

High School Students' Perceptions of a College of Agricultural Sciences and Natural Resources¹

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Abstract

Declining enrollment in the College of Agricultural Sciences and Natural Resources fueled discussions about changing the name of the college as a means of reversing the trend. In spring 2005, a comprehensive study was launched to assess the perceptions of key college populations. This study relates to one of those four populations—resident, college-bound high school seniors. A survey developed by Kansas State University was a starting point for the development of a mailed survey to evaluate the college's image, the influence of the college's name, the level of awareness of program offerings and career opportunities, and to identify actionable changes. A sample (4,500) stratified by county classification yielded 479 responses (10.6%). High school seniors were generally unaware about the college and the opportunities it offered to students, and were unsure if they would recommend the college to prospective students. Rural students were more likely to consider attending a community college and then transferring than were micropolitan or metropolitan students. Changes in university and college marketing strategies were recommended, and it was concluded that insufficient evidence existed to warrant changing the name of the college at this time. Replication of the study in three to five years was recommended.

Introduction

By 2004, it had become increasingly clear that the trend of declining enrollments in the College of Agricultural Sciences and Natural Resources (CASNR) at the University of Nebraska Lincoln (UNL) needed to be reversed. After a number of faculty discussions on the matter occurred and a seminar on the changing demographics of the state was presented to CASNR faculty, a subcommittee of CASNR Faculty Advisory Council representatives was formed to follow-up on these issues, with special emphasis given to the impact of the college's name and image in recruitment of students. Soon thereafter, funds were made available to survey students and college stakeholders. Arrangements were made to

have staff from the Food Processing Center at UNL with market assessment expertise lead the development of survey instruments and conduct the surveys. The faculty subcommittee was charged with overseeing the survey process and presenting the results and recommendations to CASNR faculty.

In the resulting study, this team surveyed sample populations within four basic categories: college-bound Nebraska high school students, current UNL students, current UNL faculty, and CASNR stakeholders. This paper presents results from the survey of college-bound Nebraska high school students. While all the populations provided useful feedback, the survey of college-bound Nebraska high school students was of greatest interest since it provided the most direct information on impacts for recruiting students into CASNR.

Theoretical Framework

In the fiercely competitive market of higher education, the importance of institutional image and identity cannot be underestimated (Treadwell, 2003). As institutions of higher education attempt to attract students into their academic folds, having 'names that sell' can give some colleges and universities an edge over others (Finder, 2005). Nowhere in academia is the importance of institutional image as vital as it is in colleges of agriculture (Diament, 2005). As the number of agriculture students has systematically dwindled nationwide, colleges of agriculture have been engaged in a veritable fight for survival (Diament, 2005).

In a survey by Fields, Hoiberg, and Othman (2003) targeting Academic Associate Deans in Colleges of Agriculture, almost half (47%) stated their college name revealed the make-up of their undergraduate programs. While it is critical to understand the impression agriculture may have on internal audiences, it is more important to recognize how outside viewers interpret undergraduate programs that originate from colleges of agriculture. This interpretation, whether real or imagined, of a college name and the programs it offers becomes a paramount consideration for undergraduate recruit-

¹Note: Special thanks to Brad Zumwalt, Joan Scheel, Mark Hutchinson of the Univ. of Nebraska-Lincoln Food Processing Center who were instrumental in conducting this study: Univ. of Nebraska-Lincoln College of Agricultural Sciences and Natural Resources Journal Series No. 07-08.

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ment (Temple, 2006). When considering high school seniors who represent a major recruitment pool for undergraduate admissions, this image becomes a vital component for recruiting potential undergraduate students. This perceived image was a primary recommendation by Fields, Hoiberg, and Othman (2003) as colleges of agriculture invest in the expanding field of student recruitment. Traditional images, or brands (Temple, 2006) have been extremely successful for current colleges of agriculture. What has evolved has been the development of new majors leading graduates to new career fields and opportunities. Changes have occurred in our colleges, but how we market these newly developed areas of study may not have changed the traditional brand or image associated with agriculture. In many cases, negative feedback effects (Milberg, Park, and McCarthy, 1997) correctly identified and acknowledged by an organization can lead to creative and innovative approaches involved in alternative branding strategies which may impact undergraduate enrollment.

