Factors Influencing Student Choice of University and College Major: A Comparison of Agriculture and Non-Agriculture Degree Students

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Abstract

This study investigated the external factors that influence the decisions of university choice and college major by students in agriculture and non-agriculture degree programs. The population was all students enrolled in a department of agriculture and an equal amount of non-agriculture students enrolled in various other departments at one four-year university. Data was collected using a Likert scale instrument to assess influential factors that students use to choose a university and a college major. Location, size, cost, and variety of majors ranked first through fourth for both agriculture and non-agriculture students when choosing a university. Teaching reputation of departmental professors, was the most influential departmental factor for non-agriculture students when choosing a major, while for the Agriculture students having a friendly departmental atmosphere. This study contributes to the literature base allowing colleges and universities to develop strategic and innovative recruitment strategies for future students.

Introduction

Enrollments of students in agriculture programs at the high school level plummeted with the onset of the farm crisis in the late 1970's and early 1980's (Dyer et al., 1999; Dyer and Osborne, 1994). This decrease in enrollment at the high school level struck at the university level in the late 1980's. In addition to this decrease in enrollments in agriculture programs at the university level were cutbacks in faculty positions (Dyer et al., 1999). As universities began downsizing agriculture programs, high school enrollments in agriculture programs began rebounding (Dyer et al., 1999). As of 1992, colleges of agriculture were reporting increased enrollments, and the levels had returned to early 1980's levels (Dyer et al., 1999; Litzenberg et al., 1992). Recently, research has shown that the number of students enrolling in colleges of agriculture is again declining. Goecker et al. (1999) stated that colleges of agriculture nationwide experienced a decline for the first time in a decade. Paired with this decline in enrollment is the concerning fact that jobs that would best be filled by students proficient in agriculture are being left unfilled or these jobs are being filled by people other than those with a degree in an agriculture related field. In order to try to combat this decrease in enrollment in colleges of agriculture, colleges and universities spend a remarkable amount of time and money every year in the process of recruiting new students to their campus (Stephenson, 2016).

Research has identified many factors that influence student university choice, but more research is warranted in order to determine what influences students to enroll in a specific university, what degree to pursue, and if there are differences between the way students make their decisions. A review of literature was conducted to explore existing research and knowledge in the areas of the effectiveness of student clubs, organizations and judging teams in the recruitment of students to agriculture departments. Various recruitment efforts and factors of influence in recruiting students to universities were also researched.

In order to fully understand the way a student makes their choice of which university to attend, you have to take into consideration a student's background; current characteristics, such as socioeconomic status, aptitude, level of educational aspiration, and high school performance; the student's family; and the characteristics of the college (Chapman, 1981; Kelly et al., 2016; Kalimullin, 2016). However, even when colleges spend the time, effort, and money to inform potential students about the school and everything it has to offer, students' own preconceived expectations and perceptions can take precedence over any information they may receive. Chapman's Model of Student College Choice (1981) addresses this issue. He states that college information gained through high school experiences, the information of significant other people, and the colleges' own efforts to communicate with prospective students may be filtered out by the students' generalized, idealized expectations. Consequently, even available, accurate information may be ignored or distorted by the student. Because of this, students may base their college decision on stereotypes of the schools rather than careful discrimination of the likely student experience at different institutions (Chapman, 1981).

In a study conducted by Wildman and Torres (2001), five principle factors of influence when selecting a major in agriculture were identified. These five factors included: exposure to agriculture, family and friends, college of agriculture recruitment activities, professionals, and job considerations. Students pursuing a degree in agriculture ranked prior experience in agriculture, other agriculture experiences, and relatives in agriculture most influential to them when selecting the major. The students responded that friendliness of faculty in their choice of major and the overall friendly atmosphere in the College of Agriculture were influential in their choice of major. Agriculture related clubs and activities was not considered to be influential in the respondents' choice of major even though it was identified frequently as very influential. The students in the study identified professionals employed in agriculture fields most frequently as very influential to selection of a major. The professionals who were ranked as not influential in selecting an agricultural major were extension professionals, high school science teachers, vocational agriculture teachers, other high school teachers, high school counselors, and high school principals.
Dyer et al. (2005) found that students who had experience in agriculture, completed high school agriculture courses, were members of the FFA and/ or 4-H, and lived in a rural setting were more likely to complete a degree in a college of agriculture than were freshmen students who had not had those experiences. The best predictors of student retention were the students' prior experiences in agriculture and their enrollment in high school agriculture programs. In a similar study by Dyer et al. (1999) it was found that students who have enrolled in high school agriculture classes, and those who were involved in FFA or 4-H, are more likely to complete a four year degree in an agriculture program and choose agriculture as a career than are freshman who have not had those experiences.
Williams et al. (2008) examined the external factors that influence the selection of college major by students entering agricultural and non agricultural degree programs. The five highest rated items for college or departmental factors influencing agricultural majors were: friendly college atmosphere, teaching reputation in college, faculty's friendliness, teaching reputation in department, and departmental clubs or activities. Non-agriculture students rated: friendly college atmosphere, teaching reputation of college, internet sources, and faculty's friendliness as the top five most influential factors. Most items were similar in terms of rank with the exception of departmental clubs or activities which was ranked fifth most influential for agricultural participants and tenth for non-agricultural participants.

