FACTORS INFLUENCING URBAN STUDENTS TO MAJOR IN AGRICULTURE

by

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B.S., Kansas State University, 2002
M.S., Kansas State University, 2005

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Curriculum and Instruction
College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

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Abstract

Colleges of agriculture across the country are challenged to produce more graduates in order to meet the increase in employment opportunities in the areas of agriculture, food, and renewable natural resources. To attract students from areas with the most growth, urban communities, this study identified factors such as exposures to agriculture, college factors, and career aspirations that influenced urban students to major in agriculture and enroll in the College of Agriculture at Kansas State University (KSU). The accessible sample consisted of 125 students currently majoring in the College of Agriculture (agriculture students) and 18 students no longer majoring in the College of Agriculture (non-agriculture students) who completed the online questionnaire.

Students from both groups were predominately female, non-minority students from the state of Kansas who entered KSU as incoming freshmen. The majors most represented were animal sciences and industry, pre-veterinary medicine, and food science and industry. The mean ACT score for agriculture students was 26.23 and 24.81 for non-agriculture students.

For both groups of students, having a relative who worked in a field related to agriculture (grandparents, parent/guardian, aunt and uncle) was influential when they chose their academic major. A higher percentage of agriculture students had a relative who worked in a field related to agriculture or in production agriculture, compared to non-agriculture students.

Career opportunities for graduates, hands-on-learning opportunities, friendly atmosphere in the College of Agriculture, visit to campus, quality and reputation of college faculty, availability of academic programs, and affordability of KSU were college factors most

influential among the sample of students. Least influential factors were interaction with alumni, agriculture related camps and competitive events on campus, and ability to take online courses.

Agriculture students were more influenced by career aspirations specific to career interests, such as working with people and animals, being able to use their creativity, or work with their hands. Non-agriculture students were influenced by broader career aspirations, such as having a job they enjoyed or being able to advance in their career.

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Major Professor
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Chapter 1 - Introduction

Enrollment in agriculture programs has undergone major change over the past 30 years. High schools and colleges with agriculture programs witnessed a decrease in enrollment in the late 1970s and early 1980s as a result of the farm crisis. Slowly over the years, as agriculture curriculums have changed and the agriculture industry has rebounded, colleges have started to see increased enrollment. The agriculture, food, and renewable natural resources industry will need five percent more graduates within the next five years compared to 2005-2010 (Goecker, G. Smith, E. Smith, and Goetz, 2010). Increased enrollment is essential in order to meet the demand for more college graduates who are equipped to fill positions in the agriculture industry.

Colleges of agriculture continually develop and revise marketing plans to recruit students. Over time, as recruitment strategies and student demographics have changed, conducting research to determine the effectiveness of recruitment tactics has been warranted to ensure that limited institutional resources are used effectively. Colleges of agriculture have seen change in the demographics of their students. Scofield (1995) reported 43% of students enrolled in the College of Agriculture at Iowa State University in the fall of 1994 were from urban backgrounds; the percentage of students from the urban area has gradually increased over the years. In 2004, 18.4% of the incoming class in the College of Agriculture at Kansas State University (KSU) reported their permanent residence was located in an area with a population of more than 50,000. This number increased to 26.8% in 2012 (Kansas State University College of Agriculture, 2012). The National Center for Education Statistics (2010) gathered information from the 2003-2004 high school senior class living in urban and suburban areas. The statistics showed that 70.1% of the urban and 69.6% of the suburban high school students planned to continue their education

and graduate with a bachelor's or higher degree. Colleges of agriculture need to find ways to target these students.

Studies have shown the more exposure students have to agriculture, the more likely they are to major in agriculture (Barkley & Parrish, 2005; Cecchettini et al, 2009; Donnermeyer and Kreps, 1994; Esters, 2007; Esters & Bowen, 2004; Frick, et al. 1995; Love & Yoder, 1989; Wildman & Torres, 2001). Dyer, Breja, and Andreasen (1999) found students who completed high school agriculture course work expressed more positive attitudes toward university agriculture programs and agriculture as a career than students with no high school agriculture experience. Colleges of agriculture have been successful at recruiting students who were enrolled in high school agriculture programs; however, high school agriculture teachers face similar challenges as universities enrolling students into their programs. Secondary agriculture education programs face the following challenges: finding time to recruit, competing with students involved in other activities, gaining access to students, lack of guidance counselor support, increased graduation requirements, image of agriculture, and lack of interest in agriculture (Dyer & Breja 2003). These challenges hinder the opportunity for students to be exposed to agriculture while in high school, thus limiting their knowledge about opportunities when continuing their education.

High school agriculture education programs and course work are not available at all high schools. This is especially true in urban high schools. For schools that do have agriculture programs, Esters & Bowen (2004) found parents and/or guardians were the most influential individuals in helping urban students decide to enroll in their schools agriculture education program. In addition, more than 50% of the events and experiences that influenced their decision included recruitment activities, interest in animals, agriculture career aspiration, and parents.

Esters & Bowen's research provided insight on factors leading urban students to enroll in high school agriculture education courses; however, for colleges and universities, there is limited research on the factors that lead urban students to continue their education in agriculture when considering the level of agriculture exposure they have received.

Not all students will choose their academic major and institution based on the same factors. Learning which factors impact students' decisions to major in agriculture can provide guidance on how to market agriculture majors and career opportunities as well as Colleges of Agriculture.

Need for the Study

A plethora of studies have examined factors that influence students' college choice decision (Avery & Hoxby, 2002; Chapman, O'Brien & DeMasi, 1987; Delaney, 1998; Dyer, Breja, & Andreasen, 1999; Flint, 1992; Hossler, Hu & Schmit, 1998; Hossler, Schmit & Vester, 1999; Johnson, Stewart & Eberly, 1991; Mattern & Wyatt 2009; Monroe & Richtig, 2002; Paulsen & St. John, 2002; Perez & McDonough, 2008; Petr & Wendel, 1998). However, only a few studies focused on factors leading students to choose an academic major in agriculture (Esters, 2007; Barkely & Parrish, 2005; Williams, 2007; Wildman & Torres, 2001). While these studies focused on students majoring in agriculture, their target population consisted of students with agriculture backgrounds. There is limited research that focuses specifically on urban students and factors that led them to continue their education in the field of agriculture.

Given the need to produce more agriculture graduates to fill industry demand, it is necessary to look at the changing demographics of our agriculture students and determine why they seek to major in agriculture. By identifying the factors leading urban students to major in

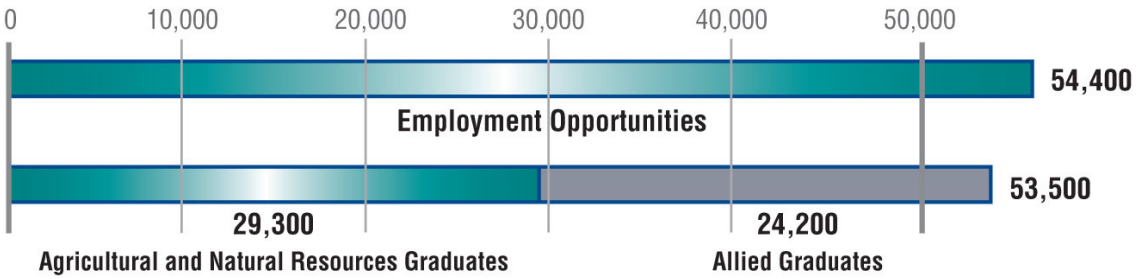
agriculture, colleges of agriculture, more specifically the College of Agriculture at KSU, can change recruitment practices to better connect with urban students. The colleges receive benefit through higher enrollment and students benefit by learning about opportunities in the agriculture industry.

Statement of the Problem

Colleges of agriculture across the country are challenged to produce more graduates in order to meet the increase in employment opportunities in the areas of agriculture, food, and renewable natural resources. This industry is estimated to generate 54,400 annual openings for students with baccalaureate or higher degrees in food, renewable energy, and environmental specialties between 2010 and 2015. Compared to 2005-2010, the industry needs five percent more graduates within the next five years (Goecker, et al., 2010). The increase in job availability has been caused by the following key factors: global market shifts in population, income, food, and energy; consumer preferences of nutritious and safe foods; food, energy, and environmental public policy choices; and macroeconomic conditions and retirements.

Goecker, et al. (2010) expect approximately 53,500 qualified graduates, from across all disciplines, will be available each year, 2010 through 2015. Employers prefer graduates from colleges of agriculture and life sciences, forestry and natural resources, and veterinary medicine; however, of 53,500 qualified graduates, only 55% (29,300) of those students graduate from the degree programs desired by employers (Figure 1.1). Goecker, et al. (2010) also reported 10% fewer agriculture and life sciences, forestry and natural resources, and veterinary medicine graduates in United States colleges and universities in 2008 than in 2002. This problem of recruiting and graduating more students has continuously existed since the 1980s.

Figure 1.1 Comparison of projected employment opportunities and number of expected qualified graduates for 2010-2015



Recognizing there is a need to recruit more students to meet industry demand, colleges of agriculture and the agriculture industry need to focus on the urban population to attract students and future employees. In 2010, over 83.7% of the United States population lived in the nations 366 metro areas. A metro area contains a core urban area population of 50,000 or more (United States Census Bureau, 2010). Similar results have been found in the state of Kansas. In the 2010 census, six Kansas counties were considered "urban counties" compared to five counties in 2000, indicating urban communities continue to expand. The Kansas Department of Health and Environment classifies "urban counties" as exceeding 150 persons per square mile. In the 2010 census, 89 counties in Kansas had less than 40 persons per square mile and were considered "densely-settled rural", "rural," or "frontier." These counties represented 29.1% of the population in Kansas compared to 54.9% from "urban counties." Ten counties were considered "semi-urban", representing 16.1% of the Kansas population (Hays, 2011).

Hays (2011) also reported an increase in Kansas high school enrollment of 2,087 full-time equivalent (FTE) students for 2010-11 school year. This total growth came from 124 of the 289 unified school districts (USD). The increase in FTE students does not necessarily mean more

students in Kansas. Installation of all-day kindergarten, alternative schools, virtual schools, and dropout recovery programs accounted for some of the enrollment growth. Olathe USD 233, located in Johnson County with a population of 544,179, had the highest increase of 562.3 FTE students, representing a growth of about two percent. A decline in enrollment of more than 10% occurred in six school districts located in counties classified as "densely-settled rural," "rural," or "frontier." These findings indicated more students were located in urban school districts compared to rural districts. Colleges of agriculture need to develop recruitment strategies that expand into urban areas where there is a greater student population.

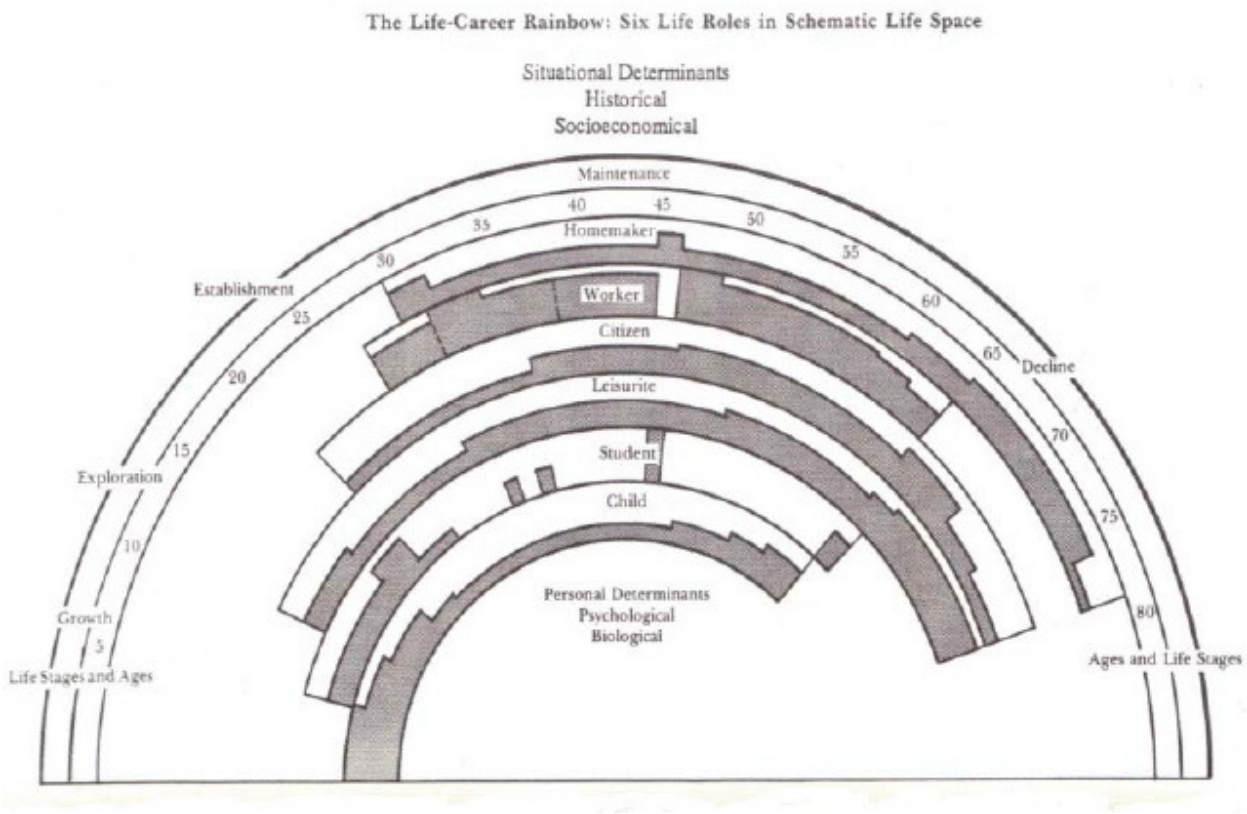
An additional reason to recruit urban students is the need to increase diversity within colleges of agriculture and the agriculture industry. In 2010, minorities comprised just over one-third of the United States population, an increase of 29% since 2000. During the last 10 years, the Hispanic and Asian populations have grown considerably. More than one-half of the total population growth was due to the increase in the Hispanic population, who represented 16% of the total population. The Asian population had the fastest growth rate. Although the non-Hispanic, White population still remains the largest major race and ethnic group in the United States, it only grew one percent over the decade, the slowest rate of growth compared to the other races (United States Census Bureau, 2010). Overall, the United States population has become more racially and ethnically diverse. Given 83.7% of the total United States population is located in urban areas and the growing minority population, research is needed to learn how to recruit urban and minority students so as to increase the number of agriculture graduates to meet industry demand.

Theoretical Basis

The theoretical framework for this study was based on two models; Donald Super's (1980) Life-Span, Life Space Approach to Career Development model and David Chapman's (1981) Student College Choice Model. Both models have been widely used by researchers in higher education to learn about career choice and student college choice factors.

Donald Super's research and theories resulted in the development of the Life-Span, Life Space Approach to Career Development. The Life-Career Rainbow (Figure 2.1) brings life span and life space into one model, providing a complete picture of a person's life stages, the roles they play and the impact interaction with personal and situational determinants have on career development. The study focused on the first two stages of a person's life, the growth and exploration stages.

Figure 1.2 Super 1990 The Life-Career Rainbow.



Chapman's model (Figure 2.2) suggests that in order to understand the student's choice of college, it is important to look at the combination of student characteristics and external influencers. Student characteristics include socioeconomic status, level of educational aspiration, aptitude, and high school performance. The external influences are significant persons, fixed college characteristics, and the colleges effort to communicate with students. According to Chapman, student characteristics and external influences impact students' expectations of college life, thus impacting their choice of institution.

Figure 1.3 Chapman 1981 Student College Choice Model

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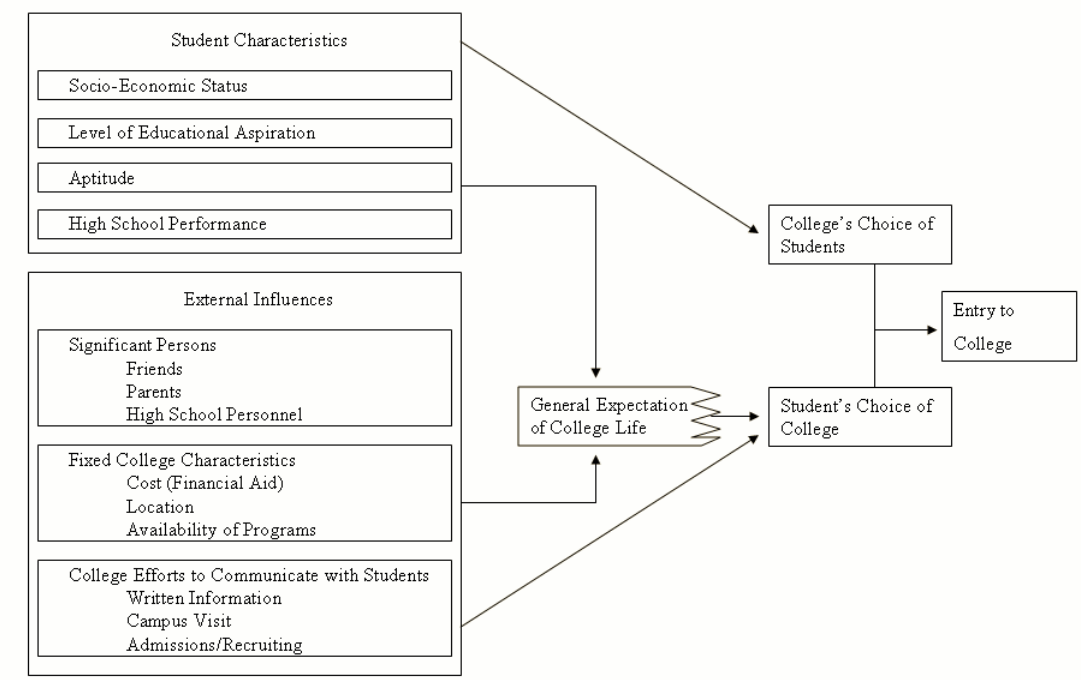


Purpose of Study

The purpose of the study is to identify the factors that influence urban students to major in agriculture in the College of Agriculture at KSU. The study will specifically focus on the following objectives:

1. To identify the personal characteristics of the population.
2. To identify urban students' perceptions of the influence their exposure to agriculture had on their choice of major and to compare those perceptions between students currently majoring in the College of Agriculture and students no longer majoring in the College of Agriculture.

3. To identify the degree to which the perceptions of college factors influenced urban students' enrollment in the College of Agriculture at KSU and to compare the perceptions of the influence of college factors between students currently majoring in the College of agriculture and students no longer majoring in the College of Agriculture.
4. To identify the perceptions of the level of influence career aspirations had on urban students' choice of major and compare those perceptions of career aspirations between students currently majoring in the College of Agriculture and students no longer majoring in the College of Agriculture.

Definitions

The following terms used in this study were defined as follows:

Urban: Population of 50,000 people (United States Census Bureau, 2012)

Assumptions

This study will have the following assumptions:

1. The students will represent a variety of academic majors in the College of Agriculture at KSU.
2. No student in the survey was raised in a community with a population less than 50,000.
3. Students are familiar with the instrumentation being used for the study and participant's responses will be accurate and true to the best of their ability.
4. Students represented in this study made the decision to enroll in agriculture their first semester at KSU.

Limitations

This research will have the following limitations:

1. Data from this study will be collected from college students who enrolled in the College of Agriculture at KSU for the fall semesters of 2008, 2009, 2010 or 2011 and who self-reported their permanent residence as urban; populations of 50,000 or greater. Data from other institutions will not be included, therefore decreasing the ability to generalize findings to other populations of students.
2. The study focuses on the student's chosen major when they first enrolled in college. This study will not consider student retention or change of major into the College of Agriculture.
3. During the time between the student's enrollment date and the time of the survey, the student's responses may be different due to the time lapse.
4. A statistically significant gender and ACT score difference existed between respondents and non-respondents, as well as respondents and population of the study. A higher percentage of the respondents were female (72%) compared to the non-respondents (46.2%) and population (58.9%). The respondents also had a higher mean ACT score (26.03) compared to the non-respondents (24.25) and population (24.71). The reader should generalize the findings with caution.