Creative solutions to the dilemma of shrinking student populations in agriculture have included expanded course offerings, curriculum redevelopment, and, in some cases, institutional name changes (Diament, 2005). Changing the name of an institution can be fraught with strife among stakeholders and is a venture that should not be taken lightly (Lowery, 2002). However, the tangible rewards of portraying an image that appeals to potential students may be worth the struggle (Treadwell, 2003; Finder, 2005). Understanding how potential students view an institution's image is an important step in assessing whether an institutional name change is necessary.

Purpose

The purpose of this study was to assess perceptions of resident college-bound high school seniors as background in understanding enrollment in CASNR and to guide college-level strategic planning. Specific objectives for the study were as follows.

1. Evaluate the image of the college and its influence on prospective students' choice of major.
2. Determine the level of influence the name CASNR has on prospective students.
3. Identify the level of awareness of program offerings and career opportunities in CASNR.
4. Identify actionable changes to CASNR's current recruiting approach and name to improve its effectiveness in drawing students to majors offered in the college.
5. Compare high school student responses about college image, awareness, and influence by county classification.

Methods

Surveys

As a starting point, the survey team gained permission to revise and expand on survey instruments used by the Kansas State University College of Agriculture (Boone, 2002). Revisions were incorporated to make the survey applicable to Nebraska and CASNR. For example, additional questions were included to gather information that the team determined was important, as well as to enhance the reliability of the survey results. The survey revision and expansion was driven by the objectives of the study.

As noted previously, this study of high school student responses is a subset of a larger study which included four populations and four surveys. Some items were common across all surveys; others were specific to the individual target populations. Item responses were a combination of Likert-type scales and dichotomous responses with opportunities for comments across the surveys. Drafts of the surveys were tested on panels of individuals from the populations of interest; however, these individuals were removed from the study. Permission to implement the study was received from the UNL Institutional Review Board. A mailed survey was used to collect the data during spring 2005. Parents of resident high school seniors were sent letters along with a packet (letter, survey, return envelope) for their children the high school seniors to use to complete the survey.

Sample

University Admissions provided a list of names that were pulled from Talisma, a UNL Registration and Record's recruitment database. High school seniors denied admittance to UNL were removed from the population. The population was stratified by metropolitan, micropolitan, and rural county classification, based upon the high school location. Metropolitan refers to an urban area with 50,000 or more inhabitants; micropolitan refers to an urban area with at least 10,000 inhabitants but less than 50,000 (Spotila, 2000). Rural refers to a non-urban area with a population of less than 1,000 people per mile (US Census, 2002). A random sample was drawn from each subset of the population (equal to 1/3 of each), and students in the samples were sent surveys through U.S. mail. Costs prohibited follow-up mailings, resulting in a study limitation. An overall return rate of 10.6% or 479 surveys was achieved;

Table 1. High School Student Population, Sample, and Return Rates by County Classification (n=479)

County Classification	Population	Sample	Surveys Returned	Return Rate
Metropolitan	7,359	2,454	233	9.5%
Micropolitan	2,978	993	107	10.8%
Rural	3,161	1,053	135	12.8%
4 Missing NA				
Total	13,498	4,500	479	10.6%

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return rates by county classification are reported in Table 1.

Analysis

Responses were coded and entered into Excel and SPSS-PC. Means, standard deviations, frequencies, reliabilities, and multiple analysis of variance (MANOVA) were used to analyze the data. Significance for the study was set at $p < .05$ unless otherwise noted.

Cronbach alpha reliabilities of scale items across the study ranged from 0.77-0.92. These relatively high Cronbach alpha reliabilities indicate that there was internal consistency across the data set, based on average inter-item correlation, and that survey questions designed to obtain connected information were indeed doing so.

Results

Demographics

The respondent pool was roughly a 40:60 split by gender, with 189 males and 286 females responding (four students did not identify their gender). Respondents were predominately Caucasian (93.2%). Because of the stratified random sampling by county classification, the majority (49.1% or 233) of the respondents resided in metropolitan counties with 22.5% (107) of respondents residing in micropolitan counties and 28.4% (135) residing in rural counties. The stratification of the respondent pool matched that of the state's population fairly well (54.5%, 22.1% and 23.4%, respectively, U.S. Census Bureau, 2002), with only a small shift toward rural respondents.

