

FACTORS INFLUENCING CAREER CHOICES OF URBAN AGRICULTURAL EDUCATION STUDENTS

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Abstract

The purpose of the study was to identify factors influencing the career choice behaviors of students who graduated from an urban agricultural education program. A secondary purpose was to identify factors that discriminated between individuals who choose careers in agriculture and those who do not. Former students in the study indicated their parents and friends as the individuals most influencing their choice of a career. The events and experiences reported by former students who chose a career in agriculture focused around several themes which included career opportunities, high school educational experiences, and work experiences. Of the former students who did not choose a career in agriculture, events and experiences cited included having other career interests, a lack of interest in agriculture, and a lack of career opportunities. A discriminant analysis procedure was used to identify factors that discriminated between individuals who chose careers in agriculture and those who did not. Findings indicated that a discriminant model consisting of selected factors could not discriminate between former students who chose or did not choose a career in agriculture after they completed a secondary agricultural program.

Introduction

The focus on careers and career preparation has long been a major component of secondary agricultural education programs. Not only is the mission of agricultural education to prepare and support individuals for careers (Case & Whitaker, 1998), but agricultural education in public schools has a successful record of helping students set and achieve career and educational goals (Bajema, Miller, & Williams, 2002). Phipps and Osborne (1988) state that, "The most important function of agricultural education is to prepare youth and adults for careers in agricultural education" (p. 29). More importantly, all schools need to provide opportunities for students to prepare for agricultural careers so that the predicted shortage of trained professional in agriculture may be alleviated (Phipps & Osborne).

Goecker, Whatley, and Gilmore (1999) found that career opportunities in agriculture and related fields are expected to

increase through 2010. Jones (1999, p. 3) reported that "The number of students pursuing agricultural careers has been declining since the 1970's." Likewise, Zoldoske (1996, p. 2) asserted, "There is an overall decline in the number of students pursuing agricultural careers through a college education." Zoldoske further stated, "It is estimated that nearly one-third of all agricultural job opportunities will be filled by individuals trained outside of agriculture" (p. 2). Not only are problems of initial entry into agricultural careers an issue, but problems related to individuals who exit agriculture-related occupations has been the focus of recent research. Garton and Cartmell (1999) studied career choices and factors influencing career change among agricultural education graduates. They suggested that "Teacher educators need to understand why graduates leave their selected careers or why they never enter the profession" (p. 294). In order to reverse the trend of individuals who do not pursue careers in agriculture, it is important to

understand not only the motivational factors and rewards that lure people into a particular career (Zoldoske, 1996), but it may also be critical to research students' career-decision making processes (Lucas, 1993).

The level of career aspiration usually affects curriculum choice hence career choice (Herr & Cramer, 1996). Also, career aspirations are influenced by numerous factors including gender, race, parental support, academic achievement, socioeconomic status, and self-esteem. Similarly, several factors which have been found to be theoretically and empirically related to career aspirations also influence the career choice process. Some of these factors include gender (Houser & Yoder, 1992; Jones & Larke, 2001), parents' occupation (Stone & Wang, 1990), parents' level of education (Conroy, Scanlon, & Kelsey, 1998; Jones & Larke, 2003), parents' level of influence (Findlay & Rawls, 1984; Kotrlik & Harrison, 1987, 1989; Fisher & Griggs, 1995), and self-esteem (Wilson & Fasko, 1992; Hughes, Martinek, & Fitzgerald, 1985).

Theoretical Framework

The theoretical framework for this study was based upon the Social Learning Theory of Career Decision-Making (Krumboltz, Mitchell, & Jones 1976; Krumboltz, 1979; Mitchell & Krumboltz, 1990). Social Learning Theory of Career Decision-Making explains how educational and occupational preferences and skills are acquired and how selection of courses, occupations, and fields of work are made. The theory identifies the interactions of genetic factors (e.g., race), environmental conditions (e.g., social and economic forces), learning experiences (e.g., associative and instrumental), and performance (task) skills (e.g., work habits). It is posited that each of these influencers plays a part in all career decisions that are made, but different combinations of interactions of the influencers produce a multitude of different career choices that individuals make (Mitchell & Krumboltz, 1990).

The four types of influencers and their interactions lead to three types of outcomes:

self-observation generalizations (SOGs), task approach skills (TASs), and actions. Self-observation generalizations are overt or covert statements evaluating one's actual vicarious performance in relation to learned standards (Krumboltz et al., 1976; Herr & Cramer, 1996). Task approach skills are learned cognitive and performance abilities that are used in the process of career decision-making (Mitchell & Krumboltz, 1990). Finally, actions are entry behaviors that indicate overt steps in career progression.