Chapter 2 - Review of Literature

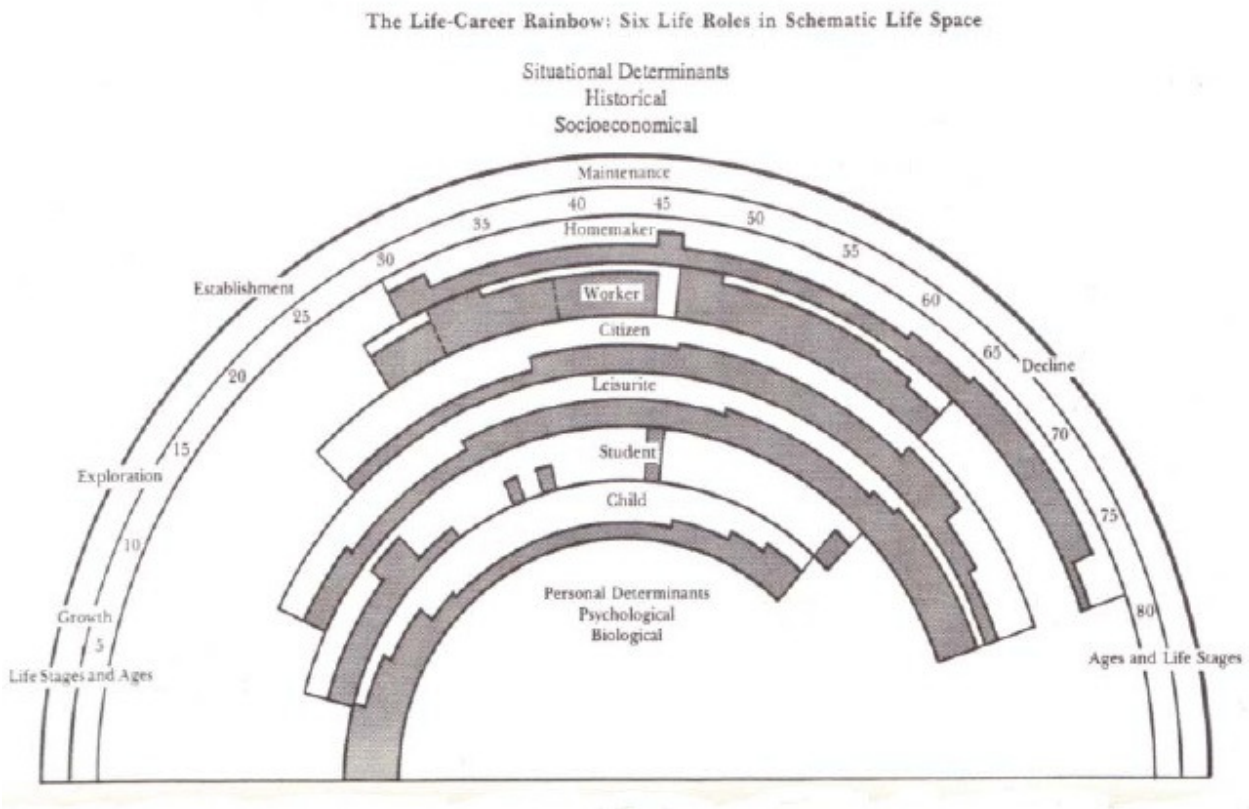
Choosing the right college is a very time consuming and complex process for students and their families. Over the past 50 years, researchers have examined the factors that influence student's college choice. Colleges and universities rely on research findings to develop strategic marketing plans. The KSU College of Agriculture is no different from other institutions. In an effort to recruit students to meet industry demand, the College of Agriculture seeks to identify factors that influence urban students to major in agriculture.

Many student development, career development, and college choice theories exist to help explain student's behaviors, decisions, and actions. The theoretical framework for this study will be based on two models; Donald Super's (1980) Life-Span, Life Space Approach to Career Development model and David Chapman's (1981) Student College Choice Model. Both models have been widely used by researchers in higher education to learn about career choice and student college choice factors. Together, these two models provided the best framework for this study.

Life-Span, Life-Space Approach to Career Development

Donald Super developed a collection of theories focused on the interaction of the person and environment. His research and theories resulted in the development of the Life-Span, Life Space Approach to Career Development, published in 1990. The Life-Career Rainbow (Figure 1) brings the life span and the life space into one model, providing a complete picture of a person's life-stages, the roles they play, and the impact interaction personal and situational determinants have on career development.

Figure 2.1 Super 1990 The Life-Career Rainbow



Life Span

The outer band of the Rainbow shows the major life stages, their sequence, and their approximate ages: growth, exploration, establishment, maintenance, and decline. These stages represent the life span; course of life. As a person moves from one life stage to the next, the person is achieving career maturity. Super (1990) defined career maturity as "the individual's readiness to cope with the developmental tasks with which he or she is confronted because of his or her biological and social developments and because of society's expectations of people who have reached that stage of development." Career maturity is a constellation of physical, social

and psychological characteristics. Although the stages appear to be in a well-ordered sequence, the transitions are very flexible. A person could move from the growth stage to the exploration stage between the ages of 11-14, depending on the interaction the person had with environmental factors. The growth and exploration stages were used as basis for this study.

Growth

The growth stage is the early years of a person's life, starting at birth and ending around the age of 14. During the growth stage, the individual becomes aware of the future and starts to find ways to develop competencies and increase control over their life. People are born with certain characteristics, personality, behavior potentials, and tendencies. Beginning as early as the infant stage, behavior potentials are acted upon by the environment in which the child lives: certain kinds of behaviors are encouraged or discouraged by parents. As the child's range of interpersonal experiences and exposure to the environment widens, the child's identifications become more diverse and varied. It is during the adolescence stage that a person's self-concept emerges. The person's concept of self may or may not be realistic, however the adolescent goes through life trying new ideas of one's self on various activities and persons. Satisfying results are retained while non-satisfying results are rejected (Super, 1957).

As indicated by Super, a child's first experiences are in the home. In the home, the child observes and participates in activities introducing a variety of roles. Super (1957) believed a child is in the pre-occupational exploration stage when developing understanding of the world of work through home, school activities, and neighborhood. Trice, Hughes, Odom, Woods, and McClellan (1995) found this to be true among 949 elementary students in 11 schools in the states of Virginia, Massachusetts, West Virginia, and Louisiana as well as the District of Columbia. Children, particularly under the age of 11, established career aspirations based on someone they

knew. Among boys with occupational choices, 42%, 40%, 47%, and 36% of students indicated that they knew someone holding the job of their choice, for kindergarten, second-grade, fourth-grade, and sixth-grade students respectively (N=405). Among girls, the percentages were 54, 51, 53, and 40 (N=430). Of the students who indicated they knew someone holding their desired job, 72% reported the person was a member of their household. This suggests job choice among young children is tied to someone they know closely versus a job they became acquainted with through daily interaction (Trice et al., 1995).

Of the individuals children interact with, parents/guardians have the most influence on children's career aspirations (Dillard and Perrin, 1980; Hartung, Porfeli, Vondracek, 2004; King and Multon, 1996; Novakovic, 2007; Super, 1990). For example, Trice and Knapp (1992) found a significant connection between children's aspirations and those of their mothers. The researchers surveyed 97 fifth-grade and 153 eighth-grade students from a rural and urban public school. Among the fifth-grade students, 63% of the students' career aspirations matched their mothers' and 24% matched their father's career. Results were similar for eighth-grade students with 68% matching mothers and 35% with fathers. Students tend to have career aspirations similar to their mothers versus their fathers. One possible reason, suggested by the researchers, is over the past few decades women's jobs have become more interesting and prestigious. Another possibility is children know more about their mothers' jobs than their father's jobs. The students in the study were asked to report their mother and father's occupations. The children were 87% accurate in reporting their mothers' occupation and 68% accurate naming their fathers' occupation.

Although Trice and Knapp (1992) found a significant connection between children's aspirations and those of their mothers, it is suggested that children are still cautious of career-

related gender stereotypes. Gottfredson's 1981 theory outlined four unique stages of occupational development. In the second stage (ages 6-8 years), he believed children were concerned with fitting into existing career-related gender stereotypes (Cochran, Wang, Stevenson, Johnson & Crews, 2011). To learn if these gender stereotypes exists, Schuette, Ponton and Charlton (2012) surveyed 89 Norfolk, Virginia middle school students to determine if a relationship existed between middle school children's career aspirations and adult occupation and gender. These students were located in a low-income, suburban neighborhood and had two different-gendered parents or guardians who worked outside of the home. The researchers found a significant relationship between boys and working male adults regarding job gender identification and interest. Of the 33 boys, 27 aspired to have a male stereotypical job and six aspired to have a neutral job. Of the 56 girls, 25 aspired to have a male stereotypical job, 12 aspired to have a female stereotypical job, and 19 aspired for a neutral job. Results show male students do not aspire to hold female stereotypical occupations, whereas more female students aspire to hold male stereotypical jobs. Additional findings confirm students aspire to hold positions higher than their mothers/females guardians who are in female stereotypical positions. Of the working female adults, 59% held jobs classified as clerical or skilled worker. The same percentage (59%) of middle aged girls aspired to hold professional, managerial, or entrepreneurial positions.

Exploration

The exploration stage occurs during the early teens to mid-twenties, when people begin to decide and implement a career choice. At this stage, the career choice is narrowed, not finalized. Super (1990) stated "vocational preferences and competencies, the situations in which people

live and work, hence, their self-concepts change with time and experience." Development through the life stages can be guided by facilitating the maturing of abilities and interests. Real-life activities such as classes, clubs, and part-time work are part of the career development process that happens during the exploration stage (Super, 1990). Trice et al. (1995) confirmed children eliminate more occupations with age. The elementary students were asked whether they wanted to hold a job within a set of occupations. For boys, 40%, 59%, 67%, and 71% of the occupational choices were rejected from kindergarten through sixth grade, for kindergarten, second-grade, fourth-grade, and sixth-grade students respectively (N=405). For girls, the percentages were 41, 46, 50, and 55 (N=430). Disinterest in an occupation was frequently mentioned as a reason for elimination of an occupation. These results confirm as a child experiences more real-life activities, from kindergarten to sixth-grade, the narrower their choice of occupation.

There are many types of real-life activities and exposures children will experience that happen outside of the classroom or home. King and Multon (1996) found television role models had an effect on students' career aspirations. One hundred and eight African American junior high school students from public schools were asked to identify their favorite television character and the character's occupation. The researchers found students chose African Americans as their favorite television characters with an 80% identification rate out of a possible 100% for their favorite character. Few students mentioned their favorite character as being in their ideal job, except those who indicated that professional sports or entertainment would be their ideal occupation. Thirty-one percent of the students indicated their favorite or second favorite character's job was a job they were considering for the future. This study provided evidence that student's career aspirations can be influenced in many ways, including watching television. The

researchers also found children who watched a few television programs, compared to students who watched many hours of television, are still likely to be significantly influenced by television characters in regards to their personal career aspirations. Even the smallest exposure to a person's occupation can have an effect on a child's career choice.

Life Space

People hold a variety of roles during their lifetime and a person may hold just one role or multiple roles at a time. Super (1990) identified nine major roles he used to describe the life space for most people during their lifetime. The roles are: child, student, leisurite, citizen, worker, spouse, homemaker, parent, and pensioner. Leisurite is defined as a person in the role of one engaged in the pursuit of leisure-time activities. Not everyone plays all roles and there are additional roles that can be identified. The order in which these roles are listed correspond to the order in which the positions are typically first occupied. Super identified four principal theaters in which these roles are played: home, community, school, and workplace.

During the life stages, decisions are made that make significant changes to the existing role, lead to giving up an old role, and starting a new role. These decisions reflect encounters the person had with personal and situational determinants. Situational determinants include: family, community, school, employment, socioeconomic organizations, historical change, and economic conditions. Personal determinants include: situational and self-awareness, attitudes, interests, values, needs, academics achievement, aptitudes, and intelligence.

When looking at the influence community can have on a child's career aspirations, Diemer and Hsieh (2008) researched the impact sociopolitical development had on 12th grade students' vocational aspirations. The researchers used data from the National Education

Longitudinal Study, which collected more than 25,000 student surveys from more than 1,000 schools. Of the students who responded to questions related to community participation, 373 students (73%) had not participated in community/social-action groups, whereas 136 (27%) had been a community participant. Students were asked to describe the occupation they expected to have at the age of 30. Their vocational expectations ranged from 28-88, where a high score represented a higher occupation prestige (*M*=62.92, DD= 16.80). Using a post hoc t-test, results showed community/social-action group participators (*M*=77.71, DE =16.93) had significantly higher vocational expectation than did community/social-action group non-participators (*M*=72.64, SD= 17.11). The researchers found students with a commitment to helping others in the community and who had discussions of current events with parents or guardians had higher vocational expectations. They confirmed community involvement was an important factor to children's career development.

The socioeconomic status of the family and economic conditions of the community can also influence student career expectations and aspirations. Dillard and Perrin (1980) found this to be true among 194 Black, Anglo, and Puerto Rican students from urban junior and senior high schools in western New York. The researchers wanted to determine how students career development (aspirations, expectations, and maturity) were related to gender, ethnic group membership, socioeconomic status, and grade level. Among all variables analyzed, socioeconomic status contributed a statistically significant addition to the percentage of variance for each dependent variable. For example, the differences that existed between ethnic groups were more associated with factors within socioeconomic backgrounds. Socioeconomic status explained 3.3% of career aspiration variance, 3.2% of career expectations variance, and 5% of career maturity variance. This indicated higher socioeconomic status was associated with higher

scores on career aspirations, expectations, and maturity. Results also indicated adolescents' career maturity increased with socioeconomic status. In summary, as socioeconomic status increases, so does career aspirations, expectations, and maturity.

A person's self-efficacy can influence career aspirations and can lead to a role change or role conflict. In a study of 547 women at Iowa State University, Nauta (1997) researched if ability, self-efficacy, positive role model influence, and role conflict would influence career aspirations. The study focused on women studying math, science, and engineering. The results identified a relationship between ability and self-efficacy, and between positivity of role model influence and self-efficacy. Overall, there was a significant positive relationship between self-efficacy and career aspirations, suggesting that self-efficacy plays a role in women's career decisions. For example, a woman's confidence in her ability to complete academic milestones was positively associated with the degree to which she aspired to top-level or leadership positions in her field. These findings are consistent with Novakovic (2007) who studied factors that influenced the career planning of adolescent girls in an urban high school. A total of 217 female students from the ages of 14-19 completed the survey. The results indicated female students with high self-efficacy were more likely to choose gender non-traditional careers and have greater aspirations for higher level education and career commitment. Both Nauta (1997) and Novakovic (2007) found female students with high self-efficacy experienced role conflict; a predictor of career aspirations. Super's (1990) theory suggested that individuals move from one role to another, however he recognized individuals can hold more than one role at a time. More women work outside of the home and are faced with the role conflict of being a parent and worker. Novakovic (2007) found adolescent girls who planned for multiple roles had higher levels of commitment to a future involving family and occupational work. Nauta's (1997) study

of women in math, science, and engineering majors had the belief science careers were compatible with marriage and family responsibilities, which associated with higher career aspirations. Overall, female students' confidence in their ability to combine work and family responsibilities was shown to be positively related to career aspirations.

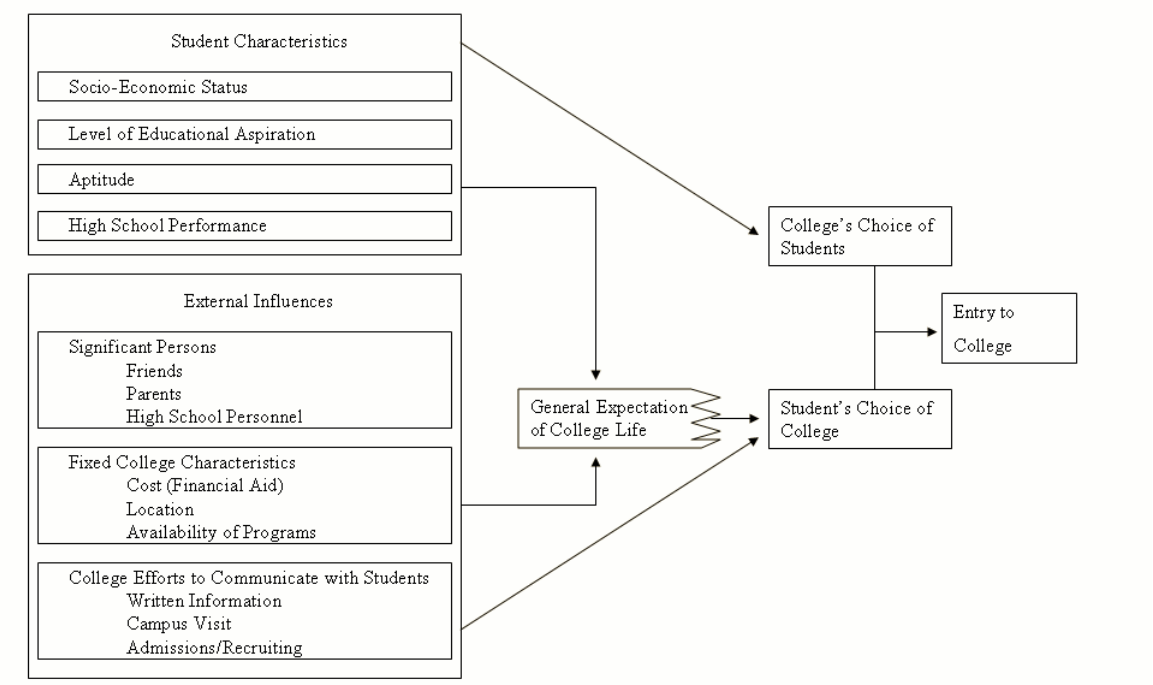
Student College Choice Model

The Student College Choice model by David Chapman (1981) is widely used by researchers in higher education to learn about student college choice factors. The theoretical framework for this study will be based on Chapman's (1981) model, which identifies influential factors in prospective student's college choice. The model was developed to (1) assist college administrators in identifying the pressures and influences they need to consider in developing institutional recruiting policy and (2) aid continued research in the area of student college choice (Chapman, 1981). The college choice process has changed due to student demographics and the development in college admissions recruitment and marketing practices (Kinzie, Palmer, Hayek, Hossler, Jacob & Cummings, 2004). However, Chapman's (1981) model remains on target for providing a theoretic framework for student college choice.

Chapman's (1981) longitudinal model suggests that in order to understand the student's choice of college, it is important to look at the background, characteristics, and family of the students, as well as characteristics of the college. The internal influences of the model are student characteristics, which include socioeconomic status, level of educational aspiration, aptitude, and high school performance. External influences fall into three categories: the influence of significant persons, fixed college characteristics, and the efforts of a college to communicate

with prospective students (Chapman, p. 492). Significant persons in the model are friends, parents, and high school personnel. Fixed college characteristics are cost, location, and availably of programs. The final external influence is the effort of the college to communicate with students, which includes written information, campus visits, and admissions/recruiting. The remainder of the literature review will focus on each component of Chapman (1981) model as it pertains to the study.

Figure 2.2 Chapman 1981 Student College Choice Model



Student Characteristics

A component of the Chapman (1981) model is learning about student characteristics. To identify factors that lead to student college choice, the Chapman (1981) model focuses on four

student characteristics: socioeconomic status (SES), level of educational aspiration, aptitude, and high school performance.

Socioeconomic Status

A summary of research by Cabrera and La Nasa (2000) found that the sophistication and thoroughness of the search process by students is determined by socioeconomic factors. Students with high SES have access to private counselors are more knowledgeable about college costs, tend to consider higher-quality institutions, and have parents who planned and saved for college. Students with low SES are less knowledgeable about college, have limited access to college counseling, tend to choose two-year public institutions, and face more financial problems.

In a national study reviewing the experiences of 1,988 eighth graders during the college-choice process, Cabrera and La Nasa (2001) found student at-risk factors correlated negatively with their SES.