The respondents largely indicated they intended to attend college 96.9% (464) indicated they were "very likely to somewhat likely" to attend college, while only 2.8% (13 with 2 missing) were "not likely or "not at all likely" to attend college. Additionally, over half of the respondents (57.6% or 276) reported it was "very likely to somewhat likely" that they would attend UNL. A MANOVA comparison and Tukey Post Hoc Test of this response by respondent county classification indicated that rural respondents were significantly more likely to attend UNL than metropolitan students (Scale: 1 = Very Likely to 5 = Not at All Likely; rural:

$n=135$, $M=1.65$, $SD=0.48$; metropolitan: $n=233$, $M=1.45$, $SD=0.50$; $F=7.12$, $p<0.01$). No statistically significant differences existed between intentions of micropolitan respondents to attend UNL and those of their metropolitan or rural counterparts.

Of the 479 students responding, 40 (8.4%) planned to attend UNL's College of Agricultural Sciences and Natural Resources. Specifically, 15 of the 233 metropolitan respondents (6.4%) reported intentions of attending CASNR compared to 14 of 102 (13.7%) micropolitan respondents, and 11 of 135 (8.1%) rural respondents.

Approximately 17% (81) of respondents indicated that they would attend a community college/two-year institution before attending a four-year college or university. When compared by county classification, 11.6% (27 of 231) of metropolitan respondents intended to attend a community college/two-year institution before attending a four-year university, 20.5% (22 of 107) of micropolitan respondents would do similarly, as would 23.9% (32 of 134) of rural respondents. A Pearson Chi-Square revealed significant differences in this response by county classification ($\chi^2=9.22$, $df=2$, $p=0.01$).

Image

When asked, "In relation to other universities and colleges in Nebraska and surrounding states, where do you rank the University of Nebraska-Lincoln (UNL)," responses on a 1-to-5 scale (1 =

Table 2. MANOVA Results, Means and Standard Deviations for UNL Rankings Compared to Other Academic Institutions by Metropolitan, Micropolitan, and Rural High School Students (n=479)

Compared to other academic institutions, how does UNL rank in the following areas □		Classification			Overall n=479	F	Sign.
		Metropolitan n=233	Micropolitan n=107	Rural n=135			
Academically challenging	M	3.58 ^{ab}	3.99 ^a	4.00 ^b	3.79	11.61	< .01
	SD	0.89	0.69	0.73	0.83		
Nationally known	M	4.04 ^{ab}	4.41 ^a	4.41 ^b	4.22	11.60	< .01
	SD	0.85	0.75	0.84	0.84		
Student focused	M	3.69	3.88 ^c	3.52 ^c	3.69	3.46	.03
	SD	0.91	0.89	0.96	0.92		
Quality student advising	M	3.61	3.77	3.67	3.66	0.71	.49
	SD	0.94	0.91	0.94	0.93		
Career opportunities for graduates	M	3.83 ^{ab}	4.15 ^a	4.18 ^b	4.00	6.84	< .01
	SD	0.81	0.87	0.85	0.85		
Leadership opportunities for students	M	3.84 ^{ab}	4.15 ^a	4.14 ^b	3.99	5.66	< .01
	SD	0.86	0.82	0.82	0.85		
Quality teaching	M	3.70	3.93	3.65	3.74	2.04	.13
	SD	0.86	0.89	0.99	0.90		
Friendly atmosphere	M	4.13	4.21	3.93	4.10	2.74	.07
	SD	0.89	0.86	0.94	0.90		
Quality faculty	M	3.92	4.16 ^c	3.84 ^c	3.95	3.42	.03
	SD	0.80	0.76	0.96	0.84		
Hands-on learning opportunities	M	3.85	4.03	3.75	3.87	2.14	.12
	SD	0.86	0.82	0.88	0.86		
Scholarship/financial assistance	M	3.36	3.54	3.49	3.45	0.96	.38
	SD	1.12	1.04	1.11	1.10		
Affordability	M	3.64 ^b	3.51	3.23 ^b	3.49	6.32	< .01
	SD	1.01	0.96	1.10	1.04		

Note. Scale: 1 = Ranks far below to 5 = Ranks far above.

