1994) emphasized specific learning processes and mechanisms not contained in Super's theory. Social Cognitive Career Theory could serve as an adjunct to Super's more general approach (Lent et al., 1994).

Chapter Summary

This chapter attempted to provide a review of the pertinent literature related to the research problem of this study. A theoretical framework was presented based on Bandura's (1977) Social Learning Theory. The conceptual basis of the study was developed around the model of Social Cognitive Career Theory posited by Lent et al. (1994). A description of the core sociocognitive components, self-efficacy, outcome expectations, and choice goals were provided. The influence of other factors, such as person inputs and contextual influences were also explained.

Research relevant to the sociocognitive components of SCCT was summarized. This research provided support for the major tenets of SCCT theory, however a few studies have found results contrary to some of the propositions posited by Lent and colleagues (1994). These studies do provide evidence that SCCT has demonstrated its utility for explaining development of specific career relevant interests of adolescents and young adults. The reviewed studies suggest that sociocognitive mechanisms such as self-efficacy, outcome expectations, and goal mechanisms are major components of the career development and decision-making process. These mechanisms have been shown to

interact with learning experiences and person inputs to influence career behaviors and interests. Although this research provides a basis for understanding the career development process for a number of age groups and within various contexts, no such research has been conducted in agricultural education. Given the domain specificity of the career development process and lack of research related to career decision in agricultural education, the need for additional research in this area is obvious.

CHAPTER 3 METHODS

Chapter 1 provided an introduction and basis for this study. The current teacher shortage in agricultural education was discussed and a need for further research was established. The purpose of this research study was presented as well as the research question and objectives. The chapter concluded by defining key terms, outlining assumptions and stating limitations of the study.

In Chapter 2, the theoretical and conceptual framework for this study was outlined. A review of the relevant literature provided a thorough background on the SCCT and its core components: self-efficacy, outcome expectations, and goals, as well as other variables related to this study. The literature review yielded a limited amount of research pertaining to the career decision-making process of preservice agriculture teachers, thus establishing a need for additional research.

This chapter outlines the research methodology used in conducting this study. The research design, study procedures, population and sample, instrumentation, data collection, and analysis are addressed.

The purpose of the study was to describe the influence and predictive nature of person inputs, contextual influences, self-efficacy, and outcome expectations on preservice agricultural teachers' intentions to pursue a teaching position and their intended length of teaching tenure. The dependent variables for this study were preservice agriculture teachers' intentions to pursue a teaching position, and the number of years they expected to remain in the profession. The independent variables consisted

of person inputs, contextual influences, perceived self-efficacy, and outcome expectations.

Research Design

This study utilized a causal-comparative design (Gall, Borg, & Gall, 1996). Causal-comparative research is a type of quantitative research that attempts to discover *possible* cause-and-effect relationships between variables. This is done by comparing individuals with certain behavior patterns or personal characteristics with those that are lacking or exhibit these patterns or characteristics to a lesser degree (Gall et al., 1996). This method is commonly referred to as *ex post facto* research because the relationships or possible causes of a given phenomenon are studied after they have exerted their effect on another variable (Gall et al., 1996). In the case of this study, the independent variables have already affected the decision-making process of the preservice teachers. Therefore, experimental manipulation and control would be impossible. It was, however, possible to investigate potential relationships between the existing independent variables and the dependent variables of the study.

Causal-comparative and experimental research designs share some similarities. Both research methods can be utilized to test hypotheses regarding the relationship between independent and dependent variables. Causal-comparative research can yield the same kind of information that an experimental design can provide (Ary et al., 2002). However, causal-comparative methods provide researchers with less convincing evidence of causal relationships between variables than do experimental methods. This is primarily due to the researcher's inability to control the independent variables by manipulation and lack of randomization. Due to this lack of control, an inference about the causal relationships between variables is hazardous in a causal-comparative study

(Ary et al., 2002). A researcher may mistakenly attribute causation based on an observed relationship between variables. This error is referred to as “*post hoc fallacy*” (Ary et al., 2002, p. 337). According to Ary et al. (2002), if a researcher wishes to conclude that a variable (X) is the cause of an effect on another variable (Y), three types of evidence are necessary: (1) a statistical relationship between variables X and Y must be established, (2) variable X must precede Y in time, and (3) it must be determined that other factors did not cause Y. By testing and determining that no other factors caused Y, researchers can exclude the possibility of a spurious relationship. Ary et al. (2002) defines a spurious relationship as “one in which the two variables really have no effect on each other but are related because some other variable influences both” (p. 337).

In order to draw correct conclusions from a study, Campbell and Stanley (1966) state that internal validity is a basic requirement. Given the similarities between experimental and causal-comparative research they also share some of the same threats to internal validity and external validity. Ary et al. (2002) defined internal validity as “the extent to which the changes observed in a dependent variable are, in fact, caused by the independent variable in a particular experimental situation rather than by some extraneous factors” (p. 281).

Campbell and Stanley (1966) identified eight extraneous variables that frequently pose a threat to the internal validity of a research design. These threats include: history, maturation, testing, instrumentation, statistical regression, differential selection, mortality, and the interaction of these threats. Given the design and survey procedure used in this study, the most serious threat to internal validity comes from the measurement instrumentation. Threats due to history, maturation, testing, and mortality

were controlled for through the selection of a sample that represented the entire accessible population. Concerns pertaining to statistical regression and differential selection were also addressed by the sample selection. By including all fall teaching interns across the nation in the sample, it ensured that participants were selected based on a naturally occurring characteristic rather than a characteristic determined by the researcher.

The threat of an instrument to the internal validity of a study is the result of the unreliability of the instrument (Ary et al. 2002). This threat can be further broken down into four areas of concern when utilizing a questionnaire for data collection. These instrumentation threats include: face validity, content validity, construct validity, and criterion-related validity (Ary et al. 2002).

Face validity is simply a matter of whether the instrument appears valid for its intended purpose (Ary et al., 2002). In this study, a panel of experts consisting of five university faculty specializing in teacher education (four) and communications (one) reviewed the instrumentation ensuring its face validity. After a thorough review, suggestions were proposed and modifications made to the instrument establishing its face validity.

Content validity is the degree to which the scores yielded from an instrument represent the content that the instrument was supposed to measure (Gall et al., 1996). Threats to content validity were eliminated by the expert panel's review of the instrument's content and also by analyzing the results of a pilot test conducted prior to the actual study. The pilot instrument was administered to 36 preservice teachers enrolled in agriculture teaching methods courses at three different institutions. This

sample of students was determined to be similar to the study's target population by the panel of experts.

Construct validity is the extent to which an instrument assesses a construct that it purports to measure (Gall et al., 1996). Establishing construct validity is difficult given the abstract nature of a construct. Constructs are defined as “abstractions that cannot be observed directly” (Ary et al., 2002, p. 32). Examples of common constructs measured in educational research are motivation, anxiety, satisfaction, efficacy, and self-concept. The instrument used in this study proposed to measure five constructs. To ensure that the instrument provided an accurate representation of the desired constructs, the researcher utilized the panel of experts, reviewed the literature that provided empirical evidence supporting construct validity, and conducted post hoc analysis of the internal consistency of the pilot-tested instrument. Further explanation regarding the construct validity and reliability of the instrument will be discussed later in this chapter.

The final threat to internal validity addressed in the study was criterion-related validity. Criterion-related validity was determined by answering the question of whether the instrument was the correct way to assess the construct it was designed to measure (Ary et al., 2002). To ensure this was the case, the panel of experts was again consulted and a thorough review of the literature was conducted which provided empirical evidence of the criterion-related validity of the instrument.

The causal-comparative design of this study also posed external validity concerns that had to be addressed. External validity refers to the generalizability or representativeness of the study's findings (Ary et al., 2002). Questions pertaining to the

population and ecological external validity of this study have been considered and are addressed in the next section pertaining to the study's population and sample.

Population and Sample

The population of this study consisted of all preservice agriculture teachers completing their teaching internship experience in all agriculture teacher preparation programs throughout the nation during the 2004-2005 academic year. A purposive sample of 262 student teachers was selected from 42 institutions. This constituted all students completing their internship experience during the Fall 2004 academic term. This sampling method, also referred to as convenience sampling, was deemed to be appropriate when "sample elements judged to be typical, or representative, are chosen from the population" (Ary et al., 2002, p. 169). Gall et al. (1996) stated that data collected from a convenience sample could be analyzed using inferential statistics provided that the sample is carefully conceptualized to represent the target population. Therefore, attempts to generalize the findings of this study will be contingent upon researchers efforts to find evidence the population of interest is similar to those preservice agriculture teachers included in the sample selected for this study. Chapter 4 provides a description of the respondents, allowing researchers to compare this sample to the population.

Procedure

Prior to collecting the primary data for this study, a pilot test was conducted. The pilot test was necessary to establish the validity and reliability of the measurement instrument used in the study. With the exception of the teacher efficacy scale (Tschanne-Moran & Woolfolk Hoy, 2001), all other measurement scales were developed and modified by the researcher for this study. However, most of the scales

used in this study were based on similar scales found in the career development literature and previously determined to be valid and reliable.

Prior to beginning the pilot study the researcher submitted the study's protocol for review and received approval from the University of Florida Institutional Review Board (see Appendix A). The pilot study was conducted in October of the Fall 2004 semester. The pilot instrument was administered to 36 preservice teachers in agricultural teaching methods courses at three institutions representing each of the geographic regions of the American Association for Agricultural Education. The institutions included California State University, Fresno of the Western Region, University of Missouri of the North Central Region, and the University of Florida representing the Southern Region. This convenience sample consisted of 22 female (61%) and 14 male students in the final year of their agriculture teacher preparation program. The participants had a mean age of 23 years. The ethnicity of the group was 94% Caucasian and the remainder were Hispanic/Non-Caucasian. Results of the pilot test and further explanation of each measurement scale is provided later in this chapter.

The procedures for conducting the main study began early in the Fall 2004 semester. By utilizing the 2004 membership directory of the American Association of Agricultural Educators (AAAE) a list of 89 teacher preparation institutions was generated. In mid October, an email message was sent to the Department Chair or lead teacher educator at each institution explaining the purpose of this study and soliciting their participation (see Appendix B). After 10 days, those institutions not replying to the email were sent a follow-up request (see Appendix C). If an email response was not received after one week, the researcher then attempted to make contact via the telephone.

Eligibility for this study required that the institution had students completing their teaching internship experience during the fall semester, and a faculty member must administer the instrument at, or as near as possible to the conclusion of the semester. An institution's willingness to participate was demonstrated by their response to the email or expressed in the telephone conversation and also by providing the researcher with the number of teacher interns under their supervision. The instruments were mailed to teacher educators during the first week of November with instructions and administered during regular meetings or seminars with student teachers. The packet of information sent to teacher educators included specific directions for administering the instrument (see Appendix D) and informed consent forms (see Appendix E). A follow-up email was sent one week after the instruments were mailed to confirm teacher educators received the materials and as a reminder to administer the instrument prior to or at the end of the academic term. Completed instruments were returned to the researcher in the provided return envelope. Institutions not returning completed questionnaires by the first of December were sent an email reminder (see Appendix F). The final email contact was made during the first week of January, requesting an expeditious return of the completed questionnaires or confirmation of the institution's decision to not participant in the study (see Appendix G). Following the return of each institution's study materials an email was sent to the institution's contact person confirming the receipt of the materials and thanking them for their assistance (see Appendix H).

Instrumentation

To accurately assess the independent and dependent variables in this study, numerous measurements were needed. When possible, existing instruments with established validity and reliability were used in their entirety or after modification

appropriate for the specific population of this study. In the following sections, each instrument is presented in further detail with its established reliability and validity.

Demographics Instrument (Person Inputs)

A researcher-developed instrument was used to collect demographical data (see Appendix I). In the context of the Social Cognitive Career Theory, demographical data is referred to as “person inputs.” An expert panel of five faculty from the Department of Agricultural Education and Communication and the Department of Teaching and Learning at the University of Florida reviewed the 10-item instrument and established face and content validity. Items were determined to have “an accurate, ready-made answer” and did not demand considerable time or thought, nor did they create considerable variation, therefore the instrument posed little threat to reliability (Dillman, 2000, p. 35).

Preservice Agriculture Teacher Intentions and Aspirations Scale

This instrument was developed by the researcher based on the Career Aspiration Scale (O’Brien, Gray, Tourajdi, & Eigenbrode, 1996). The Career Aspiration Scale (CAS) used ten 5-point Likert-type items to assess the degree to which individuals aspire to advancement and leadership positions within their careers. The CAS includes four reverse scored items and all items were summated to calculate an individual’s total score. O’Brien et al. (1996) reported the CAS had an estimated alpha coefficient of .73 for a sample of 107 high school females.

The researcher-developed instrument consisting of 18 items was developed by selecting relevant items from the CAS and also by using CAS items as a basis to create new items that better reflect the career aspirations of preservice agriculture teachers (see Appendix L). In post-hoc analysis of the pilot study data ($n = 34$) the Preservice

Agriculture Teacher Intentions and Aspirations Scale was found to have an alpha estimate of .86.

For the purposes of describing preservice agriculture teachers' scores on the Intentions and Aspirations scale, summated scores were categorized as low, moderate, or high. The range of scores were divided into thirds, which equated to summated scores of 66 or greater being considered high, scores between 43 and 65 were categorized as moderate, and those of 42 or less were considered low intentions and aspirations to teach agriculture.

Teacher Efficacy Scale

To measure perceptions of self-efficacy related to teaching, the researcher utilized the Teachers' Sense of Efficacy Scale (TSES) [See Appendix K] developed by Tschannen-Moran and Woolfolk Hoy (2001). Through factor analysis, these researchers found this scale measured teachers perceived confidence on three identifiable sub-constructs, which included student engagement, using instructional strategies, and classroom management. This 12-item scale uses a 9-point Likert-type response format ranging from "Nothing" (1 point) to "A Great Deal" (9 points). Individual scores for the construct were calculated by a summation of the 12 items. Higher scores on the scale indicated greater perceived confidence in one's teaching ability.

Through a series of three developmental studies, which included 624 preservice and inservice teachers, Tschannen-Moran and Woolfolk Hoy (2001) established the internal consistency of the scale. Over the three studies, the TSES had a reported estimated alpha of .90. Further evidence of internal consistency was provided by the post-hoc reliability analysis of the pilot test, which yielded an estimated alpha of .86 ($n = 35$).

In order to describe participants' level of teacher efficacy the researcher categorized teacher efficacy scores as high, moderate, or low. These categories were determined by dividing the possible range of scores on the TSES in thirds. This meant that summated scores of 76 or greater were considered to be high efficacy scores, 75 to 45 were moderate, and scores of 44 or less were categorized as low.

Preservice Agriculture Teacher Expectations Scale

The Vocational Outcome Expectations (VOE) [McWhirter, Rasheed, & Crothers, 2000] scale served as an example for the development of the teacher expectation scales used in this study. The VOE is a six-item scale that assesses career outcome expectations. For a sample of 166 high school sophomores the Cronbach's alpha for the VOE was .83.

Based on the VOE, the researcher developed a 14-item scale (See Appendix L) incorporating the outcome expectations mentioned in the agricultural education literature (i.e. Burke & Hillison, 1991; Coughlin et al., 1988). Results of the pilot test yielded an alpha coefficient of .68 ($n = 35$). The nature of this alpha coefficient was such that further investigation of the reliability of this scale was warranted, which lead the researcher to conduct post-hoc analysis of the final study data. These findings will be presented in Chapter 4.

Preservice agriculture teacher expectations were described in this study as high, moderate, and low. The range of possible summated scores were divided evenly into the three categories, so that expectations scores of 52 or greater were considered high, 51 to 34 were moderate, and scores of 33 or less were considered to be low expectations scores.

Preservice Agriculture Teacher Career Barriers Scale

The career barriers scale utilized in this study was developed by the researcher based on the Perceptions of Educational Barriers (POE) scale developed by McWhirter (1997b). The POE is an 84-item assessment designed to measure three dimensions of barriers to the pursuit of post-secondary education. The researcher developed a 14-item scale utilizing two of the dimensions outlined by McWhirter (1997b), which include the likelihood of encountering barriers and the difficulty of overcoming barriers. In 2000, McWhirter et al. found estimated alpha coefficients for the likelihood and difficulty subscales of .95 and .91, respectively.

The Preservice Agriculture Teachers Career Barriers Scale developed by the researcher consisted of 14 double-scaled items (see Appendix M). Participants were asked to indicate how likely they were to encounter each barrier in their decision-making process and also, if they did experience such a barrier how difficult would each be to overcome. Both scales consisted of 5-point Likert-type items with the likelihood scale ranging from “Not at all Likely” (1 point) to “Definitely Likely” (5 points) and the difficulty scale ranging from “Not all all Difficult” (1 point) to “Could not Overcome” (5 points). Results of the post hoc reliability analysis of the pilot test ($n = 35$) provided an alpha coefficient of .75 for the Likelihood scale and .86 for the Difficulty scale.

In describing the findings of this study, career barriers scores were categorized as high, moderate, or low. As with the preceding instruments, the range of possible scores was divided into thirds by the researcher. Summated scores of 49 or greater were considered high, 48 to 34 were moderate, and scores of 33 or less were considered to be low.

Preservice Agriculture Teacher Support Scale

A researcher-developed instrument was used to measure the amount of support perceived by preservice agriculture teachers pertaining to their decision to enter teaching or not (see Appendix N). The development of this instrument was inspired by five scales used by Rasheed (2001) to measure students' perceptions of the degree to which they experienced support from parents, siblings, friends, and teachers with respect to their educational and occupational activities, ideas, and plans. Given the broad scope and excessive length of these five scales (118 items), the researcher created a 14-item scale that focused specifically on preservice agriculture teachers' decisions to enter the profession. The instrument included items related to the amount of perceived support from parents, siblings, friends, and school staff and teachers. The researcher used a 5-point Likert-type scale and also included a response choice for participants to indicate those persons who were not applicable in their case. The results of the pilot test yielded a Cronbach's alpha of .74 ($n = 7$) for the support scale. Due to the small number of eligible cases caused by the occurrence of persons deemed to be non-applicable by the participants, additional data and further analysis seemed appropriate to provide stronger evidence of the reliability of this scale. Thus, post-hoc reliability analysis of the final study data was performed to provide additional evidence of the internal consistency of the support scale. The findings of this analysis will be provided in Chapter 4.

Analysis of Data

Data analysis was conducted using SPSS® version 12.0 for Windows™. The first objective of the study was accomplished using descriptive statistics, specifically means and frequencies. In doing so, summated scales of Likert-type items were treated as interval data as outlined by Clason and Dormody (1994). The use of Likert scaling

presumes the existence of a latent or underlying continuous variable. The value of this variable characterizes the respondents' attitudes and opinions. Clason and Dormody (1994) stated, "If it were possible to measure the latent variable directly, the measurement scale would be, at best, an interval scale" (p. 31). Given the nature of the attitudinal construct scales included in this study and the established research base for these constructs, the researcher concluded that the treatment of summated scores as interval data was appropriate.

In order to determine that no multicollinearity effects existed in the models, each independent variable was regressed on the other independent variables. According to Agresti and Finlay (1997), in this type of analysis researchers should be concerned about possible multicollinearity effects when the value of the coefficient of multiple determination (R^2) is close to 1. This would suggest that the variable might not be needed in the model, once the others are included.

In order to accomplish objectives two and three, multiple regression models were utilized. The coefficient of multiple determination (R^2) was used to explain the variance in the dependent variables based on the independent variables. In both cases, a stepwise elimination process was used for building the model. This procedure begins by placing all independent variables in the model and deletes one variable from the model at each step. As each variable is dropped from the model the procedure also drops any variables that no longer make significant partial contributions until all the remaining variables are found to be significant predictors of the dependent variable (Norusis, 2004).

Chapter Summary

This chapter addressed the methods utilized to achieve the objectives and to test the hypotheses identified in Chapter 1. In doing so, the research design, population and sample, procedure, instrumentation, and data analysis were discussed.

The design of this study was identified as causal-comparative. The attributes of this research design were presented and the threats to validity were addressed. The independent variables in this study were person inputs, contextual influences, self-efficacy, and outcome expectations. The dependent variables were preservice agriculture teachers' intentions to pursue a teaching position, and the number of years they intended to remain in the profession.

CHAPTER 4 RESULTS

Chapter 1 provided an introduction and basis for this study. The current teacher shortage in agricultural education was discussed and a need for further research was established. The purpose of this research study was presented as well as the research question and objectives. The chapter concluded by defining key terms, outlining assumptions, and stating limitations of the study.

In Chapter 2, the theoretical and conceptual framework for this study was outlined. A review of the relevant literature provided a thorough background on the SCCT and its core components: self-efficacy, outcome expectations, and goals, as well as other variables related to this study. The literature review yielded a limited amount of research pertaining to the career decision-making process of preservice agricultural teachers, thus establishing a need for additional research.

Chapter 3 outlined the research methodology used in conducting this study. The research design, study procedures, population and sample, instrumentation, data collection, and analysis were addressed. The design of this study was identified as causal-comparative. The purpose of the study was to describe the influence and predictive nature of person inputs, contextual influences, self-efficacy, and outcome expectations on preservice agriculture teachers' intentions to pursue a teaching position and perception of their teaching longevity. The dependent variables for this study were preservice agriculture teachers' intentions to pursue a teaching position, and the number of years they expected to remain in the profession. The independent variables consisted

of person inputs, contextual influences, perceived self-efficacy, and outcome expectations.