The purpose of this study was to examine the external factors that influence a student's choice of university and college major, and to determine how agriculture students and non-agriculture students are influenced when making those decisions.

The following research questions were developed:

1. What were the demographic characteristics of students majoring in agriculture and non-agriculture degree programs?
2. What were the factors that influence a student's choice of university?
3. What were the factors that influence a student's choice of college major?

Materials and Methods

Data were collected through the use of two surveys that were emailed to a selection of currently enrolled university students at one four-year university. The two surveys were adapted from a previous study by Williams et al. (2008). One survey was designed for students in agriculture degree programs, and the other for students in non-agriculture degree programs. The two survey instruments were similar, but were modified to contain appropriate wording for agriculture and non-agriculture students.

The instrument was comprised of four sections: influence of factors when deciding to enroll at the university, influence of factors when choosing a college major, high school and background information, and demographics. The participants ranked factors of influence when deciding to attend the university and when choosing college major on a Likert-type scale ranging from 1 to 10. A rank of 1 was not influential, while a rank of 10 was very influential to their decision.

The participants were allowed to list open-answer responses in each section under the factor "Other". Content and face validity of the instruments were established by a panel of experts which included a selection of professors in the Department of Agriculture as well as graduate students in the Department of Agriculture. The pilot test responses were analyzed using PASW Statistics Version 17.0 software, and modifications were made to instruments before they were administered to the participants. After modifications to the pilot test were made, the Cronbach's Alpha scores of the Agriculture students instrument were: influential factors when deciding to enroll at the university (α=.808), the influence of individual people on choice of college major (α=.839), and the influence of departmental factors on choice of college major (α=.827). The Cronbach's Alpha scores of the non-agriculture students' instrument were: influential factors when deciding to enroll at the university (α=.829), the influence of individual people on choice of college major (α=.725), and the influence of departmental factors on choice of college major (α=.821).

The surveys were emailed to all currently enrolled undergraduate students in the Department of Agriculture (*n*=233), and 231 randomly selected, currently enrolled undergraduate students from non-agriculture degree programs. Data from the respondents were entered into SPSS 17.0. Frequencies and descriptive statistics were tabulated for all variables.

Results and Discussion

A total of 187 students participated in the study. Of these students, 110 were currently enrolled in an agriculture degree program, while 77 were enrolled in a non-agriculture degree program at the university. The first objective of the study was to determine the demographic characteristics of students majoring in agriculture and non-agriculture degree programs.

As seen in Tables 1 and 2, of the agriculture students that participated, 50 (49%) were male and 52 (51%) were female, while 26 (35.6%) of the non-agriculture students that participated were male and 47 (64.4%) were female. From the agriculture respondents, 82 (74.5%) marked their ethnicity as White/ Non-Hispanic as did 40 (54.8%) of the non-agriculture students. Other ethnicities marked by respondents included Hispanic, Black/ African American, Asian/ Pacific Islander, and other, respectively.

In terms of permanent or home residence, the largest representation of agriculture students indicated being from rural-farm areas (33.3%, *n*=34) (Table 1). Metropolitan (large city) areas reported the second highest representation for agriculture students at 32.4 % (*n*=33), and was followed by small town 25.5% (*n*=26), and rural-nonfarm 8.8% (*n*=9). Conversely, non-agriculture students reported being from metropolitan (large city) areas most frequently (58.9%, *n*=43). The second most frequent area was small town at 28.5% (*n*=21), followed by rural-farm area at 8.2% (*n*=6), and rural-nonfarm at 4.1% (*n*=3).