> "The frequency with which eighth graders experience at-risk factors correlates negatively with their SES (r = -.294). The higher a student's SES, the less likely the student is to be influenced adversely by the presence of risk factors. On average, lowest-SES students tend to have at least one risk factor influencing their high school performance, whereas the upper middle and highest-SES students have less than one factor exerting an influence on their chance of success" (p. 135).

Parents who have attended college provide greater assistance to their children because of their knowledge of postsecondary education (McDonough, 1997). A study of 581 high school students found the higher the level of parental education; the greater the likelihood the child would attend college (Hossler, Schmit & Vesper, 1998). One-half of the students whose parents had at most a high school diploma attended college, compared to 75% of those whose parents had a college degree. Cabrera and La Nasa's (2001) research supports these findings. Of the

lowest-SES parents, 23% provided their children with guidance based on first-hand collegiate experiences, compared to 99% of the highest SES parents.

Students with the greatest need for college guidance face barriers to receiving counseling and have limited access to college materials (Pitre, 2006). In a case study of 15 high schools across five states, students who were not proactive in seeking help from counselors and/or who attended high schools where college enrollment was not the norm were less likely to receive sufficient college counseling (Perna, Rowan, Kenyon, Thomas, Bell, Anderson & Li, 2008). In a comparative study of 127 African American and white students, Pitre (2006) found students, mainly African Americans, who felt their high school was not preparing them for admission to college were less likely to seek college attendance. High schools with resource constraints reduced the ability for lower SES students to receive college preparation or guidance, leading students to focus their post-graduation aspirations on options other than attending college.

Disliking school serves as a negative factor when making the decision to attend college (National Center for Education Statistics, 2010). Students who attend a school with peers who have similar SES have more confidence, thus leading to college attendance (Owens, 2010). However, students may not have the option to choose which high school to attend. A study analyzing family background, school, and neighborhood data of 11,097 students from 77 high schools, found students with low-SES performed worse when mixed with higher-SES peers. Students with high-SES received a boost from being with other high-SES peers. High-SES students had lower educational attainment when they attended a school with lower-SES peers. Both groups of students showed increased educational attainment when surrounded by peers with similar SES (Owens, 2010).

Student Aptitude

College entrance exams, also known as standardized tests, are published by institutions as requirements for admission. There is a relationship between the type of institution students choose to attend and students standardized test scores (Acker, Hughes, & Fendley, 2004). Chapman (1981) found students often self-select the colleges to which they apply based on their belief of what the colleges will consider. Chapman cited Nolfi (1979), who found as part of this self-selection process, students tend to choose institutions with students of similar aptitude as themselves. Hurtado, Inkelas, Briggs, and Rhee (1997) found this to be true in their national study of 14,283 high school students. The researchers found students with average writing ability were more likely to attend their first choice institution whereas students with high writing ability had more confidence and applied to schools with more competitive admissions.

Students are aware of the importance highly selective institutions place on academic achievement measured by SAT, ACT, and GPA scores. In a national sample of 4,408 college freshmen, students with high SAT scores attended highly selective schools compared to students who received lower scores (Basten, Cole, Maestas, & Mason, 1997). In observation of 2,295 students ages 12-16, Prathibha, Beck, and Nsiah's (2009) cohort study concluded students with higher academic aptitude often chose to attend four-year institutions as opposed to two-year institutions.

Deil-Amen and Tevis (2009) interviewed 110 low-SES black or Latino students to learn about the impact aptitude test scores have on college plans. These students experienced increased anxiety and less motivation to seek admission to college as a result of pressure to perform well on standardized college entrance exams. About 20% of the students reported that their test scores had a negative impact on their postsecondary plans, while others found their scores challenged

their motivation. Although students in the study remained college bound, low scores can unnecessarily deflect students from attending college.

Level of Educational Aspiration

During the college decision making process, students choose an institution based on their educational expectations and aspirations. Expectations refer to what the student perceives he or she will be doing or will accomplish. Aspirations focus more on the wishes or desires that the student has for the future (Chapman, 1981).

Hossler and Gallagher (1987) suggested the college choice process includes three stages. The earliest stage, predisposition, is when students make the decision on whether or not to continue their education. Pitre (2006) believes this stage also involves the development of educational and occupational aspirations. Students establish postsecondary education aspirations early in high school. Stage and Hossler (1989) found 70% of 2,497 high school students made educational plans by the ninth grade. Cabrera and La Nasa (2000) state "junior high school students come to value a particular occupation and begin to see attending college as crucial in securing their occupational goals (page number)."

Educational expectations and aspirations impact the consideration a student gives to an institution. Tillery and Kildegaard (1973) found this to be true among high school seniors. The researchers found a positive relationship between educational aspirations and positive values about education for high school seniors. Students with extensive educational aspirations placed more importance on getting good grades and showed more confidence in their ability to do college work compared to students with lesser aspirations. The longer students wanted to stay in school, the more attracted they were to academically-oriented colleges; four-year colleges with more intense academic and intellectual environments. Students with limited college aspirations

were attracted to occupational-oriented colleges, two-year programs, such a junior colleges and business schools.

High School Performance

High school performance, based on Chapman's (1981) model, plays a role in a student's choice of college and on the institution selection by students. Chapman stated "Colleges often describe the type of student they attract in terms of those students' high school GPA or rank in class" (p. 494). Students develop strong preferences among institutions and evaluate their own qualifications for admission (Cabrera & La Nasa, 2000). Examples include level of competition they may encounter, aptitude of the other students they would meet, and their chances of admission (Nolfi, Fuller, Corazzini, Epstein, Freeman, Manski, Nelson, & Wise, 1978, as cited by Chapman).

Students who do well academically are shown to receive more support during the college selection process. Researchers have shown that students with better grades are considered by parents, teachers, counselors, and their peers to be college bound, therefore receiving college choice related information and services (Hossler, Schmit & Vesper, 1999; Pitre 2006; Chapman, 1981).

Academic performance not only influences where a student will attend college, but also whether a student will continue their education after high school. Students who earn high grades in high school are more likely to attend college than those who do not (King 1996). The National Center for Education Statistics (2010) national longitudinal study of high school students supported this claim by reporting low grades as a reason for students not pursuing postsecondary education.

Researchers have found selection of high school course work influences choice of institutions. This is true among students who completed agriculture education courses and chose to attend an agriculture institution (Dyer, Breja & Andreasen, 1999; Cecchettini, Sommer & Leising, 1992; Cecchettini et al., 2009; Williams, 2007). Dyer, Breja and Andreasen (1999) surveyed 513 freshmen students in the College of Agriculture at Iowa State University. Students who completed high school agriculture education course work felt prepared to study agriculture in college, expressed more positive attitudes toward university agriculture programs, and agriculture as a career. Interests, attitudes, and perceptions of course content and career potential impact students' decisions on whether to major in agriculture (Sutphin & Newsom-Stewart, 1995). However, agriculture education course work is not available at all schools. A summer enrichment program held by the Virginia Governor's School of Agriculture provided agriculture literacy and career exploration to gifted and talented students. Cannon, Broyles, Seibel, and Anderson (2009) studied the impact this education program had on 188 former participants' knowledge and perceptions of the industry and their career goals. The results from the study found that students who had no farm background or exposure to programs, such as FFA, were influenced more to study agriculture than students who had exposure to agriculture through traditional means.

External Influences

Students experience many external influences that impact their decision-making every day. In Chapman's (1981) model, three external influences for student college choice were identified: significant persons, fixed college characteristics, and college efforts to communicate with students.

Significant Persons

Students are persuaded by guidance from friends, family, and significant others. Chapman (1981) stated, "that the influence of these groups operate in three ways: their comments shape the student's expectations of what a particular college is like; they may offer direct advice as to where the student should go to college; and in the case of close friends, where the friends themselves go to college will influence the student's decision" (pp. 494-495).

Chapman's (1981) model identified parents, friends, and high school professionals as the significant influencers for students. Industry professionals have also been identified as significant persons influencing the college decision process. In 1988, the American College Testing Program reported student choices were most influenced by contact with people working in the career of the student's interest. This was true among New Mexico State University students who reported being influenced to major in agriculture by professionals or role models employed in the agriculture industry (Wildman & Torres, 2001).

Friends

Friends with information about college are sought for guidance and serve as an influence to their peers. Studies examining the college choice process have found this to be true (Barkley & Parrish, 2005; Donnermeyer & Kreps, 1994, Johnson, Stewar, & Eberly, 1991).

Perez and McDonough (2008) interviewed 106 Latino students and Perez (2010) interviewed 14 students to learn about Latino college choice. They found peer networks played a critical role in the college choice process and students trusted friends who attended or planned to attend college. These friends provided guidance and information leading to college attendance. For example, a male senior noted that he relied on information provided by his cousin, a college

graduate, and close friends. He trusted his cousin not only because he was a family member, but also because he had firsthand college experiences. Perez suggested college recruitment happened informally during peer interaction and knowledge sharing. Esters (2007) found similar results from 448 urban students, a nontraditional group of agriculture students, who graduated from an urban agriculture education program. In this study, Esters found friends (M=3.18) and teachers (M=3.14) had more influence on student's decision to enroll in postsecondary education programs than family members (M= 3.10), agriculture teachers (M=3.05), and guidance counselors (M=2.83).

Parents

Parental encouragement impacts student's aspirations, their decision to attend college and the type of institution to attend (Hossler, Schmit and Vesper, 1999). In an examination of the college choice process by 1,332 parents of eighth grade students, Flint (1992) found the degree of encouragement from parents determines the amount of college information students are provided to make their college decision.

> "The higher the aspiration for their children, the more the message about college to their children seems to be, "More is better." Such parental encouragement has an expansive effect here: The colleges considered by the student can be more numerous, more prestigious, more competitive, more expensive, more distant from home, and more populous" (p. 704).

Esters & Bowen (2004) studied factors that led urban Pennsylvania students to enroll in high school agriculture education programs, programs of study including classroom, laboratory, FFA, and supervised agriculture experience. They found parents and/or guardians were the most influential individuals in helping students with their enrollment decision. Esters (2007) found

similar results. Parents and/or guardians had the most influence on students' decision to enroll in postsecondary education programs of agriculture. Students were slightly more influenced by mothers and females guardians (M=4.07) than fathers or male guardians (M=3.62). Esters believed parent and/or guardian influence was the most distinguishing factor in predicting whether students would choose to continue their education in the field of agriculture. These findings were consistent with research Barkley and Parrish (2005) and Donnermeyer and Kreps (1994) conducted in agriculture education programs at KSU and The Ohio State University, respectively.

High School Personnel

Research results vary on the impact high school personnel have on students. Chapman, O'Brien, and DeMasi (1987) investigated the amount of advising students received from their high school counselor. Data was collected from 428 first-time applicants to the New York State Tuition Assistance Program. They found minority students never discussed their college plans with a school counselor. The students who received advising gave low ratings on the quality and effectiveness of the college advising.

In King's (1996) study of 300 seniors from low income families, 85% of the students saw a school counselor at least two to three times during their junior and senior year to discuss future plans. Johnson, Stewart, and Eberly (1991) surveyed 3,708 college freshmen from large, midwestern universities. Their high school counselor was one of the top three resources for college information; others were friends and colleges students. Counselors were identified as a resource used more often than parents and teachers. Blacks and low-SES students were more apt to seek counselors for guidance. Thompson and Russell (1993) found in large urban

communities, the guidance counselors expressed favorable beliefs about agriculture as a career for their students, therefore encouraging college attendance at an agriculture institution.

High school Agriculture Education teachers are found to be among the top influencers of students choosing to major in agriculture (Dyer et al, 1999; Donnermeyer & Kreps, 1994; Barkley & Parrish, 2005; Washburn, Garton, & Vaugh, 2002). Segler-Conrad, Joerger, and Leske (2004) conducted a study to determine forms of communication and individuals that influenced freshmen students to attend the College of Agriculture, Food, and Environmental Sciences (COAFES) at the University of Minnesota. A Likert-type scale was used to measure the level of influence on 194 students' decision to enroll. The responses ranged from six, which equaled extreme amount of influence, to one, which equaled minimal amount of influence. Of the 194 students, 12 freshmen were Agriculture Education majors who reported high school Agriculture Education teachers as their greatest influencer (M=4.9, SD=1.3). For all COAFES students, individuals with the greatest influence on 40% or more of the students were parents (M=3.7, SD= 1.5) and friends or peers (M=3.5, SD= 1.5) High school Agriculture Education teachers (M=3.9) were still found to be influencers in the college choice process.

Fixed College Characteristics

Chapman (1981) considered cost, location, campus environment, and the availability of desired programs fixed college characteristics. These variables are considered fixed due to the short term impact a change to one of these characteristics would have on prospective students.

Cost

Chapman cited research by Tillery and Kildegaard (1973) and Mundy (1976), which suggested that cost is a factor that influences college attendance more than which college to attend. The National Center for Education Statistics (2010) reported 40.2% of students did not attend college due to inability to afford to go to school, compared to 52.2% who would rather work and make money than go to college, 37.3 % who did not like school, 28.9% who did not have grades high enough to attend, and 26.6% who planned to join the military. With the help of financial aid, students were able to attend colleges they may not otherwise have been able to afford; however, despite the ability to receive financial aid, students and their families still consider cost and the ability to afford college (Hossler, Hu & Schmit, 1998). Chapman (1981) suggested the variable may not be the cost of college, but instead the social background or family income of the students.

Using a financial nexus model, Paulsen and St. John (2002) examined perceptions and expectations of finances on student's choice of college. They stated, "two ways that college costs influence postsecondary opportunity: directly in response to prices and subsidies, and indirectly through perceptions and expectations of the affordability of college costs" (p. 228). Low-income and lower-middle-income students were more responsive to prices than students from upper-middle and upper-income families. The low-income students knew they were financially at risk when looking at college costs; therefore they attended schools based on availably of financial aid and low tuition.

Furthermore, Avery and Hoxby (2002) conducted an extensive study on how financial aid packages impacted high-aptitude students. To learn if loans, work-study, and grants had any impact on student's college choice decision, 3,240 seniors from 396 different high schools were

surveyed. Findings showed students were attracted by loans, work-study, and grants. Students were more sensitive to a grants share of the total college cost versus the amount of the grant. In addition, students were attracted to grants that were called scholarships. Avery and Hoxby also found students with high income parents or parents who attended selected colleges were not as influenced by financial aid packages.

Cost to attend college impacts students from higher and lower income families differently. Delaney (1998) surveyed new freshmen at a private college and found when students considered the importance of college characteristics in general, higher income students attributed more importance to colleges surroundings, while lower income students focused on opportunities for internships, academic programs, and costs. College cost was not a major factor in the college decision for students from higher income families.

Location

Transfer students from community colleges in Michigan reported location as one of the top two factors when determining if and where to transfer. Students who were undecided or had no plans to transfer rated location as the most important factor; this factor would affect or change their decision on whether to transfer. Of students who had plans to transfer, location was rated second after academic program. The students in this study were attracted to institutions within 100 miles of home (Monroe & Richtig, 2002).

A student's financial need also determines whether a student will attend school closer to home. Chapman (1981) found high-ability students with no financial need considered a wider range of institutions compared to their peers with financial need or low academic ability. Mattern and Wyatt (2009) collected data from the National Student Clearing House and matched student records with data from the College Board's 1999 College Bound Seniors cohort of

1,417,847 students. Data collected was self-reported. Analyzed data from 697,610 students who took the SAT showed students with higher SAT scores and who came from families with higher levels of SES attended colleges further from home. Avery and Hoxby (2002) concurred; high-aptitude students were indifferent to a college's distance from their home, therefore considering all types of institutions and locations. Looking at a larger pool of students, 916,466, who attended four-year institutions, Mattern and Wyatt (2009) found students stayed close to home. The median distance a student traveled for college was 94 miles (25^{th} percentile = 23 miles and 75^{th} percentile= 230 miles).

Availability of Program

Students select colleges that provide the academic programs needed to help them reach their education and career goals. The courses available and the educational benefits students receive from those courses are important characteristics students look for in choosing a college (Chapman, 1981).

Nelson and Poremba (1980) discovered three top reasons students chose to apply for admission to the University of North Dakota in 1979-1980. They reviewed 2,434 student's admission applications. Forty percent of the students selected "academic program" as the reason for choosing the University of North Dakota. Additional reasons included location (25.5%) and school reputation (13%). These findings are consistent with Cunningham and Fickes' (2000) survey results of non-matriculate students who applied for admission to Pennsylvania College of Technology. Over one-half the students, 851, responded to the survey. Fifty-four percent of students claimed program offerings as the reason for non-matriculation. The researchers conducted the same study in 1995 and 1997, which produced similar results. College reputation was the second ranked factor. Data suggested the components to college reputation were

academic reputation and graduate job placement. Petr and Wendel (1998) concurred; overall reputation of the institution and the offering of a specific program of interest were major reasons why surveyed out-of-state students attended University of Nebraska-Lincoln.

College's Efforts to Communicate with Students

In an effort to increase enrollment, colleges develop marketing strategies to recruit students. Chapman (1981) confirmed institutions who communicate with prospective students attract students who might not have otherwise considered their institution. Students look at career opportunities, reputation of the university, preparation for employment, and opportunities after graduation as part of their college choice (Washburn et al., 2002).

Wolff and Bryant (1999) used Noel-Levitz's national survey results to identify current practices in enrollment management. The researcher's synopsis of the top ten trends in enrollment management concludes colleges and universities continue to compete for students while finding efficient, expeditious, and cost-effective methods to recruit students.

> "Savvy schools are taking fresh approaches and making better use of the high-tech tools now available. Successful solutions include: using more advanced tracking, research and analysis systems to determine which outreach methods are working, employing more sophisticated outreach techniques and determining the cost of recruiting and enrolling a specific size and type of class" (pg. 3).

One top trend Wolff and Bryant (1999) found was higher enrollment budgets allowing institutions to spend more to recruit students. In 1997, public institutions spent an average of $433 per prospective student to recruit them. Additional trends included colleges and universities being more strategic in using financial aid as a recruitment tool, direct mail expansion, and the use of technology.

Written Materials

Printed materials are useful sources of information for prospective college students. Institutions that develop promotional brochures often create a series of publications that targeted desired groups of students (Wolff & Bryant, 1999). Segler-Conrad et al. (2004) found 36.5% of students entering the COAFES were influenced by written communications, such as letters and information from admissions representatives and faculty members, brochures, and undergraduate bulletins. Dyer, Breja, and Andreasen (1999) agree with the importance of using written communication. Thirty-two percent of Iowa State University freshmen reported brochures as their most helpful source of information.

A five-year study by Shrestha, Suvedi, and Foster (2011) surveyed 2,798 undergraduate students in the College of Agriculture and Natural Resources (CANR) at Michigan State University (MSU). The findings from this study revealed printed materials, such as college brochures and university publications, were the third most useful source of information in selecting a program in CANR at MSU behind family/friends and university/college website. Robinson, Garton, and Washburn's (2007) found different results. First-time enrollees in the College of Agriculture, Food, and Natural Resources at the University of Missouri reported using printed publications to make their college decision however stated information in the publications did not meet their informational needs.

As technology evolves, colleges are utilizing various media outlets to reach their target audience. Rocca and Washburn (2005) surveyed 2,860 new students at the University of Florida. Students reported that three of the five most used sources of information were web-based and transfer students reported their three most used sources of information were web-based.

> "The most commonly used sources of information for high school matriculates were "degree program information on a website," "UF information on a website," and "printed UF publications." Transfer matriculates indicated "UF information on a website," "degree program information on a website," and "CALS information on a website: as their most used sources of information" (pg. 34).

Shrestha, Suvedi, and Foster (2011) findings supported this study. CANR students at MSU reported the university and college website (27.1%) as the second most used source of information.