^aDenotes significant difference between Metropolitan and Micropolitan as a result of Tukey Post Hoc Tests.

^bDenotes significant difference between Metropolitan and Rural as a result of Tukey Post Hoc Tests.

^cDenotes significant difference between Micropolitan and Rural as a result of Tukey Post Hoc Tests.

Ranks far below, 5 = Ranks far above) were predominately (76.4% or 336) in the 4-5 range ($n=336$, $M=3.88$, $SD=0.83$), indicating that most respondents had a favorable view of UNL. A MANOVA comparison and a Tukey Post Hoc Test revealed that micropolitan respondents ranked UNL significantly higher than metropolitan respondents (micropolitan: $n=106$, $M=4.08$, $SD=0.84$; metropolitan: $n=229$, $M=3.76$, $SD=0.84$; $F=5.41$, $p=0.01$). Rankings of rural respondents did not differ significantly from those of either of these two groups.

When asked to compare UNL to other academic institutions based upon specific characteristics, respondent means were 3.5 or higher on the following: academically challenging ($M=3.79$, $SD=0.83$); nationally known ($M=4.22$, $SD=0.84$); student focused ($M=3.69$, $SD=0.92$); quality student advising ($M=3.66$, $SD=0.93$); career opportunities for graduates ($M=4.00$; $SD=0.85$); leadership opportunities for students ($M=3.99$, $SD=0.85$); quality teaching ($M=3.74$, $SD=0.90$); friendly atmosphere ($M=4.10$, $SD=0.90$); quality faculty ($M=3.95$, $SD=0.84$); and hands-on learning opportunities ($M=3.87$, $SD=0.86$) (see Table 2). However, respondents means fell below 3.5 on two characteristics: scholarship/financial assistance ($M=3.45$, $SD=1.10$); and affordability ($M=3.49$, $SD=1.04$).

Metropolitan ($n=233$) and micropolitan ($n=107$) responses differed significantly on the following characteristics: academically challenging (metropolitan: $M=3.58$, $SD=0.89$; micropolitan: $M=3.99$, $SD=0.69$; $F=11.61$, $p=0.01$); nationally known (metropolitan: $M=4.04$, $SD=0.85$; micropolitan: $M=4.41$, $SD=0.75$; $F=11.60$, $p=0.01$); career opportunities for graduates (metropolitan: $M=3.83$, $SD=0.81$; micropolitan: $M=4.15$, $SD=0.87$; $F=6.84$, $p=0.01$); and leadership opportunities for students (metropolitan: $M=3.84$, $SD=0.86$; micropolitan: $M=4.15$, $SD=0.82$; $F=5.66$, $p=0.01$).

Metropolitan and rural ($n=135$) responses differed significantly on the following characteristics: academically challenging (metropolitan: $M=3.58$, $SD=0.89$; rural: $M=4.00$, $SD=0.73$; $F=11.61$, $p=0.01$); nationally known (metropolitan: $M=4.04$, $SD=0.85$; rural: $M=4.41$, $SD=0.84$; $F=11.60$, $p=0.01$); career opportunities for graduates (metropolitan: $M=3.83$, $SD=0.81$; rural: $M=4.18$, $SD=0.85$; $F=6.84$, $p=0.01$); leadership opportunities for students (metropolitan: $M=3.84$, $SD=0.86$; rural: $M=4.14$, $SD=0.82$; $F=5.66$, $p=0.01$); and affordability (metropolitan: $M=3.64$, $SD=1.01$; rural: $M=3.23$, $SD=1.04$; $F=6.32$, $p=0.01$).