As seen in Table 3, the distribution of agriculture student respondents by classification was 17 (16.7%) freshman, 24 (23.5%) sophomores, 26 (25.5%) juniors, and 35 (34.3%) seniors. Of the non-agriculture students respondents, 10 (13.7%) were freshman, 8 (11%) were sophomores, 26 (35.6%) were juniors, and 29 (39.7%) were seniors.
The second objective of this study was to determine the external forces that influenced student's choice of university. Agriculture students rated the five items with the most influence as: location of the university (*M*=7.93), size of the university (*M*=6.45), cost of the university (*M*=6.11), variety of majors offered by the university (*M*=6.03), and size of classes at the university (*M*=5.55) (Table 4).

The remaining factors under influence on choice of university for agriculture students were prestige of the university (*M*=5.50), parents (*M*=4.55), extracurricular activities (*M*=4.54), friends (*M*=4.26), other factors (*M*=4.11), relative (*M*=3.85), and university informational days (*M*=3.71). University informational days are organized by the university to give interested high school or transfer students the opportunity to visit with faculty, staff, and current students; take a tour of the campus; and explore the academic and cultural environment of the university. Other factors that were listed by the students in agriculture degree programs included: *small classes, close to home*; *the university offered the exact degree I wanted and was the largest/ most prestigious university to offer it*; *Ag teacher recommendation*; *beautiful area around the department, great education program, large student body, but small upper level class size*; *beauty of the city*; *Livestock Judging Team*; *reputation of the professors in the Agriculture Department*

The five highest items ranked by non-agriculture students were location of the university (*M*=7.93), variety of majors offered by the university (*M*=6.99), cost of the university (*M*=6.78), size of the university (*M*=6.37), and prestige of the university (*M*=5.97). The other factors of influence for non-agriculture students were size of classes at the university (*M*=5.14), friend (*M*=4.69), extracurricular activities (*M*=4.55), parents (*M*=4.27), university informational days (*M*=3.87), other factors (*M*=3.47), and relatives (*M*=3.43). Students in non-agriculture degree programs offered the following responses under the other factors category: *the community the university is surrounded by*; *the preservation of nature on the university's campus*; *the river*; and *the reputation of the major I am in*.

The third objective of this study was to determine if agriculture and non-agriculture students were influenced differently by external factors when selecting a college major. Two categories of external influences were used in this study: individual persons' influence, and departmental influence.
As shown in Table 5, participants ranked the influence of nine departmental factors on their choice of college major.

The five highest ranked departmental or college factors for agriculture students were friendly atmosphere in the department/college (*M*=5.78), university internet sources about the major (*M*=4.52), clubs or activities within the department (*M*=4.24), teaching reputation of the departmental professors (*M*=3.90), and informational pamphlets about the major (*M*=3.66). Other departmental or college factors ranked by participants included personal visits with a representative from the university (*M*=3.48), other factors (*M*=2.78), scholarships from the department (*M*=2.67), and alumni from the department or college (*M*=2.59). Agriculture students offered the following responses under the other factors category: *personal involvement with clubs*; *department advisor*; *desire to work with animals*; and *importance of agriculture*.

The top five ranked departmental or college factors that influence a student's choice of major by non-agriculture students were teaching reputation of the departmental professors (*M*=5.47), friendly atmosphere in the department/college (*M*=5.33), university internet sources about the major (*M*=4.75), informational pamphlets about the major (*M*=4.29), and clubs or activities within the department (*M*=3.82). Additional factors that were ranked included personal visits with a representative from the university (*M*=2.74), alumni from the department/college (*M*=2.74), other factors (*M*=2.61), and scholarships from the department (*M*=2.38). Other factors that were given by non-agriculture students included: *personal interest in the subject*.

Table 6 shows the influence of individual persons on the student's choice of college major. The top five individuals ranked by agriculture students were professionals in a field of work similar to the major (*M*=5.49), family (*M*=5.20), friends (*M*=4.68), high school teacher (*M*=3.77), and extension professionals (*M*=3.27). The remaining individuals ranked were other individuals (*M*=3.16), and high school counselors (*M*=2.42). Other individuals that were listed by agriculture students included: *riding coach*; *professor in the Department of Agriculture*; *department advisor*; and *significant other*.

The top five individuals that were ranked by non-agriculture students were family (*M*=5.25), friends (*M*=5.24), professional in a field of work similar to the major (*M*=5.13), high school teacher (*M*=4.01), and other individuals (*M*=2.96). The lowest ranking individuals for non-agriculture students were high school counselors (*M*=2.96), and extension professionals (*M*=1.79). Non-agriculture students listed other individuals of influence as: *professors or instructors*.