This chapter presents the findings of this study. The results address the objectives of this study in determining the predictive nature of person inputs, contextual influences, self-efficacy, and outcome expectations on preservice agriculture teachers' intentions to pursue a teaching position and their intended length of teaching tenure.

The population of this study consisted of all preservice agriculture teachers completing their teaching internship experience during the 2004-2005 academic year at all of the agriculture teacher preparation programs throughout the nation. A purposive sample of 262 preservice teachers was selected from 42 institutions. This constituted all students completing their internship experience during the Fall 2004 academic term.

After following the data collection procedures outlined in Chapter 3, usable responses were received from 215 preservice agriculture teachers from 34 institutions, representing 25 states (see Table 4-1). Based on the aforementioned sample size, a response rate of 82.1% ($n = 215$) was achieved, with 81% of the institutions contributing responses.

In cases where a respondent failed to respond to a single item within a construct scale, the missing item was replaced by the mean of the participant's responses on the other items within the scale (DeVaus, 1990). In cases where the participant did not respond to an entire scale or failed to respond to a demographic question, the variable was coded as missing and excluded from analyses involving the variable.

Prior to data analysis, post-hoc reliability analyses were conducted for each of the instrument scales developed or modified by the researcher. A post-hoc reliability

analysis was also performed on the Teachers Sense of Efficacy Scale since no such analysis was found in the literature pertaining to this population. All of the scales within the instrument measured participant responses using Likert-type items, therefore tests for internal consistency were performed using Cronbach's alpha.

Table 4-1 Institution and Preservice Teacher Participation Summary

Institution	Preservice Teachers ^a	Participants	%
Auburn University	1	0	0.0
University of Arkansas	2	2	100.0
Arkansas State University	3	3	100.0
Southern Arkansas University	4	3	75.0
California Polytechnic State University, Pomona	1	0	0.0
California Polytechnic State University, San Luis Obispo	13	12	92.3
California State University, Chico	1	1	100.0
California State University, Fresno	1	1	100.0
Colorado State University	2	1	50.0
University of Delaware	1	0	0.0
Fort Valley State University	2	2	100.0
Southern Illinois University	4	2	50.0
Western Illinois University	2	2	100.0
Iowa State University	3	1	33.3
Kansas State University	2	2	100.0
Western Kentucky University	5	4	80.0
College of the Ozarks	2	2	100.0
Montana State University	2	2	100.0
University of Nebraska	5	1	20.0
New Mexico State University	10	9	90.0
Cornell University	8	3	37.5
North Carolina A & T State University	1	1	100.0
North Dakota State University	1	1	100.0
The Ohio State University	36	34	94.4
Oklahoma State University	11	11	100.0
Panhandle State University	4	0	0.0

Table 4-1 Continued

Institution	Preservice Teachers ^a	Participants	%
Clemson University	1	1	100.0
South Dakota State University	11	10	90.9
University of Tennessee at Martin	2	2	100.0
Middle Tennessee State University	3	3	100.0
Texas A & M University	33	33	100.0
Prairie View A & M University	1	0	0.0
Sam Houston State University	10	9	90.0
Stephen F. Austin State University	3	0	0.0
Tarleton State University	17	16	94.1
Texas Tech University	17	17	100.0
Utah State University	13	12	92.3
Virginia Polytechnic Institute and State University	1	1	100.0
Washington State University	2	0	0.0
West Virginia University	5	5	100.0
University of Wisconsin - Platteville	4	0	0.0
University of Wisconsin - River Falls	12	5	41.7
Total	262	215	82.1

Note: ^aPreservice Teachers indicates total number of students completing teaching internship experiences during fall 2004 semester as reported by the university contact.

As shown in Table 4-2, the reliability estimates for the construct scales ranged from .84 to .92. All of the reliability coefficients increased from the estimates established previously by analysis of the pilot data. A notable increase was observed in the Teaching Expectations Scale. The pilot test analysis of this scale yielded a Cronbach's alpha of .68, whereas post hoc data analysis from the study produced a Cronbach's alpha of .84. Due to the small number of usable instruments in the pilot test, questions also remained about the reliability of the Teaching Support Scale. The post hoc reliability analysis provided further evidence of the reliability of this scale with a coefficient estimate of .91 ($n = 53$). The Teacher Support Scale included a response item of "Not Applicable",

which, for purposes of analysis was coded as missing data. The existence of any missing data resulted in the software package dropping all of an individual's data from the reliability analysis, therefore only those participants who responded to every item were included in the analysis. For the purpose and objectives outlined in this study, the results reported in Table 4-2 suggest that all of these instrument scales are sufficiently reliable (Borg et al., 1996).

Table 4-2 Post-Hoc Instrument Reliability

Instrument	n	Reliability
Teaching Intentions and Aspirations Scale	215	.88
Teachers' Sense of Efficacy Scale	215	.92
Teaching Expectations Scale	213	.84
Likelihood of Career Barriers Scale	207	.86
Difficulty of Overcoming Career Barriers Scale	207	.90
Teaching Support Scale	53	.91

Note. All reliability coefficients were estimated using Cronbach's alpha.

Objective One

Describe the person inputs (demographics), contextual influences, self-efficacy, and outcome expectations of preservice agriculture teachers in selected collegiate agriculture teacher preparation programs.

Person Inputs – Age, Gender, and Ethnicity

Of the 215 participants in the study, 52.1% were female ($n = 112$). The ages of the participants ranged from 21 to 57 years (see Table 4-3). The average age of the participants was 24.06 years ($SD = 4.85$, $n = 215$). The ethnicity of the participants was 93.4% Caucasian ($n = 198$), 2.4% Hispanic/Latino ($n = 5$), 1.9% Native American/Alaskan ($n = 4$), 1.4% African American ($n = 3$), and 0.9% Asian ($n = 2$).

Table 4-3 Age of Study Participants

Years	<i>f</i>	%
21 – 23	144	66.9
24 – 26	44	20.5
27 – 30	12	5.5
31 – 33	6	2.8
34 – 36	3	1.4
37 – 40	2	1.0
41 – 43	0	0.0
44 – 46	1	0.5
48 – 50	1	0.5
51 +	2	1.0

Background Contextual Influences

Background influences include those variables related to the experience of preservice agriculture teachers that may have an impact on the career decision-making process. These variables include: grade point average, involvement in 4-H and the National FFA Organization, location of childhood/adolescent residence, and occupational experience.

Grade point average

Participants reported their cumulative and major grade point averages by selecting which range of values represented their grade point average. Over 64% of the preservice agriculture teachers ($n = 212$) included in this study reported cumulative grade point averages above 3.0; furthermore, 25% of the participants reported cumulative grade point averages above 3.5 (see Table 4-4). Less than 1% of the participants reported cumulative grade point averages below 2.5 and none less than 2.0.

Of the 214 respondents, 84.1% indicated that their major grade point average was greater than 3.0, with nearly 46% reporting major grade point averages above 3.5 (see

Table 4-4). Approximately 16% of the participants indicated major grade point averages of 3.0 or less. No respondents reported major grade point averages below 2.0.

Table 4-4 Participants' Cumulative and Major Grade Point Averages

Grade Point Average	Cumulative GPA		Major GPA	
	f	%	f	%
2.1 – 2.5	1	0.5	1	0.5
2.6 – 3.0	74	34.5	33	15.4
3.1 – 3.5	84	39.5	82	38.3
3.6 – 4.0	53	25.0	98	45.8

Involvement in 4-H programs

Participants were asked to respond to two items related to their level of involvement in 4-H programs. In the first item, participants reported the number of years they had been involved in 4-H. Participants' responses ranged from 0 to 18 years with a mean of 5.19 years ($SD = 4.82$) [see Table 4-5]. The second item asked that participants report their level of involvement in 4-H. Of the 212 respondents, 38.0 % ($n = 81$) indicated they were "Very Involved", 29.6% ($n = 63$) reported being "Moderately Involved", and the remaining 32.4% ($n = 69$) were "Not at all Involved".

Table 4-5 Participants' Years of Involvement in 4-H

Years	f	%
0	66	31.1
1 – 5	52	24.5
6 – 10	60	28.2
11 – 15	31	14.6
16 +	3	1.5

Involvement in the National FFA Organization

The participants also reported the number of years and level of involvement in the National FFA Organization. The 213 respondents indicated 0 to 10 years of involvement

in FFA, and an average of 4.04 years ($SD = 2.40$) [see Table 4-6]. Over 67% of the 214 respondents reported being “Very Involved” in FFA ($n = 144$), while 15.9% ($n = 34$) believed they were “Moderately Involved”, and 16.8% ($n = 36$) were “Not Involved at All”.

Table 4-6 Participants’ Years of Involvement in FFA

Years	f	%
0	31	14.6
1 – 2	15	7.0
3 – 4	92	43.2
5 – 6	45	21.1
7 – 8	21	9.9
9 +	9	4.2

Enrollment in Agricultural Education

The participants reported the total number of years in which they were enrolled in middle and high school agriculture classes. The 214 respondents indicated a range of 0 to 7 years of enrollment in agricultural education (see Table 4-7). The mean number of years participants were enrolled was 3.29 ($SD = 1.73$).

Table 4-7 Participants’ Years of Enrollment in Agricultural Education

Years	f	%
0	33	15.4
1 – 2	19	8.8
3 – 4	133	62.1
5 – 6	28	13.0
7	1	0.5

Location of childhood/adolescent residence

Participants were asked to indicate the location that best described their childhood and adolescent residence. Of the respondents ($n = 214$), over 86% reported living in a rural setting, with 56.5% ($n = 121$) of the participants living on a rural farm and 29.9% (n

= 64) living in a rural area but did not consider their residence a farm. Most of the remaining participants (10.7%, $n = 23$) reported their residence to be in a suburban area, while only 2.9% ($n = 6$) grew up in an urban setting.

Occupational experience

Participants were asked to specify the number of years of occupational experience they possessed in four categories: full-time agricultural experience, part-time agricultural experience, full-time non-agricultural experience, and part-time non-agricultural experience. The respondents ($n = 208$) indicated a range of 0 to 32 years of full-time agricultural occupational experience (see Table 4-8), with an average of 3.42 years ($SD = 5.52$). Respondents ($n = 208$) reported 0 to 24 years of part-time agricultural occupational experience and a mean of 3.78 years ($SD = 4.35$). When asked the number of years of non-agricultural work experience, the 208 respondents indicated 0 to 25 years of full-time experience with an average of 1.53 years ($SD = 3.29$), and 0 to 12 years of part-time experience and an average of 2.0 years ($SD = 2.49$). Analyses were also conducted to determine the proportion of participants who possessed no occupational experience in the combined categories of agricultural and non-agricultural experience. Of the 209 respondents 8.6% ($n = 18$) reported no agricultural occupational experience, while 24.9% of respondents ($n = 52$) had no non-agricultural experience. Every participant reported either agricultural or non-agricultural experience and in some cases participants indicated having both.

Table 4-8 Participants' Agricultural and Non-agricultural Occupational Experience

Years	Agricultural				Non-agricultural			
	Full-time <i>f</i>	Full-time %	Part-time <i>f</i>	Part-time %	Full-time <i>f</i>	Full-time %	Part-time <i>f</i>	Part-time %
None	106	51.0	62	29.8	133	63.9	94	45.2
1 – 3	37	17.8	57	27.4	43	20.7	61	29.3
4 – 6	25	12.0	47	22.6	23	11.0	42	20.2
7 – 9	12	5.8	20	9.6	4	2.0	6	2.9
10 – 12	10	4.8	15	7.3	2	1.0	5	2.4
13 – 15	5	2.4	1	0.5	0	0.0	0	0.0
16 – 18	8	3.9	3	1.5	0	0.0	0	0.0
19 – 21	4	1.9	0	0.0	1	0.5	0	0.0
22 – 24	0	0.0	3	1.5	1	0.5	0	0.0
25 +	1	0.5	0	0.0	1	0.5	0	0.0

Teaching Intentions and Aspirations

Teaching intentions scores were determined by summing the values of the 18 items included in the construct scale. Summated scores were calculated for all 215 participants. The minimum possible score for the construct was 18 and the maximum was 90.

Participants' scores were found to be between 36 and 85, which resulted in a range of 49 (see Table 4-9). The summated mean score was 65.71 ($SD = 10.59$), which based on the instrument scale and the criteria established in Chapter 3, the mean would be considered to be high (high = 66 or greater). The individual item means ranged from 2.79 to 4.39 (see Table 4-10) and the median ranged from 2 to 5. The means of the six negatively worded items ranged from 1.86 to 3.95 and medians were found from 2 to 4. These items were reverse coded in calculating each individual's summated intentions score.

To collect additional evidence of preservice teachers' intentions to teach and to verify the accuracy of the Teaching Intentions Score, participants were asked to respond to this question, "Do you plan to teach agriculture?" This item asked participants to

respond by selecting either “yes” or “no”. Of the 211 respondents, 80.1% ($n = 169$) indicated that they plan to teach agriculture. Those participants who planned to teach were found to have teaching intention scores ranging from 49 to 85 with a mean of 69.31 ($SD = 7.89$). Those who indicated they did not plan to teach had teaching intentions scores ranging from 36 to 66 with a mean score of 51.62 ($SD = 8.15$). The point biserial correlation between these variables was $r = .67$ (refer to Table 4-14 presented later in this chapter).

Table 4-9 Participants’ Teaching Intentions and Aspirations Summated Score

Summated Score	f	%
36 – 44	8	3.7
45 – 53	21	9.8
54 – 62	47	21.9
63 – 71	67	31.2
72 – 80	59	27.4
81 +	13	6.0

Intended Length of Teaching Tenure

Participants were asked to estimate the number of years they intend to teach, if they were to enter the agriculture teaching field. The participants ($n = 190$) reported intended tenures from 0 to 40 years (see Table 4-11). The mean of the respondents was 20.87 years ($SD = 11.07$).

Table 4-10 Summary of Participants' Responses on Individual Items of the Teaching Intentions and Aspirations Scale

Item		<i>M</i>	<i>Mdn</i>	<i>SD</i>
I plan on playing an important role in the accomplishments of my students.	4.40	5	.78	
I plan to stay informed and become involved in issues pertaining to my profession.	4.39	4	.70	
I would likely take an agriculture teaching position if it were offered to me.	4.20	4	1.03	
I see myself having an active role in the development of a successful agriculture program at my school.	4.20	4	.95	
I would like to have responsibility for FFA, SAE, and other agricultural program activities.	4.16	4	1.07	
When I'm established in my career, I would like to help prepare and mentor new professionals in my field.	4.13	4	.90	
I plan to pursue an agriculture teaching position.	4.03	4	1.13	
I plan on developing into an expert in my career field.	3.98	4	.90	
I truly want to teach agriculture.	3.97	4	1.15	
I would take a job other than teaching agriculture if the right opportunity were offered to me.	3.95 ^a	4	1.04	
I'm going to look for jobs in fields other than agricultural education.	3.35 ^a	3	1.18	
I hope to minimize the amount of time I spend working after business hours and on weekends.	3.01 ^a	3	1.09	
I do not want to work in any other field besides agricultural education.	2.79	3	1.07	
I would prefer to work in a career field other than agricultural education.	2.55 ^a	3	1.17	
I would not consider another profession besides teaching even if a good opportunity were presented to me.	2.28	2	1.05	
I would be satisfied just teaching my classes and doing nothing more.	2.20 ^a	2	1.12	
I would not plan on devoting time to further professional development beyond the requirements of my job.	1.90 ^a	2	.89	
I'm certain that I will not teach agriculture.	1.86 ^a	2	1.09	

Note. Rating Scale: 1 = Strongly Disagree to 5 = Strongly Agree. ^aActual mean score reported here, coding was reversed when computing summated scores.

Table 4-11 Participants' Intended Length of Teaching Tenure

Years	<i>f</i>	%
None	5	2.6
1 – 5	25	13.3
6 – 10	23	12.1
11 – 15	16	8.4
16 – 20	27	14.2
21 – 25	16	8.4
26 – 30	58	30.5
31 – 35	12	6.3
36 +	8	4.2

Career Interests Other Than Agricultural Education

Participants were asked to specify other career, educational, or personal plans they may pursue if they were to decide not to teach agriculture. Responses to this open-ended item were categorized and frequencies are reported in Table 4-12. Participants were allowed to provide multiple responses. In all, 819 different responses were observed (see Appendix N). Responses were sorted into 20 categories by the researcher. Participants reported 56 responses expressing an interest in other teaching opportunities or subjects. Other career and life interests frequently mentioned, in descending order, were extension and youth development, agricultural and non-agricultural business, production agriculture, public relations and marketing, banking and lending, family/homemaker, and animal science and health industry.

Table 4-12 Participants' Career, Educational, and Personal Interests Other than Teaching Agriculture

Category	<i>f</i>
Other teaching positions or subjects	56
Extension and youth development	35
Agricultural business	33
Business - non-agricultural	32
Production agriculture	29
Public relations and marketing – non-agricultural	17
Banking and lending	13
Family/Homemaker	12
Animal science and health industry	11
Government service and agencies	9
Advanced education	8
Other agricultural jobs	8
Natural Resource conservation	6
Communications - including agriculture	6
Horticulture and landscaping	6
School administration and counseling	5
Armed services and law enforcement	4
Medical and dental fields	4
Real Estate	4
Agricultural literacy	3

Note. Complete list of participants' responses provided in Appendix N.

Teacher Efficacy

Teacher efficacy scores were calculated by summing the participants' responses on the TSES instrument. The TSES instrument consisted of 12 9-point Likert-type items. The lowest possible summated score for this instrument was 12 and the highest possible was 108. Participants' scores ($n = 215$) ranged from 51 to 108, which resulted in a range of 57 (see Table 4-13). The mean teacher efficacy score was 88.91 ($SD = 10.44$). This mean would be described as high, given that high levels of teacher efficacy were categorized as summated scores of 76 or greater. The means of the individual items

ranged from 7.02 to 7.68 (see Table 4-14). The median scores of the individual items were found to be either 7 or 8.

Table 4-13 Participants' Teacher Efficacy Summated Scores

Summated Score	f	%
51 – 60	4	1.9
61 – 70	5	2.3
71 – 80	30	14.0
81 – 90	77	35.8
91 – 100	72	33.5
101- 108	27	12.6

Table 4-14 Summary of Participants' Responses on Individual Items of the Teachers' Sense of Efficacy Scale

Item	M	Mdn	SD
How well can you establish a classroom management system?	7.68	8	1.06
How much can you do to get students to follow classroom rules?	7.62	8	1.13
How much can you do to control disruptive behavior in the classroom?	7.61	8	1.13
To what extent can you provide an alternative explanation or example when students are confused?	7.60	8	1.14
How much can you use a variety of assessment strategies?	7.53	8	1.21
To what extent can you craft good questions for your students?	7.50	7	1.31
How much can you do to get students to believe they can do well in school work?	7.42	7	1.16
How well can you implement alternative teaching strategies in your classroom?	7.42	7	1.22
How much can you do to calm a student who is disruptive or noisy?	7.29	7	1.27
How much can you do to help students value learning?	7.16	7	1.25
How much can you do to motivate students who show low interest in school work?	7.05	7	1.34
How much can you assist families in helping their children do well in school?	7.02	7	1.36

Note. Rating Scale: 1 = Nothing to 9 = A Great Deal.

Teaching Expectations

Teaching expectations scores for the 213 participants were determined by summing the values of the 14 items that composed the construct. Expectations scores between 14

and 70 were possible. Participants' scores were found between 20 and 68, which resulted in a range of 48 (see Table 4-15). The mean score was 54.90 ($SD = 7.42$), which would be considered high given the criteria established in this study. The means of the individual items ranged from 3.00 to 4.54 (see Table 4-16) and the medians ranged from 3 to 5. The means of the three negatively worded items ranged from 2.43 to 2.90, and the respective medians were 2 to 3. These items were reverse coded in calculating an individual summated intentions score.

Table 4-15 Participants' Teaching Expectations Summated Scores

Summated Score	f	%
20 – 29	4	1.9
30 – 39	1	0.5
40 – 49	29	13.6
50 – 59	120	56.3
60 +	59	27.7

Likelihood of Career Barriers

The likelihood of career barriers score was calculated by summing the values of the 16 items included on the construct. The possible range of summated scores was 16 to 80. Analysis of the data found participant scores between 16 and 66 (see Table 4-17), resulting in a range of 50. The mean score of the 207 respondents was 30.80 ($SD = 9.98$). The mean score represents a low likelihood of career barriers, since scores of 33 or less were considered to be low. Means for the individual scale items were found to be between 1.38 and 2.76 (see Table 4-18). The median scores for these items ranged from 1 to 3.

