

Factors Influencing College Choice of High School and Transfer Matriculants into a College of Agriculture

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Abstract

As a result of declining enrollments, many colleges of agriculture are working to revise and/or increase recruitment efforts to more effectively attract students. Based on recent community college enrollment trends, a potential source of students to increase agricultural enrollments might be found at community colleges. This study examined recruitment efforts affecting the decision-making processes of over 2,800 high school and transfer matriculants into the College of Agricultural and Life Sciences at the University of Florida. Differences between the groups were found on standardized test scores, ethnicity, and major. Websites and printed university publications were the most widely utilized sources of information, while web-based information and conversations with professors were among the most useful sources of information. Differences existed in the use of information sources between high school and transfer matriculants. Parents or guardians were the most influential people for students. Examination of degree program characteristics and institutional characteristics revealed that students were most influenced by the academic reputation of the university, career opportunities, prestige of the university, and preparation for employment.

Introduction

During the 1999-2000 academic year, 42% of all undergraduates nationwide were enrolled at public, two-year community colleges (Horn et al., 2002). The lower fees and open-access policies of community colleges increase access to students with lower high school academic performance, lower socio-economic status, and less access to transportation to four-year institutions (Grubb, 1999). In a national study conducted for the National Center for Educational Statistics, Bradburn et al. (2001) found that 71% of the students who first enroll in a community college expected to complete a bachelor's or higher degree. The same study revealed that 52% of community college students who identified a major while attending community college and took courses toward that major, did in fact transition to a four-year institution.

Also during the 1999-2000 academic year, colleges of agriculture nationwide experienced a decline in undergraduate student enrollment for the first time in the past decade (Goecker et al., 1999). Coupled with the fact that the agricultural industry struggles annually to fill positions with qualified individuals (Goecker et al., 1999), this decline in enrollment does not bode well for the future of what is touted by some as the nation's most important industry. In many instances, colleges of agriculture are working to revise and/or increase recruitment efforts to more effectively attract students. Based on the community college trends cited above, a potential source of students might be found at community colleges.

Only one-third of the high school graduates who entered community colleges in 1992 were qualified academically at the time of enrollment to attend a four-year institution (Hoachlander et al., 2003). Given these differences in academic preparation between community college students and four-year university students, the following research question was posed: "What are the differences in recruitment information needs of transfer students versus high school students considering four-year institutions?" A review of literature produced a void of prior research on this topic. As a result, research is warranted to determine those strategies that are most effective in assisting these two different groups of students in their college choice processes.

Acknowledging that a student's college choice strongly influences his or her professional career (Hossler et al., 1989), colleges of agriculture should evaluate strategies to effectively attract students in an effort to continue producing the future professionals needed by the agricultural and related industries. Previous studies focusing on recruitment issues in colleges of agriculture identified parents as a strong influence in students' decisions regarding post-secondary education (Washburn et al., 2002; Cole and Thompson, 1999; Scofield, 1995; Taylor and Johnson, 1993). Participation in on-campus programs and events, and conversations with a professor were found to have the most influence on the college choice process of post-secondary agriculture students

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(Washburn et al., 2002). The same study also supported earlier findings by Cole and Fanno (1999) and Scofield (1995) that campus visits were beneficial to students during their selection process. Findings by Scofield (1995) and later by Cole and Thompson (1999) identified printed recruitment literature as being helpful in students' decision-making processes. While many of these studies provide insight into the information sources used by students college wide in selecting an institution, most failed to give attention to the pathways students follow to enroll at the four-year institution.

The theoretical basis for this study has its foundation in Chapman's (1981) work. His model of student college choice suggests that significant persons such as parents, friends, role models, and high school personnel influence students' perceptions of a college. The model further identifies the efforts of the college to communicate with the prospective student as consequential. Chapman's model identifies the fixed college characteristics, such as cost, availability of financial aid, location, and availability of particular academic programs as being particularly meaningful in students' ultimate decisions. The fixed characteristics of the college, combined with the influence of significant people and the college's efforts to communicate with the student have a significant impact on students' expectations of college life at a particular institution, thereby impacting their final choice of institution. Adapted to this study, Chapman's model of student college choice would suggest that obtaining a better understanding of the role of various influential people, the impact of recruitment practices, and the institutional characteristics important to prospective students would enable colleges of agriculture to more efficiently use their recruiting resources.