Conclusions and Recommendations

The agricultural and non-agricultural participants of this study were similar in the distributions of class rank and gender, but were dissimilar in many areas. Both the agriculture students (50.9%) and the non-agriculture students (64.3%) were predominately female, but the non-agricultural students reported a much higher percentage of females over males. These groups were dissimilar in home geographical location and ethnicity distribution. The largest amount of agriculture students reported being from rural-farm areas (33.3%, *n*= 34) which is almost six times the number of non-agricultural students reporting to be from these areas (8.2%, *n*= 6). There was also a large disparity in the number of students from metropolitan (large city) areas. While metropolitan areas ranked a close second for agricultural students (32.4%, *n*=33), it was the clear majority for non-agricultural students (58.9%, *n*=43). While the majority of both agriculture students (74.5%, *n*=82) and non agriculture students (54.8%, *n*=40) reported being White or Caucasian, the groups were dissimilar in the distribution of students in the other ethnic groups. Specifically, only 9 (8.9%) agriculture students indicated being Hispanic, while 24 (32.9%) of the non-agricultural students reported the same. This indicates that the Agriculture Department is lagging behind the remainder of the university in regard to recruiting and providing for minorities.

It is important for agriculture departments to develop recruitment plans that target high schools in all geographical locations since students reported being from rural-farm (33.3%), small town (25.5%) and large city (32.4%) in very similar amounts. Increased recruitment in metropolitan (large city) areas is important in order to increase enrollment numbers in departments of agriculture. Increased recruitment of non-traditional students such as Hispanic, African American, and community college transfer students is also important. More high school agriculture programs are offering small animal management and veterinary technology programs that are becoming increasingly popular. These programs draw students from very diverse backgrounds. It is for this reason that recruiters for departments of agriculture must not only focus on traditional agriculture classes.

Agricultural and non-agricultural students reported being influenced by the same top four factors when choosing to attend the University. The top four factors for both groups were: location of the University, size of the University, cost, and variety of majors. University informational days ranked last for agriculture students and tenth for non-agriculture students indicating that neither of these groups either participated in University informational days or it was not influential in their decision to attend the University. It is important for a recruitment presentation to include and highlight the location of the university, the size of the university, cost, and the variety of majors offered at the university. In addition, recruitment presentations should include information on University informational days so that prospective students are made aware of the opportunities available to explore the university. Also, University informational days should be re-organized so that students that participate get a better understanding of the university. Some options might include allowing students to sit-in on classes of their choice, getting a personal tour of a department they are interested in from a student or faculty member in that department, and meeting with an advisor to explore the majors offered at the university.

The groups were influenced by different factors when choosing a college major. The non-agriculture students ranked the teaching reputation of Departmental professors (*M*= 5.47) as the most influential factor when choosing a major, but agriculture students ranked this item as the fourth most influential (*M*=3.90). Another disparity occurred in the ranking of the influence of clubs or activities within the Department: the agriculture students ranked this item as the third most influential (*M*=4.24), while the non-agricultural students ranked it as the fifth most influential (*M*=3.82). Alumni for the Department or College were ranked as the least influential for the agriculture students (*M*=2.59) and as the sixth most influential for non-agricultural students (*M*=2.74).

It is important for department faculty to be recognized during recruitment presentations. Faculty should be recognized for their teaching reputations, research projects, and outreach or service work. Also, alumni should play a larger role in influencing students to join a Department of Agriculture. Creation of an alumni board to serve as mentors and potential employers to current students would encourage students to join the department.

The agriculture students and non-agriculture students were influenced by similar people when choosing their college major. Both groups had similar top four influential people: professional in a field of work similar to your major, family, friends, and high school teacher. Disparity occurred between the ranking of extension professionals. The agriculture students ranked extension professional as the fifth most influential (*M*=3.27) while non-agriculture students ranked extension professional as the least influential (*M*=1.79) when making their choice of college major.

Recruiters should provide alumni in agriculture-related fields of work with information about the department so that those alumni can spread information about the department to students who might be interested in that career field. Recruiters might also work with and encourage high school teachers to bring in professionals to talk to the students about career options in the agriculture industry.

This study produced similar results to the study done by Wildman and Torres (2001) in that agriculture students identified the friendly atmosphere in the department or college to be the most influential departmental factor when deciding to choose a major. Additionally, agriculture respondents identified professionals in a field of work similar to their major as influential in their choice of major. Other similar results included the strong influence that family and friends had on the agriculture students' choice of college major. Similar to the Wildman and Torres (2001) study, agricultural students identified extension professionals and high school counselors as not influential in their choice of college major. One dissimilarity was that agricultural students identified clubs or activities within the Department as the third most influential departmental factor in their choice of college major.