Table 4-16 Summary of Participants' Responses on Individual Items of the Teaching Expectations Scale

Item		<i>M</i>	<i>Mdn</i>	<i>SD</i>
...I would help students develop an appreciation of agriculture.	4.54	5	.73	
...I could be successful.	4.52	5	.72	
...I would enjoy working with students and seeing their accomplishments.	4.51	5	.74	
...teaching would allow me to use my knowledge and abilities.	4.45	5	.78	
...I would have a bright future.	4.42	5	.79	
...I would be happy working in the profession.	4.23	4	.97	
...the community would support my agriculture program and students.	4.09	4	.83	
...I would like the working hours and vacation time the job provides.	3.92	4	1.03	
...I would appreciate the job security provided by teaching agriculture.	3.72	4	.97	
...I would be provided with adequate funding and administrative support.	3.53	3	.89	
...I would receive a more than adequate salary and benefits.	3.00	3	1.07	
...I would not have enough time for hobbies and recreation activities.	2.90 ^a	3	1.07	
...administrators and other teachers would view my program as less important than other school programs.	2.66 ^a	3	1.15	
...my job would create problems in my relationship and marriage.	2.43 ^a	2	1.06	

Note. "As an agriculture teacher..." precedes each statement. Rating Scale: 1 = Strongly Disagree to 5 = Strongly Agree. ^a Actual mean score reported, coding was reversed when computing summated scores.

Table 4-17 Participants' Likelihood of Experiencing Career Barriers Summated Scores

Summated Score	<i>f</i>	%
16 - 23	56	27.0
24 – 31	64	30.9
32 – 39	50	24.2
40 - 47	21	10.1
48 – 55	13	6.4
56 +	3	1.5

Table 4-18 Summary of Participants' Responses on Individual Items of the Likelihood of Experiencing Career Barriers Scale

Item	<i>M</i>	<i>Mdn</i>	<i>SD</i>
No job opportunities in the area I want to live	2.76	3	1.32
Family responsibilities	2.59	2	1.31
Being married or in a long term relationship	2.50	2	1.48
Not willing to move away	2.48	2	1.39
Not being prepared enough	2.14	2	1.03
Not enough confidence in my teaching ability	1.97	2	.98
Pressure from spouse or boyfriend / girlfriend	1.92	2	1.06
Gender discrimination	1.91	1	1.18
Not ready to leave school yet	1.71	1	1.10
Lack of motivation	1.71	1	.92
Others don't think I can do the job	1.65	1	.95
None of my friends are agriculture teachers	1.60	1	1.10
Teachers don't support my career plans	1.58	1	.91
Friends don't support my career plans	1.44	1	.76
Racial / ethnic discrimination	1.42	1	.84
Parents don't support my career plan	1.38	1	.81

Note. Rating Scale: 1 = Not at all Likely to 5 = Definitely Likely.

Difficulty of Overcoming Career Barriers

The difficulty of overcoming career barriers score was calculated by summing the values of the 16 items. The difficulty score also had a possible range of scores of 16 to 80. Participants' scores were found to be between 16 and 58 (see Table 4-19), which resulted in a range of 42. The mean of the respondents' ($n = 208$) summated scores was 32.23 ($SD = 10.49$). This mean score indicated a low difficulty of overcoming career barriers using the aforementioned criteria for the career barrier scale. The means of the individual scale items ranged from 1.44 to 2.64 (see Table 4-20). The median scores for these items ranged from 1 to 3.

Table 4-19 Participants' Difficulty of Overcoming Career Barriers Summated Scores

Summated Score	<i>f</i>	%
16 – 23	46	22.1
24 – 31	63	30.3
32 – 39	45	21.6
40 – 47	31	14.9
48 – 55	21	10.1
56 +	2	1.0

Table 4-20 Summary of Participants' Responses on Individual Items of the Difficulty of Overcoming Career Barriers Scale

Item	<i>M</i>	<i>Mdn</i>	<i>SD</i>
No job opportunities in the area I want to live	2.64	3	1.15
Family responsibilities	2.51	3	1.11
Being married or in a long term relationship	2.35	2	1.23
Not willing to move away	2.48	3	1.28
Pressure from spouse or boyfriend / girlfriend	2.19	2	1.13
Not being prepared enough	2.14	2	.90
Gender discrimination	2.02	2	1.07
Lack of motivation	1.99	2	1.03
Not enough confidence in my teaching ability	1.86	2	.85
Others don't think I can do the job	1.85	2	.98
Teachers don't support my career plans	1.83	2	.98
Parents don't support my career plan	1.82	1	1.10
Racial / ethnic discrimination	1.77	1	1.02
Not ready to leave school yet	1.72	1	.95
Friends don't support my career plans	1.61	1	.86
None of my friends are agriculture teachers	1.44	1	.76

Note. Rating Scale: 1 = Not at all Difficult to 5 = Could Not Overcome.

Teacher Support Score

The teacher support score was calculated by computing the mean value of the participants' responses to the teacher support scale. Due to the "Not Applicable" response item included in this scale, summated scores were not reflective of the true

nature of support experienced by the participants. For instance, an individual who indicated discouragement on all instrument items would have the same support score as an individual who indicated encouragement on eight items with the remaining eight being non-applicable. To achieve a score that reflected an individual's perceived level of support, means were calculated using only the items that the individual indicated were relevant in his or her case. The results of the analysis found the participants' mean support scores to be from 2.60 to 5.00 (see Table 4-21), and the range was 2.40. The possible mean scores were between 1.00 and 5.00. The grand mean support score for the 214 respondents was 4.26 ($SD = .54$). The means of the individual scale items ranged from 3.54 to 4.54 (see Table 4-22). The median scores for these items were 4 and 5.

Table 4-21 Participants' Mean Teacher Support Scores

Mean Score	<i>f</i>	%
2.6 – 3.0	5	2.3
3.1 – 3.5	21	9.8
3.6 – 4.0	47	22.0
4.1 – 4.5	67	31.3
4.5 – 5.0	74	34.6

Table 4-22 Summary of Participants' Responses on Individual Items of the Teacher Support Scale

Item	<i>n</i>	<i>M</i>	<i>Mdn</i>	<i>SD</i>
Your university teacher educator(s)	202	4.54	5	.70
Your cooperating / mentor teacher(s)	203	4.49	5	.78
Mother	201	4.44	5	.83
Your high school agriculture teacher(s)	169	4.42	5	.87
University advisor / guidance counselor(s)	191	4.38	5	.83
Other high school agriculture teacher(s)	178	4.37	5	.86
Father	193	4.36	5	.84
Sister(s)	132	4.23	4	.88
Other relative(s)	191	4.22	4	.86
Best friend(s)	198	4.20	4	.85
Other university faculty	200	4.13	4	.84
Other friend(s)	197	4.08	4	.85
Brother(s)	144	4.05	4	.96
High school guidance counselor(s)	143	3.54	4	1.24

Note. Rating Scale: 1 = Strongly Discouraging to 5 = Strongly Encouraging. Not-applicable responses were coded as missing data when computing mean scores.

Relationships Between Variables

In an effort to further describe the variables in this study, analyses were conducted to identify correlations that may exist between variables. Additional analyses were conducted to test for the existence of multicollinearity between the independent variables. The magnitudes of the correlations have been discussed using the guidelines proposed by Miller (1994). Correlation coefficients between .01 and .09 are considered negligible, correlations between .10 and .29 are low relationships, correlations between .30 and .49 are moderate relationships, correlations between .50 and .69 are substantial relationships, correlations between .70 and .99 are very high, and a perfect correlation is 1.0. Pearson Product Moment correlations were used for continuous data and point biserial correlations were used for dichotomous variables.

As reflected in Table 4-23, a high correlation was found between the number of years participants were enrolled in agricultural education and the years involved in FFA ($r = .71$). Substantial associations were discovered between teaching intentions score and teaching expectations score ($r = .65$), likelihood of career barriers score and difficulty of overcoming career barriers score ($r = .62$), full-time non-agricultural occupational experience and age ($r = .61$), full-time agricultural occupational experience and age ($r = .58$), teaching expectations score and support mean score ($r = .53$), and teaching intentions score and participants intended length of tenure ($r = .50$).

Moderate correlations were found to exist between teaching expectations score and intended length of tenure ($r = .43$), teaching expectations score and teacher efficacy score ($r = .43$), teaching intentions score and teacher efficacy score ($r = .42$), full-time agricultural occupational experience and full-time non-agricultural occupational experience ($r = .36$), age and years in FFA ($r = -.34$), teaching support mean score and likelihood of career barriers ($r = -.33$), teacher expectations score and likelihood of barriers score ($r = -.33$), age and years in 4-H ($r = -.32$), and teacher efficacy score with support mean score ($r = .31$). As seen in Table 4-23, numerous low correlations were also found between variables.

Table 4-23 Correlations Between Variables

Variable	1	2	3	4	5	6	7	8	9	10
1. Teaching Intentions Score	--									
2. Intended Length of Tenure	.499*	--								
3. Teacher Efficacy Score	.421*	.230*	--							
4. Teacher Expectations Score	.651*	.432*	.432*	--						
5. Likelihood of Barriers	-.264*	-.169*	-.165*	-.327*	--					
6. Difficulty of Barriers	-.108	-.056	-.159*	-.209*	.624*	--				
7. Mean Support Score	.343	.232*	.314*	.525*	-.332*	-.272*	--			
8. Age	.119	.011	.043	.061	-.158*	-.197*	.081	--		
9. Ag. Experience – FT	.131	.069	.028	.136	-.149*	-.137	.129	.583*	--	
10. Ag. Experience – PT	.068	.060	-.052	.069	-.041	-.044	-.003	.039	.050	--
11. Non-Ag. Experience – FT	.131	.034	.025	.099	-.034	-.035	-.159*	.612*	.363*	.050
12. Non-Ag. Experience - PT	-.028	-.029	.027	-.080	.034	.020	.049	-.157*	-.264*	.157*
13. Years in 4-H	-.048	-.001	-.104	-.046	.039	-.020	.004	-.189*	-.080	.130
14. Years in FFA	.099	.165*	-.052	.118	-.038	-.014	.286*	-.323*	-.138*	.161*
15. Years in Ag. Education	.111	.163*	-.041	.100	-.027	-.034	.288*	-.338*	-.077	.135
16. Cumulative GPA	.075	-.105	-.089	.021	.066	.040	-.051	.000	.009	-.004

Note. * $p < .05$. FT = full-time occupational experience, PT = part-time occupational experience

Table 4-23 Continued

Variable	11	12	13	14	15	16
1. Teaching Intentions Score						
2. Intended Length of Tenure						
3. Teacher Efficacy Score						
4. Teacher Expectations Score						
5. Likelihood of Barriers						
6. Difficulty of Barriers						
7. Mean Support Score						
8. Age						
9. Ag. Experience – FT						
10. Ag. Experience – PT						
11. Non-Ag. Experience – FT	--					
12. Non-Ag. Experience - PT	-.081	--				
13. Years in 4-H	-.172*	.087	--			
14. Years in FFA	-.197*	-.021	.282*	--		
15. Years in Ag. Education	-.186*	-.078	.136*	.711*	--	
16. Cumulative GPA	-.047	.104	.023	.042	.013	--

Note. * $p < .05$. FT = full-time occupational experience, PT = part-time occupational experience

Dichotomous variables were also examined for relationships with other variables.

For data analysis purposes, each dichotomous category was coded numerically. For gender, males were coded higher than females. As such, a positive correlation indicated the variable increased if the participant was male. For the plan to teach variable, a “yes” response was coded higher than a “no” response. As such, a positive correlation indicated that the variable increased if the participant planned to teach agriculture.

As seen in Table 4-24, a substantial correlation was discovered between plan to teach and teaching intentions score ($r = .67$). Moderate associations were found between plan to teach and two variables: teaching expectations score ($r = .49$) and intended length of tenure ($r = .42$). Planning to teach was also found to have a low correlation with

teacher efficacy score ($r = .26$), support mean score ($r = .21$), likelihood of career barriers ($r = -.16$), and full-time agricultural experience ($r = .14$).

Gender was found to have low associations with four other variables. Low correlations were discovered with intended length of tenure ($r = .25$), full-time agricultural experience ($r = .22$), part-time non-agricultural experience ($r = -.22$), and age ($r = .15$).

Table 4-24 Point Biserial Correlations Between Variables

Variable	Gender (F/M) ^a	Plan to Teach (Y/N) ^b
1. Teaching Intentions Score	.080	.666*
2. Intended Length of Tenure	.253*	.419*
3. Teacher Efficacy Score	.051	.258*
4. Teacher Expectations Score	.111	.492*
5. Likelihood of Barriers	-.136	-.159*
6. Difficulty of Barriers	-.057	-.007
7. Mean Support Score	.097	.207*
8. Age	.150*	.083
9. Ag. Experience – FT	.220*	.139*
10. Ag. Experience – PT	.095	.020
11. Non-Ag. Experience – FT	.042	.102
12. Non-Ag. Experience - PT	-.215*	-.123
13. Years in 4-H	-.103	-.092
14. Years in FFA	.074	.038
15. Years in Ag. Education	.081	.059
16. Cumulative GPA	-.105	.017

Note. * $p < .05$. ^aMales coded higher; ^bPlan to Teach = Yes coded higher

Prior to conducting regression analyses called for by objectives two and three of this study, variables were examined for potential problems associated with multicollinearity. According to Agresti and Finlay (1997), multicollinearity can be detected by regressing each independent variable on the other predictors. Multicollinearity becomes problematic when the resulting coefficient of determination

(R^2) is close to 1.0. The five independent variable scores were entered into multiple regression models, with each variable being treated once as the dependent variable. The resulting regression analyses found adjusted R^2 coefficients between .185 and .421 (see Table 4-25). Based on these low coefficients and the recommendations of Agresti and Finlay (1997), the researcher concluded that multicollinearity did not pose a significant risk to the validity of the regression analyses conducted in the forthcoming objectives.

Table 4-25 Multicollinearity Analysis of Coefficient of Determination

Variable ^a	R^2	Adj. R^2
Teaching Efficacy Score	.201	.185
Teaching Expectation Score	.386	.373
Likelihood of Barriers Score	.433	.421
Difficulty of Barriers Score	.390	.377
Support Mean Score	.335	.322

Note. ^aEach variable was treated as the dependent variable regressed on the other variables. R^2 coefficients close to 1 indicate multicollinearity.

Objective Two

Describe the variance in preservice agriculture teachers' intentions to teach attributed to person inputs (demographics), contextual influences, self-efficacy, and outcome expectations.

Stepwise regression was used to select the best model for predicting teaching intentions score using person inputs, such as gender and ethnicity; background influences, such as cumulative grade point average, agricultural occupational experience, non-agricultural occupational experience, years involved in 4-H, years involved in FFA, and years in agricultural education; teacher efficacy score; teaching expectations score; likelihood of career barriers score; difficulty of overcoming career barriers score; and mean support score. For purposes of analysis, categorical variables were dummy coded. In regards to gender, males were coded one and females coded zero.

Two variables, teaching expectations score and teacher efficacy score, yielded the best model in predicting teaching intentions. The regression analysis revealed that a linear combination of teaching expectations scores and teacher efficacy scores significantly predicted teaching intention scores, $F(2, 192) = 77.336, p <.001$. The R^2 coefficient for the model was .45, and the adjusted R^2 was .44. Table 4-26 shows the individual regression coefficients for this model. Teaching expectations scores ($t = 9.655, p <.001$) and teacher efficacy scores ($t = 2.906, p = .004$) contributed significantly ($\alpha = .05$) to predicting teaching intentions scores. These two variables accounted for 44% of the variance in teaching intentions scores.

Table 4-26 Stepwise Multiple Regression Analysis of Teaching Intentions Scores

Variable	B	SE	β	t	p
Constant	5.505	5.389		1.022	.308
Teaching Expectations Score	.818	.085	.575	9.655	<.001
Teacher Efficacy Score	.174	.060	.173	2.906	.004

Objective Three

Describe the variance in preservice agriculture teachers' intended length of teaching tenure attributed to person inputs (demographics), contextual influences, self-efficacy, and outcome expectations.

Stepwise regression was used to select the best model for predicting preservice agriculture teachers' intended length of teaching tenure using person inputs, such as gender and ethnicity; background influences, such as cumulative grade point average, agricultural occupational experience, non-agricultural occupational experience, years involved in 4-H, years involved in FFA, and years in agricultural education; teacher efficacy score; teaching expectations score; likelihood of career barriers score; difficulty of overcoming career barriers score; and mean support score. For purposes of analysis,

categorical variables were dummy coded. In regards to gender, males were coded one and females coded zero.

Teaching expectations score, gender, and the number of years enrolled in agricultural education yielded the best model in predicting intended length of teaching tenure. The regression analysis revealed that a linear combination of teaching expectations scores, gender, and years of agricultural education enrollment significantly predicted preservice teachers' intended length of teaching tenure, $F(3, 173) = 18.852, p <.001$. The R^2 coefficient for the model was .25, and the adjusted R^2 was .24. In Table 4-27, individual regression coefficients are reported. Teaching expectations scores ($t = 5.813, p <.001$), gender ($t = 3.022, p = .003$), and years of enrollment in agricultural education ($t = 2.159, p = .032$) contributed significantly ($\alpha = .05$) to predicting intended teaching tenure. These three variables accounted for 24% of the variance in intended length of teaching tenure.

Table 4-27 Stepwise Multiple Regression Analysis of Intended Teaching Tenure

Variable	B	SE	β	t	p
Constant	-12.753	5.872		-2.172	.031
Teaching Expectations Score	.594	.102	.390	5.813	<.001
Gender ^a	4.482	1.483	.201	3.022	.003
Years of Agricultural Education	.968	.448	.143	2.159	.032

Note. Dummy coding used for analysis. Females coded zero; Males coded one.

Summary

The findings of this study were presented in this chapter. These findings were organized around the guiding objectives of the study. The objectives were: (1) describe the person inputs (demographics), contextual influences, self-efficacy, and outcome expectations of preservice agriculture teachers in selected collegiate agriculture teacher

preparation programs; (2) describe the variance in preservice agriculture teachers' intentions to teach attributed to person inputs (demographics), contextual influences, self-efficacy, and outcome expectations; and (3) describe the variance in preservice agriculture teachers' intended length of teaching tenure attributed to person inputs (demographics), contextual influences, self-efficacy, and outcome expectations. The findings presented in this chapter will be discussed in further detail in the forthcoming chapter. In addition, conclusions, recommendations, and implications will be presented based on these findings.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of the study was to describe the influence and predictive nature of person inputs, contextual influences, self-efficacy, and outcome expectations on preservice agriculture teachers' intentions to pursue a teaching position, and on their intended teaching tenure. The dependent variables for this study were preservice agriculture teachers' intentions to pursue a teaching position, and the number of years they expected to remain in the profession. The independent variables consisted of person inputs, contextual influences, perceived self-efficacy, and outcome expectations.

Objectives

The following three objectives guided this study: (1) describe the person inputs (demographics), contextual influences, self-efficacy, and outcome expectations of preservice agriculture teachers in selected collegiate agriculture teacher preparation programs; (2) describe the variance in preservice agriculture teachers' intentions to teach attributed to person inputs (demographics), contextual influences, self-efficacy, and outcome expectations; and (3) describe the variance in preservice agriculture teachers' intended length of teaching tenure attributed to person inputs (demographics), contextual influences, self-efficacy, and outcome expectations.

Research Hypotheses

Based on the reviewed literature and research, the following research hypotheses were developed: (1) preservice agriculture teachers who have greater intentions to teach agriculture report perceptions of higher self-efficacy, more positive outcome

expectations, more positive support systems, fewer perceived career barriers, stronger agricultural backgrounds, and higher academic achievement; and (2) preservice agriculture teachers who perceive longer agriculture teaching tenures report perceptions of higher self-efficacy, more positive outcome expectations, more positive support systems, fewer perceived career barriers, stronger agricultural backgrounds, and higher academic achievement.

Methods

This study was conducted using a causal-comparative design. This method is commonly referred to as ex post facto research because the relationships or possible causes of a given phenomenon are studied after they have exerted their effect on another variable (Gall et al., 1996). In the case of this study, the independent variables have already affected the decision-making process of the preservice teachers. Therefore, experimental manipulation and control would be impossible.

The population of this study was all preservice agriculture teachers completing their teaching internship experience in agriculture teacher preparation programs throughout the nation during the 2004-2005 academic year. A purposive sample of 262 student teachers was selected from 42 institutions. This sample constituted all preservice agriculture teachers completing their internship experience during the Fall 2004 academic term.

Data collection procedures began by contacting each institution listed in the American Association of Agricultural Educators (AAAE) directory. The department leader or teacher education coordinator was asked to respond to a request to participate in the study by administering a questionnaire to their fall teaching interns. A total of 42 institutions agreed to administer the questionnaire to their 262 preservice agriculture teachers. After regular email and telephone contacts and follow-up, usable responses

were received from 215 preservice agriculture teachers from 34 institutions representing 25 states. A response rate of 82.1% ($n = 215$) was achieved, with 81% of the institutions contributing responses.

To accurately assess the independent and dependent variables in this study, numerous measurements were needed. With the exception of the Teachers' Sense of Efficacy Scales, these construct scales were developed or modified by the researcher.

Prior to collecting the primary data for this study, a pilot test was conducted. The pilot test was necessary to establish the validity and reliability of the measurement instrument used in the study. A convenience sample of 36 preservice agriculture teachers from institutions in California, Florida, and Missouri was used. The analysis of the pilot data yielded the following Cronbach's alpha coefficient estimates: Teacher Intentions Scales .86 ($n = 34$), Teachers' Sense of Efficacy Scale .86 ($n = 35$), Teacher Expectations Scale .68 ($n = 35$), Likelihood of Career Barriers Scale .75 ($n = 35$), Difficulty of Overcoming Career Barriers .86 ($n = 35$), and Teaching Support Scale .74 ($n = 7$).