Purpose and Objectives

The purpose of this study was to examine recruitment efforts as they affect the decision-making processes of students in the College of Agricultural and Life Sciences (CALs) at the University of Florida (UF). To guide the study, the following research objectives were developed:

1. Determine whether high school and transfer matriculants differed based on standardized test scores, ethnicity, and selection of major.
2. Determine if a difference existed between high school and transfer matriculants in terms of their use of information sources and their perceived usefulness of those sources.
3. Determine if a difference existed between high school and transfer matriculants in terms of the influence of degree program characteristics, institutional characteristics, and selected individuals on their college choice.

Methods and Procedures

The population for this descriptive census study consisted of all undergraduate students in the CALs at the University of Florida for the fall semester 2003 (N = 2,860) including those students who matriculated directly from high school (N = 2,127) and students who transferred from community colleges or other universities (N = 733). The University of Florida is the states' 1862 land grant institution and the primary undergraduate degree granting institution in the fields of agricultural and life sciences.

The 74 item instrument was modified from a questionnaire used by Washburn et al. (2002) to assess the use and usefulness of recruitment information sources and to examine when students began and finalized their college decisions. The instrument was reviewed by a panel of experts consisting of college of agriculture admissions personnel and teacher educators for face and content validity. The instrument was pilot tested with a group of 34 predominantly sophomore students in a college of agriculture who were not involved in the study. Data from the pilot test was used to determine the internal consistency of the instrument (Washburn et al., 2002). A Spearman-Brown Split-half reliability analysis was performed resulting in a reliability of 0.70 (coefficient alpha).

The questionnaire was administered online and all students in the population (N = 2,860) were asked to participate via email. After the initial email request, two additional follow-up email messages were sent at two-week intervals. A total of 1,068 usable instruments were received, resulting in a response rate of 37% (freshman matriculants n = 689 and transfer matriculants n = 379). In this study, community college and university transfers were treated as one group. Among the transfer respondents, 91% matriculated from a community college.

Non-response error was controlled for by comparing non-respondents with respondents on admissions information obtained a priori (Miller and Smith, 1983). A comparison of standardized test scores reflected that non-respondents were virtually identical to respondents (Table 1). In addition, the non-respondent group had no notable differences when compared to respondents based on ethnicity or selected major.

Results

To assess objective one, student data were collected from the University's Office of Admissions. Evaluation of admissions data revealed notable differences existed between high school and transfer matriculants with regard to their standardized test scores (Table 2). When compared to the transfer matriculants, high school matriculants performed on average four points higher on the ACT and approximately 190 points higher on the SAT. Because students had the choice of submitting either ACT or

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SAT scores for admission purposes, comparisons are made only between student scores on like tests.

Table 1. Standardized Test Scores for Respondents and Non-respondents

Criteria	Responding Matriculants			Non-responding Matriculants		
	n	M	SD	n	M	SD
ACT	283	25.70	3.76	398	25.11	4.15
SAT	690	1185.25	185.74	1301	1160.15	165.45

Note: Standardized test scores not reported for 188 matriculants

Table 2. Standardized Test Scores for High School Matriculants and Transfer Matriculants

Criteria	High School Matriculants			Transfer Matriculants		
	n	Mean	SD	n	Mean	SD
ACT	211	26.69	3.08	67	22.67	3.99
SAT	473	1242.56	137.04	213	1052.59	211.50

Note: Standardized test scores not reported for 104 respondents

A comparison of student ethnicity was also completed using the University's admissions data for respondents (Table 3). An analysis of the data reported slight differences in the proportions of the specified ethnicities. High school matriculants appear to represent a more ethnically diverse group based on the higher percentages of minority students, however Caucasian students still represent 71% of the high school matriculant population.