In addition to the influencers and the outcomes of their interactions, social learning theory suggests three sets of testable propositions which include factors influencing (1) preferences, (2) career decision-making skills, and (3) entry behaviors into educational or occupational alternatives. Given that this research focused on actual entry behaviors of individuals into careers, the social learning theory's third group of propositions provided the primary theoretical underpinning for the study.

Purpose/Objectives

The purpose of this ex post facto correlational study was to identify factors influencing the career choice behaviors of students who graduated from an urban agricultural high school. A secondary purpose was to identify factors that discriminate between individuals who choose careers in agriculture and those who do not. The research questions that guided this study were:

1. What is the demographic profile of students who graduated from an urban agricultural education program?
2. What individuals influenced the career choice of students who graduated from an urban agricultural education program?
3. What events and/or experiences most influenced students who graduated from an urban agricultural education program to choose or not choose a career in agriculture?

Also, the hypothesis tested in this study was:

1. A discriminant model consisting of selected factors will explain why students who complete a secondary agricultural education program choose or do not choose a career in agriculture.

Methods/Procedures

This ex post facto correlational study utilized a retrospective static-group comparison design (Tuckman, 1999). The population for this study included all students ($N=448$) who graduated from an urban agricultural high school in Pennsylvania between 1992 and 1995. One school was chosen for this study in order to control some of the variance across agricultural science programs and the instruction delivered. Additionally, the researchers assumed that high school students who graduated from high school between 1992-1995 would now be 25-30 years of age and likely have chosen to work in a particular career. Also, there was a higher chance that students who graduated eight to 11 years ago have formed stable attitudes as to why they chose or did not choose careers in the agricultural sciences. In order to control frame error, efforts were made to obtain the current names and addresses of the students with the assistance of the agricultural coordinator and principal of the participating school.

A four-part survey instrument was developed to collect the data. Section one included items pertaining to the amount of education completed, individuals influencing secondary and postsecondary school choice, and events or experiences influencing former students' secondary school choice and decision to pursue a postsecondary education. Section two included items related to career choice, individuals influencing career choice, and events or experiences influencing former students' decision to choose or not choose a career in agriculture. Section three included items measuring self-esteem using the Rosenberg Self-Esteem Scale. Part four of the instrument included items that elicited

demographic data. Level of influence variables were measured on a five-point scale ranging from 1= No Influence to 5= Very High Influence.

The questionnaire was reviewed for content and face validity by a panel of experts consisting of five faculty members of the Department of Agricultural and Extension Education at The Pennsylvania State University and the agricultural coordinator from the participating high school. The instrument was also pilot tested using 43 similar graduates of another urban agricultural high school. The majority of the pilot group was similar in age with the population of this study. The internal consistency of the Rosenberg Self-Esteem Scale was found to be very high (Cronbach's $\alpha = .84$) based on responses from 22 former students. Post-hoc reliability for this scale with the actual sample was also found to be very high (Cronbach's $\alpha = .88$).

Data collection was conducted in three stages. Questionnaires along with a cover letter and prepaid return envelope were mailed to the 448 graduates on July 6, 2003. Two weeks after the first mailing, 31 (8%) of the graduates had responded. On July 21, a second mailing was sent to all nonrespondents which resulted in 21 (6%) additional surveys. On August 7, a final mailing was sent to all remaining nonrespondents. By the end of the third mailing, 36 additional surveys were returned for a total response rate of 24% ($n=88$). Although the response rate for this study is considered low, follow-up studies five years after high school graduation (Riesenberg & Stenberg, 1990, 1991, 1992) of agricultural education program completers (Helm & Straquadine, 1999), college of agriculture graduates (Heyboer & Suvedi, 1999; Jones, 1999; Jones & Larke, 2001; Jones & Larke, 2003), and 4-H youth completers (Van Horn, 2001) have yielded response rates between 25% and 59%.

To address the problem of nonresponse bias, a comparison was made between early and late respondents (Miller & Smith, 1983). A chi-square analysis procedure was used to compare early and late respondents on the following variables: year of graduation and whether or not they had a career in

agriculture, a certificate in agriculture, a degree, and a degree in agriculture. No statistically significant differences ($p > .05$) were found between early and late respondents on any of the five variables. Although early and late respondents were found to be very similar on major variables included in the study, because of the response rate, the researcher encourages readers not to generalize the findings beyond the 88 respondents.

Data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS version 11.5). Descriptive statistics including frequencies, percentages, means, standard deviations, and correlations were used to analyze the data. Discriminant analysis was used to test the hypothesis of the study.