Campus Visit

Colleges of agriculture are known for their friendly atmosphere and faculty, which students discover during a campus visit (Dyer et. al, 1999; Barkely & Parrish, 2005). The friendly family atmosphere at New Mexico State University was a factor that led students to enroll in agriculture (Wildman & Torres, 2001). While visiting the University of Florida, students felt the personal contact with college representatives was highly useful when making their college decision (Rocca & Washburn, 2005). At Pennsylvania College of Technology, Cunningham and Fickes (2000) confirmed that non-matriculates with negative campus visits attended alternative institutions, thus suggesting students with positive campus visits were more likely to enroll at that college.

In a national study, Filter (2010) analyzed data from 89,325 student surveys determining influential factors leading students who earned an A/A+ average in high school to enroll in their first-choice institution. Filter found campus visits to be the largest predictor of college choice, which positively influenced students to enroll in their first-choice college. Forty-nine percent of students reported campus visits as very important and 33.33% reported campus visits to be

somewhat important. Only 16.6% reported campus visits as not important. The researcher found the influence of the campus visit to be significant; he stated "as academically talented students increased their value of the importance of the campus visit, they were .56 times more likely to enroll in their first-choice institution (pg. 164)."

Dale (2010) conducted a qualitative study, which included focus groups with 28 high achieving students. Students selected were from one of the four scholarship groups: National Merit Finalist (non-resident), National Merit Finalist (resident), Dean's Scholars (non-resident), and President's Scholars (resident). During discussion, very little detail was given about the student's campus visit experience, however students mentioned the importance of the visit and the friendliness of the people. Dale believed students looked at campus visits as the culmination of several influential factors and the visit provided them a tangible experience to help with their college decision. Hodges and Barbuto (2002) found a statically significant difference between the levels of influence a campus visit had on rural students compared to urban students. Eighty-one college freshmen who had outstanding academic success in high school were surveyed. Students from rural backgrounds rated the importance of a campus visit 0.87 points higher than urban students, however campus visits were more influential on urban students choice of college compared to other factors. College website, contact with a college recruiter, contact with current students, contact with alumni, contact with faculty, and athletic programs had less influence on their college choice process compared to a campus visit.

Admissions/Recruiting

Personal contact with prospective students is an effective recruitment practice. Wolff and Bryant (1999) surveyed 452 four-year colleges and universities to summarize recruitment strategies used by institutions. Universities and colleges send admissions representatives on high

schools visits; however, Wolff and Bryant (1999) reported only 58% of institutions found this recruitment strategy effective. In an effort to develop more personal relationships with students, institutions increased the number of phone calls made to students. Some institutions make up to 100,000 phone calls per year. In 1997, public institutions spent a mean of $21,735 per year on telecounseling programs compared to $10,577 in 1995.

University and college admissions representatives serve as student influencers. Robinson et al. (2007) reported 51% of 696 first-time enrollees in the CANR at MSU were influenced by information received from a university admissions representative. Forms of communication that influenced student's decision to enroll in College of Agriculture, Food, and Environmental Sciences (COAFES) at the University of Minnesota were verbal communications with admissions representatives at high school and career fairs, conversations with faculty, and telephone conversations with admissions representatives (Segler-Conrad et al., 2004). Esters & Bowen's (2004) findings concurred, 50% of urban Pennsylvania students were influenced by recruitment activities.

General Expectations of College Life

The external factors in Chapman's (1981) model can be filtered by the idealized expectations students have of college. Chapman cites Stern (1970) who indicates many students enter college with unrealistic expectations of the college environment, known as the "freshman myth." Student's unrealistic expectations of college life may cause them to make college decisions based on stereotypes rather than student experiences they may receive from different institutions. For this model the "freshman myth" is considered a mediating influence (Chapman, 1981).

College's Choice of Students and Student's Choice of College

Chapman's (1981) model suggested that the combined and interactive effects of student characteristics, external influences, and student's general expectations of college life, motivated students to choose which one or more institutions to apply for admission. Institutions decide which students to admit thus, if a student is rejected from a college which they were suited for, this does not imply the student's college choice was wrong. Chapman stated, "The essential test of the model is not whether students get accepted, but rather, given the open opportunity, where they choose to attend college (p. 500)."

Summary

This review examined literature and research related to student career development and student college choice. A number of factors have been found to influence career growth, career exploration, and college choice decisions, including career aspirations and exposures explored in this study. However, the literature review limited those factors to only those included in Super's (1990) Life-Span, Life Space Approach to Career Development and Chapman's (1981) model of student college choice.

Super's model provided a picture of a person's life-stages, the roles they play, and the impact interaction with personal and situational determinants have on career development. The literature review specifically focused on the growth and exploration stages of a person's life. Chapman's (1981) model suggested student college choice was influenced by student characteristics in combination with a series of external influences. Student characteristics included: SES, level of educational aspiration, aptitude, and high school performance. External influences were in three categories: the influence of significant persons, fixed college

characteristics, and the colleges efforts to communicate with prospective students. The literature review provided a broad understanding of existing literature as it related to Super's (1990) and Chapman's (1981) models.

Chapter 3 - Methodology

Purpose of Study

The purpose of this study was to identify factors that influenced urban students to major in agriculture and enroll in the College of Agriculture at KSU. Specifically, the study focused on the following objectives:

1. To identify the personal characteristics of the population.
2. To identify urban students' perceptions of the influence their exposure to agriculture had on their choice of major and to compare those perceptions between students currently majoring in the College of Agriculture and students no longer majoring in the College of Agriculture.
3. To identify the degree to which the perceptions of college factors influenced urban students' enrollment in the College of Agriculture at KSU and to compare the perceptions of the influence of college factors between students currently majoring in the College of agriculture and students no longer majoring in the College of Agriculture.
4. To identify the perceptions of the level of influence career aspirations had on urban students' choice of major and compare those perceptions of career aspirations between students currently majoring in the College of Agriculture and students no longer majoring in the College of Agriculture.

Population

College of Agriculture Academic Programs Office requires new students to complete a New Student Information form when they attend Orientation and Enrollment. The form collects

student self-reported demographic information. Students were asked the following question: "Circle location of permanent residence: City over 100,000; 50,000-100,000; 10,000-50,000; 2,000-10,000; under 2,000; farm." A total of 625 students enrolled as new incoming students in the College of Agriculture at KSU for fall semesters 2008, 2009, 2010 and 2011 and selected the answer "city over 100,000" or "50,000-100,000." Of the 625 students, 416 of those students were currently at KSU. The population of this study consisted of students who were still enrolled in the College of Agriculture (*N*=338) and students who changed majors out of the college but were still enrolled at KSU (*N*=78), for a total of 416 students.

The Census Bureau defines urbanized areas as having a population of at least 1,000 people per square mile. For Census 2000, the Census Bureau defined populations of 50,000 or more as large, urbanized areas (United States Census Bureau, 2012).

Instrumentation

This quantitative study utilized a descriptive research design. Glatthorn & Joyner (2005) stated "descriptive research is used to describe the characteristics of a population by directly examining samples of that population (p.101)." A questionnaire was developed in March 2012 by the researcher. The questionnaire was administered to all students in the population on April 16, 2012 (Appendix A).

Questionnaire content was influenced heavily by two instruments, Wildman & Torres and Rocca. Wildman and Torres' (2001) study investigated factors that influenced students' decision to select a major within agriculture disciplines. Their survey collected data on five principal factors: exposure to agriculture, family and friends, college and agriculture recruitment activities, professionals and job considerations. The questionnaire for this study used the same five-point

Likert-type scale as Wildman and Torres (2001) and used the same criteria to define if a factor was considered influential. Each item and/or factor in their survey was considered influential if a mean score of 3.0 or greater was achieved. Rocca (2005) studied the influence and predictive nature of person inputs, contextual influences, self-efficacy, and outcome expectations on preservice agriculture teachers' intentions to teach. Rocca's focus on teaching intentions and aspirations was utilized for the development of questions related to career aspirations found in the questionnaire.

The questionnaire was tested for both validity and reliability. To test for validity, a panel of KSU College of Agriculture faculty and administrators reviewed the questionnaire and provided input. Appropriate changes were made such as adding and/or deleting agriculture exposures, college factors and career aspirations from the questionnaire. To test for reliability, a pilot test was administered to 25 students not targeted in the study. The 25 students included: a student from each of the 16 majors in the College of Agriculture, five students who changed majors outside of the College of Agriculture, two transfer students and two minority students. Among the 25 students, both males and females and out-of-state and in-state students were represented. College of Agriculture Student Council members, Agriculture Ambassadors, and Minorities in Agriculture, National Resources, and Related Sciences (MANNRS) students from non-urban backgrounds were asked to participate in the pilot test. The first 20 students who responded to the request and who fulfilled the required student characteristics listed above were selected for the pilot study. Five students no longer majoring in the College of Agriculture were randomly selected from a list of students who recently changed majors. The students were administered the online questionnaire and were given seven days to respond. The response rate was 100%.

A Cronbach's Coefficient Alpha reliability analysis was used to test for reliability. George and Mallery (2003) cited by Gliem and Gliem (2003) provided the following rules of thumb for describing internal consistency: $\alpha \geq .9$ Excellent, $.9 > \alpha \geq .8$ Good, $.8 > \alpha \geq .7$ Acceptable, $.7 > \alpha \geq .6$ Questionable, $.6 > \alpha \geq .5$ Poor, $\alpha > .5$ Unacceptable. For the pilot test, a value of $.8 > \alpha \geq .7$ was considered an "acceptable" value for Cronbach's alpha as suggested by Field (2005). Values substantially lower would be considered unreliable. Cronbach's Coefficient Alpha was performed for each of the three sets of questions; exposure to agriculture (α=.684), college factors (α=.908), and career aspirations (α=.796). The questions related to college factors and career aspirations were considered reliable. The reliability on questions related to student's exposure to agriculture (α=.684) was considered questionable with $\alpha < .7$. The researcher still considered the questions related to exposure to agriculture as reliable based on two factors: the sample for the pilot test were non-urban students that were students not part of the population; with an α of .684, the α was only a .016 away from reaching the acceptable reliability of $.8 > \alpha \geq .7$. Reliability for all questions was considered acceptable and no changes were made to the survey questions.

An application was made to KSU's Institutional Review Board of Human Subject Research for approval on March 30, 2012. The Institutional Review Board granted approval of the final instrument and the survey procedures on April 9, 2012. Student demographic information was obtained from the KSU Office of the Registrar. Information requested included: ACT scores, ethnicity, gender, in-state or out-of-state status, and whether the students were transfer students.

Data Collection

An online survey using Qualtrics was used to administer the questionnaire. Each student (N=416) received an email April 13, 2012 informing them about the study and upcoming survey they would receive via email (Appendix B). On April 16, 2012, each student received a survey invitation with a uniform resources locator (URL) unique to the student. The invitation provided instructions on how to access the questionnaire, length of questionnaire, description of the study, and why a response was important (Appendix C). Question one of the questionnaire determined whether the student was currently majoring in the College of Agriculture or if they changed out of the College of Agriculture. Students who changed out of the College of Agriculture and who selected "other" in question 1a were prompted to answer 1b on the questionnaire.

Students were given three weeks to respond to the survey. Dillman, Smyth, and Christian (2007) recommend sending a token of appreciation with the survey invitation. At the end of the questionnaire, students were able to print a coupon for Call Hall ice cream coupon. The survey invitation made students aware of the coupon. To increase response rate and reduce email messages from being flagged as spam, Dillman et al. (2007) recommended sending reminder emails with varying messages. Reminder emails were sent on April 21, 2012 (Appendix D) and April 30, 2012 (Appendix E).

In the questionnaire, students were asked to self-report the size of the community they were raised in while attending high school and junior high. Home towns and size of communities were reviewed for students who reported growing up in a community with a population of less than 50,000. Three respondents were eliminated from the study due to growing up in a community of less than 50,000. A total of 143 useable responses were collected, resulting in a response rate of 34%. Thirty-seven percent of 338 students majoring in the College of

Agriculture responded (n=125) and 23% of 78 students who were no longer majoring in the College of Agriculture responded to the survey (n=18).

To control for non-response error, the researcher telephoned 10% of the 213 non-respondent College of Agriculture students and 8% of the 60 non-College of Agriculture students on May 7-11, 2012. The non-respondents were assigned a number and using an online random number generator, 100 numbers were randomly selected for students majoring in the College of Agriculture and 50 numbers were randomly selected for students no longer majoring in the College of Agriculture. Starting at the beginning of the list, the students were called and asked to respond to the same questions from the original instrument for purposes of comparison with the responding group. The students were given the choice to answer the questions on the telephone or to receive the online survey by email to complete. Nine of the 26 students chose to complete the survey online. Students who chose to complete the survey online were given 24 hours to complete and after the 24 hours the next person on the list was contacted. As an additional precaution to control for non-response error, characteristics of non-respondents were compared to respondents. The characteristics compared were: ACT scores, ethnicity, gender, in-state or out-of-state status, and whether the students were transfer students. T-tests and chi-squared tests were used to determine if there were statistically significant differences between the respondents and non-respondents. Scores with $\alpha \leq .05$ indicated a statically significant difference between respondents and non-respondents.

Data Analysis

In this study, means, standard deviations, frequencies, percentages, t-tests, and chi-squared tests were used to describe the characteristics of the population and the level of influence

college factors, exposures to agriculture and career aspirations had on urban student's decisions to major in the College of Agriculture at KSU. Collected data were coded and analyzed using Statistical Package for the Social Sciences (SPSS) version 20.

Objective 1: To identify the personal characteristics of the population. Demographic data were collected from the KSU Office of the Registrar. Percentages, means, frequencies, t-tests, and chi-squared tests were used to profile the respondents. A mean ACT score was generated and percentages were figured for ethnicity, gender, in-state and out-of-state status, and whether the respondents were transfer students or freshmen when they entered KSU. Percentages were used to describe the student's first academic major at KSU. To determine whether differences existed between student demographic characteristics, chi-square tests, with the alpha level set *a priori* at .05, were calculated for the following: minority and non-minority students, males and females, in-state and out-of-state students, and incoming transfer and freshmen students. T-tests, with the alpha level set *a priori* at .05, were calculated to compare ACT scores.

Objective 2: To identify urban students' perceptions of the influence their exposure to agriculture had on their choice of major and to compare those perceptions between students currently majoring in the College of Agriculture and students no longer majoring in the College of Agriculture. Means, standard deviations, percentages, and t-tests were used to describe the influence exposure to agriculture had on urban students. Students were asked twelve different "yes" or "no" questions to determine if they were exposed to agriculture. Using a five-point Likert-type scale, students who answered "yes" were asked the level of influence exposure to agriculture had on their choice of major. The ratings in the scale were: "5" indicating that the exposure to agriculture was "Very Influential," "4" signifying that the exposure to agriculture was "Moderately Influential," a rating of "3" signifying that the exposure to agriculture was

"Somewhat Influential," "2" indicating that the exposure to agriculture was "Slightly Influential," and a rating of "1" signifying that the exposure to agriculture was "Not Influential." Each factor with a mean score of 3.0 or greater was considered influential for two reasons. First, a "3" signified that the exposure to agriculture was "Somewhat Influential," thus indicating there was an influence. Second, the questions in this study were modeled after Wildman and Torres's (2001) research questions, which used a 3.0 or greater mean score as influential. T-tests, with the alpha level set *a priori* at .05, were used to compare responses for students currently majoring in the College of Agriculture with students no longer majoring in the College of Agriculture. T-tests scores were provided for each exposure to agriculture. Scores with $\alpha \leq .05$ indicated a statically significant difference between responses of College of Agriculture students and students no longer majoring in the College of Agriculture.

Students who answered "yes" to having a relative who worked in a field related to agriculture and/or a relative who worked in production agriculture were asked to identify the relative. The students could identify more than one relative. Frequencies and percentages were used to report the number of relatives the students had who worked in the agriculture industry. Students were also asked about the type of work or volunteer experience they had prior to graduating from high school. Percentages were used to describe the level of work or volunteer experiences the students had when selecting their major.

Objective 3: To identify the degree to which the perceptions of college factors influenced urban students' enrollment in the College of Agriculture at KSU and to compare the perceptions of the influence of college factors between students currently majoring in the College of Agriculture and students no longer majoring in the College of Agriculture. Means, standard deviations, and t-tests were utilized to describe the level of influence each of the 23 college

factors had on students' choice to major in the College of Agriculture. A five-point Likert-type scale was used to collect the level of influence. The ratings in the scale were: "5" indicating that the college factor was "Very Influential," "4" signifying that the college factor was "Moderately Influential," a rating of "3" signifying that the college factor was "Somewhat Influential," "2" indicating that the college factor was "Slightly Influential," and a rating of "1" signifying that the college factor was "Not Influential." Each factor with a mean score of 3.0 or greater was considered influential for two reasons. First a "3" signified that the exposure to agriculture was "Somewhat Influential," thus indicating there was an influence. Second, the questions in this study were modeled after Wildman and Torres's (2001) research questions, which used a 3.0 or greater mean score as influential. T-tests scores were provided for each college factor. Scores with $\alpha \leq .05$ indicated a statically significant difference between responses of College of Agriculture students and students no longer majoring in the College of Agriculture.

Objective 4: To identify the perceptions of the level of influence career aspirations had on urban students' choice of major and compare those perceptions of career aspirations between students currently majoring in the College of Agriculture and students no longer majoring in the College of Agriculture. Means, standard deviations, and t-tests were utilized to describe the level of influence each of the 24 career aspirations had on students' choice to major in the College of Agriculture. A five-point Likert-type scale was used to collect the level of agreement the student had with the career aspiration. The ratings in the scale were: "5" indicating that students "Strongly Agree," "4" signifying "Agree," a rating of "3" signifying that the students "Neither Agree or Disagree," "2" indicating that the students "Disagree," and a rating of "1" signifying that the students "Strongly Disagree." A rating of "3" in the scale indicated that the students "Neither Agree or Disagree" that the career aspiration had an influence on their choice of major.

A mean score of 3.5 or greater was considered influential given that the rating "3" was a neutral answer and "agree" was a rating of "4." A 3.5 indicates more evidence that the student "agrees" the career aspiration was influential. T-tests, with the alpha level set *a priori* at .05, were used to compare responses for students currently majoring in the College of Agriculture with students no longer majoring in the College of Agriculture. T-tests scores were provided for each college factor. Scores with $\alpha \leq .05$ indicated a statically significant difference between responses of College of Agriculture students and students no longer majoring the College of Agriculture.

Summary

This study was conducted utilizing an online survey method to determine factors that influence urban students to major in the College of Agriculture at KSU. Specifically, the study identified personal characteristics of the population and determined which college factors, exposures to agriculture, and career aspirations played a role in the student's choice of academic major. The population for this study was 416 current KSU students who enrolled as new, incoming students in the College of Agriculture fall semesters 2008, 2009, 2010 or 2011 and who self-reported their permanent residence as urban; populations of 50,000 or greater.

Chapter 4 - Findings

Purpose of Study

The purpose of this study was to identify factors that influenced urban students to major in agriculture and enroll in the College of Agriculture at KSU. Specifically, the study focused on the following objectives:

1. To identify the personal characteristics of the population.
2. To identify urban students' perceptions of the influence their exposure to agriculture had on their choice of major and to compare those perceptions between students currently majoring in the College of Agriculture and students no longer majoring in the College of Agriculture.
3. To identify the degree to which the perceptions of college factors influenced urban students' enrollment in the College of Agriculture at KSU and to compare the perceptions of the influence of college factors between students currently majoring in the College of agriculture and students no longer majoring in the College of Agriculture.
4. To identify the perceptions of the level of influence career aspirations had on urban students' choice of major and compare those perceptions of career aspirations between students currently majoring in the College of Agriculture and students no longer majoring in the College of Agriculture.

Population

The population for this study was 416 current KSU students who enrolled as new incoming students in the College of Agriculture during the fall semesters of 2008, 2009, 2010 or 2011 and who self-reported their permanent residence as urban; populations of 50,000 or greater.

The population consisted of students who were still enrolled in the College of Agriculture (*N*=338) and students who were no longer majoring in the College of Agriculture but were still enrolled at KSU (*N*=78).

Each student in the population received an email with a survey invitation. Contact information and demographic information for each student were obtained from KSU's Registrar Office. A total of 143 useable responses were collected, resulting in a response rate of 34%. Thirty-seven percent of 338 students majoring in the College of Agriculture responded (agriculture students) (*n*=125) and 23% of 78 students who were no longer majoring in the College of Agriculture responded to the survey (non-agriculture students) (*n*=18).