The final part of objective one consisted of a comparison of the majors of high school versus transfer matriculants (Table 4). This comparison demonstrated another difference between these two groups. Of the high school matriculants, 66% selected one of three majors (Microbiology and Cell Science,

Food Science and Human Nutrition, and Animal Science) compared to 38% of transfer matriculants.

The data also showed that 10.6% of high school matriculants did not designate a major as compared to only 2.1% of transfer matriculants.

The second objective had two intents. The first was to determine whether a difference existed between high school and transfer matriculants in terms of the sources of information they used most frequently in selecting their post-secondary institution. The second was to determine whether a difference existed between high school and transfer matriculants in terms of the level of usefulness of the sources of information. Students were asked to indicate whether they had used each of the 17 sources of information listed on the questionnaire and if so, then to indicate the level of usefulness they found for each source they had used.

The most commonly used sources of information for high school matriculants were "degree program information on a website," "UF information on a website," and "printed UF publications." Transfer matriculants 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 (Table 5). Sixteen of the 17 sources of information were used more frequently by transfer matriculants than by

high school matriculants, the exception being "degree program information on a website." The source of information used least often by both groups of students was "TV, radio, newspaper, or magazine advertisements."

In comparison to the other sources of information, high school matriculants identified the following sources as the most useful: "degree program information on a website," "personal conversation with a professor," "CALs information on a website," and "UF information on a website." Transfer matriculants identified "visit to campus," "degree program information on a website," "CALs information on a website," and "UF information on a website" as the most useful sources of information. Both groups indicated the least useful sources of information included "letter and/or information mailed from an UF admissions/outreach representative," "visits by UF

Table 3. Ethnicity of High School Matriculants and Transfer Matriculants

Ethnicity	High School Matriculants (n = 689)		Transfer Matriculants (n = 379)	
	Percent	f	Percent	f
Caucasian	71.3	491	84.4	320
Asian	10.3	71	2.4	9
Hispanic	9.6	66	6.1	23
African American	7.5	52	2.6	10
Other	0.6	4	3.2	12
Not Reported	0.4	3	1.3	5
Native American	0.3	2	0.0	0
Total	100.0	689	100.0	379

Table 4. Major of High School Matriculants and Transfer Matriculants

Major	High School Matriculants (n = 689)		Transfer Matriculants (n = 379)	
	f (rank)	Percent	f (rank)	Percent
Microbiology and Cell Science	134 (1)	25.8	28 (4)	9.8
Food Science and Human Nutrition	105 (2)	20.2	33 (3)	11.5
Animal Science	103 (3)	19.8	49 (1)	17.1
No-Response	55 (4)	10.6	6 (12)	2.1
Agricultural and Biological Engineering	37 (5)	7.1	3 (17)	1.0
Wildlife Ecology and Conservation	19 (6)	3.7	22 (5)	7.7
Food and Resource Economics	5 (9)	1.0	48 (2)	16.8
Total	519	88.2	286	66.0

Note: In the interest of conserving space, only the top five majors were included in this table.

representative to your school,” “participation in athletic events on campus,” and “TV, radio, newspaper, or magazine advertisements.”

Regarding the usefulness of information, the most notable differences were found for the following sources of information: “visits by CALS representative to your school” (transfer matriculant M = 4.45, high school matriculant M = 4.04) and “letter and/or information mailed from a professor” (transfer matriculant M = 4.07, non-matriculant M = 3.70). Sixteen of the 17 sources of information were rated more useful by transfer matriculants than high school matriculants.

The third objective sought to determine if a difference existed between high school and transfer matriculants in terms of the influence of degree program characteristics, institutional characteristics, and selected individuals on their college choice. The level of influence of the seven degree program characteristics was very similar for both matriculant groups (Table 6). Both groups identified the availability of career opportunities as the most influential characteristic in their selection of an academic major.

The only notable differences between the two groups were the slightly greater influence that size of classes and the number of students in the major had on transfer students.