This study examined how students are influenced by external factors when making their choice of university and college major. While the results of this study are unique to this University, the data provide useful information for general recruitment strategies. More research is warranted in the future to see if students are influenced by different, additional, or new factors. This study should be repeated at other universities to determine if results are similar and can be generalized to other universities and departments of agriculture. Further research should also be conducted to determine retention rates in this department of agriculture and at this University to determine if retention strategies need to be addressed. Additionally, students who took part in a recruitment session but did not attend the University should be studied to determine why they did not choose the University.

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Table 1. Gender Distribution of Agriculture and Non-Agriculture Students Based on Home Geographical Location

	Agriculture		Non-Agriculture	
	Male	Female	Male	Female
Geographic Location	*n*	*n*	*n*	*n*
Rural-farm	18	16	1	5
Large city	16	17	11	32
Small town	12	14	12	9
Rural- non farm	4	5	2	1
Total	50	52	26	47

Table 2. Ethnicity Distribution of Agriculture and Non-Agriculture Students

	Agriculture	Non-Agriculture
Ethnicity	*n*	*n*
Asian, Pacific Islander	1	0
Black, African American	2	4
Hispanic	9	24
White	82	40
Other	7	5
Total	101	73

Table 3. Students by Current Classification

	Agriculture	Non-Agriculture
Classification	*n*	*n*
Freshman	17	10
Sophomore	24	8
Junior	26	26
Senior	35	29
Total	102	73

Table 4. Perceived Influence of University Factors on Students' Choice of University

	Agriculture (*n*=110)			Non-Agriculture (*n*=77)		
Factor	Rank	*M**	*SD*	Rank	*M**	*SD*
Location of University	1.	7.93	2.18	1.	7.88	2.32
Size of University	2.	6.45	2.67	4.	6.37	2.66
Cost	3.	6.11	2.74	3.	6.78	2.72
Variety of Majors	4.	6.03	2.95	2.	6.99	2.74
Size of Classes	5.	5.55	2.70	6.	5.14	2.91
Prestige of University	6.	5.50	2.62	5.	5.97	2.73
Parents	7.	4.55	3.18	9.	4.27	3.29
Extracurricular Activities	8.	4.54	3.25	8.	4.55	3.03
Friend	9.	4.26	3.34	7.	4.69	3.56
Other factors	10.	4.11	3.44	11.	3.47	3.57
Relative	11.	3.85	3.20	12.	3.43	3.25
Bobcat Days	12.	3.71	2.89	10.	3.87	3.08

*1 = "not influential", 10= "very influential"

Table 5. Perceived Influence of Departmental Factors on Students' Choice of Major

	Agriculture (*n*=99)			Non-Agriculture (*n*=72)		
Departmental Factor	Rank	*M**	*SD*	Rank	*M**	*SD*
Friendly atmosphere in the Department/ College	1.	5.78	3.15	2.	5.33	3.36
University internet sources about the major	2.	4.52	3.03	3.	4.75	3.34
Clubs or activities within the Department	3.	4.24	3.21	5.	3.82	3.22
Teaching reputation of the Departmental professors	4.	3.90	3.00	1.	5.47	3.69
Informational pamphlets about the major	5.	3.66	2.89	4.	4.29	3.19
Personal visit with a rep. from the University	6.	3.48	3.25	6. (tie)	2.74	2.92
Other	7.	2.78	3.07	7.	2.61	3.13
Scholarship(s) from the Department	8.	2.67	2.66	8.	2.38	2.71
Alumni from the Department/College	9.	2.59	2.72	6. (tie)	2.74	2.95

*1 = "not influential", 10= "very influential"

Table 6. Perceived Influence of Individual Persons on the Students' Choice of Major

	Agriculture (*n*=99)			Non-Agriculture (*n*=72)		
People of Influence	Rank	*M**	*SD*	Rank	*M**	*SD*
Professional in a field of work similar to your major	1.	5.49	3.52	3.	5.13	3.52
Family	2.	5.20	3.17	1.	5.25	3.20
Friends	3.	4.68	3.13	2.	5.24	3.21
High school teacher	4.	3.77	3.17	4.	4.01	3.04
Extension professional (4-H agent or 4-H leader)	5.	3.27	2.98	7.	1.79	1.98
Other Individuals	6.	3.16	3.27	5.	2.96	3.14
High school counselor	7.	2.42	2.30	6.	2.56	2.43

*1=" not influential", 10=" very influential"