Results/Findings

Research Question One: What is the demographic profile of students who graduated from an urban agricultural education program?

Sixty-eight percent of the former students who responded were female. Slightly more than half were white (54%) while 40% were African American, 4% Hispanic, and 2% were classified as other.

Of the former students who responded, 43% indicated that they had a high school grade point average between 3.00 – 3.50, 27% had high school grade point averages between 3.51 – 4.00, and 24% had high school grade point averages between 2.50 – 2.99.

The former students completed associate's degrees in 13 different academic programs. Associate degree majors included areas such as office management, science, nursing, communication, and education. Of the former students who responded, 8% completed bachelor's degrees in agriculture while 7% completed a bachelor's degree in liberal arts. An additional 5% completed bachelor's degrees in education, business, and science. At the master's degree level, the former students completed degrees in three different areas: agriculture, education, and liberal arts. There were no doctoral degrees earned. Eight former students had

also completed certificates in several areas of agriculture (pesticide applicator, animal science, and landscaping).

Almost 46% of former students' fathers or male guardians were high school graduates. Twelve percent completed only junior high school while 11% were technical school graduates. Eleven percent of the former students reported that their father's had a graduate/professional degree.

Fifty-five percent of former students' mothers or female guardians were high school graduates, 14% had completed an associate's degree while 9% completed junior high school and a technical diploma. An additional 7% had completed a bachelor's degree, 4% graduate/professional degree, and 1% completed only elementary school.

The most frequently reported father or male guardian occupations were professional (20%), followed by service (17%), and installation, maintenance, and repair (13%). Over one-fifth (21%) of former students' mothers or female guardians were classified as having service occupations, while 17% were classified as having office and administrative support occupations, and 15% were classified as professional.

Research Question Two: What individuals influenced the career choice of students who graduated from an urban agricultural education program?

The former students were asked about the level of influence that selected individuals had on their career choice (Table 1). Overall, the former students indicated their mother or female guardian ($M=3.05$), a friend ($M=2.82$), and father or male guardian ($M=2.69$) had a "low influence" on their career choice. These findings were similar for both male and female respondents, although females ($M=2.69$) indicated more than males ($M=2.40$) that their father or male guardian was more influential on their career choice. Furthermore, friends had more influence on former students' career choice than other selected individuals including the father. A Spearman's rho coefficient of .86 revealed

that males and females were in agreement with their ranking of individuals who

influenced their decision to pursue a career in agriculture.

Table 1
Individuals' Level of Influence on Former Students' Career Choice (n = 78)

Individual	Males (n= 26)			Females (n= 52)			Overall (n=78 ^a)		
	Rank	M	SD	Rank	M	SD	Rank	M	SD
Mother or female guardian	2	2.84	1.63	1	3.00	1.50	1	3.05	1.53
A friend	1	3.16	1.57	3	2.60	1.61	2	2.82	1.60
Father or male guardian	4	2.40	1.50	2	2.69	1.52	3	2.69	1.52
Another family member	3	2.80	1.68	4	2.52	1.44	4	2.66	1.52
Another teacher	6	2.28	1.34	5	2.37	1.59	5	2.44	1.56
An agriculture teacher(s)	5	2.32	1.46	6	2.13	1.55	6	2.35	1.58
Guidance counselor	7	2.16	1.41	7	2.00	1.40	7	2.13	1.43

Note. Scale: 1 = No Influence, 2 = Very Low Influence, 3 = Low Influence, 4 = High Influence, and 5 = Very High Influence.

^aTotal does not equal 88 due to missing data.

Research Question Three: What events and/or experiences most influenced students who graduated from an urban agricultural education program to choose or not choose a career in agriculture?

The former students were asked to list a specific event or experience that influenced their choice of a career in agriculture. An agriculture career was defined using listings in the *Occupational Guidance for Agriculture* handbook (2002). Table 2 lists the events and experiences influencing their career choice. Four former students indicated a career opportunity was the event or experience influencing their decision to choose a career in agriculture while another four students

indicated high school educational experiences. An additional three students indicated high school work experiences as the event or experience most influencing their decision to choose a career in agriculture. Of the former students who did not choose a career in agriculture, 19 indicated they had other career interests while another 13 students provided responses that were classified as "other." These included events and experiences such as few minorities represented in agriculture, tired of school and work, no event or experience, and poor grades in school. Of the 88 former students who responded, 16 students chose a career in agriculture.