Control for Non-Response Error

To assist in controlling for non-response error, the researcher randomly selected and telephoned 10% of the 213 non-respondent College of Agriculture students (*n*=21) and 8% of the 60 non-respondent, non-College of Agriculture students (*n*=5). Demographic characteristics (Table 4.1) and ACT scores (Table 4.2) were used to compare the respondents and non-respondents. Demographic characteristics compared in Table 4.1 were: males and females, in-state and out-of-state students, minority and non-minority students, and incoming transfer and freshmen students. Chi-square tests, with the alpha level set *a priori* at .05 were used to compare the characteristics. The results showed a statistically significant difference of gender between the two groups, c^2 (1, N = 169) =6.77, p=009. A higher percentage of respondents were female (respondents 72%, non-respondents 46.2%), whereas a higher percentage of non-respondents were male (respondents 28%, non-respondents 53.4%). There were no statistically significant differences between the other characteristics for respondents and non-respondents.

Table 4.1 Comparison of Personal Characteristics of Respondents and Non-Respondents

	Respondents (n=143)		Non-Respondents (n=26)		
Characteristics	f	Percent	f	Percent	Chi Squared
Female	103*	72.03	12*	46.15	0.009
Male	40	27.97	14	53.85	
In-State	99	69.23	16	61.54	0.439
Out-of-State	44	30.77	10	38.46	
Non-Minority	123	86.01	22	84.62	0.851
Minority	20	13.99	4	15.38	
Freshman	124	86.71	21	80.77	0.424
Transfer	19	13.29	5	19.23	

*Statistically significant difference at a .05 alpha level

Table 4.2 ACT Scores of Respondents and Non-Respondents

	Respondents (n=115)		Non-Respondents (n=16)		
Characteristics	M	SD	M	SD	T-Test
ACT	26.03	3.74	24.25	4.14	0.080

Note. A mean ACT score was calculated only for students who submitted ACT scores to KSU's Registrar Office.
*Statistically significant difference at a .05 alpha level

The total population for this study was 416 persons. From the population, a total of 143 useable responses were collected, resulting in a response rate of 34%. Thirty-seven percent of 338 students majoring in the College of Agriculture responded (n=125) and 23% of 78 students who were no longer majoring in the College of Agriculture responded to the survey (*n*=18).

Given the low response rate, demographic characteristics (Table 4.3) and ACT scores (Table 4.4) were compared between the respondents (n=115) and the total population (n=416).

Table 4.3 Comparison of Personal Characteristics of Respondents and Population

	Respondents (n=143)		Population (n=416)		
Characteristics	f	Percent	f	Percent	Chi Squared
Female	103*	72.03	245*	58.89	0.005
Male	40	27.97	171	41.11	
In-State	99	69.23	307	73.80	0.291
Out-of-State	44	30.77	109	26.20	
Non-Minority	123	86.01	343	82.45	0.324
Minority	20	13.99	73	17.55	
Freshman	124	86.71	342	82.21	0.212
Transfer	19	13.29	74	17.79	

*Statistically significant difference at a .05 alpha level

Table 4.4 ACT Scores of Respondents and Population

	Respondents (n=115)		Population (n=330)		
Characteristics	M	SD	M	SD	T-Test
ACT	26.03	3.74	24.71	4.07	0.002

Note. A mean ACT score was calculated only for students who submitted ACT scores to KSU's Registrar Office.
*Statistically significant difference at a .05 alpha level

The results showed a statistically significant difference of gender between the respondents and population, c^2 (1, N = 559) =7.81, p=005. A higher percentage of the respondents were female (72%) compared to the population (59%). The results also showed a

statistically significant difference of ACT score between the two groups, c^2 (1, N = 445) =2.57, p=002. The respondents had a higher mean ACT score (26.03) compared to the population (24.71). There was no statistically significant difference between the other characteristics of respondents and the population.

The researcher assigned a number to all non-respondents and used an online random number generator to randomly select students majoring in the College of Agriculture and students no longer majoring in the College of Agriculture. Starting at the beginning of the list, the students were called and asked to respond to the same questions from the original instrument for purposes of comparison with the responding group. The students were given the choice to answer the questions on the telephone or to receive the online survey by email to complete. Nine of the 26 students completed the survey online. Students who chose to complete the survey online were given 24 hours to complete and after the 24 hours the next person on the list was contacted. T-tests, with the alpha level set *a priori* at .05, were used to compare the level of influence exposures to agriculture had on students' choice of major for respondents and non-respondents. A statistically significant difference existed for the following exposures to agriculture (Table 4.5): "radio broadcast about agriculture topics" (respondents M = 1.55, non-respondents M = 1.00, t = .002) and "high school agriculture courses" (respondents M = 3.83, non-respondents M = 1.00, t = .001).

Table 4.5 Comparison of Exposures to Agriculture for Respondents and Non-Respondents

	Respondents (n=143)				Non-Respondents (n=26)				
	Received Exposure		Level of Influence		Received Exposure		Level of Influence		
Agriculture Exposure	f	%	M	SD	f	%	M	SD	T-Test
Hunted and fished	77	53.9	2.27	1.35	18	69.2	2.56	1.42	0.972
Relative who worked in production agriculture	58	40.6	2.95	1.56	12	46.2	3.08	1.73	0.371
Websites containing agriculture topics	47	32.9	2.62	1.13	13	50.0	2.85	0.99	0.327
Non-technical magazines about agriculture topics	48	33.6	2.19	1.10	6	23.1	2.33	0.82	0.455
Relative who worked in a field related to agriculture	43	30.1	3.12	1.50	10	38.5	2.90	1.45	0.517
Television program about agricultural topics	41	28.7	2.34	1.28	11	42.3	3.18	1.47	0.391
Radio broadcast about agriculture topics	29	20.3	1.55*	0.74	3	11.5	1.00*	0.00	0.002
Technical journals focused on agriculture	21	14.7	2.71	0.90	5	19.2	3.40	1.14	0.573
4-H or extension programs	24	16.0	4.33	1.09	3	11.5	3.33	1.53	0.512
High School agriculture courses	18	12.6	3.83*	1.54	5	19.2	1.00*	0.00	0.001
FFA	17	11.9	3.88	1.58	6	23.1	4.17	1.60	0.781
Junior MANRRS	2	1.4	3.00	1.41	2	7.7	1.00	0.00	n/a

Note. Evaluations on a 5-point scale (5=Very Influential, 3=Somewhat Influential, 1=Not Influential)
Factors with mean score of 3 or greater were considered influential
*Statistically significant difference at a .05 alpha level

T-tests, with the alpha level set *a priori* at .05, were used to compare the level of influence college factors had on students' choice of major for respondents and non-respondents (Table 4.6). A statistically significant difference existed on the factor of "visit to campus" (respondents $M = 3.62$, non-respondents $M = 4.00$, $t = .009$).

Table 4.6 Comparison of the Influence College Factors had on Students' Choice of Major for Respondents and Non-Respondents

College Factors	Respondents (n=143)		Non-Respondents (n=26)		
	M	SD	M	SD	T-Test
Career opportunities for graduates	3.80	1.27	3.85	1.32	0.572
Hands-on-learning opportunities	3.60	1.37	3.73	1.43	0.943
Friendly atmosphere in the College of Agriculture	3.67	1.41	3.85	1.52	0.575
Visit to campus	3.62*	1.43	4.00*	1.10	0.009
Quality and reputation of college faculty	3.41	1.40	3.85	1.22	0.118
Availability of academic program	3.33	1.41	3.62	1.30	0.552
Affordability of KSU	3.14	1.40	3.08	1.50	0.747
Interaction with representative from college or dept.	3.05	1.47	3.38	1.33	0.348
Information brochures on major	3.02	1.36	3.12	1.56	0.177
Interaction with current college students	2.86	1.48	3.15	1.59	0.270
Small average class size	2.78	1.35	3.42	1.30	0.682
Scholarships provided by college/department	2.76	1.553	2.08	1.47	0.408
Quality of facilities	2.81	1.34	3.42	1.30	0.720
Opportunities to participate in ag related clubs/activities	2.68	1.40	3.12	1.48	0.725
Information brochures about the College of Agriculture	2.62	1.32	2.38	1.33	0.735
Undergraduate research opportunities	2.50	1.42	2.46	1.48	0.895
There are students like me in the College of Agriculture	2.38	1.41	2.92	1.35	0.292
On-campus employment in the College of Agriculture	2.34	1.44	2.27	1.49	0.705
Study aboard opportunities	2.20	1.37	2.38	1.44	0.489
Interaction with College of Agriculture alumni	1.99	1.33	2.04	1.56	0.312
Ag related camps and competitive events on campus	1.92	1.25	2.04	1.40	0.715
Ability to take online courses	1.92	1.25	2.12	1.42	0.417
Participation in summer MAPS program	1.41	1.00	1.58	1.21	0.293

Note. Evaluations on a 5-point scale (5=Very Influential, 3=Somewhat Influential, 1=Not Influential)
Factors with mean score of 3 or greater were considered influential
*Statistically significant difference at a .05 alpha level

T-tests, with the alpha level set *a priori* at .05, were used to compare the level of influence career aspirations had on students' choice of major for respondents and non-respondents (Table 4.7). A statistically significant difference existed for "having a career I enjoyed was most important" (respondents $M = 4.51$, non-respondents $M = 4.73$, $t = .017$).

Table 4.7 Comparison of the Influence Career Aspirations had on Students' Choice of Major for Respondents and Non-Respondents

	Respondents (n=143)		Non-Respondents (n=26)		
Career Aspirations	M	SD	M	SD	T-Test
Having a career I enjoyed was most important	4.51*	0.93	4.73*	0.45	0.017
I wanted the ability to advance in my career	4.19	0.86	4.58	0.64	0.184
I wanted to work in an industry with job availability	4.08	1.01	4.38	0.90	0.666
I wanted a career that will allow me to work with my hands	3.94	1.18	4.12	0.99	0.491
I wanted a prestigious career	3.87	1.17	3.88	1.24	0.892
I enjoyed working with people	3.80	1.06	4.23	0.99	0.530
I wanted the opportunity to earn a large salary	3.78	1.09	4.12	0.91	0.086
I was seeking preparation for an advanced degree	3.66	1.33	3.15	1.52	0.246
I wanted the ability to use my creativity	3.64	1.10	4.00	0.98	0.131
Working with animals every day was important to me	3.61	1.59	3.46	1.73	0.441
I wanted a career that would allow me to work outdoors	3.41	1.30	3.89	1.03	0.058
I wanted to work in a health related field	3.41	1.51	2.88	1.73	0.101
Having the opportunity to travel related to work was appealing to me	3.41	1.22	3.62	1.06	0.301
Having a career in close proximity of my family was important	1.70	1.03	1.58	0.90	0.665
I enjoyed working with technology	3.13	1.13	3.19	1.27	0.315
I wanted the ability to live and work in a large city	3.13	1.24	2.85	1.08	0.157
My goal was to be self-employed and/or start my own business	2.90	1.33	3.31	1.38	0.756
Having the opportunity to work and live internationally interested me	2.95	1.34	3.19	1.27	0.516
Conducting research excited me	2.89	1.34	2.96	1.46	0.59
I wanted the ability to live and work in a rural community	2.82	1.30	3.19	1.20	0.272
I enjoyed working with plants	2.52	1.27	3.00	1.33	0.940
I wanted a corporate job	2.49	1.23	2.46	1.07	0.209
I planned on working in a laboratory	2.31	1.33	2.31	1.44	0.442
I wanted to return to the family business	1.70	1.03	1.58	0.90	0.362

Note. Evaluations on a 5-point scale (5=Very Influential, 3=Somewhat Influential, 1=Not Influential)
Factors with mean score of 3 or greater were considered influential
*Statistically significant difference at a .05 alpha level

After comparing the respondents to non-respondents and respondents to the population, differences existed between the groups, creating a limitation to the study. A higher percentage of the respondents were female (72%) compared to the non-respondents (46.2%) and population (58.9%). The respondents also had higher a mean ACT score (26.03) compared to the non-

respondents (24.25) and population (24.71). Focusing more on the difference between the respondents and the total population, the results indicate the respondents were not representative of the population. More female and higher ACT score students responded to the questionnaire. The reader should generalize the findings with caution. When looking at the responses to the questions, the non-respondents answered the questions similarly to the respondents, given that only 4 of the 59 responses to the questions resulted in a statistically significant difference. The differences were: agriculture exposures "radio broadcast about agriculture topics" and "high school agriculture courses;" college factor "visit to campus;" and career aspiration "having a career I enjoyed was most important."

Research Objective One

To identify the personal characteristics of the population.

To assess objective one, data collected from KSU's Registrar office (Table 4.8) and ACT score (Table 4.9) were used to compare the personal characteristics of the students majoring in the College of Agriculture to students no longer majoring in the College of Agriculture.

Evaluation of the characteristics for both College of Agriculture and non-College of Agriculture students are found in Table 4.8. The results illustrated that a high percentage of urban students for both groups were female (agriculture students 70.4%, non-agriculture students 83.3%), from the state of Kansas (agriculture students 68%, non-agriculture students 77.8%), non-minority (agriculture students 84.8%, non-agriculture students 94.4%), and entered KSU as freshmen (agriculture students 85.6%, non-agriculture students 94.4%).

Table 4.8 Personal Characteristics of Students Majoring in the College of Agriculture and Students no Longer Majoring in the College of Agriculture

	Agriculture Students (n=125)		Non-Agriculture Students (n=18)		
Characteristics	f	Percent	f	Percent	Chi-Squared
Female	88	70.4	15	83.3	0.253
Male	37	29.6	3	16.7	
In-State	85	68.0	14	77.8	0.401
Out-of-State	40	32.0	4	22.2	
Non-Minority	106	84.8	17	94.4	0.270
Minority	19	15.2	1	5.6	
Freshman	107	85.6	17	94.4	0.301
Transfer	18	14.4	1	5.6	

*Statistically significant difference at a .05 alpha level

Chi-square tests, with the alpha level set *a priori* at .05, were used to compare demographic characteristics of the students currently majoring in the College of Agriculture with students no longer majoring in the College of Agriculture. No chi-squared scores were less than .05, therefore there were no statistically significant differences of student characteristics between groups. The demographic characteristics compared were: males and females c^2 (1, N = 143) =1.31, p=.253, in-state and out-of-state students c^2 (1, N = 143) =.71, p=.401, minority and non-minority students c^2 (1, N = 143) =1.22, p=.270, and incoming transfer and freshmen students c^2 (1, N = 143) =1.07, p=.301.

Mean ACT scores for College of Agriculture students and non-College of Agriculture students were compared in Table 4.9. With a 1.42 difference in mean ACT score and a t-test of .159, there was no statistically significant difference in ACT scores between College of Agriculture students (M =26.23) and non-College of Agriculture students (M=24.81).

Table 4.9 ACT Scores for Students Majoring in the College of Agriculture and Students no Longer Majoring in the College of Agriculture

	Agriculture Students (n=99)		Non-Agriculture Students (n=16)		
Characteristics	M	SD	M	SD	T-Test
ACT	26.23	3.50	24.81	4.90	0.159

Note. A mean ACT score was calculated for students who submitted ACT scores to KSU's Registrar Office.
*Statistically significant difference at a .05 alpha level

Descriptive analysis of the 16 College of Agriculture academic majors at KSU is presented in Table 4.10 for students majoring in the College of Agriculture and students no longer in the College of Agriculture. As indicated in Table 4.10, students still majoring in the College of Agriculture represented 15 of the 16 academic majors. For students no longer majoring in the College of Agriculture, their first agriculture major represented 7 of the 16 academic majors. Animal Sciences and Industry (agriculture students 32.8%, non-agriculture students 16.7%), Pre-Veterinary Medicine (agriculture students 21.6%, non-agriculture students 27.8%), and Food Science and Industry (agriculture students 13.6%, non-agriculture students 16.77%), were most represented between both groups of students. All majors were represented between the two groups, with the exception of Wildlife and Outdoor Enterprise Management.

Table 4.10 Academic Major for College of Agriculture Students and First Academic Major for Students no Longer Majoring in the College of Agriculture

	Agriculture Students (n=125)		Non-Agriculture (n=18)	
Academic Majors	f	Percent	f	Percent
Agribusiness	7	5.60	0	0.00
Agricultural Communications and Journalism	4	3.20	0	0.00
Agricultural Economics	4	3.20	1	5.56
Agricultural Education	1	0.80	0	0.00
Agricultural Technology Management	1	0.80	0	0.00
Animal Sciences and Industry	41	32.80	3	16.67
Agronomy	4	3.20	2	11.11
Bakery Science and Management	4	3.20	3	16.67
Feed Science and Management	2	1.60	1	5.56
Food Science and Management	17	13.60	3	16.67
General Agriculture	1	0.80	0	0.00
Horticulture	3	2.40	0	0.00
Milling Science and Management	6	4.80	0	0.00
Park Management and Conservation	3	2.40	0	0.00
Pre-Veterinary Medicine	27	21.60	5	27.78
Wildlife and Outdoor Enterprise Management	0	0.00	0	0.00

Research Objective Two

To identify urban students' perceptions of the influence their exposure to agriculture had on their choice of major and to compare those perceptions between students currently majoring in the College of Agriculture and students no longer majoring in the College of Agriculture.

Data collected via questionnaire regarding students' exposure to agriculture are found in Table 4.11. Additional detailed information about their exposure to agriculture was collected on the following: students who had a relative who worked in a field related to agriculture (Table 4.12), students who had a relative who worked in production agriculture (Table 4.13), and types of agriculture volunteer and work experiences students had before graduating from high school (Table 4.14). Students were asked twelve "yes" or "no" questions to determine if they were exposed to agriculture. If a student answered "yes" they were then asked the level of influence the exposure to agriculture had on their choice of major. It should be emphasized that only when a student answered "yes" that he or she was asked to indicate the level of influence the exposure had on their choice of major. A five-point Likert-type scale was utilized with a rating of "5" indicating that the exposure to agriculture was "Very Influential," a rating of "3" signifying that the exposure to agriculture was "Somewhat Influential," and a rating of "1" signifying that the exposure to agriculture was "Not Influential." Each factor with a mean score of 3.0 or greater was considered influential. Results are presented in Table 4.11.

Table 4.11 The Influence Exposure to Agriculture had on Students' Choice of Academic Major

	Agriculture Students (n=125)				Non-Agriculture Students (n=18)				
	Received Exposure		Level of Influence		Received Exposure		Level of Influence		
Agriculture Exposure	f	%	M	SD	f	%	M	SD	T-Test
Hunted and fished	69	55.2	2.28	1.34	8	44.4	2.25	1.58	0.960
Relative who worked in production agriculture	54	43.2	2.91	1.58	4	22.2	3.50	1.29	0.469
Websites containing agriculture topics	44	35.2	2.52*	1.09	4	22.2	1.00*	n/a	0.027
Non-technical magazines about agriculture topics	42	33.6	2.12	1.11	6	33.3	2.67	1.03	0.260
Relative who worked in a field related to agriculture	40	32.0	3.13	1.54	3	16.7	3.00	1.00	0.891
Television program about agriculture topics	35	28.0	2.20	1.21	6	33.3	3.17	1.47	0.087
Radio broadcast about agriculture topics	27	21.6	1.44*	0.64	2	11.1	3.00*	0.00	0.002
Technical journals focused on agriculture	20	16.0	2.70	0.92	1	5.6	3.00	n/a	0.755
4-H or extension programs	19	15.2	4.21	1.18	5	27.8	4.80	0.45	0.292
High school agriculture courses	17	13.6	3.76	1.56	1	5.6	5.00	n/a	0.453
FFA	16	12.8	3.81	1.60	1	5.6	5.00	n/a	0.483
Junior MANRRS	2	1.6	3.00	1.41	0	0.0	n/a	n/a	n/a

Note. Evaluations on a 5-point scale (5=Very Influential, 3=Somewhat Influential, 1=Not Influential)
Factors with mean score of 3 or greater were considered influential
*Statistically significant difference at a .05 alpha level

"Hunting and fishing (55.2%, *M* = 2.28)," "relative who worked in production agriculture (43.2%, *M* = 2.91)," "websites containing agriculture topics (35.2%, *M* = 2.52)," "non-technical magazines about agriculture topics (33.6%, *M* = 2.12)," and "relative who worked in field related to agriculture (32%, *M* = 3.13)" were the most common exposures to agriculture identified by students majoring in the College of Agriculture. Of the exposures that were most common, "relative who worked in field related to agriculture (*M* = 3.13)" was the only exposure considered influential. Less than 20% of College of Agriculture students were exposed to "4-H or extension programs (15.2%, *M* = 4.21)," "high school agriculture courses (15.2%, *M* = 3.76)," "FFA (15.2%, *M* = 3.81)," or "Junior MANRRS (15.2%, *M* = 3.00)," however these exposures were considered influential in their choice of major.