After the primary study data were collected, post-hoc reliability estimates were calculated for the construct scales that composed the instrument. Results of the analysis showed that all reliability coefficients increased from the pilot data estimates. The post hoc reliability analysis of the data yielded the following Cronbach's alpha coefficient estimates: Teaching Intentions and Aspirations Scale .88 ($n = 215$), Teachers' Sense of Efficacy Scale .92 ($n = 215$), Teaching Expectations Scale .84 ($n = 213$), Likelihood of Career Barriers Scale .86 ($n = 207$), Difficulty of Overcoming Career Barriers Scale .90 ($n = 207$), and Teaching Support Scale .91 ($n = 53$).

Data Analysis

Data analysis was conducted using SPSS® version 12.0 for Windows™. The first objective of the study was accomplished using descriptive statistics, specifically means and frequencies. To facilitate analysis, summated scales of Likert-type items were treated as interval data as outlined by Clason and Dormody (1994).

In order to accomplish objectives two and three, multiple regression models were utilized. The coefficient of multiple determination (R^2) was used to explain the variance in the dependent variables based on the independent variables. In both cases, a stepwise elimination process was used for building the model.

In order to determine that no multicollinearity effects existed in the models, each independent variable was regressed on the other independent variables. Results of individual multiple regression analyses found R^2 for each independent variable to range from .201 to .433. Based on the recommendations of Agresti and Finlay (1997), the researcher concluded that multicollinearity posed no significant risk to the validity of the regression analyses conducted on the dependent variables.

Summary of Findings

The findings of this study are summarized in relation to the three objectives presented in Chapter 1.

Objective One

Objective one sought to describe the person inputs (demographics), contextual influences, self-efficacy, and outcome expectations of the preservice teachers in the sample. The sample consisted of 262 preservice agriculture teachers completing their student teaching experience during the fall 2004 semester/quarter at 42 institutions. Approximately half (52.1%) of the participants in this study were female ($n = 112$). The

average age of participants was 24.06 years ($SD = 4.85$, $n = 215$). Participants ranged in age from 21 to 57 years. The participants were predominately Caucasian ($n = 198$) with 93.4% indicating such, 2.4% were Hispanic/Latino ($n = 5$), 1.9% were Native American/Alaskan ($n = 4$), 1.4% were African American ($n = 3$) and 0.9% were Asian ($n = 2$).

Over 98% of the 212 respondents reported a cumulative grade point average above 2.5 ($n = 211$), with 34.4% reporting 2.6 to 3.0 ($n = 74$), 39.1% with 3.1 to 3.5 ($n = 84$), and 24.7% with a grade point average greater than 3.5 ($n = 53$). Results were similar for participants' major grade point average ($n = 214$) with over 99% reporting grade point averages above 2.5. Major grade point averages between 2.6 to 3.0 were reported by 15.4% of respondents ($n = 33$), 38.1% reported 3.1 to 3.5 ($n = 82$), and 45.8% with 3.6 to 4.0 grade point averages ($n = 98$).

When asked about their 4-H involvement, participants' responses ranged from 0 to 8 years with an average of 5.19 years ($SD = 4.82$). Of the 213 respondents, 38.0% ($n = 69$) felt they were "Very Involved" in 4-H, 29.6% ($n = 63$) reported being "Moderately Involved", and the remaining 32.4% indicated they were "Not at all Involved".

Participants reported that the number of years they were involved in the National FFA Organization ranged from 0 to 10 years with a mean of 4.04 years ($SD = 2.40$). Over 67% of the 214 respondents reported being "Very Involved" in FFA, while 15.9% ($n = 34$) believed they were "Moderately Involved", and 16.8% ($n = 36$) were "Not Involved at All". Participants indicated the total number of years in which they were enrolled in middle and high school agriculture classes ranged from 0 to 7 years with a mean of 3.29 years ($SD = 1.73$).

When asked to indicate the location of their childhood and adolescent home, 86% of respondents reported living in a rural setting, with 56.5% ($n = 121$) of participants living on a rural farm and 29.9% ($n = 64$) living in a rural non-farm setting. Of the remaining participants, 10.7% ($n = 23$) reported their residence to be in a suburban area and 2.9% ($n = 6$) grew up in an urban setting.

Participants ($n = 208$) averaged 3.42 years ($SD = 5.52$) of full-time agricultural occupational experience with a range of 0 to 32 years. Respondents ($n = 208$) indicated 0 to 24 years of part-time agricultural experience and a mean of 3.78 years ($SD = 4.35$). When asked about non-agricultural occupational experience, participants ($n = 208$) reported 0 to 25 years of full-time experience with a mean of 1.53 years ($SD = 3.29$) and 0 to 12 years of part-time experience with a mean of 2.0 years ($SD = 2.49$).

When the 215 participants' summated teaching intentions scores were analyzed, the mean was found to be 65.71 ($SD = 10.59$). Teaching intentions scores ranged from 36 to 85. The possible range of scores on the 18-item teaching intentions scale was 18 to 90. Of the 211 respondents, over 80% ($n = 169$) indicated they plan to teach agriculture. Those participants who planned to teach had a mean teaching intentions score of 69.31 ($SD = 7.89$) and scores ranged from 49 to 85, while those not planning to teach had a mean teaching intentions score of 51.62 ($SD = 8.15$) and scores ranged from 36 to 66. When participants were asked what other plans they might pursue in lieu of teaching agriculture, respondents most frequently mentioned teaching positions in other subjects or at different levels of education, such as elementary or higher education.

Participants were asked to report their intended length of agriculture teaching tenure if they were to choose to enter the teaching profession. For the 190 respondents, the mean was 20.87 years ($SD = 11.07, n = 190$) and the reported years ranged from 0 to 40.

On the Teachers' Sense of Efficacy scale, participants had a mean summated score of 88.91 ($SD = 10.44$). The participants' scores ranged from 51 to 108. On this 12-item scale, possible scores were 12 to 108.

Participants' teaching expectations scores ranged from 20 to 68 with a mean score of 54.90 ($SD = 7.42, n = 215$). The possible scores on the 14-item scale ranged from 14 to 70.

The participants' perceptions of career barriers were measured by the likelihood of career barriers and the difficulty of overcoming career barriers scales. The possible range of scores on both 16-item scales was 16 to 80. Participants' mean score on the likelihood of barriers scale was 30.80 ($SD = 9.98, n = 207$) and scores ranged from 16 to 66. On the difficulty of overcoming career barriers scale, the participants' mean score was 32.23 ($SD = 10.49, n = 208$) and the scores ranged from 16 to 58.

On the teaching support scale, mean scores were used for the analysis due to missing data created by participants indicating that a person was "Not Applicable" in their case. Analysis of 214 participant responses yielded an overall mean teaching support score of 4.26 ($SD = .54$). Participants' individual means ranged from 3.54 to 4.54. The possible mean scores were between 1.00 and 5.00.

Numerous relationships were found between the variables in this study. A high correlation was found between years enrolled in agricultural education and years involved in FFA ($r = .71$). Substantial correlations were found between teaching

intentions and teaching expectations ($r = .65$), likelihood of career barriers and difficulty of overcoming career barriers ($r = .62$), full-time non-agriculture experience and age ($r = .61$), full-time agricultural experience and age ($r = .58$), teaching expectations and teaching support ($r = .53$), and teaching intentions and intended length of tenure ($r = .50$). Moderate correlations were found between teaching expectations and intended length of tenure ($r = .43$), teaching expectations and teacher efficacy ($r = .43$), teaching intentions and teacher efficacy ($r = .42$), full-time agricultural experience and full-time non-agricultural experience ($r = .36$), age and years in FFA ($r = -.34$), teaching support and likelihood of career barriers ($r = -.33$), teacher expectations and likelihood of barriers ($r = -.33$), age and years in 4-H ($r = -.32$), and teacher efficacy score and teaching support ($r = .31$). Numerous low associations were found to exist between the variables in the study.

Dichotomous variables were also examined for relationship with other variables. For analysis purposes, males were coded higher than females and “yes” was coded higher than “no” for the item that asked participants whether they planned to teach agriculture. Substantial correlations were found between plan to teach and teaching intentions score ($r = .67$). Moderate associations were found between plan to teach and teaching expectations ($r = .49$) and also with intended length of tenure ($r = .42$). Participant responses to plan to teach were found to have low correlations with teacher efficacy ($r = .26$), teaching support mean ($r = .21$), likelihood of career barriers ($r = -.16$), and full-time agricultural occupational experience ($r = .14$). Gender was found to have low relationships with intended length of tenure ($r = .25$), full-time agricultural occupational experience ($r = .22$), part-time non-agricultural experience ($r = -.22$), and age ($r = .15$).

Objective Two

Objective two sought to describe the variance in preservice agriculture teachers' intentions to teach attributed to person inputs (demographics), contextual influences, self-efficacy, and outcome expectations. Stepwise regression analysis indicated that teaching expectations scores ($t = 9.655, p < .001$) and teacher efficacy scores ($t = 2.906, p = .004$) contributed significantly ($\alpha = .05$) to predicting teaching intentions scores. The two variables accounted for 44% of the variance in teaching intentions scores.

Objective Three

Objective three sought to describe the variance in preservice teachers' intended length of teaching tenure attributed to person inputs (demographics), contextual influences, self-efficacy, and outcome expectations. Stepwise regression analysis indicated that teaching expectations scores ($t = 5.813, p < .001$), gender ($t = 3.022, p = .003$), and years enrolled in agricultural education ($t = 2.159, p = .032$) contributed significantly ($\alpha = .05$) to predicting intended length of teaching tenure. The three variables accounted for 24% of the variance in intended length of teaching tenure.

Conclusions

The sample used in this study was purposively selected and not randomly drawn from the population. With this limitation in mind, the following conclusions were derived from the findings of the three research objectives.

Objective One

1. Approximately half of all agriculture teacher preparation programs provide students the opportunity to complete their final field experience during the fall academic term.

2. Based on demographic and background findings, the typical preservice agriculture teacher in this study is considering agricultural education as a first career, is Caucasian, has at least a 2.6 grade point average, was involved in 4-H and FFA, was enrolled in secondary agricultural education for at least four years, as a child resided in a rural area, possesses some type of agricultural occupational experience, and also has some non-agricultural occupational experience.
3. No relationship exists between preservice agriculture teachers' cumulative grade point average and their decision to pursue teaching positions in agriculture.
4. There is no association between preservice agriculture teachers' involvement in 4-H programs or the National FFA Organization and their intentions to teach agriculture.
5. Nearly all the preservice agriculture teachers had moderate to high intentions to teach agriculture, such that over 80% of the preservice agriculture teachers planned to teach agriculture.
6. On average, the preservice agriculture teachers intended to make teaching agriculture a life long career, however, male preservice teachers had a slight tendency to perceive longer tenures than did women.
7. In regards to their teaching ability, the preservice agriculture teachers were highly efficacious.
8. Overall, the preservice agriculture teachers were highly positive about the potential outcomes of teaching agriculture, however, their opinions were mixed regarding the adequacy of teacher salaries and the amount of recreational time available.
9. Most preservice agriculture teachers perceived the likelihood of career barriers and the difficulty of overcoming those barriers to be low and their level of career support to be high. Of those respondents who indicated that career barriers were likely, location of a job and family responsibilities had the most potential to impact their decision to teach agriculture and were the most difficult barriers to overcome.

Objective Two

1. The findings of this study provided support for the Social Cognitive Career Theory (Lent et al., 1994). As Lent et al. (1994) purported, relationships existed between outcome expectations and intentions, efficacy and intentions, efficacy and expectations, and a negative relationship existed between career supports and barriers.
2. Preservice agriculture teachers' perceptions of teacher efficacy and teaching expectations were significant predictors of their intentions to teach agriculture. These two variables accounted for 44% of the variance in preservice teachers' intentions to teach agriculture.

Objective Three

1. Preservice agriculture teachers' gender, years enrolled in agricultural education, and their perceptions of teaching expectations were significant predictors of their intended length of agriculture teaching tenure. These three variables accounted for 24% of the variance in preservice agriculture teachers' intended length of teaching tenure.

Research Hypotheses

1. The findings of this study provide partial support for the first research hypothesis presented. Preservice agriculture teachers who have greater intentions to teach did report perceptions of higher self-efficacy, more positive outcome expectations, more positive support systems, and fewer perceived career barriers. No support was found for the hypothesized relationships between intentions to teach and academic performance, or between intentions to teach and agricultural background.
2. The findings of this study provide partial support for the second research hypothesis presented. Preservice agriculture teachers who perceived longer teaching tenure reported higher teacher efficacy, more positive outcome expectations, more positive support systems, fewer perceived career barriers, and stronger agricultural backgrounds. No support was found for the hypothesized relationship between intentions to teach and academic performance.

Discussion and Implications

Objective One

Conclusion – Approximately half of agriculture teacher preparation programs provide students the opportunity to complete their final field experience during the fall academic term.

Based on the number of institutions participating in this study and responses of teacher educators to email and telephone contacts, the researcher concluded that approximately half of all agriculture education teacher preparation programs allow preservice teachers to complete their final field experience during the fall. Of the 89 institutions contacted for this study 47% ($n = 42$) indicated having fall teaching interns. While soliciting the participation of institutions, the researcher found that an additional 10 institutions offer students the opportunity to complete their final field experience

during the fall, however during the fall term when data were collected these institutions had no such students.

With approximately half of the teacher preparation institutions offering final field experience during the fall term only about one third of preservice agriculture teachers complete during this term. This proportion was based on the findings of the last six national supply and demand studies spanning 1989 to 2001 (Camp, 2000; Camp et al., 2002), in which the researcher found that the annual average of newly qualified teachers was 705 over this period of time.

Given this information it can be concluded that although institutions provide students the opportunity and flexibility to complete their preparation program mid year, most preservice teachers continue to follow a program of study that concludes during the spring term. This is likely due to the convenience of following a sequence of required coursework, but moreover spring completion also corresponds with the hiring schedules of most middle and secondary schools. Those who complete their program of study during the fall term may face the challenge of finding a temporary position until teaching positions open for the forthcoming school year. Some may chose to use this time to take additional coursework or possibly begin graduate studies.

Conclusion – Based on demographic and background findings, the typical preservice agriculture teacher in this study is considering agricultural education as a first career, is Caucasian, had at least a 2.6 grade point average, was involved in 4-H and FFA, was enrolled in secondary agricultural education for at least four years, as a child resided in a rural area, possesses some type of agricultural occupational experience, and also has some non-agricultural occupational experience.

With over 87% of the preservice teachers in this study being 26 years of age or younger, the researcher concluded that most preservice teachers pursue the agriculture teaching profession as a first career. This study found that less than 10% of the

preservice agriculture teachers were over 30 years of age. This small proportion of older students may indicate that those who wish to enter agricultural education as a second career may do so by means other than traditional teacher preparation programs.

According to the National Center for Educational Information (2005), approximately 35,000 individuals enter teaching through alternative paths each year and of those teachers, 70% are older than 30 years of age. Similarly, Rocca and Washburn (2005) found that agriculture teachers who entered the profession through alternative certification paths were older and possessed more occupational experience than their counterparts who received certification through traditional programs. This all leads the researcher to conclude that the limitations of traditional teacher preparation programs are such that working professionals looking for a second career teaching agriculture may not view these programs as viable options.

Over 93% of the preservice agriculture teachers were Caucasian. The agricultural education field continues to be predominately Caucasian. In 1998 and 2001, the proportions of Caucasian preservice agriculture teachers were 93.6 and 91.1% respectively (Camp 2000; Camp et al., 2002). Furthermore, the proportions of African American, Hispanic, Native American, and Asian preservice teachers were found to have only fluctuated one to two percentage points. This information demonstrates the lack of ethnic diversity in the nation's agriculture teacher preparation programs. According to the National FFA Organization (2005), 77% of FFA members are Caucasian. With 23% of agricultural education students representing a minority culture, concerns arise whether preparation programs are providing preservice agriculture teachers who can relate with a more diverse population of students.

Along with the issue of ethnicity, this study has brought to light the high proportion of preservice teachers with rural backgrounds. The finding of over 86% of preservice agriculture teachers coming from rural farm and non-farm settings creates additional questions of how representative potential teachers will be of the student population they will face in the future. The National FFA Organization (2005) reported that 34% of FFA members attend school in urban and suburban areas. Can these predominately Caucasian teachers from rural backgrounds relate to urban minority students?

Suburban and urban FFA members represent over 200,000 agriculture students. One would assume that these students are a fraction of the suburban and urban students who need to develop an awareness of our nation's food, fiber, and natural resources systems. This issue creates another question, that being why so few FFA members who attend urban and suburban agriculture programs decide to pursue a career teaching agriculture? The thought of teaching a subject so closely connected to one's rural upbringing must be appealing to the student from a rural area. Does the prospect of teaching in an unfamiliar rural setting deter urban and suburban students from considering agricultural education? Over 60% of secondary agricultural education students attend school in rural communities (National FFA Organization, 2005). With this in mind, do urban and suburban agriculture students consider a career teaching agriculture as a viable option? These are valid questions that need to be explored.

With the vision of agricultural education calling for an agriculturally literate society, the call must be sounded in agriculture education to recruit, educate, and prepare preservice teachers who are willing and able to promote agriculture in all the different areas and with all populations that make up our society. This will obviously not be easy

to achieve. It will take the cooperation of all those involved with agricultural education. However, the effort to recruit preservice teachers from urban, suburban, and rural areas really begins at the grassroots level. The influence of the secondary agriculture teacher should not be underestimated. Agriculture instructors are highly influential in students' decisions to pursue college and agriculture careers (Kotlik & Harrison, 1987). Hillson et al. (1986) found that agriculture teachers were the fourth most influential people in determining whether a student chooses an undergraduate major in agricultural education. Based on this information, agriculture teachers need to discuss in a positive light the opportunities provided to students with a career teaching agriculture. Agriculture teachers must recognize that they serve as models for their students and demonstrate what it is to be an agriculture teacher. As positive role models agriculture teachers have the potential to make an impact in the profession by assisting with the reduction of the teacher shortage. This requires that educators not only do their part by providing a quality program to prepare their students, but they must also contribute by becoming advocates for agricultural education and the career opportunities it provides.

The distribution of cumulative grade point averages in Table 4-4 shows that a standard exists for academic performance in agriculture teacher preparation programs. Over 98% of the preservice agriculture teachers possessed grade point averages greater than 2.5. This would indicate that agriculture teacher education programs have academic standards in place to maintain a minimum level of academic performance in their program completers.

Over 80% of the preservice agriculture teachers had been involved with the National FFA Organization and more than two thirds were members of 4-H.

Additionally, the majority of preservice agriculture teachers were enrolled in at least four years of secondary agricultural education. Although these three variables did not prove to be predictive of preservice teachers' intentions to teach agriculture, they are still pertinent to the career decision process. These experiences provide preservice agriculture teachers with learning experiences that shape perceptions of self-efficacy and beliefs about the outcomes of a career teaching agriculture. According to Bandura (1997), mastery experiences, vicarious learning, and persuasive feedback, like that provided in agricultural education and in programs such as 4-H and FFA, are the primary source of one's efficacy beliefs. Involvement in 4-H and FFA allows students to learn vicariously through teacher and advisor modeling and more importantly to engage in mastery learning experiences in agriculture. These learning experiences provide students with the opportunity to form perceptions of their own abilities and ultimately, these experiences directly contribute to an individuals' self-efficacy.

The high proportion of preservice agriculture teachers involved in these programs has implications for those interested in recruiting new students. Events such as 4-H and FFA field days, fairs and shows, and conferences provide faculty and outreach staff with access to hundreds or in some cases thousands of potential students. Given limited time and finances for outreach and recruitment, these activities may be the most efficient way to make contact with large numbers of potential students.

In addition to their involvement in 4-H and FFA, these preservice agriculture teachers also obtained work experience. Over 90% of the preservice agriculture teachers were found to possess either full-time or part-time occupational experience related to agriculture. Furthermore, 75% of the preservice teachers had non-agricultural work

experience as well. Based on the involvement in these organizations and their rural upbringing it comes as no surprise that so many of the preservice teachers have worked in an agricultural job. Their involvement in 4-H and FFA may have contributed to their agricultural experience in the form of experiential learning activities. These learning activities can translate into opportunities for employment and entrepreneurship.

According to the SCCT (Lent et al., 1994), such background affordances provide preservice teachers with learning experiences that contribute to efficacy beliefs. Few would argue that content knowledge and an understanding of the agriculture industry is essential in agricultural education. Occupational experience provides students with hands-on opportunities to appreciate all that agriculture has to offer and ultimately this experience assists agricultural teachers in making the classroom curriculum come alive.

Conclusion – No relationship exists between preservice agriculture teachers' cumulative grade point average and their decision to pursue teaching positions in agriculture.

Analysis of the correlation matrices led the researcher to conclude that differences in preservice agriculture teachers' decision to teach were not distinguishable by cumulative grade point average. The point biserial correlation between cumulative grade point average and decision to teach agriculture was found to be .017. Additionally, when cumulative grade point average and teaching intentions scores were analyzed for a relationship, the results were similar. The two variables produced a Pearson's correlation of .075. These findings support Muller and Miller (1993) who suggested that academic ability provided no significant means of differentiating between graduates who enter teaching and those who do not. However, this issue remains inconclusive as contrary findings are found in the literature. These include McCoy and Mortensen (1983) and Baker and Hodges (1991) who found that agricultural education graduates who entered

teaching could be distinguished from those who opted not to teach when compared by grade point average and other related variables.