Table 7 presents findings regarding the influence that characteristics of the institution had on students' college choice. High school and transfer matriculants were influenced most by the same four characteristics: “academic reputation of the university,” “opportunities after graduation,” “prestige of the university,” and “preparation for employment.” Furthermore, the same three characteristics had the least influence on both groups: “campus safety and security,” “prominence of university athletic teams,” and “size of classes.” Mean responses for 14 out of 17 items were greater for high school matriculants than for transfers. The three means that were greater for transfer matriculants than for high school matriculants included “distance from home,” “city in which campus is located,” and “size of classes.” Additionally, the degree of influence of “scholarships awarded” was notably larger for high school matriculants (M = 3.71) than for transfer matriculants (M = 3.18).

Parents or guardians, friends in college, and relatives who attended the university had the highest mean influence among students in this study (Table 8). High school matriculants reported that high school agricultural teachers, graduates of the CALS, and community college counselors had the least influence on their selection of the university. Transfer matriculants indicated that high school counselors, agricultural teachers, and science teachers had the lowest mean levels of influence on their decisions. The only notable difference between the groups not attributable to school association is the transfer matriculants' greater level of influence from the CALS faculty and/or staff (transfer matriculants M = 2.34, high school matriculant M = 1.87).

Table 5. Information Source Use and Usefulness

Source of Information	High School Matriculants (n = 689)			Transfer Matriculants (n = 379)		
	Used ²	Usefulness ³		Used ²	Usefulness ³	
	Percent	M (rank)	SD	Percent	M (rank)	SD
Degree program information on a website	70.0	4.26 (1)	0.85	69.7	4.25 (4)	0.88
Personal conversation with a professor	29.4	4.25 (2)	1.08	38.4	4.31 (2)	1.06
CALS information on a website	48.7	4.11 (3)	0.91	60.4	4.14 (7)	0.87
UF information on a website	59.8	4.06 (4)	0.92	74.1	4.12 (8)	0.93
Personal conversation with a CALS representative	20.1	4.05 (5)	1.11	33.2	4.29 (3)	0.98
Visit to campus	51.6	4.05 (5)	1.03	54.0	4.17 (6)	1.00
Participation in student activity events on campus	14.2	4.05 (5)	1.14	20.4	4.22 (5)	1.01
Visits by CALS representative to your school	2.9	4.04 (6)	1.35	15.8	4.45 (1)	0.87
Personal conversation with an UF admissions/outreach representative	23.1	4.03 (7)	1.04	35.9	4.11 (9)	1.00
Printed UF publications	57.4	3.92 (8)	0.97	60.3	4.00 (11)	0.96
Participation in an on-campus recruitment program	7.7	3.87 (9)	1.27	14.2	3.95 (12)	1.18
Letter and/or information mailed from a CALS representative	29.8	3.84 (10)	1.05	32.7	4.11 (9)	1.00
Letter and/or information mailed from a professor	12.3	3.70 (11)	1.25	13.6	4.07 (10)	1.08
Letter and/or information mailed from a UF admissions/outreach representative	21.3	3.64 (12)	1.11	24.7	3.86 (14)	1.04
Visits by UF representative to your school	10.1	3.60 (13)	1.31	16.2	3.87 (13)	1.23
Participation in athletic events on campus	8.6	3.49 (14)	1.35	11.0	3.37 (15)	1.33
TV, radio, newspaper, or magazine advertisements.	3.3	2.90 (15)	1.36	4.3	3.17 (16)	1.31

²Yes or No

³Scale: 5 = Very Useful ... 1 = Not Useful

Table 6. Influence of Degree Program Characteristics

Characteristic	High School Matriculants (n = 689)		Transfer Matriculants (n = 379)	
	M ² (rank)	SD	M ² (rank)	SD
Career opportunities available	4.26 (1)	1.07	4.22 (1)	1.10
Quality and reputation of courses	3.88 (2)	1.17	3.89 (2)	1.19
Quality and reputation of the faculty	3.70 (3)	1.28	3.73 (3)	1.32
Quality of facilities	3.67 (4)	1.24	3.65 (4)	1.30
Quality and reputation of the students	3.22 (5)	1.31	3.10 (5)	1.34
Size of classes	2.83 (6)	1.33	2.99 (6)	1.41
Number of students in major	2.79 (7)	1.45	2.95 (7)	1.50

²Scale: 5 = Very Influential ... 1 = Not Influential

Conclusions/Implications/Recommendations

This study assessed the college choice process of students in CALS at the University of Florida as framed by the external college choice influences identified in Chapman's (1981) model. Specifically, students' personal backgrounds, the influence of the college's efforts to communicate with students, the role of significant persons in the choice process, and the degree program and institutional characteristics were examined.