Students no longer majoring in the College of Agriculture were most commonly exposed to "hunting and fishing (44.4%, *M* = 2.25)," "television programs about agriculture topics (33.3%, *M* = 3.17)," and "non-technical magazines about agriculture topics (33.3%, *M* = 2.67)." "Television programs about agriculture topics (*M* = 3.17)" was the only common exposure considered influential. Eight of the twelve exposures were considered influential to students no longer majoring in the College of Agriculture. The only exposures that were least-influential were "hunting and fishing", "websites containing agriculture topics," and "non-technical magazines about agriculture topics." None of the non-agriculture students participated in Junior MANRRS.

T-tests, with the alpha level set a priori at .05, were used to compare the level of influence exposures to agriculture had on students' choice of major for students currently majoring in the College of Agriculture with students no longer majoring in the College of Agriculture. A statistically significant difference existed for "radio broadcast about agriculture topics (agriculture students *M* = 1.44, non-agriculture students *M* = 3.00, *t* =.002)" and "websites containing agriculture topics (agriculture students *M* = 2.52, non-agriculture students *M* = 1.00, *t* =.027)."

Students who received exposure to agriculture through a relative who worked in production agriculture (Table 4.12) and/or who received exposure to agriculture through a relative who worked in a field related to agriculture (Table 4.13) were asked to identify the relative. Students could identify more than one relative. Forty-five percent of students majoring in the College of Agriculture reported having a relative who worked in production agriculture (Table 4.12). Grandparent (27.2%), aunt or uncle (20%), and parent/guardian (18%) were the most common relatives with production agriculture experience. Twenty-two percent of students

no longer majoring in the College of Agriculture had a relative who worked in production agriculture. Grandparent (16.7%), parent/guardian (11.1%), and other (11.1%) were the most common relatives. Of the students majoring in the College of Agriculture, 33% reported having a relative who worked in a field related to agriculture (Table 4.13). Parent/guardian (13.6%), aunt or uncle (10.4%), and other (10.4%) were the three most common relatives. Twenty-two percent of students no longer majoring in the College of Agriculture had a relative who worked in a field related to agriculture. Aunt or uncle (11.1%) and grandparent (5.6%) were the only relatives reported.

Table 4.12 Number of Students Who Had a Relative Who Worked in Production Agriculture

	Agriculture Students (n=57)		Non-Agriculture Students (n=4)	
Relative	f	Percent	f	Percent
Grandparent	34	27.2	3	16.7
Aunt or Uncle	25	20.0	1	5.6
Parent/Guardian	18	14.4	2	11.1
Other	11	8.8	2	11.1
Sibling	2	1.6	0	0.0

Note. Students could report more than one relative

Table 4.13 Number of Students Who Had a Relative Who Worked in a Field Related to Agriculture

	Agriculture Students (n=42)		Non-Agriculture Students (n=4)	
Relative	f	Percent	f	Percent
Parent/Guardian	17	13.6	0	0.0
Aunt or Uncle	13	10.4	2	11.1
Other	13	10.4	0	0.0
Grandparent	10	8.0	1	5.6
Sibling	2	1.6	0	0.0

Note. Students could report more than one relative

The most common work and volunteer experiences students in the College of Agriculture received before graduating from high school were "veterinary assistant," "non-farm animal," "food service," and "landscape/gardening/horticulture." The most common work and volunteer experiences for students no longer majoring in the College of Agriculture were "veterinary assistant," "lived on acreage," and "food service" (Table 4.14).

Table 4.14 Number of Students Who had Agriculture Work or Volunteer Experiences Before Graduating from High School

	Agriculture Students (n=125)		Non-Agriculture (n=18)	
Experiences	f	Percent	f	Percent
Veterinary Assistant	50	40.0	7	38.89
Non-Farm Animal	40	32.0	3	16.67
Food Service	23	18.4	5	27.78
Landscape/Gardening/Horticulture	19	15.2	3	16.67
Commercial Farm/Ranch	14	11.2	2	11.11
Lived on Acreage	14	11.2	5	27.78
Production Agriculture	11	8.8	1	5.56
Wildlife Management	10	8.0	0	0.00
Park and Golf Course	10	8.0	0	0.00
Other Agriculture Experience	10	8.0	3	16.67
Agribusiness or Food Industry	8	6.4	1	5.56
Food Processing	6	4.8	1	5.56
Forestry	5	4.0	0	0.00
Extension Service	5	4.0	2	11.11
Agriculture Communications Organization	0	0.0	0	0.00

Note. Students could report more than one experience

Research Objective Three

To identify the degree to which the perceptions of college factors influenced urban students enrollment in the College of Agriculture at KSU and to compare the perceptions of the influence of college factors between students currently majoring in the College of Agriculture and students no longer majoring in the College of Agriculture.

Data regarding the influence of college factors were collected via questionnaire by asking the students the level of influence 23 college factors had on their choice to major in the College

of Agriculture at KSU. A five-point, Likert-type scale was utilized with a rating of "5" indicating that the college factor was "Very Influential," a rating of "3" signifying that the college factor was "Somewhat Influential," and a rating of "1" signifying that the college factor was "Not Influential." Each factor with a mean score of 3.0 or greater was considered influential. Results are presented in Table 4.15.

Table 4.15 The Influence College Factors had on Students' Choice of Academic Major

	Agriculture Students (n=125)		Non-Agriculture Students (n=18)		
College Factors	M	SD	M	SD	T-Test
Career opportunities for graduates	3.80	1.26	3.78	1.35	0.945
Hands-on-learning opportunities	3.69*	1.35	3.00*	1.41	0.046
Friendly atmosphere in the College of Agriculture	3.67	1.42	3.67	1.37	0.998
Visit to campus	3.61	1.45	3.72	1.32	0.753
Quality and reputation of college faculty	3.38	1.42	3.61	1.24	0.506
Availability of academic program	3.26	1.41	3.83	1.34	0.104
Affordability of KSU	3.13	1.43	3.22	1.26	0.791
Interaction with representative from college or dept.	3.08	1.46	2.83	1.58	0.509
Information brochures on major	2.98	1.40	3.28	1.02	0.394
Interaction with current students	2.94	1.50	2.33	1.28	0.107
Small average class size	2.81	1.34	2.56	1.38	0.458
Scholarships provided by college/department	2.80	1.57	2.44	1.42	0.366
Quality of facilities	2.78	1.34	3.00	1.28	0.524
Opportunities to participate in ag related clubs/activities	2.67	1.42	2.72	1.27	0.888
Information brochures about the College of Agriculture	2.60	1.31	2.72	1.41	0.715
Undergraduate research opportunities	2.46	1.41	2.78	1.48	0.370
There are students like me in the College of Agriculture	2.36	1.44	2.56	1.25	0.585
On-campus employment in the College of Agriculture	2.35	1.40	2.28	1.67	0.838
Study aboard opportunities	2.26	1.40	1.72	1.02	0.116
Interaction with College of Agriculture alumni	1.98	1.31	2.00	1.53	0.962
Ag related camps and competitive events on campus	1.88	1.23	2.17	1.38	0.364
Ability to take online courses	1.86	1.21	2.28	1.49	0.189
Participation in summer MAPS program	1.40	0.98	1.50	1.10	0.692

Note. Evaluations on a 5-point scale (5=Very Influential, 3=Somewhat Influential, 1=Not Influential)
Factors with mean score of 3 or greater were considered influential
*Statistically significant difference at a .05 alpha level

Students majoring in the College of Agriculture identified the following factors as influential when choosing their academic major: "career opportunities for graduates (M = 3.80)," "hands-on-learning opportunities (M = 3.69)," "friendly atmosphere in the College of Agriculture (M = 3.67)," "visit to campus (M = 3.61)," "quality and reputation of college faculty (M = 3.38)," "availability of academic program (M = 3.26)," "affordability of KSU (M = 3.13)," and "interaction with a representative from the college/department (M = 3.08)." The least influential factors, mean scores less than two, were "interaction with College of Agriculture alumni (M = 1.98)," "agriculture related camps and competitive events on campus (M = 1.88)," "ability to take online courses (M = 1.86)," and "participation in summer MAPS program (M = 1.40)."

Students no longer in the College of Agriculture identified "career opportunities for graduates (M = 3.78)," "hands-on-learning opportunities (M = 3.00)," "friendly atmosphere in the College of Agriculture (M = 3.67)," "visit to campus (M = 3.72)," "quality and reputation of college faculty (M = 3.61)," "availability of academic program (M = 3.82)," "affordability of KSU (M = 3.22)," "information brochures on major (M = 3.28)," and "quality of facilities (M = 3.00)" as influential. The least influential factors, mean scores less than two, were "study aboard opportunities (M = 1.72)," and "participation in summer MAPS program (M = 1.50)."

T-tests, with the alpha level set *a priori* at .05, were used to compare the level of influence college factors had on students' choice of academic major for students currently majoring in the College of Agriculture with students no longer majoring in the College of Agriculture. A statistically significant difference (t = .046) existed for the college factor "hands-on-learning opportunities" between the students currently majoring in the College of Agriculture (M = 3.69) and students no longer majoring in the College of Agriculture (M = 3.00).

Research Objective Four

To identify the perceptions of the level of influence career aspirations had on urban student's choice of major and compare those perceptions of career aspirations between students currently majoring in the College of Agriculture and students no longer majoring in the College of Agriculture.

Data regarding the influence of career aspirations were collected via questionnaire by asking the students the level of agreement 24 career aspirations had on students' choice to major in the College of Agriculture. A five-point Likert-type scale was utilized with a rating of "5" indicating that the students "Strongly Agree" that the career aspiration had an influence, a rating of "3" signifying "Neither Agree or Disagree," and a rating of "1" signifying "Strongly Disagree." A mean score of 3.5 or greater was considered influential given that the rating "3" was a neutral answer and a 3.5 indicates more evidence that the student "agrees" that the career aspiration was influential. Results are presented in Table 4.16.

Table 4.16 The Influence Career Aspirations had on Students' Choice of Academic Major

	Agriculture Students (n=125)		Non-Agriculture (n=18)		
Career Aspirations	M	SD	M	SD	T-Test
Having a career I enjoyed was most important	4.59*	0.84	3.94*	1.31	0.006
I wanted the ability to advance in my career	4.27*	0.75	3.61*	1.34	0.002
I wanted to work in an industry with job availability	4.14	0.96	3.67	1.28	0.061
I wanted a career that will allow me to work with my hands	4.03*	1.12	3.28*	1.41	0.011
I wanted a prestigious career	3.91	1.14	3.56	1.34	0.228
I enjoyed working with people	3.88*	1.01	3.28*	1.32	0.024
I wanted the opportunity to earn a large salary	3.76	1.08	3.94	1.16	0.503
I was seeking preparation for an advanced degree	3.67	1.32	3.61	1.46	0.857
I wanted the ability to use my creativity	3.67	1.08	3.44	1.25	0.415
Working with animals every day was important to me	3.66	1.58	3.28	1.67	0.348
I wanted a career that would allow me to work outdoors	3.49	1.26	2.89	1.45	0.067
I wanted to work in a health related field	3.46	1.52	3.11	1.45	0.367
Having the opportunity to travel related to work was appealing to me	3.42	1.19	3.33	1.46	0.790
Having a career in close proximity of my family was important	3.24	1.15	2.67	1.28	0.053
I enjoyed working with technology	3.22*	1.05	2.50*	1.47	0.012
I wanted the ability to live and work in a large city	3.13	1.25	3.11	1.23	0.957
My goal was to be self-employed and/or start my own business	3.00*	1.33	2.17*	1.15	0.012
Having the opportunity to work and live internationally interested me	2.99	1.33	2.67	1.46	0.339
Conducting research excited me	2.98*	1.30	2.22*	1.44	0.023
I wanted the ability to live and work in a rural community	2.89	1.28	2.33	1.37	0.090
I enjoyed working with plants	2.58	1.24	2.17	1.43	0.201
I wanted a corporate job	2.48	1.18	2.56	1.54	0.808
I planned on working in a laboratory	2.39	1.34	1.78	1.22	0.068
I wanted to return to the family business	1.73	1.06	1.50	0.79	0.381

Note. Evaluations on a 5-point scale (5=Strongly Agree, 3= Neither Agree nor Disagree, 1=Strongly Disagree)
Factors with mean score of 3.5 or greater were considered influential
*Statistically significant difference at a .05 alpha level

College of Agriculture students identified 10 career aspirations that influenced their choice to major in the College of Agriculture: "Having a career I enjoyed was most important to me (M = 4.59)," "I wanted the ability to advance in my career (M = 4.27)," "I wanted to work in an industry with job availability (M = 4.14)," "I wanted a career that would allow me to work with my hands (M = 4.03)," " I wanted a prestigious career (M = 3.91)," "I enjoyed working with people (M = 3.88)," "I wanted the opportunity to earn a large salary (M = 3.76)," "I was seeking

preparation for an advanced degree (M = 3.67)," " I wanted the ability to use my creativity (M = 3.67)," and "working with animals every day was important to me (M = 3.66)." The least influential career aspiration, "I wanted to return to the family business (M = 1.73)," had a mean score of less than 2.0.

Students no longer majoring in the College of Agriculture identified six career aspirations that influenced their choice in major in the College of Agriculture: "Having a career I enjoyed was most important (M = 3.94)," "I wanted the ability to advance in my career (M = 3.61)," "I wanted to work in an industry with job availability (M = 3.67)," "I wanted a prestigious career (M = 3.56)," "I wanted the opportunity to earn a large salary (M = 3.94)," and "I was seeking preparation for an advanced degree (M = 3.61)." Two career aspirations had a mean score less than 2.0: "I wanted to return to the family business (M = 1.50)" and "I planned on working in a laboratory (M = 1.78)." The remainder of the career aspirations were least-influential on the students' choice of major.

Seven career aspirations were considered least-influential with a mean score of less than 3.0 to both groups of students when deciding on a major: "I wanted a corporate job (agriculture students M = 2.48, non-agriculture students M = 2.56)," "I planned on working in a laboratory (agriculture students M = 2.39, non-agriculture students M = 1.78)," "I wanted to return to the family business (agriculture students M = 1.73, non-agriculture students M = 1.50)," "having the opportunity to work or live internationally interested me (agriculture students M = 2.99, non-agriculture students M = 2.67)," "conducting research excited me (agriculture students M = 2.98, non-agriculture students M = 2.22)," "I wanted the ability to live and work in a rural community (agriculture students M = 2.89, non-agriculture students M = 2.33)," and "I enjoyed working with plants (agriculture students M = 2.58, non-agriculture students M = 2.17)." Four career

aspirations found to be influential to students in the College of Agriculture, but not influential to students no longer in the College of Agriculture were: "My goal was to be self-employed and/or start my own business (agriculture students $M = 3.00$, non-agriculture students $M = 2.17$)," "having a career in close proximity of my family was important (agriculture students $M = 3.24$, non-agriculture students $M = 2.67$)," "I wanted a career that would allow me to work outdoors (agriculture students $M = 3.49$, non-agriculture students $M = 2.89$)," and "I enjoyed working with technology (agriculture students $M = 3.22$, non-agriculture students $M = 2.50$)."

T-tests, with the alpha level set *a priori* at .05, were used to compare the level of influence career aspirations had on students' choice of major for students currently majoring in the College of Agriculture with students no longer majoring in the College of Agriculture. A statistically significant difference existed for seven career aspirations: "Having a career I enjoyed was most important" (agriculture students $M = 4.59$, non-agriculture students $M = 3.94$, $t = .006$), "I wanted the ability to advance in my career" (agriculture students $M = 4.27$, non-agriculture students $M = 3.61$, $t = .002$), "I wanted a career that will allow me to work with my hands" (agriculture students $M = 4.03$, non-agriculture students $M = 3.28$, $t = .011$), "I enjoyed working with people" (agriculture students $M = 3.88$, non-agriculture students $M = 3.28$, $t = .024$), "I enjoyed working with technology" (agriculture students $M = 3.22$, non-agriculture students $M = 2.50$, $t = .012$), "my goal was to be self-employed and/or start my own business" (agriculture students $M = 3.00$, non-agriculture students $M = 2.17$, $t = .012$), and " conducting research excited me" (agriculture students $M = 2.98$, non-agriculture students $M = 2.22$, $t = .023$).

Chapter 5 - Conclusion

Purpose of Study

The purpose of this study was to identify factors that influenced urban students to major in agriculture and enroll in the College of Agriculture at KSU. The research objectives of the study were:

1. To identify the personal characteristics of the population.
2. To identify urban students' perceptions of the influence their exposure to agriculture had on their choice of major and to compare those perceptions between students currently majoring in the College of Agriculture and students no longer majoring in the College of Agriculture.
3. To identify the degree to which the perceptions of college factors influenced urban students' enrollment in the College of Agriculture at KSU and to compare the perceptions of the influence of college factors between students currently majoring in the College of agriculture and students no longer majoring in the College of Agriculture.
4. To identify the perceptions of the level of influence career aspirations had on urban students' choice of major and compare those perceptions of career aspirations between students currently majoring in the College of Agriculture and students no longer majoring in the College of Agriculture.

Limitations of the Study

This was a population study; therefore the study was limited by the method of subject selection. The accessible sample of students were admitted to KSU in the College of Agriculture during the

fall semesters of 2008, 2009, 2010, or 2011 and were still enrolled at KSU. Findings of the study should be generalized with caution beyond this specific student population and time frame.

A statistically significant gender and ACT score difference existed for respondents and non-respondents as well as for respondents and the population of the study. A higher percentage of the respondents were female (72%) compared to the non-respondents (46.2%) and population (58.9%). The respondents also had a higher mean ACT score (26.03) compared to the non-respondents (24.25) and population (24.71). The reader should generalize the findings with caution.

Population

The population for this study was 416 current KSU students who enrolled as new incoming students in the College of Agriculture during the fall semesters of 2008, 2009, 2010, or 2011 and who self-reported their permanent residence as urban; populations of 50,000 or greater. The population consisted of students who were still enrolled in the College of Agriculture (*N*=338) and students who were no longer majoring in the College of Agriculture, but were still enrolled at KSU (*N*=78).

Instrumentation

The study utilized a descriptive survey research design. An online questionnaire was developed to assess the level of influence exposures to agriculture, college factors, and career aspirations had on students' choice to major in the College of Agriculture and KSU. Additional student demographic information including ACT scores, ethnicity, gender, in-state or out-of-state

status, and whether the students were transfer students were obtained from the KSU Office of the Registrar.

Data Collection

Students received an email containing a link to the online questionnaire. Students had three weeks to complete the survey and received reminder emails once a week. A total of 143 useable responses were collected, resulting in a response rate of 34%. Thirty-seven percent of 338 students majoring in the College of Agriculture responded (n=125) and 23% of 78 students who were no longer majoring in the College of Agriculture responded to the survey (n=18).

To control for non-response error, the researcher telephoned 10% of the non-respondent College of Agriculture students and 8% of the non-respondent, non-College of Agriculture students. The non-respondents were asked to respond to the same questions from the original instrument for purposes of comparison with the responding group. As an additional precaution to control for non-response error, characteristics of respondents were compared to non-respondents and the population. The comparisons indicated that the non-respondents responded similarly to the respondents; however, a statistically significant difference existed between gender and ACT score, thereby creating a limitation to the study.