The lack of an association between cumulative grade point average and teaching intentions may be explained by the limited variance found in the data. With 65% of the respondents indicating a grade point average greater than 3.0 and with all participants expressing moderate to high intentions to teach there may not have been sufficient variance to establish a linear relationship between these variables.

Conclusion – There is no association between preservice agriculture teachers' involvement in 4-H programs or the National FFA Organization and their intentions to teach agriculture.

In both cases, 4-H and FFA involved were found to have negligible relationships with preservice agriculture teachers' intentions to teach. Although no direct relationship was found in this study, preservice agriculture teachers' involvement in these organizations may still be important to the career decision-making process. Based on the findings of Cole (1984), FFA membership may be related to agriculture teacher retention. Cole (1984) reported that 80% of graduates who were still teaching reported being FFA members, compared to only 55% of those who never taught, and 74% of those who taught and quit. As mentioned in the discussion of 4-H and FFA involvement, there could be an indirect link between involvement in these organizations and teaching intentions. This would be consistent with the SCCT model (Lent et al., 1994), 4-H and FFA involvement could impact the decision to teach agriculture through its influence on preservice teachers' learning experiences. These experiences shape efficacy and outcome expectations that ultimately contribute to an individual's career decisions.

As with the previous conclusion, the absence of an association between involvement in 4-H and FFA and intentions to teach may be a result of the limited

variance. With participants' high level of involvement in these organizations and intentions to teach being moderate to high, it creates a narrow data range and low variance. These limitations may have contributed to the findings that no relationships exist between these variables.

Conclusion – Nearly all the preservice agriculture teachers had moderate to high intentions to teach agriculture, such that over 80% of the preservice agriculture teachers planned to teach agriculture.

Analysis of participants' teaching intentions scores demonstrated that nearly all preservice agriculture teachers had moderate to high intentions to teach. Their high intention scores were supported by data showing that 80.1% did plan to teach agriculture. This high proportion comes as no surprise, as preservice agriculture teachers were completing their program of study in agricultural education as well as their final field experience. One would assume that after completing numerous years of coursework and training, an individual must have strong interest in careers related to their area of study. However, as Camp et al. (2002) found in the supply and demand study, some of those individuals who had aspirations to teach pursue other interests. To be specific, of those newly qualified teachers who wanted to teach 72.5 to 77.9% actually found placement (Camp et al., 2002). To put this in perspective, if 80% of the 215 participants in this study want to teach, it would equate to 172 newly qualified teachers looking for positions. If 75% of these 172 teachers found jobs teaching agriculture it would result in a total of 129 newly qualified teachers entering the profession. Compared to the total number of preservice teachers ($n = 215$), this figure represents a placement rate of 60%. This would correspond with what Camp et al. have found to be the proportion of all newly qualified agriculture teachers entering the teaching profession. Although this is a very rough estimate, it does help demonstrate that the discrepancy between the number of

newly qualified teachers and those finding placement may not be a matter of low intentions to teach agriculture. However, it is the belief of the researcher that progress can be made, especially with those preservice teachers possessing moderate intentions to teach. Preservice teachers with marginal teaching intentions should be identified and provided with support and counseling to assist them in making sound career choices. In some cases, pursuing other career interests may be the best course, but for some this intervention may be the guidance needed to solidify a student's decision to become an agriculture teacher.

Conclusion – On average, the preservice agriculture teachers intended to make teaching agriculture a life long career, however male preservice teachers did perceive longer tenures than did women.

With the average length of intended teaching tenure being over 20 years, the researcher concluded that most preservice teachers intend to teach agriculture their entire career. However, based on the findings of this study there appears to be a difference between the intended length of tenure of male and female preservice teachers. The point biserial correlation between gender and intended length of tenure yielded a significant coefficient estimate of .253. This relationship was further supported by the results of the multiple regression analysis on the dependent variable of intended length of teaching tenure. The results of this analysis yielded three significant predictors: gender, teaching expectations, and years enrolled in agricultural education. In both analyses, positive relationships were found, which according to the coding used in these analyses demonstrates that male preservice teachers intend to have longer teaching tenures than their female counterparts.

This conclusion has important implications for those working to reduce the agriculture teacher shortfall. In the coming years, the agriculture teaching profession will

be faced with the retirement of the “baby boomer” generation. Many of these individuals spent their entire careers teaching agriculture. Will those who replace these teachers have the desire to make their decision to teach agriculture one that spans their entire working career? These results imply that this may not be the case, and for women there may be even greater concern warranted. The current teacher shortage has no simple solution. Recruiting and placing more teachers is just one piece of the solution. The real challenge will be how to retain these teachers and help them continue to grow professionally so that they may wish to make teaching agriculture a life long pursuit. An increased proportion of women entering the profession, may lead to shorter average tenures. Given this information, teacher preparation programs, state agricultural education staff, and school administrators need to recognize the changing dynamics of the agricultural education culture and begin to consider how each can play a part in increasing the retention rate of both female and male agriculture teachers.

Conclusion – In regards to their teaching ability, the preservice agriculture teachers were highly efficacious.

Over 80% of the preservice agriculture teachers reported high teacher efficacy scores. The remaining participants would be considered to be moderately efficacious. The SCCT (Lent et al., 1994) and the work of Bandura (1997) may provide an explanation for these high levels of teacher efficacy. The SCCT posits that person inputs and background influences impact an individual’s learning experiences and in turn these experience shape one’s perceptions of self-efficacy (Lent et al., 1994). Based on the findings of this study, it is apparent that these preservice teachers possess a great deal of experience in agricultural youth organizations, agricultural occupational experience, and they are completing an extensive field preparation program. These types of experiences

provide participants with numerous opportunities to build their perceptions of self-efficacy. Through their involvement and preparation, preservice teachers learn vicariously, they master tasks and improve their performance, they are provided with persuasive feedback, and they learn from their physiological and affective states and reactions. Bandura (1997) believed an individual's self-efficacy beliefs were built on these four types of learning experiences. Based on this information, the researcher believes that the extensive agriculture background, teacher preparation program, and field experiences of these preservice agriculture teachers may have contributed to their high levels of teacher efficacy. With the knowledge that none of the preservice teachers indicated low teacher efficacy, the researcher concluded that agriculture teacher preparation programs provide preservice teachers with effective learning experiences that help shape their efficacy beliefs.

Conclusion – Overall, the preservice agriculture teachers were highly positive about the potential outcomes of teaching agriculture, however their opinions were mixed regarding the adequacy of teacher salaries and the amount of recreational time available.

Based on the findings presented in Chapter 4, it was apparent that preservice agriculture teachers had highly positive expectations of the outcomes associated with a career teaching agriculture. After analyzing the data and reviewing the individual items that comprised the teaching expectations scale, the researcher concluded that most of the preservice teachers felt they could be successful and would enjoy the outcomes of a career teaching agriculture. However, preservice teachers recognized the potential salary limitations and additional time requirements associated with teaching agriculture. Individual items related to salary and time for recreation and hobbies were the only items that were not positively perceived by participants. With this information in mind, one

can conclude that most preservice teachers appreciate the positive outcomes of a career teaching agriculture and they are willing to accept the salary limitations and additional time requirements.

For those in agricultural education, this demonstrates that many preservice agriculture teachers have negative perceptions of teacher salaries and time expectations. Teacher educators and state agricultural education staff should attempt to address these issues in an effort to minimize the negative impact they may have on preservice teachers' career decisions. Providing preservice teachers with accurate information regarding teacher salaries and the expectations of the job may ensure that preservice teachers' perceptions are based on fact rather than popular opinions.

Conclusion – Most preservice agriculture teachers perceived the likelihood of career barriers and the difficulty of overcoming those barriers to be low and their level of career support to be high. Among respondents findings career barriers more likely, location of a job and family responsibilities were not only the most difficult to overcome, but also had the most potential to impact their decision to teach agriculture.

Over 80% of the preservice agriculture teachers indicated a low likelihood of experiencing career barriers. Likewise over 73% felt the difficulty of overcoming these barriers was low. Complementing the low levels of perceived barriers were preservice agriculture teachers' perceptions of high support for their career decisions. According to Lent et al. (2000), ample support and few barriers are predicted to facilitate the process of transforming career interests into goals and those goals into actions. In this study, evidence of a relationship was found showing a positive relationship between teaching intentions and career support ($r = .34$) and a negative relationship between teaching intentions and likelihood of barriers ($r = -.26$). Additionally, career support and likelihood of experiencing barriers shared a negative relationship ($r = -.33$) as expected.

Although most preservice teachers reported low likelihoods of experiencing career barriers and low difficulty overcoming these barriers, those who did indicate that items were more than slightly likely to become a barrier commonly reported the same four items. These items pertain to their responsibilities for family and relationships, their desire to live in a certain area, and their unwillingness to move way. Preservice agriculture teachers concerns about family and location of a job may have important implications for the profession. If a substantial number of preservice teachers' job opportunities are limited to a given area within a state, the question arises of whether teacher supply and demand is a national, state, or regional concern. For example, in the state of Florida a preservice teacher who hails from the northwest portion of the state, referred to as the panhandle, may not consider any teaching positions outside of the panhandle region. Even with multiple openings left unfilled in south Florida, a newly qualified teacher may decide to pursue other occupations rather than having to relocate. In many cases, relocation may not be an option due to one's family, relationships, or financial situation.

Some have suggested that perceptions of barriers are related to an individual's gender (Foster, 2001; Foster et al., 1991). Contrary to the findings of these researchers, gender discrimination was not perceived to be a likely barrier for preservice teachers in this study. An informal analysis of the data yielded slightly higher perceptions of career barriers for female participants, however no practical difference appeared to exist between the means of men and women. On average, both men and women felt that their family, relationships, home location, and willingness to move were slightly to moderately likely to impact their decision to enter the agriculture teaching profession. The researcher

believes the answer may be in addressing the teacher shortage as a regional issue. If a geographic region of a state continually struggles to find enough qualified teachers, an effort needs to be made to find potential teachers who are likely to want to teach there. Based on this regional supply concept, if an ample number of agricultural education students from different geographic regions in a state complete teacher education programs and consider positions close to home, it could provide a more balanced, stable supply of teachers who are familiar with the region and its agricultural industries. To implement such an idea, recruitment efforts should be broadened and additional emphasis placed on recruiting from those regions where the major shortages exist rather than focusing recruitment efforts solely on the areas that traditionally have strong secondary agriculture programs. By recruiting potential agricultural education students from programs in areas that suffer from shortages it may provide more new teachers who are willing to take teaching positions in those areas. Furthermore, by increasing recruitment efforts in urban and suburban areas where critical teacher shortages exist, the benefits may be two fold. Urban and suburban recruitment could provide an increased number of students entering agriculture teacher preparation programs as well as greater ethnic diversity. However, those involved in recruiting agricultural education students may need to evaluate their present recruitment procedures. Do the current recruitment procedures used provide access to all students who may be interested in studying agricultural education? Based on the findings of this study, it would appear that recruitment efforts continue to be focused primarily on traditional agriculture, 4-H, and FFA activities. These venues are valuable recruitment opportunities, however if these activities are the sole means of recruiting students it is possible this may perpetuate the

present situation. To attract and prepare a sufficient number of students into the profession, it is apparent that recruitment efforts must be expanded and the scope of those considered to be potential students needs to be broadened. To do so, a collective effort is needed to build a greater awareness of the opportunities that a career in agricultural education provides for all students no matter where they reside.

Objective Two

Conclusion – The findings of this study provided support for the Social Cognitive Career Theory (Lent et al., 1994). As Lent et al. (1994) purported, significant relationships existed between outcome expectations and intentions, efficacy and intentions, efficacy and expectations, and a negative relationship exists between career supports and barriers.

With their SCCT model, Lent et al. (1994) posited that both self-efficacy beliefs and outcome expectations predict career interests. These interests, together with a person's perceptions of efficacy and outcome expectations lead to goal formulation. The goals an individual sets affect their career decisions. The findings of this study appear to support these proposed relationships. A moderate positive relationship ($r = .42$) was found between teacher efficacy and teaching intentions and a substantial positive relationship ($r = .65$) was discovered between teaching outcome expectations and teaching intentions. Based on the literature and the links purported by Lent et al. (1994), a stronger relationship may have been anticipated between teacher efficacy and intentions to teach agriculture, like that found between outcome expectations and intentions score.

Although a moderate relationship should not be disregarded, some may ask why self-efficacy and intentions to teach did not have the strongest relationship? The researcher believes this may be due to the moderate to high levels of efficacy that all the participants exhibited. Although 20% of the participants indicated they did not plan to teach, these individuals had at least moderate levels of efficacy. This would lead the

researcher to conclude that those preservice teachers who did not plan to enter the profession had strong beliefs in their ability to teach agriculture. These individuals believe they can be effective teachers, however for some reason they do not have strong intentions to teach. The substantial relationship between outcome expectations and teaching intentions may help explain this situation. An individual may feel that they are capable of teaching, but have low expectations of the outcomes of a career teaching agriculture. It is possible that the limited salary prospects or additional time requirements of a career teaching agriculture may have had a detrimental effect on a preservice teacher's decision to teach. An individual could indicate a high efficacy score, but report low outcome expectations, and low intentions to teach. This situation would cause the relationship between efficacy scores and teaching intentions to be lower than that of outcome expectations and teaching intentions.

Lent et al. (1994) also believed that a relationship existed between self-efficacy and outcome expectations. Lent et al. posited that outcome expectations are partially determined by an individual's self-efficacy beliefs, particularly when outcomes are closely tied to one's quality or level of performance. Support for this relationship was provided in this study with a correlation coefficient of .43. These findings demonstrate the importance of preservice teachers' perceptions of their own teaching abilities. These perceptions not only contribute to preservice teachers' intentions to teach, but they also impact preservice teachers' feelings about the expected outcomes of a career teaching, which has also been found to be predictive of preservice agriculture teachers intended length of tenure. This relationship may also be lower than expected; however the aforementioned explanation may apply here as well. A preservice teacher may believe in

their abilities to teach, but have negative expectations of a career teaching agriculture. These individuals may be those that expressed an interest in other formal and informal teaching careers, such as elementary or extension education.

Further evidence for the SCCT model was found related to career supports and barriers. According to Lent et al. (2000), an individual's perception of ample support and few barriers is predicted to facilitate the process of transforming their career interests into goals and those goals into actions. The analysis of this study's data found relationships consistent with those proposed in the model. A negative relationship existed between support and the likelihood of experiencing barriers. Career support had a positive association with teaching intentions, and a negative association existed between teaching intentions and the likelihood of experiencing barriers. These findings lead the researcher to conclude that the SCCT posited by Lent et al. (1994) and its three key social cognitive variables of self-efficacy, outcome expectations, and goals (intentions /aspirations) provide a relevant theoretical framework to guide future studies, investigations, and interventions into the career decisions of preservice agriculture teachers. Since the central constructs of SCCT are amenable to change, the potential for intervention is believed to be the most valuable attribute of this theory (Rasheed, 2001).

Conclusion – Preservice agriculture teachers perceptions of teacher efficacy and teaching expectations were significant predictors of their intentions to teach agriculture. These two variables accounted for 44% of the variance in preservice teachers' intentions to teach agriculture.

As posited by Lent et al. (1994) in the Social Cognitive Career Theory, the results of this study showed that self-efficacy and outcome expectations predict career interests and aspirations. Based on the findings of this study, it appears that these two variables account for a substantial amount of the variance in preservice agriculture teachers'

intentions to teach at 44%. This conclusion has important implications for teacher preparation and future research. Given the relationships that exist between teaching intentions and preservice teachers efficacy and outcome expectations, it seems that practitioners and researchers should take note and avoid overlooking the predictive nature of these two variables.

With the knowledge that preservice teachers who possess high teacher efficacy and outcome expectations are more likely to teach agriculture, those in teacher education have reason to put more focus and investigation into building preservice teachers' self-perceptions related to these two constructs. As the tenets of the SCCT state, these variables can be manipulated. Teacher educators can identify preservice teachers' level of teacher efficacy and their perceptions of the outcomes of teaching agriculture. Interventions can be developed, such as modifying a students' program of study or possibly by providing supplemental activities to help increase a student's positive perceptions of these two variables. For example, after surveying a freshman class of agricultural education students it may become apparent that some students possess little agricultural experience and express concern about their ability to teach given their limited subject matter knowledge. Through advisement, a teacher educator could recommend subject matter course work that would provide students with learning experiences that may help build their subject matter knowledge in those areas in which they feel deficient. Additionally, teacher educators could also assist students in considering ways to gain agricultural experience. A student may consider agricultural internships, summer employment, or possibly a part-time job working in a university agriculture laboratory or production unit. All of these experiences would benefit a student by providing them with

valuable experience related to their content area, and these experiences also provide students with opportunities to develop skills and knowledge, ultimately building their self-perceptions.

In order to address negatively perceived outcomes of a career teaching, the perceptions of preservice teachers must be identified. Once negative perceptions are identified, efforts can be made to address these issues in the curriculum and also through student advising. Unfortunately, an individual's expectations of the outcomes of a career teaching are not always based on fact. Preservice agriculture teachers need to have accurate information on which to base their career decisions. Too often preservice agriculture teachers' perceptions of career outcomes are founded on rumor, gossip, and stereotypes perpetuated by those with less than accurate and sometimes biased opinions of a career teaching agriculture. It is the obligation of professionals in agricultural education to provide potential teachers with honest and accurate information so that they may pursue a career teaching agriculture for the right reasons. By knowing what to expect, they will hopefully continue teaching for the span of their career.

Objective Three

Conclusion – Preservice agriculture teachers' gender, years enrolled in agricultural education, and their teaching expectations were significant predictors of their intended length of agriculture teaching tenure. These three variables accounted for 24% of the variance in preservice agriculture teachers' intended length of teaching tenure.

The results of this study provided evidence of three significant predictors of the intended length of tenure of preservice agriculture teachers. The predictors, gender, years enrolled in agriculture education, and teaching expectations were shown to account for 24% of the variance in intended length of agriculture teaching tenure. As aforementioned, these relationships allowed the researcher to conclude that female

participants do not intend to teach as long as men. In addition, those preservice teachers who spent more time in agricultural education and possessed higher expectations of the outcomes of teaching had longer intended teaching tenures. Given the potential impact of shorter teaching tenures on teacher attrition, this information provides practitioners and researchers with important issues to consider.

Females comprised 52.1% of the preservice agriculture teachers in this study. This proportion differs from the proportion of female agriculture teachers nationwide. Camp et al. (2002) reported that 22% of agriculture teachers were women in 2001, which was substantially lower than the proportion of women in the U.S. workforce (United States Department of Labor Women's Bureau, 2000). If the proportion of female preservice teachers in this study is representative of all preservice agriculture teachers, future proportions of agriculture teachers may be more reflective of the nations work force. In time an increased proportion of females entering the agricultural education profession coupled with the retirement of male teachers would lead to an agriculture teaching profession that is more representative of the approximate gender balanced workforce foreseen by the Department of Labor. If these female agriculture teachers have shorter tenures than their male counterparts, how will it impact the teacher shortfall? In light of this information, it would seem plausible that the coming years could have the potential for even greater deficits due to increased attrition of agriculture teachers. This possibility warrants the attention of the agricultural education profession. Additional support and professional development is needed for agriculture teachers to maintain their job satisfaction and balance their family and professional commitments in an effort to extend their teaching tenure.

The relationship between years in agriculture education and intended length of teaching tenure has implications for teacher education. As mentioned, the vast majority of preservice teachers have been involved in FFA and with that involvement comes enrollment in agricultural education. This involvement allows students to gain first hand insight into the responsibilities of agriculture teachers. This experience may contribute to the third predictor, teaching expectations. Through additional time and experience in an agricultural education program, students form their own beliefs about the outcomes of a career teaching agriculture. In some cases, agriculture teachers may inspire their students and that inspiration may contribute to students' decisions to pursue a major in agricultural education. These learning experiences influence preservice teachers' beliefs in their own ability and their positive perceptions of the outcomes of teaching agriculture. Given the potential for extending teaching tenures, agriculture teachers and teacher educators should be cognizant of the impact that students' experience in agricultural education can have on the future supply and retention of agriculture teachers.

Research Hypotheses

Conclusion – The findings of this study provide partial support for the first research hypothesis presented. Preservice agriculture teachers who have greater intentions to teach did report perceptions of higher self-efficacy, more positive outcome expectations, more positive support systems, and fewer perceived career barriers. No support was found for the hypothesized relationships between intentions to teach and academic performance, and intentions to teach and agricultural background.

Based on the relationships found in this study, evidence was provided to support most of the directional associations posited in research hypothesis one. The results of the correlation matrices show that significant relationships exist demonstrating that preservice agriculture teachers with high intentions scores had higher scores on the teacher efficacy scale, the teaching expectations scale, the support scale, and lower scores

on the likelihood of experiencing barriers scale. However, the findings of this study did not provide significant evidence that greater teaching intentions were associated with the difficulty of overcoming barriers, academic performance, and agricultural occupational experience.

Conclusion – The findings of this study provide partial support for the second research hypothesis presented. Preservice agriculture teachers who perceived longer teaching tenure did report higher teacher efficacy, more positive outcome expectations, more positive support systems, fewer perceived career barriers, and stronger agricultural backgrounds. No support was found for the hypothesized relationship between intentions to teach and academic performance.