Table 7. Influence of Institutional Characteristics

Characteristic	High School Matriculants (n = 689)		Transfer Matriculants (n = 379)	
	M ^z (rank)	SD	M ^z (rank)	SD
Academic reputation of the university	4.43 (1)	0.83	4.27 (1)	0.97
Opportunities after graduation	4.15 (2)	1.04	4.11 (2)	1.09
Prestige of the university	4.10 (3)	1.02	3.98 (4)	1.12
Preparation for employment	4.05 (4)	1.08	4.05 (3)	1.09
Quality of facilities	4.04 (5)	1.00	3.92 (5)	1.15
Quality and reputation of the faculty	3.93 (6)	1.04	3.90 (6)	1.17
Variety of majors offered	3.87 (7)	1.16	3.80 (7)	1.28
Cost	3.83 (8)	1.34	3.52 (8)	1.36
Scholarships awarded	3.71 (9)	1.48	3.18 (13)	1.56
Competitiveness of admission standards	3.62 (10)	1.23	3.29 (12)	1.33
Quality and reputation of the students	3.47 (11)	1.19	3.30 (11)	1.24
Distance from home	3.44 (12)	1.44	3.48 (9)	1.58
Availability of other financial aid	3.25 (13)	1.57	3.05 (14)	1.57
City in which campus is located	3.16 (14)	1.43	3.41 (10)	1.51
Campus safety and security	2.89 (15)	1.29	2.71 (15)	1.35
Prominence of university athletic teams	2.60 (16)	1.44	2.48 (16)	1.44
Size of classes	2.46 (17)	1.20	2.71 (15)	1.34

^zScale: 5 = Very Influential ... 1 = Not Influential

Table 8. Influence of People in Selection of University

	High School Matriculants (n = 689)		Transfer Matriculants (n = 379)	
	M ^z (rank)	SD	M ^z (rank)	SD
Parent or guardian	3.44 (1)	1.46	3.16 (1)	1.53
Friend in college	2.61 (2)	1.50	2.69 (2)	1.56
Friend in high school	2.59 (3)	1.49	2.21 (6)	1.42
Relative who attended UF	2.40 (4)	1.66	2.45 (3)	1.69
High school guidance counselor	2.16 (5)	1.38	1.62 (12)	1.09
Other high school teacher	1.99 (6)	1.36	1.64 (10)	1.16
High school science teacher	1.90 (7)	1.32	1.70 (11)	1.30
CALS faculty and/or staff	1.87 (8)	1.41	2.34 (4)	1.59
Current CALS student	1.62 (9)	1.23	1.95 (8)	1.45
Community college instructor	1.60 (10)	1.20	2.27 (5)	1.53
High school agriculture teacher	1.56 (11)	1.15	1.70 (11)	1.30
Graduate of CALS	1.53 (12)	1.19	1.81 (9)	1.45
Community college counselor	1.52 (13)	1.10	2.11 (7)	1.44

^zScale: 5 = Very Influential ... 1 = Not Influential

High school matriculants in this study exhibited higher standardized test scores than transfer matriculants, which is consistent with previous research (Lang, 1999; Manski and Wise, 1983) that found high school students with high academic aptitude were more likely to attend four-year institutions than community colleges. This finding also reflects the extremely rigorous admission requirements placed on high school matriculants at the University of Florida.