Micropolitan and rural responses differed significantly on the following characteristics: student focused (micropolitan: $M=3.88$, $SD=0.89$; rural: $M=3.52$, $SD=0.96$; $F=3.46$, $p=0.03$); and quality faculty (micropolitan: $M=4.16$, $SD=0.76$; rural: $M=3.84$, $SD=0.96$; $F=3.42$, $p=0.03$);

Influence

When asked if they were currently considering UNL's College of Agricultural Sciences and Natural Resources as a college of choice, 8.4% (40 of 479) responded "yes." Respondents not considering CASNR as their college choice ($n=419$) were then asked to rate (1=No influence to 5=Great deal of influence) the level of influence a set of factors had on their decisions. The factor that had the greatest amount of influence (highest mean with 55% (184) responding "5") was doesn't have a major for me ($M=3.71$, $SD=1.64$). The remaining factors included: see minimal career opportunities ($M=2.87$, $SD=1.58$); scholarship/financial assistance ($M=2.72$, $SD=1.69$); don't feel like I fit in ($M=2.40$, $SD=1.66$); advised by family to go elsewhere ($M=2.16$, $SD=1.55$); advised by friends to go elsewhere ($M=1.93$, $SD=1.40$); "agriculture" on degree/diploma ($M=1.78$, $SD=1.30$); "natural resources" on degree/diploma ($M=1.75$, $SD=1.25$); CASNR impersonal/unfriendly ($M=1.61$, $SD=1.18$); and didn't enjoy visit at CASNR ($M=1.60$, $SD=1.15$).

Respondents considering CASNR as their college choice ($n=40$) were similarly asked to rate (1=No influence to 5=Great deal of influence) factors that influenced their decisions. The factor that had the greatest amount of influence was CASNR has a major for me ($M=4.70$, $SD=0.61$). The remaining factors included: see many career opportunities ($M=4.87$, $SD=0.69$); CASNR personable and friendly ($M=3.97$, $SD=1.07$); feel like I fit in ($M=3.77$, $SD=1.09$); scholarship/financial assistance ($M=3.76$, $SD=1.24$); enjoyed visit at CASNR ($M=3.69$, $SD=1.09$); encouraged by family ($M=3.28$, $SD=1.38$); "natural resources" on degree/diploma ($M=3.05$, $SD=1.37$); "agriculture" on degree/diploma ($M=2.92$, $SD=1.34$); and encouraged by friend(s) ($M=2.63$, $SD=1.33$).

Awareness

When asked about their knowledge of CASNR, responses (1=No knowledge, 5=Extensive knowledge) were predominantly (72.6% or 348) in the 1-2 range ($n=479$, $M=1.94$, $SD=1.00$), indicating that most respondents had little to no knowledge about CASNR. A MANOVA comparison and a Tukey Post Hoc Test revealed that micropolitan and rural respondents possessed significantly higher levels of knowledge about CASNR than metropolitan respondents (micropolitan: $n=106$, $M=2.17$, $SD=1.00$; rural: $n=133$, $M=2.08$, $SD=1.07$; metropolitan: $n=227$, $M=1.74$, $SD=0.92$).

When asked about their experiences with CASNR, the majority of respondents (64.7% or 310) indicated that they had no experience with CASNR ($n=479$). However, 64 (13%) reported they had learned about CASNR on a UNL campus visit, 68 (14%) reported hearing about CASNR from UNL representatives, 55 (11%) reported hearing about CASNR

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from high school counselors, 37 (8%) reported having family that attended CASNR.

Actionable Changes

One of several actionable changes that were the impetus for this study was renaming CASNR, however, because of CASNR's breadth of programs and disciplines there were mixed feelings about proposed names. One name (Life Sciences and Resource Management) was used to gauge respondent reaction and is not the name of a UNL college. Building upon prior exposure high school respondents had with the Career Pathways framework promoted by the U.S. Department of Education (2005), a series of items were developed. In this study, Agriculture, Food, and Natural Resources was specifically chosen from the Career Pathways in order to assess respondents' attitudes towards that particular career field. The remaining seven pathways were randomly chosen to appear in the survey. Respondents were asked to identify a maximum of two colleges where they would expect to find degree programs for selected career pathways (see Table 3). According to U.S. Department of Education definitions for career fields (Nebraska Department of Education, 2005), selected pathways contained one or more degree programs offered in CASNR.

Additionally, when asked "Would you recommend the UNL's College of Agricultural Sciences and Natural Resources to other prospective students?" the majority of students (302 or 63.8%) responded

"don't know," 135 (28.2%) responded "yes," and 36 (7.6%) said "no."