Based on the relationships found in this study, evidence was provided to support most of the directional associations posited in research hypothesis two. The results of the correlation matrices show that significant relationships exist demonstrating that preservice agriculture teachers who perceived longer teaching tenure had higher scores on the teacher efficacy scale, the teaching expectations scale, the support scale, lower scores on the likelihood of experiencing barriers scale, and stronger agriculture background experiences, which included greater FFA involvement and more years enrolled in agricultural education. However, the findings of this study did not provide significant evidence that longer intended teaching tenures were associated with the difficulty of overcoming barriers, academic achievement, and other agricultural background experiences, such as involvement in 4-H and agricultural occupational experience.

Recommendations for Practitioners

1. Recruitment and outreach efforts should place greater emphasis on attracting a more diverse group of students, including ethnicity and geographic location, and continue to target 4-H and FFA members and students in agricultural education programs.

2. Provide and assist preservice teachers in participating in rich learning experiences through the curriculum, demonstration and modeling, laboratory experience, field experience, occupational experience, interaction with professionals and various other activities that help shape their developing sense of teacher efficacy and their expectations of a career teaching agriculture.
3. Consider the state's demand for agriculture teachers from a regional perspective. Are there areas of the state that continually struggle to fill positions? What contributes to this situation? Efforts may be needed to recruit and prepare more new teachers from these areas, since these newly qualified teachers may be more likely to want to return to the area to teach.
4. Provide additional support and inservice training for agriculture teachers, so that a better balance between their family commitments and professional lives can be achieved.
5. Identify those preservice teachers who have low perceived efficacy and negative perceptions of the outcomes of teaching agriculture. These individuals should be supported and interventions should be developed to help improve their self-efficacy and reduce their negative beliefs about teaching agriculture.
6. Agriculture teacher educators should identify the teaching outcome expectations of preservice teachers, so that positive expectations can be reinforced and negative expectations can be addressed.

Recommendations for Research

1. The Social Cognitive Career Theory (Lent et al., 1994) appears to be a relevant theory for explaining the career interests and decisions of preservice agriculture teachers. In the future, researchers should utilize this theory to guide related research.
2. The experiences provided in teacher preparation programs should be investigated to identify the learning experiences that contribute most to preservice agriculture teachers' perceptions of teacher efficacy and their outcome expectations.
3. Researchers should investigate alternatively certified agriculture teachers' perceptions of traditional agriculture teacher preparation programs and determine which factors contributed to their decision to pursue an alternative program for certification.
4. Additional studies are needed to further examine the inconclusive association between preservice agriculture teachers' decision to enter the teaching profession and their academic achievement, and between decision to teach and involvement in 4-H and FFA programs.
5. Research is needed to test the effectiveness of interventions designed to improve preservice teachers' perceptions of teacher efficacy and outcome expectations.

6. Potential career barriers should be investigated to determine if gender or ethnic differences exist.
7. This research found evidence of the predictive nature of several variables in this study, however additional research is needed to discover if any causal relationships exist between these predictors and preservice agriculture teachers intentions to teach and their intended length of tenure.
8. Research is warranted that compares the geographic area from which preservice agriculture teachers hail and the areas they would consider living and teaching. Further research would potentially identify the reasons for their limitations and their willingness or unwillingness to relocate.
9. Further investigation is needed related to the level of interest and potential barriers for preservice agriculture teachers who are Caucasian and from rural areas to consider teaching positions in urban and suburban agriculture programs.
10. This study should be replicated and follow-up studies should be done with participants to determine which teachers secure agriculture teaching positions. Those individuals who do not find teaching positions should be studied to identify the factors that contributed to their decision not to enter the profession. This study would also provide the opportunity to establish the strength of association, if any, between teaching intentions and teacher placement.
11. A longitudinal study of preservice agriculture teachers who enter the teaching profession is needed to establish the accuracy and reliability of preservice teachers' intended length of tenure in relation to their actual teaching tenure.
12. Replication of this study is needed to confirm the relationships that were supported in research hypothesis one, specifically if preservice agriculture teachers with higher intentions to teach have perceptions of higher self-efficacy, more positive outcome expectations, more positive support systems, and fewer perceived career barriers.
13. Replication of this study is needed to confirm the relationships that were supported in research hypothesis two, specifically if preservice agriculture teachers with longer intended teaching tenures have perceptions of higher teacher efficacy, more positive outcome expectations, more positive support systems, fewer perceived career barriers, and stronger agricultural backgrounds.
14. The high levels of teacher efficacy observed in these preservice teachers completing their teaching internship warrants further research to determine if these high levels of efficacy continue during their first and subsequent years of teaching.

APPENDIX A INSTITUTIONAL REVIEW BOARD APPROVAL



Institutional Review Board

98A Psychology Bldg.
PO Box 112250
Gainesville, FL 32611-2250
Phone: (352) 392-0433
Fax: (352) 392-9234
E-mail: irb2@ufl.edu
<http://irb.ufl.edu/irb02>

DATE: October 5, 2004

TO: Steven Rocca
305 Rolfs Hall
Campus

FROM: Ira S. Fischler, PhD, Chair *IF/TF*
University of Florida
Institutional Review Board 02

SUBJECT: **Approval of Protocol #2004-U-674**

TITLE: Career Decisions of Preservice Agricultural Education Teachers

SPONSOR: Unfunded

I am pleased to advise you that the University of Florida Institutional Review Board has recommended approval of this protocol. Based on its review, the UFIRB determined that this research presents no more than minimal risk to participants. Given your protocol, it is essential that you obtain signed documentation of informed consent from each participant. Enclosed is the dated, IRB-approved informed consent to be used when recruiting participants for the research.

It is essential that each of your participants sign a copy of your approved informed consent that bears the IRB stamp and expiration date.

If you wish to make any changes to this protocol, including the need to increase the number of participants authorized, you must disclose your plans before you implement them so that the Board can assess their impact on your protocol. In addition, you must report to the Board any unexpected complications that affect your participants.

If you have not completed this protocol by October 1, 2005, please telephone our office (392-0433), and we will discuss the renewal process with you. It is important that you keep your Department Chair informed about the status of this research protocol.

ISF:dl/tf

APPENDIX B PARTICIPATION REQUEST EMAIL



Institute of Food and Agricultural Sciences
Department of Agricultural Education and Communication

305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502
Fax: (352) 392-9585

Dear «prefix» «L_name»:

I am writing to request your assistance in a nationwide study of preservice agriculture teachers. This study will help us learn more about the factors that influence preservice teachers' decisions to pursue a career teaching agriculture. This information may prove very valuable in the future to address teacher shortages and in guiding agriculture teacher preparation programs.

Your participation in this study would require that you administer an approximately 15-minute questionnaire to your preservice teachers who are completing their teaching internships during the fall semester 2004. The questionnaire should be administered as close to the end of the fall semester as possible. If you are not responsible for the teaching interns at your institution, I would appreciate you forwarding this message on to the appropriate faculty member. In return for your institutions participation, I will provide a summarized report of the results for your preservice teachers, which will also include the overall results as well. In order to determine your institutions eligibility and willingness to participate I ask that you respond to the following three questions:

1. Does your institution have teaching interns this fall?
2. If so, how many?
3. Are you or another member of your faculty willing to participate?

Unfortunately, if you do not have fall teaching interns your institution is not eligible to participate in this study. However, I would really appreciate your response so that your institution can be removed from my contact list. I would encourage you to reply with the requested information by October 18th, 2004.

While your participation is voluntary, I would greatly appreciate your assistance with this important study. I do not anticipate any unforeseen risks, compensation, or other direct benefits to you or your students as a result of your contributions to this study. Your

identity, as well as your students, will be kept confidential to the extent provided by law. For questions about the rights of research participants, please contact the UF Institutional Review Board Office at (352) 392-0433 or irb2@ufl.edu.

If you have any questions about this study please feel free to contact us at the numbers below. I look forward to hearing from you and thank you for your time and assistance with this study.

Sincerely,

Steven J. Rocca
Graduate Assistant
305 Rolfs Hall, P.O. Box 110540
Gainesville, FL 32611-0540
Phone: (352) 392-0502 ext. 223
Email: srocca@ufl.edu

Shannon G. Washburn
Assistant Professor
305 Rolfs Hall, P.O. Box 110540
Gainesville, FL 32611-0540
Phone: (352) 392-0502 ext. 237
Email: swashburn@ufl.edu

APPENDIX C

PARTICIPATION REQUEST FOLLOW-UP EMAIL



Institute of Food and Agricultural Sciences
Department of Agricultural Education and Communication

305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502
Fax: (352) 392-9585

Dear «prefix» «L_name»:

Last week you should have received an email requesting your assistance in a nationwide study of preservice agriculture teachers. This study will examine factors that influence preservice teachers' decisions to pursue a career teaching agriculture. Unfortunately, I have not received a response from you or your institution as of yet. I would really appreciate it if you could answer the questions below regarding your willingness to participate and your students' eligibility. This will only take a few minutes and will save us both the time and trouble of contacting you via the telephone. I would encourage you to reply with the requested information by October, 18th, 2004. In order to determine your institutions eligibility and willingness to participate I ask that you respond to the following three questions:

1. Does your institution have teaching interns this fall?
2. If so, how many?
3. Are you or another member of your faculty willing to participate?

Your participation in this study would require that you administer an approximately 15-minute questionnaire to your preservice teachers who are completing their teaching internships during the fall semester 2004. The questionnaire should be administered as close to the end of the fall semester as possible. If you are not responsible for the teaching interns at your institution, I would appreciate you forwarding this message on to the appropriate faculty member. In return for your institutions participation, I will provide a summarized report of the results for your preservice teachers, which will also include the overall results as well. Unfortunately, if you do not have fall teaching interns your institution is not eligible to participate in this study. However, I would really appreciate your response so that your institution can be removed from my contact list.

While your participation is voluntary, I would greatly appreciate your assistance with this important study. I do not anticipate any unforeseen risks, compensation, or other direct

benefits to you or your students as a result of your contributions to this study. Your identity, as well as your students, will be kept confidential to the extent provided by law. For questions about the rights of research participants, please contact the UF Institutional Review Board Office at (352) 392-0433 or irb2@ufl.edu.

If you have any questions about this study please feel free to contact us at the numbers below. I look forward to hearing from you and thank you for your time and assistance with this study.

Sincerely,

Steven J. Rocca
Graduate Assistant
305 Rolfs Hall, P.O. Box 110540
Gainesville, FL 32611-0540
Phone: (352) 392-0502 ext. 223
Email: srocca@ufl.edu

Shannon G. Washburn
Assistant Professor
305 Rolfs Hall, P.O. Box 110540
Gainesville, FL 32611-0540
Phone: (352) 392-0502 ext. 237
Email: swashburn@ufl.edu

APPENDIX D

INSTRUCTIONS FOR ADMINISTERING INSTRUMENT

1. Provide each potential participant with a questionnaire and informed consent form.
2. Ask that they read the informed consent form completely, and if they choose to participant, sign the document.
3. Inform participants that the second copy of the informed consent is for them to keep for their records.
4. Ask for a volunteer to collect the completed questionnaires and informed consent forms.
5. Inform the volunteer to place the completed questionnaires, signed informed consent forms, and any left over materials into the return envelope.
6. Once all participants are finished and materials collected, the volunteer should seal the return envelope.
7. Request that the volunteer drop off the sealed return envelope to you or a designated staff member at a predetermined location.
8. Inform participants that they are to place their completed questionnaires and informed consent forms into the return envelope.
9. Ask participants if they have any questions regarding the informed consent form or these instructions.
10. Please leave the room once participants are ready to begin completing the questionnaire.
11. After you or the designated staff member receives the envelope containing the completed questionnaires and forms from the volunteer, place it into the U.S. mail.
12. Thank you again for your time and assistance. It is greatly appreciated.

APPENDIX E INFORMED CONSENT STATEMENT

Informed Consent

Please read the following information, sign and return. Please keep the attached copy for your records.

Dear Preservice Teacher:

My name is Steve Rocca and I am a graduate student in Agricultural Education at the University of Florida. I am conducting a nationwide study of preservice agriculture teachers to help us better understand their career decision making process. The purpose of this study is to learn more about the factors that influence preservice agriculture teachers decisions to pursue careers teaching agriculture or to seek employment in other fields. Since the value of this study is dependent on the participation of preservice agriculture teachers, I would like to ask you to participate.

Your participation would only require you to complete a questionnaire, which should take approximately 20 minutes to complete. There is no foreseen risk of physical, psychological, or economic harm to participants. Your identity will not be disclosed, and will be kept confidential to the extent provided by law. Your answers will be completely confidential and released only as summaries in which no individual's answers can be identified. You may request results of this study and they will be provided to you after its' conclusion.

There is no compensation or other direct benefit to you for participation. Your participation in this study is completely voluntary and there is no penalty for not participating. You do not have to answer any questions you do not want to answer and you have the right to withdraw from the study at any time without consequence.

If you have any questions about this study you can contact Steve Rocca or Shannon Washburn at (352) 392-0502, or at the address below. Should you have questions about your rights as a research participant, please contact the University of Florida Institutional Review Board at (352) 392-0433 or PO Box 112250, Gainesville, FL 32611.

I have read the procedure described above. I agree to participate in the procedure, and I have received a copy of this information.

Participants Signature

Date

Please place this signed informed consent statement in the envelope provided and return to:

Steve Rocca or Shannon Washburn
University of Florida
Agricultural Education and Communication
305 Rolfs Hall, PO Box 110540
Gainesville, FL 32611-0540
Tel: (352) 392-0502 Fax: (352) 392-9585

APPROVED BY
University of Florida
Institutional Review Board (IRB 02)
Protocol# 2004-4-724
For Use Through 10-1-05

Please keep this copy for your record.

Informed Consent

Dear Preservice Teacher:

My name is Steve Rocca and I am a graduate student in Agricultural Education at the University of Florida. I am conducting a nationwide study of preservice agriculture teachers to help us better understand their career decision making process. The purpose of this study is to learn more about the factors that influence preservice agriculture teachers decisions to pursue careers teaching agriculture or to seek employment in other fields. Since the value of this study is dependent on the participation of preservice agriculture teachers, I would like to ask you to participate.

Your participation would only require you to complete a questionnaire, which should take approximately 20 minutes to complete. There is no foreseen risk of physical, psychological, or economic harm to participants. Your identity will not be disclosed, and will be kept confidential to the extent provided by law. Your answers will be completely confidential and released only as summaries in which no individual's answers can be identified. You may request results of this study and they will be provided to you after its' conclusion.

There is no compensation or other direct benefit to you for participation. Your participation in this study is completely voluntary and there is no penalty for not participating. You do not have to answer any questions you do not want to answer and you have the right to withdraw from the study at any time without consequence.

If you have any questions about this study you can contact Steve Rocca or Shannon Washburn at (352) 392-0502, or at the address below. Should you have questions about

your rights as a research participant, please contact the University of Florida Institutional

I have read the procedure described above. I agree to participate in the procedure, and I have received a copy of this information.

Review Board at (352) 392-0433 or PO Box 112250, Gainesville, FL 32611.

Participants Signature

Date

Please place this signed informed consent statement in the envelope provided and return to:

Steve Rocca or Shannon Washburn
University of Florida
Agricultural Education and Communication
305 Rolfs Hall, PO Box 110540
Gainesville, FL 32611-0540
Tel: (352) 392-0502 Fax: (352) 392-9585

APPROVED BY
University of Florida
Institutional Review Board (IRB 10)
Protocol # 2004-U-724
For Use Through 10-1-05

APPENDIX F EMAIL REMINDER



Institute of Food and Agricultural Sciences
Department of Agricultural Education and Communication

305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502
Fax: (352) 392-9585

«prefix» «L_name»:

The end of the fall semester/quarter is quickly approaching and I'm sure you are very busy, but I wanted to drop you a quick reminder about my questionnaire. If you have already completed and returned the questionnaire(s), please accept my sincere thanks. If not, I hope you will still be able to administer the instrument(s) to your fall student teachers prior to your winter recess. Your students' responses are extremely important to the success of my study and to the overall value this study can contribute to the profession. I really appreciate the time and effort you have contributed in assisting me with collecting this data. I look forward to receiving your students' completed questionnaires, preferably before you adjourn for winter recess. If you should have any questions please feel free to call (352) 392-0502 or email me at srocca@ufl.edu. If you will be unable to return the completed questionnaires to me by the end of December, I would greatly appreciate an email to that effect.

Thank you and have a Happy Holiday Season,

Steve Rocca.

APPENDIX G FINAL EMAIL CONTACT



Institute of Food and Agricultural Sciences
Department of Agricultural Education and Communication

305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502
Fax: (352) 392-9585

«prefix» «L_name»:

I wanted to touch base with you regarding the administration of my questionnaire regarding Preservice Teacher Career Decisions. According to my records, I have not yet received completed questionnaires from your institution. I hope to wrap up my collection of data this week and would really appreciate it if you could let me know if your have or will be returning any completed questionnaires. If for some reason you were unable to administer the questionnaire, I would appreciate a message to that affect so that I may begin to move forward with my analysis of this data. I hope to hear from you soon and Happy New Year.

Steve Rocca.

APPENDIX H THANK YOU EMAIL



Institute of Food and Agricultural Sciences
Department of Agricultural Education and Communication

305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502
Fax: (352) 392-9585

«prefix» «L_name»:

I just wanted to confirm that I have received your students' completed questionnaires. I greatly appreciate your time and effort to administer the instrument and returning them so quickly. After receiving all the completed questionnaires and analyzing the data, I will send you a summary of your students' results.

Thank you and have a Happy Holiday Season,

Steve Rocca.

APPENDIX I

DEMOGRAPHIC INSTRUMENT

Part VI: General Information

7. How many years were you involved with the following organizations?

4 - H _____ year(s)
FFA _____ year(s)

8. Indicate your level of involvement in 4-H and/or FFA below. Mark the box corresponding to your level of involvement in each organization. If you were not a member of an organization please mark "Not Involved at all."

4-H involvement:

- Not Involved at All
 Moderately Involved
 Very Involved

FFA involvement:

- Not Involved at All
 Moderately Involved
 Very Involved

9. How many total years were you enrolled in middle and high school agriculture classes?

_____ year(s)

10. Indicate the response that best describes the geographic location of your childhood/adolescent home?

- [] Rural - on a farm
- [] Rural – but not on a farm
- [] Suburban
- [] Urban

11. Do you plan to teach agriculture?

[] Yes [] No

APPENDIX J
PRESERVICE AGRICULTURE TEACHER INTENTIONS AND ASPIRATIONS
SCALE

Part I: Teaching Intentions and Aspirations

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Directions: Please indicate your level of agreement with each of the statements below by circling the appropriate number at the right of the statement.					
A. I plan to pursue an agriculture teaching position.	1	2	3	4	5
B. I would prefer to work in a career field other than agricultural education.	1	2	3	4	5
C. I would take a job other than teaching agriculture if the right opportunity were offered to me.	1	2	3	4	5
D. I do not want to work in any other field besides agricultural education.	1	2	3	4	5
E. I would likely take an agriculture teaching position if it were offered to me.	1	2	3	4	5
F. I'm going to look for jobs in fields other than agricultural education.	1	2	3	4	5
G. I'm certain that I will not teach agriculture.	1	2	3	4	5
H. I would be satisfied just teaching my classes and doing nothing more.	1	2	3	4	5
I. I plan on developing into an expert in my career field.	1	2	3	4	5
J. I see myself having an active role in the development of a successful agriculture program at my school.	1	2	3	4	5
K. I would not plan on devoting time to further professional development beyond the requirements of my job.	1	2	3	4	5
L. I would like to have responsibility for FFA, SAE, and other agricultural program activities.	1	2	3	4	5

M. When I'm established in my career, I would like to help prepare and mentor new professionals in my field.	1	2	3	4	5
N. I plan to stay informed and become involved in issues pertaining to my profession.	1	2	3	4	5
O. I hope to minimize the amount of time I spend working after business hours and on weekends.	1	2	3	4	5
P. I plan on playing an important role in the accomplishments of my students.	1	2	3	4	5
Q. I truly want to teach agriculture.	1	2	3	4	5
R. I would not consider another profession besides teaching even if a good opportunity were presented to me	1	2	3	4	5

Teaching Intention Questions

1. If you were to teach agriculture, how many years do you estimate you would teach?

_____ year(s)

2. If you did not teach agriculture, what other career, educational, or personal plans would you pursue?

Please specify:

APPENDIX K
TEACHERS' SENSE OF EFFICACY SCALE

Part II: Teacher's Sense of Efficacy

Directions: Please indicate your opinion about each of the statements below by circling the appropriate number at the right of statement.	Nothing	Very Little	Some Influence	Quite A Bit	A Great Deal				
	1	2	3	4	5	6	7	8	9
A. How much can you do to control disruptive behavior in the classroom?	1	2	3	4	5	6	7	8	9
B. How much can you do to motivate students who show low interest in school work?	1	2	3	4	5	6	7	8	9
C. How much can you do to get students to believe they can do well in school work?	1	2	3	4	5	6	7	8	9
D. How much can you do to help your students value learning?	1	2	3	4	5	6	7	8	9
E. To what extent can you craft good questions for your students?	1	2	3	4	5	6	7	8	9
F. How much can you do to get students to follow classroom rules?	1	2	3	4	5	6	7	8	9
G. How much can you do to calm a student who is disruptive or noisy?	1	2	3	4	5	6	7	8	9
H. How well can you establish a classroom management system?	1	2	3	4	5	6	7	8	9
I. How much can you use a variety of assessment strategies?	1	2	3	4	5	6	7	8	9
J. To what extent can you provide an alternative explanation or example when students are confused?	1	2	3	4	5	6	7	8	9
K. How much can you assist families in helping their children do well in school?	1	2	3	4	5	6	7	8	9
L. How well can you implement alternative teaching strategies in your classroom?	1	2	3	4	5	6	7	8	9