Furthermore, high school matriculants at the university are more inclined towards three majors. These majors, traditionally viewed within the institution as professional preparation tracks, are: Microbiology and Cell Science, Food Science and Human Nutrition, and Animal Science. These majors represent the most commonly followed pathways for pre-dentistry, pre-medicine, and pre-veterinary students at the University of Florida. Coupled with standardized test score data, it can be concluded that high school matriculants in this particular study make up the largest portion of the pre-professional majors while other majors are predominately filled by transfer matriculants. In addition to their preference

towards pre-professional majors, more than 10% of high school matriculants did not report a major, as compared to only 1.3% of transfer matriculants. Further research is needed to determine why this discrepancy exists and to examine students' level of commitment to the major identified at the time of admission.

In response to these findings, recruitment information geared toward high school matriculants should emphasize the connection between majors and the professional career tracks available to them. On the contrary, recruitment messages and publications focusing on transfer matriculants should include a variety of majors given the greater diversity of majors that are selected by transfer matriculants. The high concentration of high school matriculants in pre-professional tracks also warrants future research examining the proportion of high school matriculants who complete pre-professional degree programs and are accepted into post-baccalaureate professional training programs.

Understandably, the bulk of the prior research conducted in college choice did not examine the importance of the World Wide Web in recruitment efforts as that research was largely completed in the mid

1980's. Clearly, students today see the Internet as a valuable information source. At least one-half of the students surveyed reported gathering college choice information from the Internet. Three out of five of the most used sources of information for high school matriculants and the three most used sources of information for transfer matriculants deal with web-based information. Granted, the online nature of this instrument may have contributed to the high frequency of use and degree of usefulness reported by respondents. Based on this information though, it is essential that accurate, quality information be provided to students through departmental, college, and university websites. These findings also have implications for further research investigating what types of information students access and the effectiveness and user-friendliness of current websites.

High school and transfer matriculants both rated personal contact with representatives of the CALS (professors, outreach representatives, and ambassadors) as highly useful; however, the findings suggest that such contact was made with less than one-third of the students. As a result, more effort should be

made to increase contact with greater numbers of students. Additionally, faculty and staff should be made aware of the impact they have on high school and transfer students through their contacts with these students. Outreach representatives should capitalize on students' interest in faculty and staff contact by inviting and encouraging faculty participation at student recruitment activities. Resources dedicated to reach students through television, radio, newspaper, and magazine advertisements should be minimized, as this item was the least used and considered the least useful by both groups. Furthermore, based on the finding that transfer matriculants more frequently used all but one source of information, it becomes apparent that transfer matriculants used a broader range of information sources than high school matriculants and efforts should be made to continue making university and college information available in a variety of formats.

The role of influential people in the college selection process has been extensively addressed in prior research. Family members are consistently identified as having a high degree of influence on students' college choice (Cole and Thompson, 1999; Scofield, 1995; Taylor and Johnson, 1993). Findings from this study were no different and imply that direct contact by colleges and departments with parents and guardians may prove beneficial to students in the information gathering stage of their choice process, as was suggested by Hillison et al. (1987). Further research in this area should be conducted to identify the types of departmental, college, and university characteristics that are most important to parents and guardians and the roles parents and guardians play in their student's college choice.

Chapman's (1981) model identified characteristics of the institution that are influential in students' college selections. In this study, both high school and transfer matriculants valued the professional opportunities that would be afforded them with a degree from the University of Florida. Examination of both degree program characteristics and broader institutional characteristics revealed that students were most influenced by the academic reputation of the university, career opportunities, prestige of the university, and preparation for employment. The resulting recommendation is that these characteristics be highlighted during recruitment activities and in promotional materials, as they tend to strongly influence students' decisions.

This study closely examined the recruitment practices impacting the college choice processes of students who chose to attend the CALS at the University of Florida. This project was undertaken in part to assist the college in making decisions regarding future recruitment activities and the efficient use of recruitment resources. Additional research is warranted that seeks to better understand the impact that recruitment practices had on students

who chose not to attend after participating in recruitment activities. A closer examination of the use and usefulness of information sources for students who found a better fit with another institution could make future recruitment decisions even more meaningful.

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