Table 2
Events and Experiences Most Influencing Former Students to Choose or Not Choose a Career in Agriculture (n = 88)

Event/Experience	Those Choosing ^a		Those Not Choosing ^b		Total %
	f	f	f	f	
Other career interest	--	19	19	23.5	23.5
Other	2	13	15	18.5	18.5
Personal factors	1	6	7	8.6	8.6
Lack of career opportunities	--	7	7	8.6	8.6
Lack of interest	--	7	7	8.6	8.6
High school educational experiences	4	1	5	6.2	6.2
Low salaries	--	5	5	6.2	6.2
Work experiences	3	1	4	4.9	4.9
Career opportunity	4	--	4	4.9	4.9
Enlisted in armed services	--	3	3	3.7	3.7
No interest in school	1	2	3	3.7	3.7
Lack of career information	--	2	2	2.5	2.5

^aOne respondent did not provide an event or experience. ^bSix respondents did not provide an event or experience.

Hypothesis One: A discriminant model consisting of selected factors will explain why students who complete a secondary agricultural education program choose or do not choose a career in agriculture.

A discriminant analysis procedure was used to test whether selected factors could explain why individuals who completed a secondary agricultural education program chose or did not choose a career in agriculture. Due to the low response rate (24%) of the study, the purpose of using the discriminant analysis was to explain if the two groups were similar. Hence, prediction and/or inference to the target population were not an intended goal of this analysis. The dependent variable in the discriminant analysis was whether or not former students chose a career in agriculture ("yes" or "no"). The independent variables were gender, race, father or male guardian's level of education, mother or female guardian's level of education, father or male guardian's occupation, mother or female guardian's occupation, high school grade point average, self-esteem, father or male guardian's level of influence, and mother or female guardian's level of influence on career. Before

computing the discriminant analysis, intercorrelations among these variables were computed (See Table 3). The following scale was used to describe the strength of the relationships: .01-.09 = negligible; .10-.29 = low; .30-.49 = moderate; .50-.69 = substantial; and .70 or higher = very strong (Davis, 1971).

There were few relationships of any consequence among the independent variables. Choosing a career in agriculture was only negligibly related to former students' gender, mother or female guardian's level of education, father or male guardian's occupation, mother or female guardian's occupation, high school grade point average, self-esteem, and father or male guardian's level of influence. Furthermore, there were low positive relationships between choosing a career in agriculture, race, and mother or female guardian's level of influence. Low negative relationships existed between choosing a career in agriculture and father or male guardian's level of education, indicating that former students who chose a career in agriculture had fathers or male guardians who earned a high school diploma or less.

These variables were analyzed for their suitability to be included in a discriminant model to test the hypothesis. According to Cohen (2003), when the amount of explained variance is 5% or higher in a regression equation when the power is .80 or greater, it is practically significant at the .05 level with an appropriate sample size. However, because the researcher was trying to maximize the number of cases classified correctly with a discriminant model, only variables with zero-order correlations of .20 or higher were to be used in the discriminant analysis. To be of

practical importance in this study, variables needed to explain at least 4% of the variance in the dependent variable.

As shown in Table 3, however, no variables met the minimum cutoff of .20 for inclusion in the discriminant analysis. The relationships between the independent variables and dependent variable were too low to be of any practical significance. Thus, these variables could not discriminate between individuals who chose or did not choose a career in agriculture after they completed a secondary agricultural education program.

Table 3
Intercorrelations Among Independent and Dependent Variables for Graduates Choosing a Career in Agriculture (n = 88)

Factors	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	X ₁₀	Y ₁
Gender (X ₁)	--										
Race (X ₂)	.04	--									
Father or Male Guardian's Level of Ed. (X ₃)	.05	-.05	--								
Mother or Female Guardian's Level of Ed. (X ₄)	.08	-.08	.36	--							
Father or Male Guardian's Occ. (X ₅)	.04	.03	.43	.06	--						
Mother or Female Guardian's Occ. (X ₆)	.13	-.14	.22	.34	.22	--					
High School Grade Point Average (X ₇)	-.31	.12	.20	.04	.08	.21	--				
Self-Esteem (X ₈)	-.12	-.28	-.06	.04	.17	-.08	.05	--			
Father or Male Guardian's Level of Inf. (X ₉)	.11	-.01	-.01	.05	-.02	-.13	.05	.08	--		
Mother or Female Guardian's Level of Inf. (X ₁₀)	.05	-.08	.00	.08	.03	.00	.12	.16	.79	--	
Agricultural Career (Y ₁)	.01	.18	-.12	.03	.06	.04	-.03	-.01	.03	.14	--

Note: Gender (0= Male, 1= Female); Race (0=African American, 1= Other); Agricultural Degree/Certificate (0= No, 1= Yes); Father or Male Guardian's Level of Education (0= High School Diploma or less, 1= Technical Degree or more); Mother or Female Guardian's Level of Education (0= High School Diploma or less, 1= Technical Degree or more); Father or Male Guardian's Occupation (0= Blue Collar, 1= White Collar); Mother or Female Guardian's Occupation (0= Blue Collar, 1= White Collar); Agricultural Career (0= No, 1= Yes); Self-esteem, Father or Male Guardian's Level of Influence and Mother or Female Guardian's Level of Influence expressed as interval data; high school grade point average expressed as ordinal data.