APPENDIX L
PRESERVICE AGRICULTURE TEACHER EXPECTATIONS SCALE

Part III: Teacher Expectations

As an agriculture teacher...	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	1	2	3	4	5
A. ...I could be successful.					
B. ...I would have a bright future.	1	2	3	4	5
C. ...I would be happy working in the profession.	1	2	3	4	5
D. ...teaching would allow me to use my knowledge and abilities.	1	2	3	4	5
E. ...I would help students develop an appreciation of agriculture.	1	2	3	4	5
F. ...I would like the working hours and vacation time the job provides.	1	2	3	4	5
G. ...I would receive a more than adequate salary and benefits.	1	2	3	4	5
H. ...I would appreciate the job security provided by teaching agriculture.	1	2	3	4	5
I. ...the community would support my agriculture program and students.	1	2	3	4	5
J. ...I would be provided with adequate funding and administrative support.	1	2	3	4	5
K. ...I would not have enough time for hobbies and recreation activities.	1	2	3	4	5
L. ...I would enjoy working with students and seeing their accomplishments.	1	2	3	4	5

M. ...my job would create problems in my relationship or marriage.	1	2	3	4	5
N. ...administrators and other teachers would view my program as less important than other school programs.	1	2	3	4	5

APPENDIX M
PRESERVICE AGRICULTURE TEACHER CAREER BARRIERS SCALE

Part IV: Teacher Career Barriers

Indicate the likelihood of each item to be a barrier to your entry into the agriculture teaching profession.					Directions: Please read the instructions to the left and right of the items. Circle the appropriate numbers to the left and right of each item below.	If you were to encounter each of these barriers, indicate how difficult it would be to overcome?				
Not at all Likely	Slightly Likely	Moderately Likely	Very Likely	Definitely Likely		Not at all Difficult	Slightly Difficult	Moderately Difficult	Very Difficult	Could Not Overcome
1	2	3	4	5	A. Not enough confidence in my teaching ability	1	2	3	4	5
1	2	3	4	5	B. Friends don't support my career plans	1	2	3	4	5
1	2	3	4	5	C. Being married or in a long-term relationship	1	2	3	4	5
1	2	3	4	5	D. Parents don't support my career plans	1	2	3	4	5
1	2	3	4	5	E. Not being prepared enough	1	2	3	4	5
1	2	3	4	5	F. Family responsibilities	1	2	3	4	5
1	2	3	4	5	G. Lack of motivation	1	2	3	4	5
1	2	3	4	5	H. Pressure from spouse or boyfriend / girlfriend	1	2	3	4	5
1	2	3	4	5	I. Teachers don't support my career plans	1	2	3	4	5
1	2	3	4	5	J. Gender discrimination	1	2	3	4	5
1	2	3	4	5	K. Racial / ethnic discrimination	1	2	3	4	5

1	2	3	4	5	L. None of my friends are agriculture teachers	1	2	3	4	5
1	2	3	4	5	M. Not willing to move away	1	2	3	4	5
1	2	3	4	5	N. Others don't think I can do the job	1	2	3	4	5
1	2	3	4	5	O. No job opportunities in the area I want to live	1	2	3	4	5
1	2	3	4	5	P. Not ready to leave school yet	1	2	3	4	5

APPENDIX N
PRESERVICE AGRICULTURE TEACHER SUPPORT SCALE

Part V: Teacher Support

Circle the number corresponding with the level of **encouragement /discouragement** you received from the following persons pertaining to your decision about entering the agricultural teaching profession. Circle **N/A = Not Applicable**, if that person does not apply in your case. *For example, if you are an only child you would mark N/A for brother(s) and sister(s).*

	Not Applicable	Strongly Discouraging	Discouraging	Neutral	Encouraging	Strongly Encouraging
A. Father	N/A	1	2	3	4	5
B. Mother	N/A	1	2	3	4	5
C. Brother(s)	N/A	1	2	3	4	5
D. Sister(s)	N/A	1	2	3	4	5
E. Other relative(s)	N/A	1	2	3	4	5
F. Best friend(s)	N/A	1	2	3	4	5
G. Other friend(s)	N/A	1	2	3	4	5
H. Your high school agriculture teacher(s)	N/A	1	2	3	4	5
I. Other high school agriculture teacher(s)	N/A	1	2	3	4	5
J. Your cooperating/mentor teacher(s)	N/A	1	2	3	4	5
K. Your university teacher educator(s)	N/A	1	2	3	4	5

L. Other university faculty	N/A	1	2	3	4	5
M. University advisor/guidance counselor(s)	N/A	1	2	3	4	5
N. High school guidance counselor(s)	N/A	1	2	3	4	5

APPENDIX O
**PARTICIPANTS CAREER, EDUCATIONAL, AND PERSONAL INTERESTS,
OTHER THAN TEACHING AGRICULTURE**

Ag. Literacy Coordinator	FFA Organization
Farming	Animal Science
Vet School	Nursing
Open boarding kennel	Vet tech. position
Own landscape business	political office
Computer technology	seedstock promoter
Embryo transfer	other teaching
P.R./sales	greenhouse manager
Farming	biology
other teaching	Ag. business industry
Ag. business	construction
Extension	business
Sales	4-H Extension
Farming	other education opportunity
Communication	family
Administration	Family
Elementary education	sales
Farming	Extension
Elementary Education	Family
Sales/marketing	government position
Production Ag.	P.R.
Farming	greenhouse business
Elementary Education	Ag in Classroom
Ag. business	Family
Ag. business	dairy industry
Graduate school	University Professor
Livestock Nutrition/Feed sales	Athletic Director
4-H Youth Development	Graduate School
Elementary education	Substitute Teach
Other teaching	Finance
Farming	Real estate
Extension Agent	Ag. Business Management
University Professor in Ag Ed	Production Agriculture
Homemaker	Horticulture
Extension	University
Homemaker	Family

Ag. sales	Ag. lending
Family	Ag. related
Ag marketing/sales	Ag. Marketing
Sales	business owner
Homemaker	Ag. Communications
Ag. Business	Floral designer
Ag. related	Sign Lang. Interpreter
Public service	Banking
Extension Agent	Grad. school
Extension Agent	Homemaker
Pest control	Extension
Extension Agent	Ag. Production
Ranching	Wildlife biology
Extension Agent	sales
Teach other subjects	publication
Pharmaceutical Industry	Science Teacher
Banking	Business
Ag Business	Sales
Swine Producer	other Ag. related
Sales	Sales
University Teacher	Farm Credit Bank
Baker	beef production
Meat industry	communications job
Horticulture	P.R.
Grad. School	Sales
Science teacher	Extension
Extension	Comm. College Teacher
Extension Equine Specialist	Law School
Auctioneer	Computers
Ag. communications	Stock show coordinator
Extension	Law School
Ag. business	Mechanics
Mechanics	Farming
NRCS	Science Teacher
Federal/State Agriculture agency	Coaching
Business	Real Estate
NRCS	University - not teaching
Agriculture lending	Crop production
Extension	Teach other subject
Ag. Extension	Communication
Ag. Business/sales	Elementary teacher
Ag. Sales/business	Extension
Grad school	Teach history or English
Architecture	Sales

Beef producer	Rancher
College Teacher	Raise show cattle
Electrical Coop	Ranching/farming
Extension service	Extension
Extension agent	Ag Business Management
Soil Conservationist	Ag Loan Specialist
Self-employed	Bank Manager
Extension Agent	Architect
Construction	Hunting Guide
Farm Credit Agent	Ag related field
Forest Service	Animal Science
Farming	Sales
Teach Science or History	Greenhouse management
Teach Science	Human Relations
Ag. finance	Extension service
Ag. sales	Soil Science
Loan officer	Elementary teacher
Construction	Farming/Ranch
Teach speech & drama	Horticulture
Teach Junior College Ag.	coaching
Banking	Extension Service
Ag. Business	Sales
Police Officer, Detective or FBI	Ranching
Raise cattle	Landscaping
Camp director for FFA, FCCLA Camps	Cattle rancher
Flower seed salesman	Administrator
NRCS soil conservation	Teach other subject
Marketing	Extension
Teach other subject	Ag Real Estate
Ag related field	Feed salesman
Livestock Marketing	Poultry Industry
Family Farm	Florist
Ag in the Classroom	Elementary Teacher
Teach other subjects	Business owner
Ag Sales or Management	Appraiser
4-H Extension	Equine farm management
Family	Coach soccer
Teach special ed or elementary	Air conditioning
Teach science or math	Administrator
Teach Spanish	Ag Sales
Teach math, coach, administration	Ranching
Ag. related	Science Teacher
Farm/ranch manager	Waitress
Law	Ranching

4-H Extension/ Youth Development	Ag. Business
College Professor	Business
Sales	Construction
Ag. sales	Ag related
Teaching History or Speech	School Administrator
Whatever is available	National Park Ranger
Nursing	Counseling
Elementary teacher	Food Critic
Dentistry	Restaurant owner
Air Force Officer	Crime Scene Investigator
Ag Extension	Teach other subject
Legislative Assistant	Teach Science
Teach math	Other business job
Teaching math	Comm. College Prof.
Teach History/Government	Ag Sales
Spanish Teacher	Construction/Builder
Extension	Rail Road
Military	Insurance
Teach Biology	Real Estate
Teach Biology	Ag Marketing
Production Ag.	Extension Agent
Horticulture	Family
Extension	Ag. Extension
Ag related	Ag. Inspector,
Teach English, Special Ed. or History	Cattle Breed Association
Ag. Extension	Politics
Ag. Business	

LIST OF REFERENCES

- Agresti, A., & Finlay, B. (1997). *Statistical methods for the social sciences* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.
- American Association for Employment in Education (2001). *Educator Supply and Demand in the United States: 2000 Research Report*. Retrieved July 27, 2004, from the American Association for Employment in Education, Inc. Web site: <http://www.aaee.org/>
- American Association of Agricultural Educators. (2004). *AAAE directory of university faculty in agricultural education*. Retrieved July 27, 2004, from the American Association of Agricultural Educators Web site: <http://aaaeonline.org/>
- American Association of Colleges for Teacher Education. (2004). *Teacher education primer 2004: Information for members of congress for the reauthorization of the higher education act*. Retrieved July 27, 2004, from the American Association of Colleges for Teacher Education Web site: http://www.aacte.org/Government_Relations/04primer.pdf
- Andrew, M. D. (1983). The characteristics of students in a five-year teacher education program. *Journal of Teacher Education*, 34(1), 20-23.
- Ary, D., Jacobs, L. C., & Razavieh, A. (2002). *Introduction to research in education* (6th ed.). Belmont, CA: Wadsworth/Thompson Learning.
- Astin, H. S. (1984). The meaning of work in women's lives: A socio-psychological model of career choice and work behavior. *The Counseling Psychologist*, 12, 117-126.
- Atkinson, J. W. (1964). *An introduction to motivation*. Princeton, NJ: Van Nostrand.
- Bajema, D. H., Miller, W. W., & Williams, D. L. (2002). Aspirations of rural youth. *Journal of Agricultural Education*, 43(3), 61-71.
- Baker, M., & Hedges, L. (1991). Professional education and differences between graduate career choice. *Journal of Agricultural Education*, 32(3), 42-47.
- Bandiera de Mello, V., & Broughman, S. (1996). *Schools and Staffing Survey (SASS) by state, 1993-94 schools and staffing survey: Selected results*. Retrieved June 29, 2004, from the United States Department of Education, National Center for Education Statistics Web site: <http://nces.ed.gov/pubs96/web/96312.asp>

- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191-215.
- Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44*, 1175-1184.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Barrick, R. K. (1989). Agricultural education: Building upon our roots. *Journal of Agricultural Education, 30*(4), 24-29.
- Betz, N. E., & Fitzgerald, L. F. (1987). *The career psychology of women*. Orlando, FL: Academic Press.
- Betz, N. E., & Hackett, G. (1981). The relationship of career related self-efficacy expectations to perceived career options in college women and men. *Journal of Counseling Psychology, 28*(5), 399-410.
- Betz, N. E., Harmon, L., & Borgen, F. H. (1996). The relationships of self-efficacy for Holland themes to gender, occupational group membership, and vocational interests. *Journal of Counseling Psychology, 43*, 90-98.
- Betz, N. E. & Luzzo, D. A. (1996). Career assessment and the Career Decision Making Self-Efficacy Scale. *Journal of Career Assessment, 4*, 313-328.
- Betz, N. E., & Voyten, K. K. (1997). Efficacy and outcome expectations influence career exploration and decidedness. *Career Development Quarterly, 46*, 354-366.
- Bontempo, B., & Digman, S. (1985, April). *Entry level profile: Student attitudes toward the teaching profession*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL. (ERIC Document Reproduction Service No. 258949)
- Book, C., Freeman, D., & Brousseau, B. (1985). Comparing academic backgrounds and career aspirations of education and non-education majors. *Journal of Teacher Education, 36* (3), 27-30.
- Bores-Rangel, E., Church, T. A., Szendre, D., & Reeves, C. (1990). Self-efficacy in relation to occupational consideration and academic performance in high school equivalency students. *Journal of Counseling Psychology, 37*, 407-418.
- Braswell, C. C., & Cobia, D. (2000, October). *The effect of internship and a personal trait on career development*. Paper presented at the annual meeting of the Southern Association for Institutional Research, Myrtle Beach, SC. (ERIC Document Reproduction Service No. 450231)

- Brown, J. L. (1995). *Patterns of supply and demand of teachers in agricultural education since 1965*. Unpublished honors thesis, The Pennsylvania State University.
- Bryan, J. F., & Locke, E. A. (1967). Goal-setting as a means of increasing motivation. *Journal of Applied Psychology*, 51, 274-277.
- Burke, S. R., & Hillison, J. (1991). Practicing agricultural education teachers' concerns and their implications for improving the profession. *Journal of Agricultural Education*, 32(2), 10-15.
- Camp, W. G. (2000). *A national study of the supply and demand of teachers of agricultural education in 1996-1998*. Retrieved June 10, 2004, from Virginia Polytechnic Institute and State University, Agricultural Education Web site: <http://www.aged.vt.edu/Publications/Report98.doc>
- Camp, W. G., Broyles, T., & Skelton, N. S. (2002). *A national study of the supply and demand of teachers of agricultural education in 1999-2001*. Retrieved June 10, 2004, from Virginia Polytechnic Institute and State University, Agricultural Education Web site: <http://www.aged.vt.edu/Report01.doc>
- Campbell, D. T., & Stanley, J. C. (1966). *Experimental and quasi-experimental designs for research*. Boston: Houghton Mifflin.
- Cano, J. (1990). Male vocational agriculture teachers' attitude and perception towards female teachers of agriculture. *Journal of Agricultural Education*, 31(3), 19-23.
- Cano, J., & Miller, G. (1992). A gender analysis of job satisfaction, job satisfier factors, and job dissatisfier factors of agricultural education teachers. *Journal of Agricultural Education*, 33(3), 40-46.
- Church, A. T., Teresa, J. S., Rosebrook, R., & Szendre, D. (1992). Self-efficacy for careers and occupational consideration in minority high school equivalency students. *Journal of Counseling Psychology*, 39, 498-508.
- Chwalisz, K. D., Altmaier, E. M., & Russell, D. W. (1992). Causal attributions, self-efficacy cognitions, and coping with stress. *Journal of Social and Clinical Psychology*, 11, 377-400.
- Clason, D. L., & Dormody, T. J. (1994). Analyzing data measured by individual Likert-type items. *Journal of Agricultural Education*, 34(4), 31-35.
- Clement, S. (1987). The self-efficacy expectations and occupational preferences of females and males. *Journal of Occupational Psychology*, 60, 257-265.
- Coladarci, T. (1992). Teachers' sense of efficacy and commitment to teaching. *Journal of Experimental Education*, 60, 323-337.

- Cole, L. (1984). Oregon vocational agriculture teacher placement and retention factors. *Journal of the American Association of Teacher Educators in Agriculture*, 25(3), 2-13.
- Coughlin, M. T., Lawrence, L. D., Gartin, S. A., & Templeton, M. E. (1988). Benefits and problems experienced by spouses of vocational agriculture teachers in West Virginia. *Journal of Agricultural Education*, 29(1), 53-57.
- Cruickshank, D., & Armaline, W. (1986). Field experiences in teacher education: Considerations and recommendations. *Journal of Teacher Education*, 37(3), 34-40.
- Cruickshank, D. R., Bainer, D., Cruz Jr., J., Giebelhaus, C., McCullough, J. D., Metcalf, K.K., et al. (1996). *Preparing America's teachers*. Bloomington, ID: Phi Delta Kappan Educational Foundation.
- Davis, K., & Newstrom, J. W. (1989). *Human behavior at work: Organizational behavior* (8th ed.). New York: McGraw Hill.
- Defense Activity for Non-traditional Educational Support. (n.d.). *Troops-to-Teachers*. Retrieved June 29, 2004, from http://www.dantes.doded.mil/dantes_web/troopstoteachers/index.htm?Flag=True
- DeVaus, D. A. (1990). *Surveys in social research* (2nd ed.). London: Unwin Hyman.
- Diegelman, N. M., & Subich, L. M. (2001). Academic and vocational interests as a function of outcome expectancies in social cognitive career theory. *Journal of Vocational Behavior*, 59, 394-405.
- Dillman, D. A. (2000). *Mail and Internet surveys: The tailored design method* (2nd ed.). New York: John Wiley & Sons, Inc.
- Eccles, J. S. (1989). Bringing young women to math and science. In M. Crawford & M. Gentry (Eds.), *Gender and thought* (pp. 36-58). New York: Springer-Verlag.
- Edwards, M. C., & Briers, G. E. (2001). Selected variables related to expected longevity in teaching of entry-phase agriculture teachers. *Journal of Career and Technical Education*, 18(1). Retrieved March 3, 2004, from <http://scholar.lib.vt.edu/ejournals/JCTE/v18n1/edwards.html>
- Enochs, L. G., & Riggs, I. M. (1990). Further development of an elementary science teaching efficacy belief instrument: A preservice elementary scale. *School Science and Mathematics*, 90, 694-706.
- Evans, E. D., & Tribble, M. (1986). Perceived teaching problems, self-efficacy, and commitment to teaching among preservice teachers. *Journal of Educational Research*, 80, 81-85.

- Farmer, H. S. (1985). Model of Career and Achievement Motivation for Women and Men. *Journal of Counseling Psychology, 32*(3), 363-390.
- Fassinger, R. E. (1990). Causal models of career choice in two samples of college women. *Journal of Vocational Behavior, 36*, 225-248.
- Feather, N. T. (Ed.). (1982). *Expectations and actions: Expectancy-value models in psychology*. Hillsdale, NJ: Erlbaum.
- Ferry, T. R., Fouad, N. A., & Smith, P. L. (2000). The role of family context in a social cognitive model for career-related behavior: A math and science perspective. *Journal of Vocational Behavior, 57*, 348-364.
- Fortman, C. K., & Pontius, R. (2000, October). *Self-efficacy during student teaching*. Paper presented at the annual meeting of the Mid-Western Educational Research Association, Chicago, IL.
- Foster, B. B. (2001, December). *Women in Agricultural Education: Who are You?* Paper presented at the National Agricultural Education Research Conference, New Orleans, LA.
- Foster, R. M., Pikkert, J. J., & Husman, D. E. (1991, December). *Self-perception of gender bias among women agriculture teachers*. Paper presented at the National Agricultural Education Meeting, Los Angeles, CA.
- Fouad, N. A., & Smith, P. L. (1996). A test of a social cognitive model for middle school students: Math and science. *Journal of Counseling Psychology, 43*, 338-346.
- Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Educational research: An introduction* (6th ed.). White Plains, NY: Longman Publishers USA.
- Gerald, D. E., & Hussar, W. J. (2003, October). *Projections of Education Statistics to 2013*. Retrieved June 29, 2004, from the United States Department of Education, National Center for Education Statistics Web site: <http://www.nces.ed.gov//programs/projections/>
- Gibson, S., & Dembo, M. H. (1984). Teacher efficacy: A construct validation. *Journal of Educational Psychology, 76*, 569-582.
- Glickman, C. D., & Tamashiro, R. T. (1982). A comparison of first-year, fifth-year, and former teachers on efficacy, ego development, and problem solving. *Psychology in the Schools, 19*, 558-562.
- Guskey, T. R., & Passaro, P. D. (1994). Teacher efficacy: A study of construct dimensions. *American Educational Research Journal, 31*, 627-643.