Data Analysis

All data were analyzed using IBM SPSS (Statistical Package for the Social Sciences) Version 20. Means, standard deviations, frequencies, percentages, t-tests, and chi-squared tests were used to describe the population characteristics as well as the influence college factors,

exposures to agriculture, and career aspirations had on urban student's decision to major in the College of Agriculture at KSU.

Summary of Findings

Research Objective One

The personal characteristics for both College of Agriculture and non-College of Agriculture students identified a high percentage of urban students were female, from the state of Kansas, non-minority, and entered KSU as freshmen. Chi-square tests for statistical difference were performed to determine whether the personal characteristics of the students currently majoring in the College of Agriculture were significantly different from students no longer majoring in the College of Agriculture. No significant differences were found for personal characteristics of the two groups.

Mean ACT score for College of Agriculture students and students no longer majoring in the College of Agriculture were compared. The mean ACT score for College of Agriculture students was 26.23, and for non-College of Agriculture students, 24.81. Results from a t-test indicated there was no statistically significant difference in ACT scores between College of Agriculture students and students no longer majoring in the College of Agriculture.

Analysis of the 16 College of Agriculture academic majors at KSU indicated students still majoring in the College of Agriculture represented 15 of the 16 academic majors. For students no longer majoring in the College of Agriculture, their first agriculture major represented seven of the sixteen academic majors. Animal Sciences and Industry, Pre-Veterinary Medicine, and Food Science and Industry were most represented between both groups of students.

Research Objective Two

The most common exposures to agriculture identified by students majoring in the College of Agriculture were, "hunting and fishing," "relative who worked in production agriculture," "websites containing agriculture topics," "non-technical magazines about agriculture topics," and "relative who worked in field related to agriculture." Of the exposures that were most common, "relative who worked in field related to agriculture" was the only exposure considered influential. Less than 20% of College of Agriculture students were exposed to "4-H or extension programs," "high school agriculture courses," "FFA," and/or "Junior MANRRS," however these exposures were considered influential in their choice of major.

Students no longer majoring in the College of Agriculture were most commonly exposed to agriculture through "hunting and fishing," "television programs about agriculture topics," and "non-technical magazines about agriculture topics." "Television programs about agriculture topics" was the only common exposure considered influential. Eight of the twelve exposures were considered influential to students no longer majoring in the College of Agriculture. The least-influential exposures were, "hunting and fishing," "websites containing agriculture topics," and "non-technical magazines about agriculture topics." None of the non-agriculture students participated in Junior MANRRS.

T-tests were used to compare responses from students currently majoring in the College of Agriculture with students no longer majoring in the College of Agriculture. A statistically significant difference existed for "radio broadcast about agriculture topics" and "websites containing agriculture topics." Students no longer majoring in the College of Agriculture (M = 3.00) were influenced more by radio broadcast about agriculture topics compared to students majoring in the College of Agriculture (M = 1.44). Students no longer majoring in the College of

Agriculture were influenced less by websites containing agriculture topics (M =1.00) compared to students majoring in the College of Agriculture (M = 2.52).

Thirty-three percent of students majoring in the College of Agriculture reported having a relative who worked in a field related to agriculture. Parent/guardian, aunt or uncle, and other were the three most common relatives. Twenty-two percent of students no longer majoring in the College of Agriculture had a relative who worked in a field related to agriculture. Aunt or uncle and grandparent were the only relatives reported. Of the students majoring in the College of Agriculture, 45.6% reported having a relative who worked in production agriculture. Grandparent, aunt or uncle, and parent/guardian were the most common relatives with production agriculture experience. Twenty-two percent of students no longer majoring in the College of Agriculture had a relative who worked in production agriculture. Grandparent, parent/guardian, and other were the most common relatives.

The most common work and volunteer experiences students in the College of Agriculture received before graduating from high school were "veterinary assistant," "non-farm animal," "food service," and "landscape/gardening/horticulture." Most common work and volunteer experiences for students no longer majoring in the College of Agriculture were "veterinary assistant," "lived on acreage," and "food service."

Research Objective Three

Students majoring in the College of Agriculture identified the following factors as influential when choosing their academic major: "career opportunities for graduates," "hands-on-learning opportunities," "friendly atmosphere in the College of Agriculture," "visit to campus," "quality and reputation of college faculty," "availability of academic program," "affordability of

KSU," and "interaction with a representative from the college/department." The least influential factors were "interaction with College of Agriculture alumni," "agriculture related camps and competitive events on campus," "ability to take online courses," and "participation in summer MAPS program."

Students no longer in the College of Agriculture identified "career opportunities for graduates," "hands-on-learning opportunities," "friendly atmosphere in the College of Agriculture," "visit to campus," "quality and reputation of college faculty," "availability of academic program," "affordability of KSU," "information brochures on major," and "quality of facilities" as influential. The least influential factors were "study aboard opportunities," and "participation in summer MAPS program."

T-tests were used to compare the level of influence college factors had on students' choice of major between students currently majoring in the College of Agriculture with students no longer majoring in the College of Agriculture. A statistically significant difference existed for the college factor "hands-on-learning opportunities" between the two groups. When choosing an academic major, students majoring in the College of Agriculture were influenced more by hands-on-learning opportunities compared to students no longer majoring in the College of Agriculture.

Research Objective Four

College of Agriculture students identified 10 career aspirations that influenced their choice to major in the College of Agriculture with a mean score of 3.5 or greater. The career aspirations were: "having a career I enjoyed was most important to me," "I wanted the ability to advance in my career," "I wanted to work in an industry with job availability," "I wanted a career that would allow me to work with my hands," " I wanted a prestigious career," "I enjoyed working with

people," "I wanted the opportunity to earn a large salary," "I was seeking preparation for an advanced degree," " I wanted the ability to use my creativity," and "working with animals every day was important to me." The least influential career aspiration with a mean score less than 2.0 was, "I wanted to return to the family business."

Students no longer majoring in the College of Agriculture identified six career aspirations that influenced their choice in major in the College of Agriculture with a mean score of 3.5 or greater: "having a career I enjoyed was most important to me," "I wanted the ability to advance in my career," "I wanted to work in an industry with job availability," "I wanted a prestigious career," "I wanted the opportunity to earn a large salary," and "I was seeking preparation for an advanced degree." The two least influential career aspirations with mean scores less than 2.0 were "I wanted to return to the family business," and, "I planned on working in a laboratory."

The least-influential career aspirations, with a mean score less than 3.5, for both groups of students were: "I wanted a corporate job," "I planned on working in a laboratory," "I wanted to return to the family business," "having the opportunity to work or live internationally interested me," "conducting research excited me," "I wanted the ability to live and work in a rural community," and "I enjoyed working with plants." The four career aspirations found to influence students majoring in the College of Agriculture but were not influential to students no longer in the College of Agriculture were: "my goal was to be self-employed and/or start my own business," "having a career in close proximity of my family was important," "I wanted a career that would allow me to work outdoors," and "I enjoyed working with technology."

T-tests were used to compare responses for students currently majoring in the College of Agriculture with students no longer majoring in the College of Agriculture. A statistically significant difference existed for seven career aspirations, all of which were more influential to

students majoring in the College of Agriculture compared to students no longer majoring in the College of Agriculture. The seven career aspirations were: “having a career I enjoyed was most important”, “I wanted the ability to advance in my career”, “I wanted a career that will allow me to work with my hands”, “I enjoyed working with people, “I enjoyed working with technology,” “my goal was to be self-employed and/or start my own business,” and “conducting research excited me.”

Conclusions and Implications

The following conclusions and implications were based on the researcher’s interpretation of the data presented in the study.

Conclusions: Research Objective One

From the findings of the study it can be concluded that none of the personal characteristics (gender, in-state or out-of-state, ethnicity, whether a student was a freshman or transfer and ACT) reflected differences between students majoring in the College of Agriculture and students no longer majoring in the College of Agriculture. The personal characteristics of the urban students are consistent with characteristics of agriculture students across the nation, being predominantly female, non-minority students. The USDA's Food and Agricultural Education Information System (2012a) reported from 2009 to 2011, more undergraduate females enrolled in agriculture education programs than males. In addition, 71.5% of students studying agriculture were non-minority (The USDA's Food and Agricultural Education Information System (2012b). Chapman’s (1981) model suggests that location plays a role in students’ choice of institution. Students in this study were mainly from the state of Kansas, supporting Chapman’s model. This characteristic is also consistent with Mattern and Wyatt’s (2009) findings that students who

attended four-year institutions stayed close to home, a median distance of 94 miles away from home.

Based on Chapman's (1981) model, student aptitude and cost of attendance also play a role in students' choice of institution. The mean ACT score for students majoring in the College of Agriculture (26.23) and for students no longer majoring in the College of Agriculture (24.81) were higher scores compared to the average ACT score of 23.99 for the Fall 2012 freshmen class in the College of Agriculture at KSU (KSU College of Agriculture, 2012). ACT scores play a role in the amount of scholarship dollars students will receive if they attend KSU. For example, in 2012 there was, at the minimum, a $3,000 difference in scholarship eligibly between a student with a 23 ACT score and a student with a 26 ACT score (Kansas State University, 2012). Due to the higher than average student aptitude among the urban students who responded, the student's ACT score may have impacted their decision to attend KSU because of scholarships.

Furthermore, the academic majors most common among the students in the study are consistent with the most common majors chosen by agriculture students nationally. The agriculture majors with the highest enrollment for fall 2011 nationally were Animal Sciences; Food, Nutrition, and Related Sciences; Agricultural Economics, Agribusiness, and Management; and Veterinary Medicine (The USDA's Food and Agricultural Education Information System (2012a). The most common majors reported in this study were Animal Sciences and Industry, Pre-Veterinary Medicine, and Food Science and Industry. These findings suggest urban students and students from a national pool, from large, urban areas to rural communities, are attracted to the same types of majors.

Implications: Research Objective One

The College of Agriculture at KSU has succeeded in recruiting urban, female, non-minority students from the state of Kansas. A low percentage of minority students were present in the study and in the population, implying more focus is needed to recruit urban, minority students. The United States Census Bureau (2010) reported that minorities comprised just over one-third of the United States population in 2010 and that the percentage will continue to rise. In order to increase college enrollment, minority students must be targeted because they are the growing population. It is to the advantage of the agriculture industry to employ more minorities so as to increase the probability of recruiting more minority college graduates and to have a diverse work force to attract additional customers from the changing population. In order to meet industry demand to increase the number of total graduates and increase diversity, the College of Agriculture should find ways to target the urban, minority student population.

Majors most common among students in the study were Animal Sciences and Industry, Pre-Veterinary Medicine, and Food Science and Industry. Additional majors were represented in the study, however enrollment in all areas is needed. Many academic majors in agriculture are science-based and in an effort to recruit more students to those majors, the College of Agriculture should target high achieving students who may be attracted to science-based majors. The respondents in the study had higher than average ACT scores. These findings imply that urban students should be targeted for academic majors that are more rigorous and the students should be informed of careers that match with academic strengths.

Conclusions: Research Objective Two

Based on the findings of the study, it can be concluded urban students receive a variety of exposures to agriculture, many of which are influential on their choice of academic major. The exposures to agriculture are similar to external influences found in Chapman's Student College Choice Model (1981). Although these exposures do not match Chapman's external influences exactly, the findings provide evidence that the exposures have influence on students' choice of major, which supports Chapman's theory.

One difference that existed between the two groups was students majoring in the College of Agriculture were more influenced by websites containing agriculture topics compared to students no longer majoring in the College of Agriculture. Rocca and Washburn (2005) and Shrestha, Suvedi, and Foster (2011) agree that one of the main sources of information students use when exploring colleges are web-based sources. Although students no longer majoring in the College of Agriculture were influenced less by websites, overall the findings suggested exposures to agriculture were influential to these students. The only exposures that were least influential to non-agriculture students were, "hunting and fishing," "websites containing agriculture topics," and "non-technical magazines about agriculture topics."

Furthermore, for both groups of students a limited number of students were exposed to 4-H or extension programs, high school agriculture education courses, FFA and/or Junior MANRRS, however these exposures were influential in students' choice of major. These findings are consistent with Dyer, Breja, and Andreasen's (1999) study, which found students who completed high school agriculture education coursework felt prepared to study agriculture in college and expressed positive attitudes toward university agriculture programs and agriculture as a career. Although students who took agriculture education courses were

influenced to study agriculture, Sutphin and Newsom-Stewart (1995) indicated agriculture course work is not available at all schools. Colleges of agriculture should encourage students to take agriculture education courses or participate in programs, such as FFA and Junior MANRRS, if they are available in order to influence them to major in agriculture.

Chapman (1981) suggests that friends, family, and significant others influence students because their comments shape the students' expectation of what a particular college is like and they offer advice as to where the student should go to college. For both groups of students in this study, having a relative who worked in a field related to agriculture was influential when they chose their academic major. Wildman and Torres (2001) and Cecchettini et al. (2009) found professionals or role models employed in the agriculture industry influence students' career choice. They recommend agriculture programs emphasize direct student contact with agriculture industry professionals to increase enrollment in college of agriculture programs. The findings of this study indicate that working professionals in agriculture do have an influence on students' choice of major; however the influence may also come from the working professional being a family member. Numerous studies have found parental and/or family encouragement is influential on students' choice of major or institution (Hossler, Schmit, & Vester, 1999; Esters & Bowen, 2004; Esters, 2007; Barkley & Parrish, 2005; Donnermeyer, & Kreps, 1994). The results of thisstudy also indicate a higher percentage of students majoring in the College of Agriculture at KSU had a relative who worked in a field related to agriculture or in production agriculture compared to students no longer majoring in the College of Agriculture. Students no longer majoring in the College of Agriculture were influenced by a relative who worked in production agriculture. In contrast, this exposure was not influential to students majoring in the College of Agriculture. Students with family members who work in the agriculture industry are influenced

to major in agriculture because of their exposure to the agriculture industry. It should also be noted that parents/guardians and grandparents are not the only relatives who have a strong influence on students. Aunts and uncles have an influence on their nieces and nephews. Students with no family members who have worked in the agriculture industry do not receive this exposure, therefore they may not choose to major in agriculture or may have to learn about the agriculture industry in other ways.

The findings of the study identified similarities between the type of work and/or volunteer experiences students had prior to graduating high school and the most common choice of academic major by the students. The most common work and/or volunteer experiences for students in the College of Agriculture before they graduated high school were, "veterinary assistant," "non-farm animal," "food service," and "landscape/gardening/horticulture." The most common experiences for students no longer majoring in the College of Agriculture were, "veterinary assistant," "lived on acreage," and "food service." These findings are not surprising when comparing these work and/or volunteer experiences with the most common majors; Animal Sciences and Industry, Pre-Veterinary Medicine, and Food Science and Industry. It can be implied that work and/or volunteer experiences had an impact on students' choice of major.

Implications: Research Objective Two

The findings imply relatives who work in a field related to agriculture, or in production agriculture, can influence students on their choice of academic major. As suggested by Dyer, Breja, and Andreasen (1999), colleges of agriculture can greatly benefit from having prospective students interact with professionals in the agriculture industry in an effort to recruit more students. KSU College of Agriculture should inform agriculture companies about the influence

their employees could have on their younger family members and get the industry more involved in the recruitment process. Employers should also be aware of the influence aunts and uncles can have on their nieces and nephews, a target group they may not have previously considered. In addition, the College of Agriculture should connect prospective students with professionals in the industry.

Agriculture institutions would benefit from encouraging students to enroll in agriculture education courses at their high school, get involved in organizations like 4-H, Junior MANRRS, and FFA, and gain work or volunteer experience in agriculture. These types of exposures will assist students with their choice in academic major and will influence their decision to study agriculture.

Conclusions: Research Objective Three

Chapman (1981) confirmed institutions who communicate with prospective students attract students who might not have otherwise considered their institution. This reason alone is why institutions develop marketing strategies to recruit students. One external influence in Chapman's model is college's efforts to communicate with students; colleges communicate with students through written materials, campus visits, and other admissions and recruitment activities. It can be concluded from the findings of the study that college factors influence urban students to major in agriculture and to attend KSU, which supports Chapman's theory.

From the findings, it can be concluded both groups of students were influenced by career opportunities for graduates, hands-on-learning opportunities, the friendly atmosphere in the College of Agriculture, a visit to campus, the quality and reputation of college faculty, availability of desired academic program, and affordability of KSU on their choice of major.

These results are consistent with other research findings. Dyer et al., (1999); Barkely and Parrish (2005); Wildman and Torres (2001); and Rocca and Washburn (2005) found friendly atmosphere and positive faculty interactions led students to enroll in college agriculture programs. Additional support for these findings include: Filter (2010) found campus visits to be the largest predictor of college choice; Cunningham and Fickes (2000) reported graduate job placement, academic reputation, and program offerings as a reason for students to choose an institution; and Avery and Hoxby (2002), Delaney (1998), and Paulsen and St. John (2002) discovered that the cost to attend an institution affects students and families differently based on their financial needs, thus the affordability of an institution is influential on a student's college choice decision.

The results found students no longer majoring in the College of Agriculture were more influenced by informational brochures about their major, whereas students majoring in agriculture were less influenced by informational brochures about their major. Additional research supports these findings, indicating that informational brochures influence students differently. Segler-Conrad et al. (2004) and Shrestha, Suvedi, and Foster (2011) found college brochures and university publications were the third most useful source of information students used when they selected a major. However, Robinson, Garton, and Washburn (2007) found information in publications did not meet students' information needs. The research and findings of this study suggest that informational brochures should continue to be used as recruitment materials knowing they influence students differently.

College factors that were least influential for students majoring in the College of Agriculture were interaction with College of Agriculture alumni, agriculture related camps and competitive events on campus, ability to take online courses, and participation in the summer MAPS program. For students no longer majoring in the College of Agriculture, study abroad

opportunities and participation in the summer MAPS program were the least influential. A reason these college factors may have had less influence on these students could be that the students did not participate in the programs. It should be noted that students who did not participate in these programs were still required to rank the level of influence the factors had on their choice of major. In addition, although the factors were less influential to the students, there were still students in the study who were influenced by the college factors. The college factors with the least amount of influence on students' choice of major does cause concern of how effective the factors are on recruiting students and how many students participate in programs such as summer MAPS program, taking online courses, interact with alumni, and attend agriculture related camps and competitive events on campus.

Implications: Research Objective Three

The primary implication of these findings relates to the message to be shared with prospective students. Recruitment materials and messages should focus student attention on the career opportunities for graduates, hands-on-learning opportunities, friendly atmosphere in the College of Agriculture, the importance of visiting campus, quality and reputation of college faculty, details about academic programs, and affordability of KSU.

Differences existed between the College of Agriculture students and students no longer majoring in the College of Agriculture, implying students are influenced by different college factors. By developing recruitment messages that highlight a variety of college factors, students who read or hear the messages may find a factor that will influence their choice of major and/or institution. In addition, the College of Agriculture should deliver these messages via various avenues, such as through informational brochures, websites, and personal interaction. Factors

that were less influential to the students in the study were alumni, agriculture related camps and competitive events on campus, ability to take online courses, and participation in the summer MAPS programs. The College of Agriculture should evaluate these college factors to determine how many students were exposed to the college factors. Furthermore, to decideif the college should do a better job at recruiting students to use these factors when considering a major to see if the programs should be changed in order to be more effective and/or to determine if the programs should not be used to recruit urban students. Time and resources should be spent on recruitment efforts that work, instead of on factors that have little influence.