Conclusions

The following conclusions are based on the findings of the study.

Findings of this study identified several factors influencing students' decisions to choose or not choose careers in agriculture. Of the former students who responded, 16 students chose a career in agriculture. The

former students included in this study indicated several events or experiences influencing their choice of a career in agriculture. The events and experiences reported by former students who chose a career in agriculture focused around several themes which included career opportunities, high school educational experiences, and work experiences. Of the former students

who did not choose a career in agriculture, events and experiences cited included having other career interests, events and experiences classified as other, a lack of interest in agriculture, lack of career opportunities, and personal factors.

In general, there were several events and experiences influencing students' decisions to choose or not choose a career in agriculture which partially supports the Social Learning Theory of Career Decision-Making. Moreover, a discriminant model consisting of selected factors could not reliably discriminate between former students who chose or did not choose a career in agriculture after they graduated from an urban agricultural education program.

Recommendations

Based on the study's findings and conclusions, the following recommendations are made:

1. Urban agricultural education programs should develop student follow-up procedures to determine if their graduates are pursuing careers in agriculture. As a result, further insight could help identify reasons why students graduating from urban agricultural education programs choose or do not choose careers in agriculture.
2. If the mission and goals of urban agricultural education programs are to prepare students for entry into careers in agriculture, administrators of urban agricultural education programs should also conduct follow-up studies to ensure that the mission and goals of their programs are actually being achieved.

Discussion and Implications

The former students in the study provided data on individuals influencing their career choice. They indicated that their parents or guardians and friends were the individuals most influencing their choice of a career. The findings of this study support the findings of Fisher and Griggs (1995),

Houser and Yoder (1992), and Kotrlik and Harrison (1987, 1989) who found that parents influence students' career choices. Thus, it was concluded that parents or guardians and friends were the primary individuals who influenced their choice of a career although mothers or female guardians were the most influential. However, the findings also support the observation that former students' friends influenced their choice of a career more than other selected individuals including the father.

Former students also indicated several events or experiences influencing their choice of a career in agriculture. The events and experiences reported by former students who chose a career in agriculture focused around several themes which included career opportunities, high school educational experiences, and work experiences. Of the former students who did not choose a career in agriculture, events and experiences cited included having other career interests, events and experiences classified as "other", personal factors, lack of career opportunities, and a lack of interest in agriculture. It was concluded that there were several events and experiences influencing students' decisions to choose or not choose a career in agriculture. These findings support the Social Learning Theory of Career Decision-Making which provides insight into the interactions of genetic factors, environmental conditions, learning experiences, and performance (task) skills that shape individuals' decisions about careers.

Despite the lack of generalizability, these findings could have several implications for urban agricultural education programs. Given that no variables could reliably discriminate between individuals who chose or did not choose a career in agriculture after they completed a secondary agricultural education program, this finding may suggest that perhaps students are not adequately prepared to explore career opportunities in agriculture as well as not being prepared for immediate job entry in agriculture upon graduation. Furthermore, because former students in this study indicated other career interests, personal factors, and "other" events and experiences as the leading reasons why they did not

choose careers in agriculture; perhaps administrators and agriculture teachers of urban agricultural education programs could ensure that they are providing a variety of learning experiences which may increase students' interest in careers in the agricultural sciences.

Recommendations for Future Research

1. Future research should replicate this study to examine whether the findings are valid for other urban agricultural programs which will increase the generalizability.
2. Future research should utilize an in-depth qualitative approach in order to identify other factors that may influence the career decision-making process of urban agricultural students.
3. Future studies should continue to test propositions of the Social Learning Theory of Career Decision Making to further examine factors that influence students' career choices in the agricultural sciences.
4. Future research should utilize a longitudinal research design in order to determine if student career aspirations are consistent with actual career choice in adulthood.

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Journal Paper of the Iowa Agriculture and Home Economics Experiment Station, Ames, IA. Project No. 3613, and supported by Hatch Act and State of Iowa funds.