- Hackett, G. (1985). The role of mathematics self-efficacy in the choice of math-related majors of college women and men: A path analysis. *Journal of Counseling Psychology, 18*, 173-188.
- Hackett, G. (1995). Self-efficacy in career choice and development. In A. Bandura (Ed.), *Self efficacy in changing societies* (pp. 232-258). New York: Cambridge University Press.
- Hackett, G., & Betz, N. E. (1989). An exploration of the mathematics self-efficacy/mathematics performance correspondence. *Journal of Research in Mathematics Education, 20*, 261-273.
- Hanson, S. L. (1994). Lost talent: Unrealized educational aspirations and expectations among U.S. youth. *Sociology of Education, 67*, 159-183.
- Hillison, J., Camp, W. G., & Burke, S. R. (1987). Why undergraduates chose agricultural education as a major: 1980 vs. 1985. *Journal of Agricultural Education, 28*(2), 2-7, 32.
- Holland, J. L. (1966). *The psychology of vocational choice*. Walham, MA: Blaisdell.
- Hussar, W. J. (1998). *Predicting the need for newly hired teachers in the United States to 2008-09*. Retrieved July 21, 2004, from the United States Department of Education, National Center for Education Statistics Web site: <http://nces.ed.gov/pubs99/1999026.pdf>
- Ingersoll, R. M. (2001, January). *Teacher turnover, teacher shortages, and the organization of schools*. Retrieved July 21, 2004 from the Center for the Study of Teaching and Policy, University of Washington Web site: <http://depts.washington.edu/ctpmail/PDFs/Turnover-Ing-01-2001.pdf>
- Irwin, F. W. (1971). *Intentional behavior and motivation: A cognitive view*. Philadelphia: Lippincott.
- Joseph, P., & Green, N. (1986). Perspectives on reasons for becoming teachers. *Journal of Teacher Education, 37*(6), 28-33.
- Kemper, R., & Mangieri, J. (1985). Student interest in teaching: Implications for recruitment. *Teacher Educator, 20*(4), 19-24.
- King, S. H. (1993). Why did we choose teaching careers and what will enable us to stay: Insights from one cohort of the African American teaching pool. *Journal of Negro Education, 62*(4), 475-491.
- Knight, J. (1987, Decemeber). *Current status of women teachers of vocational agriculture in Ohio and their perception of their place in the profession*. Paper presented at the National Agricultural Education Research Meeting, Las Vegas, NV.

- Knobloch, N. A. (2002). *Exploration of effects caused by the first ten weeks of the school year on teacher efficacy on student teachers and novice teachers in agricultural education in Ohio*. Unpublished doctoral dissertation, The Ohio State University, Columbus, OH.
- Knobloch, N. A., & Whittington, M. S. (2002). Novice teachers' perceptions of support, teacher preparation quality, and student teaching experience related to teacher efficacy. *Journal of Vocational Education Research*, 27(3), 331-341.
- Kotrlik, J. W., & Harrison, B. C. (1987). Factors related to the career decisions of seniors who have taken vocational agriculture. *Journal of the American Association of Teacher Educators in Agriculture*, 25(3), 13-21.
- Krumboltz, J. D. (1994). Improving career development theory from a social learning theory. In M. L. Savickas & R. W. Lent (Eds.), *Convergence in career development theories: Implications for science and practice* (p. 84). Palo Alto, CA: Consulting Psychologist Press.
- Krumboltz, J. D., Mitchell, A. M., & Jones, G. B. (1976). A social learning theory of career selection. *The Counseling Psychologist*, 6, 71-81.
- Lapan, R. T., Hinkelmann, J. M., Adams, A., & Turner, S. (1999). Understanding Rural Adolescents' Interests, Values, and Efficacy Expectations. *Journal of Career Development*, 26(2), 107-124.
- Lapan, R. T., & Jingelieski, J. (1992). Circumscribing vocational aspirations in junior high school. *Journal of Counseling Psychology*, 39, 81-90.
- Lapan, R. T., Shaughnessy, P., & Boggs, K. (1996). Efficacy expectations and vocational interests as mediators between sex and choice of math/science college majors: A longitudinal study. *Journal of Vocational Behavior*, 49, 277-291.
- Lauver, P. J., & Jones, R. M. (1991). Factors associated with perceived career options in American Indian, White, and Hispanic rural high school students. *Journal of Counseling Psychology*, 38, 159-166.
- Lawler, E. E. (1977). Satisfaction and behavior. In W.C. Hamner & F. L. Schmidt (Eds.), *Contemporary problems in personnel* (pp. 352-361). Chicago: St. Clair Press.
- Lent, R. W., & Brown, S. D. (1996). Social cognitive approach to career development: An overview. *Career Development Quarterly*, 44, 310-321.
- Lent, R. W., Brown, S. D., Brenner, B., Chopra, S. B., Davis, T., Talleyrand, R., et al. (2001). The role of contextual supports and barriers in the choice of math/science educational options: A test of social cognitive hypotheses. *Journal of Counseling Psychology*, 48(4), 474-483.

- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45*, 79-122.
- Lent, R. W., Brown, S. D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology, 47*(1), 36-49.
- Lent, R. W., Brown S. D., & Larkin, K. C. (1984). Relation of self-efficacy expectations to academic achievement and persistence. *Journal of Counseling Psychology, 31*, 356-362.
- Lent, R. W., Brown, S. D., & Larkin, K. C. (1986). Self-efficacy in the prediction of academic performance and perceived career options. *Journal of Counseling Psychology, 33*, 265-269.
- Lent, R. W., Brown, S. D., & Larkin, K. C. (1989). Relation of self-efficacy expectations to academic achievement and persistence. *Journal of Counseling Psychology, 31*, 356-362.
- Lent, R. W., Brown, S. D., Schmidt, J., Brenner, B., Lyons, H., & Treistman, D. (2003). Relation of contextual supports and barriers to choice behavior in engineering majors: Test of alternative social cognitive models. *Journal of Counseling Psychology, 50*(4), 458-465.
- Lent, R. W., & Hackett, G. (1987). Career efficacy: Empirical status and future directions. *Journal of Vocational Behavior, 30*, 347-382.
- Lent, R. W., Hackett, G. & Brown, S. D. (1996). A social cognitive framework for studying career choice and transition to work. *Journal of Vocational Education Research, 21*(4), 3-31.
- Lent, R. W., Lopez, F. G., & Bieschke, K. J. (1991). Mathematics self-efficacy: Sources and relation to science-based career choice. *Journal of Counseling Psychology, 38*, 424-430.
- Lent, R. W., Lopez, F. G., & Bieschke, K. J. (1993). Predicting mathematics-related choices and success behaviors: Test of an expanded social cognitive model. *Journal of Vocational Behavior, 42*, 223-236.
- Lopez, F. G., Lent, R. W., Brown, S. D., & Gore, P. A. (1997). Role of social-cognitive expectations in high school students' mathematics-related interests and performance. *Journal of Counseling Psychology, 44*, 44-52.
- Lucas, M. (1997). Identify development, career development, and psychological separation from parents: Similarities and differences between men and women. *Journal of Counseling Psychology, 44*, 123-132.

- Luzzo, D. A., Funk, D. P., & Strang, J. (1996). Attributional retraining increases career decision making self-efficacy. *Career Development Quarterly, 44*, 378-386.
- Luzzo, D. A., & Taylor, M. (1993-1994). Effects of verbal persuasion on the career self-efficacy of college freshman. *California Association for Counseling and Development Journal, 14*, 31-34.
- Matsui, T., Ikeda, H., & Ohnishi, R. (1989). Relations of sex-typed socializations to career self-efficacy expectations of college students. *Journal of Vocational Behavior, 35*, 1-16.
- Matsui, T., Matsui, K., & Ohnishi, R. (1990). Mechanisms underlying math self-efficacy learning of college students. *Journal of Vocational Behavior, 37*, 225-238.
- Matsui, T., & Onglatco, M. L. (1991). Instrumentality, expressiveness, and self-efficacy in career activities among Japanese working women. *Journal of Vocational Behavior, 39*, 241-250.
- Matsui, T., & Tsukamoto, S. I. (1991). Relation between career self-efficacy measures based on occupational titles and Holland codes and model environments: A methodological contribution. *Journal of Vocational Behavior, 38*, 78-91.
- Matzeder, M. E., & Krieshok, T. S. (1995). Career self-efficacy and the prediction of work and home role salience. *Journal of Career Assessment, 3*, 331-340.
- McCoy, J. S., & Mortensen, J. H. (1983). Recent Pennsylvania agricultural education graduates: Their academic ability and teaching status. *Journal of the American Association of Teacher Educators in Agriculture, 24*(3), 46-52.
- McGhee, M. B., & Cheek, J. G. (1990). Assessment of the preparation and career patterns of agricultural education graduates, 1975-1985. *Journal of Agricultural Education, 31*(2), 17-22.
- McWhirter, E. H. (1997a). Perceived barriers to education and career: Ethnic and gender differences. *Journal of Vocational Behavior, 50*, 124-140.
- McWhirter, E. H. (1997b, August). *Perceived educational barriers and adolescents*. Paper presented at the meeting of the American Psychological Association, Chicago, IL.
- McWhirter, E. H., Hackett, G., & Bandalos, D. (1998). A causal model of the educational plans and career expectations of Mexican American girls. *Journal of Counseling Psychology, 45*, 166-181.
- McWhirter, E. H., Rasheed, S., & Crothers, M. (2000). The effects of high school career education on social cognitive variables. *Journal of Counseling Psychology, 47*, 330-341.

- Miller, L. E. (1994). Correlations: Descriptions or Inferences? *Journal of Agricultural Education*, 35(1), 5-7.
- Miller, W. W., Kahler, A. A., & Rheault, K. (1989). Profile of the effective vocational agriculture teacher. *Journal of Agricultural Education*, 30(2), 33-40.
- Muller, J. E., & Miller, W. W. (1993). Are the more academically able agriculture teacher candidates not entering or remaining in the teaching profession? *Journal of Agricultural Education*, 34(4), 64-71.
- Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology*, 38, 30-38.
- National Center for Education Information (2005). *Alternative Teacher Certification: A State-by-State Analysis 2005*. Retrieved March 7, 2005, from the National Center for Education Information Web site: <http://www.ncei.com/introduction05.html>
- National Council for Agricultural Education. (1999). *The national strategic plan and action agenda for agricultural education: Reinventing agricultural education for the year 2020*. Retrieved June 29, 2004, from the National Council for Agricultural Education Web site: http://www.teamaged.org/plan2020/plan_cover.htm
- National FFA Organization. (n.d.). *The FFA mission*. Retrieved June 29, 2004, from the National FFA Organization Web site: http://www.ffa.org/about_ffa/index.html
- National FFA Organization. (2005). FFA Statistics. Retrieved February 16, 2005 from the National FFA Organization Web site: http://www.ffa.org/about_ffa/html/ffa_statistics.htm
- Nauta, M. M., Epperson, D. L., & Kahn, J. H. (1998). A multiple-groups analysis of predictors of higher level career aspirations among women in mathematics, science and engineering majors. *Journal of Counseling Psychology*, 45(4), 483-496.
- Nebraska State Education Association. (n.d.). *National Teacher Shortage*. Retrieved June 16, 2004, from <http://www.nsea.org/legpol/shortage.html>
- Noble, A. J., Hackett, G., & Chen, E. C. (1992, April). *Relations of career and academic self-efficacy to the career aspirations and academic achievement of ninth and tenth grade at risk students*. Paper presented at the meeting of the American Educational Research Association, San Francisco, CA.
- Norusis, M. J. (2004). *SPSS 12.0 guide to data analysis*. Upper Saddle River, NJ: Prentice Hall.
- Novi, M. J., & Meinster, M. O. (2000). Achievement in a relational context: Preferences and influences in female adolescents. *The Career Development Quarterly*, 49, 73-84.

- O'Brien, K. M., & Fassinger, R. E. (1993). A causal model of the career orientation and choice of adolescent women. *Journal of Counseling Psychology, 40*, 456-469.
- O'Brien, K. M., Gray, M. P., Tourajdi, P. P., & Eigenbrode, S. P. (1996, August). *The operationalization of women's career choices: The career aspiration scale*. Paper presented at the meeting of the American Psychological Association, Chicago, IL.
- Paa, H. K., & McWhirter, E. H. (2000). Perceived influences of high school students' current career expectations. *The Career Development Quarterly, 49*, 29-44.
- Pajares, F. (1996). Self-efficacy beliefs in achievement settings. *Review of Educational Research, 66*, 543-578.
- Pajares, F. (2002). *Overview of social cognitive theory and of self-efficacy*. Retrieved September 17, 2003, from <http://www.emory.edu/EDUCATION/mfp/eff.html>
- Parmley, J.D., Bowen, B. E., & Warmbrod, J. R. (1979, August). *The supply and demand of teachers of agriculture: Can the situation be explained*. Paper presented at the annual meeting of the Central Region Conference in Agricultural Education, Manhattan, KS.
- Perrone, K. M., Sedlack, W. E., & Alexander, C. M. (2001). Gender and ethnic differences in career goal attainment. *The Career Development Quarterly, 50*(2), 168-178.
- Phillips, D. A., & Zimmerman, M. (1990). The developmental course of perceived competence and incompetence among competent children. In R.J. Sternberg & J. Kolligian, Jr. (Eds.), *Competence considered* (pp. 41-66). New Haven, Conn.: Yale University Press.
- Porter, L. W., & Steers, R. M. (1973). Organizational, work, and personal factors in employee turnover and absenteeism. *Psychological Bulletin, 80*(2), 151-176.
- Post-Kammer, P., & Smith, P. L. (1985). Sex differences in career self-efficacy, consideration, and interests of eighth and ninth graders. *Journal of Counseling Psychology, 32*, 551-559.
- Rasheed, S. (2001). *Prediction of post secondary plans for rural Appalachian youth*. Unpublished doctoral dissertation, University of Oregon, Eugene.
- Rocca, S. J., & Washburn, S. G. (2005, February). *A Comparison of Teacher Efficacy of Traditionally and Alternatively Certified Agriculture Teachers*. Paper presented at the Southern Region Agricultural Education Research Conference, Little Rock, AR.
- Rooney, R. A., & Osipow, S. H. (1992). Task specific occupational self-efficacy scale: The development and validation of a prototype. *Journal of Vocational Behavior, 40*, 14-32.

- Rotberg, H. L., Brown, D., & Ware, W. B. (1987). Career self-efficacy expectations and perceived range of career options in community college students. *Journal of Counseling Psychology, 34*, 164-170.
- Schaffner, M., & Jepsen, D. A. (1999). *Testing a social cognitive model of career choice development within the context of a minority teacher recruitment program*. Washington, DC: United States Department of Education. (ERIC Document Reproduction Service No. ED469724)
- Schlecty, P. C., & Vance, S. V. (1981). Do academically able teachers leave education? The North Carolina case. *Phi Delta Kappan, 63*(2), 106-112.
- Schunk, D. H. (1989). Self-efficacy and cognitive skill learning. In C. Ames & R. Ames (Eds.), *Research on motivation in education, Vol. 3: Goals and cognitions* (pp. 13-44). San Diego, CA: Academic Press.
- Serow, R. (1994). Called to teach: A study of highly motivated pre-service teachers. *The Journal of Research and Development in Education, 27*(2), 65-71.
- Sharf, R. S. (1996). *Applying career development theory to counseling* (2nd ed.). Pacific Grove, CA: Brooks/Cole Publishing Company.
- Snyder, J. F., Doer, A. S., & Pastor, M. (1995). *Perceptions of preservice teachers: The job market, why teaching and alternatives to teaching*. Slippery Rock, PA: Office of Career Services, Division of Student Affairs, Slippery Rock University. (ERIC Document Reproduction Service No. ED390865)
- Smith, P. L., & Fouad, N. A. (1999). Subject-matter specificity of self-efficacy, outcome expectancies, interests, and goals: Implications for the social-cognitive model. *Journal of Counseling Psychology, 46*(4), 461-471.
- Smith, S. M. (2001). A social cognitive approach to the career development of undergraduate students. *Delta Pi Epsilon Journal, 43*(4), 200-214.
- Super, D. E. (1990). A life-span, life-space approach to career development. In D. Brown, L. Brooks, & Associates, *Career choice and development* (pp. 197-261). San Francisco: Jossey-Bass.
- Swanson, J. L., Daniels, K. K., & Tokar, D. M. (1996). Assessing perceptions of career related barriers: The career barriers inventory. *Journal of Career Assessment, 4*, 219-244.
- Swanson, J. L., & Woitke, M. B. (1997). Theory into practice in career assessment for women: Assessment and interventions regarding perceived career barriers. *Journal of Career Assessment, 5*, 443-462.

- Taylor, K. M., & Betz, N.E. (1983). Applications of self-efficacy theory to the understanding and treatment of career indecision. *Journal of Vocational Behavior*, 22, 63-81.
- Taylor, K. M., & Pompa, J. (1990). An examination of the relationships among career decision making self-efficacy, career salience, locus of control and vocational indecision. *Journal of Vocational Behavior*, 37, 17-31.
- Trusty, J. (1998). Family influences on educational expectations of adolescents. *Journal of Educational Research*, 91, 260-270.
- Trusty, J., Ng, K. M., & Plata, M. (2000). Interaction effects of gender, SES, and race-ethnicity on post secondary educational choices of U.S. students. *The Career Development Quarterly*, 49, 45-59.
- Trusty, J., Robinson, C. R., Plata, M., & Ng, K. M. (2000). Effects of gender, socioeconomic status, and early academic performance on post secondary educational choice. *Journal of Counseling and Development*, 78, 463-472.
- Tschannen-Moran, M., Woolfolk Hoy, A., & Hoy, W.K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research*, 68, 202-248.
- Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, 17, 783-805.
- United States Department of Labor, Office of Employment and Unemployment Statistics. (2001). *Labor force participation of persons 16 years old and over, by age, sex, race/ethnicity, and highest level of education: 2000*. Retrieved July 1, 2004, from the National Center for Education Statistics Web site: <http://nces.ed.gov/programs/digest/d01/dt379.asp>
- United States Department of Labor, Women's Bureau. (2000). Facts on Working Women. Retrieved September 13, 2000, from the United States Department of Labor Web site: http://www.dol.gov/dol/wb/public/wb_pubs/20fact00.htm
- Vondracek, F. W., Lerner, R. M., & Schulenberg, J. E. (1986). *Career development: A life-span developmental approach*. Hillsdale, NJ: Erlbaum.
- Vroom, V. H. (1964). *Work and motivation*. New York: Wiley.
- Wall, J., Covell, K., & MacIntyre, P. D. (1999). Implications of social supports for adolescents' education and career aspirations. *Canadian Journal of Behavioral Science*, 31(2), 63-71
- Wayne, A. J. (2000). Teacher supply and demand: Surprises from primary research. *Education Policy Analysis Archives*, 8, Article 47. Retrieved June 2, 2004, from <http://epaa.asu.edu/epaa/v8n47.html>

Webster's New Reference Library: An Encyclopedia of Dictionaries. (1984). Nashville, TN: Thomas Nelson Publishers.

Wheeler, K. G. (1983). Comparisons of self-efficacy and expectancy models of occupational preferences for college males and females. *Journal of Occupational Psychology, 56*, 73-78.

Whitener, S. D., Gruber, K., Lynch, H., Tingos, K., & Fontelier, S. (1997). *Characteristics of stayers, movers, and leavers: Results from the teacher followup survey 1994-95.* Retrieved June 29, 2004, from the United States Department of Education, National Center for Education Statistics Web site: <http://nces.ed.gov/pubs97/97450.pdf>

Williams, D. L. (1991). Focusing agricultural education research: Strategies for the discipline. *Journal of Agricultural Education, 32*(2), 7-12.

Zimpher, N. (1989). The RATE project: A profile of teacher education students. *Journal of Teacher Education, 40*(6), 27-30

BIOGRAPHICAL SKETCH

Steven John Rocca was born November 13, 1971, in Fresno, CA. He grew up near the small community of Easton where he attended Washington Union High School. Steven was an active member of the Easton-Fresno FFA chapter and held numerous leadership positions and eventually earned the American FFA Degree, the highest degree an FFA member can achieve.

After graduating in 1990, Steven entered California State University, Fresno where he began studying agriculture. He completed his Bachelor of Science degree in agricultural education in 1995 and after completing his credential coursework and student teaching at Sierra Joint Union High School he received his teaching certification in 1996.

Steven accepted a position to teach agriculture at Washington Union, his alma mater. As a high school teacher, he had the opportunity to restructure and expand the agriculture program from a single teacher program to a four teacher department. During his tenure, his peers honored him as the Washington Union High School District Teacher of the Year, the West Fresno-Madera Outstanding Young Teacher, and his program was recognized as the California Agriculture Teacher Association's Outstanding 2-3 Teacher Program. While teaching, Steven also completed his Master of Science degree in Agricultural Education at California Polytechnic State University, San Luis Obispo in 2000.

His success at the high school level opened the door for a position at California State University, Fresno, where in January 2001, he accepted a lectureship in Agricultural

Education. At Fresno State, Steven taught agricultural education courses, supervised the College's ambassador program, and co-advised the student committees that coordinated the FFA Field Day and California State FFA Leadership Conference.

Steven's career interests in higher education led him to consider doctoral study. In doing so, he was offered the College of Agricultural and Life Sciences Alumni Fellowship at the University of Florida. He accepted and began his doctoral program in agricultural education in 2003, with an emphasis in teacher education. During his time at the University of Florida, he served as a graduate teaching and research assistant. He taught and assisted with various undergraduate courses and assisted with the development and teaching of two graduate distance education courses. Additionally, Steven conducted research related to the factors that affect students' choice of a university and preservice agriculture teachers' career decisions. While completing his degree, he was also a member of two honor societies, Alpha Tau Alpha and Gamma Sigma Delta, and the Agriculture Education and Communication Graduate Student Association, in which he served as the organization's Treasurer.