Conclusions: Research Objective Four

Donald Super's 1980 theory suggests that students' career aspirations can be developed as a result of many different experiences and exposures during the growth and exploration stages of their adolescent years. For example, a student who seeks a job with a high paying salary may have developed that career aspiration due to their family's SES. Dillard and Perrin (1980) found student career development (aspirations, expectations, and maturity) was related to gender, ethnic group membership, SES, and grade level. Other aspirations may be a result of parental influence (Dillard & Perrin, 1980; Hartung, Porfeli, Vondracek, 2004; King & Multon, 1996; Novakovic, 2007; Super, 1990), involvement in clubs or part-time work (Super, 1990), and involvement in community (Dillard and Perrin, 1980). Limited research exists to support findings specific to this study, however the findings support Super's theory that individuals, during the growth and exploration stage of their life advance in their career development due to influences by personal and situational factors. For example, students majoring in the College of Agriculture were influenced by career aspirations more focused on specific career interests,

whereas students no longer majoring in the College of Agriculture were influenced more by broader based career aspirations. These finding suggests that these two groups of students were at different stages in their career development when they chose their academic major.

Broad based career aspirations that were most influential to students' choice of academic major for both groups were: "I wanted a career I enjoyed was most important," "I wanted the ability to advance in my career," "I wanted a prestigious career," "I wanted the ability to earn a large salary," and "I was seeking preparation for an advanced degree."

Students majoring in the College of Agriculture had additional career aspirations that influenced them. These career aspirations were more specific such as, "I wanted a career that would allow me to work with my hands," "I wanted to work with people," "I wanted to work in an industry with job availability," "I wanted the ability to use my creativity," and "working with animals every day was important to me." These findings suggest that students no longer majoring in the College of Agriculture were more undecided on their specific career goals during the time when they were choosing their major. Students with broad career aspirations may be in the early career exploration stage. They require career counseling and can still receive exposures that influence their choice of academic major.

The results found both groups of students were less influenced to work in a corporate job, work in a laboratory, return to the family business, work or live internationally, conduct research, live or work in a rural community, or work with plants. These are a mixture of broad and specific career aspirations. It can be assumed that a reason specific career aspirations, such as working with plants, conducting research , and working in a laboratory, were least influential was because the respondents in the study represented majors that were least likely to have these types of career aspirations. For example, it would not be common for an animal sciences and industry

student to have a career aspiration to work with plants and for a pre-veterinary medicine student to have a career aspiration to conduct research or work in a laboratory. It should be noted that some students may have been influenced by these career aspirations, such as wanting to work with plants, however given the most common choice of major for the students in the study this may be a reason these career aspirations were least influential.

Implications: Research Objective Four

It can be implied from these findings that students majoring in the College of Agriculture were influenced by career aspirations that were specific to career interests, such as working with people and animals, being able to use their creativity, or work with their hands. Students no longer majoring in the College of Agriculture were influenced by broader career aspirations, such as having a job they enjoyed or being able to advance in their career. As students continue through the career exploration process, the level of influence certain career aspirations have on their career choice will change. For students no longer majoring in the College of Agriculture, this change has already occurred because they changed their major. Additional attention should focus on students with broad based career aspirations. Universities wanting to increase retention or assist students in finding the right academic major can identify students who are still in the early stages of career exploration by learning about their career aspirations. Once these students are identified, advisors or recruiters can make sure students are informed of all academic majors and career options available.

Furthermore, the College of Agriculture at KSU should take note that some students are less influenced by wanting a corporate job, working in a laboratory, or conducting research. When promoting science-based majors or talking about career opportunities in urban areas, using

terms such as corporate, laboratory, or conducting research should be used with caution to prevent students from losing interest in working in the agriculture industry. The College of Agriculture can use many other examples to promote the agriculture industry and academic majors without focusing on these specific career aspirations.

Recommendations

Recommendation One

This study should be replicated using a larger student population. To increase the student population for the study, students from other universities with an agriculture program will need to be included.

Recommendation Two

The agriculture industry seeks to increase diversity among their employees; therefore the College of Agriculture at KSU should increase the number of enrolled minority students. Repeating this study using a larger student population and focusing specifically on urban, minority students would determine what attracts these students to study agriculture. For future research focused on increasing the student population, students from other universities with an agriculture program will need to be included in the study.

Recommendation Three

Numerous studies have focused on the level of influence college factors have on students choice of major and/or institution. For KSU, additional research is warranted to determine the effectiveness and level of influence the summer MAPS program has on student choice of major

as well as participation in agriculture related camps and competitive events. No data are available to determine the exact number of students who participated in these programs, therefore additional research would provide clarity on the influence these programs have on students' choice of major.

Recommendation Four

As indicated in implication two, relatives who work in a field related to agriculture, or in production agriculture, can influence students' choice of academic major. Agriculture companies and institutions can play a more active role in the recruitment process by connecting students with professionals in the industry; however, additional research is necessary to determine the reason that students were not influenced by their interaction with College of Agriculture alumni. Alumni are among the first professionals the College of Agriculture at KSU would contact to connect a prospective student with an industry professional. Further research is needed to determine if pairing students with professionals in the industry would be influential and to determine whether that level of influence changes if the professional is an alumnus.

Recommendation Five

Limited research exists on the level of influence career aspirations have on students' choice of major. Further research should focus on the level of influence career aspirations have on students' choice of major and the factors influencing the students to develop particular career aspirations.

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Appendix A - Survey Instrument

Default Question Block

My name is Sharon Thielen and I am a graduate student at Kansas State University. I am asking you to participate in a study regarding factors that influence urban students to choose their academic major. I am asking undergraduate students like you to reflect on the factors that influenced you to choose to major in agriculture when you first enrolled at Kansas State University.

Your responses to this survey are very important and will help the College of Agriculture at Kansas State University develop new recruitment strategies to reach urban students. With the demand for agriculture graduates, there is a need to reach more students. As a token of appreciation a coupon for Call Hall ice cream will be given at the end of the survey. Be prepared to print off your coupon.

This is a short survey and should take you no more than 10 minutes to complete. Your participation in this survey is entirely voluntary and all of your responses will be kept confidential. By completing the survey you are granting me permission to collect your ACT score, ethnicity, gender, home town and if you were an incoming freshmen or transfer student from the K-State's Registrars Office. No personally identifiable information will be associated with your responses or the information collected from the Registrar's office in any reports of this data. Should you have further questions or comments, please feel free to contact me at sthielen@ksu.edu or 785-324-1694. For additional information regarding human participation in research, please feel free to contact the University Research Compliance Office at (785) 532-3224.

1a. Please select the major you are currently enrolled in at Kansas State University. If you are double-majoring, select your first declared major.

- ○ Agribusiness
- ○ Agricultural Communications and Journalism
- ○ Agricultural Economics
- ○ Agricultural Education
- ○ Agricultural Technology Management
- ○ Animal Sciences and Industry
- ○ Agronomy
- ○ Bakery Science and Management
- ○ Feed Science and Management
- ○ Food Science and Industry
- ○ General Agriculture
- ○ Horticulture
- ○ Milling Science and Management
- ○ Park Management and Conservation
- ○ Wildlife and Outdoor Enterprise Management
- ○ Pre-Veterinary Medicine
- ○ Other

1b. Please select your first major at Kansas State University. If you were double-majoring select your first declared major.

- Agribusiness
- Agricultural Communications and Journalism
- Agricultural Economics
- Agricultural Education
- Agricultural Technology Management
- Animal Sciences and Industry
- Agronomy
- Bakery Science and Management
- Feed Science and Management
- Food Science and Industry
- General Agriculture
- Horticulture
- Milling Science and Management
- Park Management and Conservation
- Wildlife and Outdoor Enterprise Management
- Pre-Veterinary Medicine

2a. Before you selected your agriculture major were you exposed to radio broadcasts about agricultural topics?

- Yes
- No

2b. What level of influence did radio broadcasts about agricultural topics have on your choice of agriculture major?

Not Influential	Slightly Influential	Somewhat Influential	Moderately Influential	Very Influential
○	○	○	○	○

3a. Before you selected your agriculture major were you enrolled in high school agriculture courses?

- Yes
- No

3b. What level of influence did your enrollment in high school agriculture courses have on your choice of an agriculture major?

Not Influential	Slightly Influential	Somewhat Influential	Moderately Influential	Very Influential
☐	☐	☐	☐	☐

4a. Before you selected your agriculture major were you exposed to television programs about agricultural topics (i.e. RFDTV, Ag AM, agriculture documentaries, etc.) ?

- ○ Yes
- ○ No

4b. What level of influence did television programs about agriculture topics have on your choice of agriculture major?

Not Influential	Slightly Influential	Somewhat Influential	Moderately Influential	Very Influential
○	○	○	○	○

5a. Before you selected your agriculture major did you have a relative who worked in production agriculture (i.e. farm, ranch)?

- ○ Yes
- ○ No

5b. Who was the relative who worked in production agriculture?

- ☐ Parent/Guardian
- ☐ Grandparent
- ☐ Aunt/Uncle
- ☐ Sibling
- ☐ Other Relative

5c. What level of influence did your relative that worked in production agriculture have on your choice of agriculture major?

Not Influential	Slightly Influential	Somewhat Influential	Moderately Influential	Very Influential
○	○	○	○	○

6a. Before you selected your agriculture major did you have a relative who worked in a field related to agriculture (i.e. agribusiness, food industry, education, etc.)

- ○ Yes
- ○ No

6b. Who was the relative that worked in a field related to agriculture?

- ☐ Parent/Guardian
- ☐ Grandparent
- ☐ Aunt/Uncle
- ☐ Sibling
- ☐ Other Relative

6c. What level of influence did your relative who worked in a field of agriculture have on your choice of agriculture major?

Not Influential	Slightly Influential	Somewhat Influential	Moderately Influential	Very Influential
○	○	○	○	○

7a. Before you selected your agriculture major were you involved in FFA?

- ○ Yes
- ○ No

7b. What level of influence did your involvement in FFA have on your choice of agriculture major?

Not Influential	Slightly Influential	Somewhat Influential	Moderately Influential	Very Influential
○	○	○	○	○

8a. Before you selected your agriculture major did you read non-technical magazines about agricultural topics (i.e., Time, US News, Newsweek, etc.)?

- ○ Yes
- ○ No

8b. What level of influence did reading non-technical magazines about agricultural topics have on your choice of agriculture major?

Not Influential	Slightly Influential	Somewhat Influential	Moderately Influential	Very Influential
○	○	○	○	○

9a. Before you selected your agriculture major were you involved in 4-H or extension programs?

- ○ Yes
- ○ No

9b. What level of influence did your involvement in 4-H or extension programs have on your choice of agriculture major?

Not Influential	Slightly Influential	Somewhat Influential	Moderately Influential	Very Influential
○	○	○	○	○

10a. Before you selected your agriculture major did you read technical journals focused on agriculture (i.e., Journal of Wildlife Management, etc.)

- ○ Yes
- ○ No

10b. What level of influence did reading technical journals focused on agriculture have on your choice of agriculture major?

Not Influential	Slightly Influential	Somewhat Influential	Moderately Influential	Very Influential
○	○	○	○	○

11a. Before you selected your agriculture major were you involved in junior MANRRS?

- ○ Yes
- ○ No

11b. What level of influence did your involvement in junior MANRRS have on your choice of agriculture major?

Not Influential	Slightly Influential	Somewhat Influential	Moderately Influential	Very Influential
○	○	○	○	○

12a. Before you selected your agriculture major did you hunt and/or fish?

- ○ Yes
- ○ No

12b. What level of influence did hunting and/or fishing have on your choice of agriculture major?

Not Influential	Slightly Influential	Somewhat Influential	Moderately Influential	Very Influential
○	○	○	○	○

13a. Before you selected your agriculture major did you visit websites containing agricultural topics?

- ○ Yes
- ○ No

13b. What level of influence did websites containing agricultural topics have on your choice of agriculture major?

Not Influential	Slightly Influential	Somewhat Influential	Moderately Influential	Very Influential
○	○	○	○	○

14. Which of the following work or volunteer experiences did you have before you graduated from High School? (Select all that apply)

- ☐ Production Agriculture
- ☐ Agribusiness or Food Industry
- ☐ Food Processing
- ☐ Landscape/Gardening/Horticulture
- ☐ Veterinary Assistant
- ☐ Commercial Farm/Ranch
- ☐ Lived on Acreage
- ☐ Forestry
- ☐ Extension Service
- ☐ Wildlife Management
- ☐ Park or Golf Course
- ☐ Non-Farm Animal
- ☐ Food Service
- ☐ Ag Communications Organization
- ☐ Other Agriculture Experience

15. Before you selected your agriculture major, how influential were the following on your decision to choose a major in the College of Agriculture at Kansas State University?

	Not Influential	Slightly Influential	Somewhat Influential	Moderately Influential	Very Influential
A. Interaction with a College of Agriculture Alumni	○	○	○	○	○
B. Scholarship(s) provided from the College of Agriculture or Department	○	○	○	○	○
C. Informational Brochures about the College of Agriculture	○	○	○	○	○
D. Career Opportunities Available for Graduates	○	○	○	○	○
E. Hands-On-Learning Opportunities	○	○	○	○	○
F. Informational Brochures about your Major	○	○	○	○	○
G. Interaction with a Representative from the Department/College of Agriculture	○	○	○	○	○
H. Study Abroad Opportunities	○	○	○	○	○
I. Friendly Atmosphere in the College of Agriculture	○	○	○	○	○
J. Interaction with Current College Students	○	○	○	○	○
K. Quality and Reputation of College of Agriculture Faculty	○	○	○	○	○
L. Opportunity to Participate in Agricultural Related Clubs/Activities	○	○	○	○	○
M. Quality of Facilities	○	○	○	○	○
N. Visit to Campus	○	○	○	○	○
O. On-Campus Employment in the College of Agriculture	○	○	○	○	○
P. Small Average Class Size	○	○	○	○	○
Q. Undergraduate Research Opportunities	○	○	○	○	○
R. Ability to Take Online Courses	○	○	○	○	○
S. There are Students Like Me in the College of Agriculture	○	○	○	○	○
T. Participation in Summer MAPS Program	○	○	○	○	○
U. Affordability of K-State	○	○	○	○	○
V. Availability of Academic Program	○	○	○	○	○
W. Ag Related Camps and Competitive Events on Campus	○	○	○	○	○

16. Please list any other factors that influenced you in selecting a major in the College of Agriculture at Kansas State University.

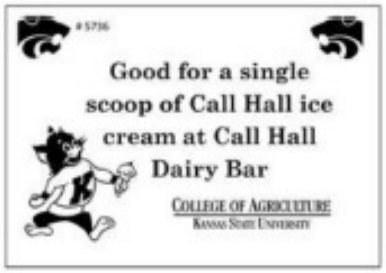
17. Think back to when you were selecting your major in agricutlure. Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
A. I wanted a prestigious career	○	○	○	○	○
B. Working with animals every day was important to me	○	○	○	○	○
C. I wanted to work in a health related field	○	○	○	○	○
D. My goal was to be self-employed and/or start my own business	○	○	○	○	○
E. I wanted a corporate job	○	○	○	○	○
F. I planned on working in a laboratory	○	○	○	○	○
G. I wanted a career that would allow me to work with my hands	○	○	○	○	○
H. I wanted the ability to live and work in a large city	○	○	○	○	○
I. I was seeking preparation for an advanced degree	○	○	○	○	○
J. Having a career I enjoyed was most important	○	○	○	○	○
K. I enjoyed working with people	○	○	○	○	○
L. I wanted to work in an industry with job availability	○	○	○	○	○
M. I wanted the ability to advance in my career	○	○	○	○	○
N. Having a career in close proximity of my family was important	○	○	○	○	○
O. I wanted the opportunity to earn a large salary	○	○	○	○	○
P. I wanted to return to the family business	○	○	○	○	○
Q. Having the opportunity to work and live internationally interested me	○	○	○	○	○
R. Having the opportunity to travel related to work was appealing to me	○	○	○	○	○
S. Conducting research excited me	○	○	○	○	○
T. I wanted a career that would allow me to work outdoors	○	○	○	○	○
U. I wanted the ability to live and work in a rural community	○	○	○	○	○
V. I enjoyed working with technology	○	○	○	○	○

18. In junior high and high school in what size community were you raised?

- In an Urban area, a large city of more than 50,000 people
- In a small city or suburb with a population greater than 5000 but fewer than 50,000 people
- In a small town of 5000 people or fewer
- In a rural area, but not on a farm or ranch
- On a farm or ranch my parent(s)/guardian(s) own, manage, or work

Thank you for completing the survey. Please print coupon below for a free scoop of Call Hall ice cream. If you are unable to print coupon visit Waters 119.



Appendix B - Email Notification of Upcoming Survey

Subject: Survey and Free Call Hall Ice Cream

April 13, 2012

As this busy week comes to an end I wanted to make you aware of an email you will be receiving Monday morning. I am conducting research on why urban students choose to major in agriculture. You are or once were a student in the College of Agriculture and an urban student who serves as an expert on this topic. I am asking for your help by completing the survey that you receive on Monday. With your help the College of Agriculture can learn how to recruit more urban students. In addition, your participation will help us assist students in learning about the agriculture industry and career opportunities.

The survey will only take 10-15 minutes of your time and as a thank you will receive a Call Hall ice cream coupon. I hope you are willing to help me with my research.

Thank you for your time!

Sharon Thielen
Doctoral Student
College of Agriculture

Appendix C - Email Invitation

Subject: Survey of K-State's Urban Students Choice in Academic Major

April 16, 2012

Dear ######,

My name is Sharon Thielen and I am a graduate student at Kansas State University. I am writing to ask for your participation in a study on factors that influence urban students to choose their academic major. I am asking undergraduate students like you to reflect on the factors that influenced you to choose to major in agriculture when you first enrolled at Kansas State University.

Your responses to this survey are very important and will help the College of Agriculture at Kansas State University develop new recruitment strategies to reach urban students. With the demand for agriculture graduates, there is a need to reach more students. As a token of appreciation a coupon for Call Hall ice cream will be given at the end of the survey. Be prepared to print off your coupon.

This is a short survey and should take you no more than 10 minutes to complete. Please click on the link below to access the survey.

###URL####

Your participation in this survey is entirely voluntary and all of your responses will be kept confidential. No personally identifiable information will be associated with your responses in any reports of this data. Should you have further questions or comments, please feel free to contact me at sthielen@ksu.edu or 785-324-1694. For additional information regarding human participation in research, please feel free to contact the University Research Compliance Office at (785) 532-3224.

Sincerely,

Sharon Thielen
Doctoral Student
College of Agriculture

Appendix D - Follow-Up Email One

Subject: K-State Urban Students Choice of Academic Major

April 23, 2012

Dear ####,

Recently you received an email asking you to respond to a brief survey about factors that influenced you to major in agriculture when you first enrolled at Kansas State University. Your responses to this survey are important and will help the College of Agriculture develop new recruitment strategies to recruit urban students. As a token of appreciation a coupon for Call Hall ice cream will be given at the end of the survey. Be prepared to print off your coupon.

This survey is short and should only take you ten minutes to complete. If you have already completed the survey we appreciate your participation. If you have not yet responded to the survey, we encourage you to take a few minutes and complete the survey. Please click on the link below to access to the survey.

##URL##

Your response is important. Getting direct feedback from students is crucial in order to improve our recruitment efforts. Thank you for your help by completing the survey. Should you have further questions or comments, please feel free to contact me at sthielen@ksu.edu or 785-324-1694. For additional information regarding human participation in research, please feel free to contact the University Research Compliance Office at (785) 532-3224.

Sincerely,

Sharon Thielen
Doctoral Student
College of Agriculture

Appendix E - Follow-Up Email Two

Subject: Please complete the K-State Urban Student Survey

April 30, 2012

Dear ####,

Spring is a busy time for students, and I understand how valuable your time is during the semester. I am hoping you may be able to give about ten minutes of your time to help us collect important information for the College of Agriculture at Kansas State University by completing a short survey.

If you have already completed the survey I really appreciate your participation and hope you enjoyed the Call Hall ice cream. If you have not yet responded, I would like to urge you to complete the survey. This study will end next week, so I wanted to email you one last time to make sure you had a chance to participate.

Please click on the link below to access the survey.

##URL##

Thank you in advance for completing the survey. Should you have further questions or comments, please feel free to contact me at sthielen@ksu.edu or 785-324-1694. For additional information regarding human participation in research, please feel free to contact the University Research Compliance Office at (785) 532-3224.

Sincerely,

Sharon Thielen
Assistant Dean
Doctoral Student
College of Agriculture