Finally, when asked "Does the name College of Agricultural Sciences and Natural Resources adequately describe the opportunities it offers to students?" the majority of the students (276 or 58.2%) again responded "don't know," with 142 (30%) of the students responding "yes," and 56 (11.8%) responding "no."

Discussion

While UNL as a whole was viewed favorably by the respondents regardless of their county classification, there are areas that the University could develop to improve its image. Metropolitan students appear to consistently rate UNL significantly lower on several important items (e.g. academically challenging) than do micropolitan and rural students. These differences in perception between locales are important to consider for recruiting purposes and bear further investigation.

According to this assessment, significant changes are needed to reverse the trend of sagging student enrollment. Only 40 respondents out of 479 were considering CASNR as their college of choice. The factor which seemed to influence the respondents' decision to not consider CASNR as their college of choice was the belief that CASNR does not have a major for them. The second reason for not choosing CASNR as their college of choice was the perceived lack of career opportunities after obtaining a degree

from CASNR. These results indicate that there is a lack of understanding concerning the degrees that are available in CASNR. Additionally, while micropolitan and rural students possessed more knowledge about CASNR than did metropolitan students, overall, most of the respondents had little to no knowledge about CASNR. This knowledge should assist CASNR in identifying changes that need to be made in recruitment techniques to increase awareness of CASNR and the breadth of programs that are available in the college.

When assessing the importance of name in the identification of possible degree programs, it appears as though the name of the college influences the perception of the kinds of

Table 3. Frequencies for Associating Career Pathways with Colleges as Identified by High School Respondents (n=479)

Career Pathways	YES, I think a degree program for this pathway is offered at UNL in the College of . . . [Check (✓) up to 2 boxes for each career pathway]					NO, I don't think a degree program is offered for this pathway at UNL	Don't Know
	Agricultural Sciences & Natural Resources	Arts & Sciences	Business Admin.	Education & Human Sciences	Life Sciences & Resource Management		
Business, Management & Administration	45	22	372	31	51	3	65
Manufacturing	123	41	72	14	83	35	154
Science, Technology, Engineering & Mathematics	126	216	28	62	116	0	82
Agriculture, Food & Natural Resources	354	21	17	29	97	1	64
Human Services	15	39	43	322	85	1	76
Government & Public Administration	18	65	211	99	46	8	122
Transportation, Distribution, & Logistics	33	45	77	39	91	28	189
Hospitality & Tourism	13	65	68	113	78	31	166

Note. Totals reflect a maximum of two colleges per career pathway.

degrees which would be offered within that college. Respondents in this study seemed to associate degree programs with the names of the respective colleges. When asked specifically about CASNR and whether they would recommend it to their friends, respondents seemed to be unsure. Again, when asked if CASNR's name adequately described their course offerings, respondents did not seem to possess sufficient knowledge of CASNR to answer the question. This would indicate that the majority of respondents knew little about CASNR and were unable to identify the kinds of degrees offered in the college. These results should help CASNR identify the kinds of information that it needs to get into the hands of potential students. Considering the significant lack of understanding about degrees offered in CASNR, the absence of knowledge about CASNR, and the close association respondents had with degree programs and the names of respective colleges, we did not find compelling evidence to recommend a name change.

While the results of this study do not support the necessity of changing the name of CASNR at this time, they do bring to light the importance of educating potential students about the diverse degree offerings available in CASNR. Kunkel and Lariviere (1992) implored colleges of agriculture to shoulder the responsibility of extending knowledge about "...agriculture, food, and natural resources to precollege students at all levels and to their teachers" (p. 149). In discussing the need for awareness of opportunities in agriculture Mike Johanns, U.S. Secretary of Agriculture, recently remarked that "...the first step is to ensure that our young people are aware of agriculture and then make sure they know it represents enormous opportunities... (USDA, 2006)." The findings of this study support these exhortations to increase awareness of the myriad opportunities that are available in colleges of agriculture.

Additionally, this study highlights the fact that differences in perceptions of CASNR exist among the three county classifications explored in this study. These variations according to metropolitan, micropolitan and rural classifications are dramatic and bear monitoring. It is recommended that this study serve as a benchmark for CASNR and that the study be replicated in three to five years.

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