

# Using Marketing Research To Develop Student Recruiting Strategies

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## Abstract

*Because of declining enrollments, the Associate Dean of the College of Agriculture and Life Sciences requested assistance in developing recruiting strategies. Students in a marketing communication course conducted research to determine what image students have of the College of Agriculture and Life Sciences and what variables influence students' choice of a college program. The data gathered generated some useful information such as who the target market should be, what type of communication materials have been most effective, and what type of information is likely to be persuasive when the students are making their decisions. Some of the information is applicable only to the program at Virginia Tech; some of the information would be relevant for other colleges of agriculture.*

For the past seven years, enrollment in this nation's colleges of agriculture has been declining at an alarming rate. In an attempt to reverse this trend, some college administrators are exploring the potential of the field of marketing to develop more effective strategies for recruiting students. Kotler (1976) suggests that using a marketing orientation to develop a recruiting program incorporates two important elements: a consumer orientation and integrated marketing. Before choosing which promotional material to use when developing an integrated strategy, Kotler (1976) recommends that administrators understand the students' decision process in choosing to enroll in a College of Agriculture and Life Sciences. Knowing which factors influence this choice prepares administrators for creating a promotional campaign directed specifically at potential students.

The purpose of this paper is to present a case analysis of how a particular College of Agriculture and Life Sciences conducted a study to understand students' choosing processes and a discussion of the implications of this approach for other colleges of agriculture.

## Background

At Virginia Polytechnic Institute and State University (Virginia Tech), the land grant university in Virginia, the College of Agriculture and Life Sciences had been experiencing a decline in enrollment. David R. Ford, the Associate Dean of the College when this

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study began in 1983, enlisted the aid of the Department of Marketing at Virginia Tech to assess why enrollment was declining and to understand how students choose to enroll in agriculture as a prelude to developing recruiting strategies for the College. Assessing the cause of enrollment decline is critical for determining whether development of promotional strategies will be appropriate. One important consideration is that the number of people in the 17-18 age range is smaller now than in the past (Doerman 1976). Therefore, the number of traditional students (recent high school graduates) at universities across the country will necessarily be fewer.

Another important consideration was determining whether the perceptions of agriculture as a career area could be affecting the decline in the College of Agriculture and Life Sciences. Students in a Marketing Communication class gathered information on students' image of agriculture by asking 271 non-agriculture majors at Virginia Tech, "What is the first thing that comes to your mind when I say, 'The Virginia Tech College of Agriculture and Life Sciences?'" Over 40% of the respondents simply replied, "Cows," over 70% gave a pure production related answer (e.g., farming, cows, or sheep). Only 2.6% of the respondents replied with an answer related to science or technology. One logical conclusion from these results is that today's students currently perceive the area of agriculture as a part of the non-technical past.

While there will always be a need for people in agricultural production, there is also an underlying need for people who can apply all of today's sophisticated technology to current issues and needs in agriculture. Although, the ratio of urban to rural backgrounds for agriculture students was 40/60 at Virginia Tech in 1983, it as well as other colleges of agriculture do not want to lose the rural segment of their student body; however, the rural population is declining which will also have a negative impact on enrollments. Therefore, an additional target market should be urban students who are interested in the sciences (e.g., Food Science, Nutrition, Genetics, Reproduction, or Physiology). To attract the urban student, the current perception of colleges of agriculture as primarily production oriented must be changed. This is a problem which can be successfully addressed from a marketing perspective.

Since the tactical level marketing decisions involve determining how to most effectively present the message to the target market, students in a Marketing Communication class conducted a research study to determine what criteria were most important in the

students' decisions to attend the College of Agriculture and Life Sciences at Virginia Tech. This information is important when high school students are presented with information on the criteria they consider to be most important in making their decision since the possibility of successfully influencing their decision is greatly increased.

### The Survey

Students in the Marketing Communication class surveyed 541 undergraduate students in the College of Agriculture and Life Sciences. The sample was chosen by identifying a required class being taught that quarter in each of the ten departments in the College offering a bachelor's degree and requesting permission from the professor to administer the questionnaire at the end of a class period. Each department in the college was represented in the proportions presented in Table 1. Responses from four questions investigating how students chose Virginia Tech and how they chose a major in the College will be discussed here. Other questions in the survey either showed no significant relationships or were specifically related to the program at Virginia Tech.

#### Question 1

"When did you decide to enroll in the College of Agriculture and Life Sciences?" The purpose of this item was to gather information about the timing of students' decisions to enroll in the college. Since over half of the students currently enrolled in Agriculture and Life Science made their decision in high school (see Table 2), information must be directed toward this group of people. However, since 45.4% of the current students made their decision at some point other than during high school, promotional materials should not only be directed toward this target market. Almost 30% of the students in Agriculture and Life Sciences made their decision after they were already at Virginia Tech. Therefore, promotional materials should also be directed toward students already on campus.

**Table 1. Survey Response**

Department	N	Sample size of % of enrolled in each dept.
Agricultural Economics	133	28.5%
Agronomy	71	42.2%
Animal Science	442	37.3%
Biochemistry & Nutrition	78	41.0%
Dairy Science	103	71.8%
Food Science & Technology	26	53.8%
Forestry & Wildlife Resources	433	20.5%
Horticulture	127	45.6%
Integrated Pest Management	9	55.5%
Poultry Science	26	11.5%
Percentage of Total College Enrolled		35.8%

**Table 2. Enrollment Decision**

Year in School	Percentage
During Junior High School	10.3%
During High School	54.6%
While in College	29.9%
Other	4.7%
<b>Total</b>	<b>99.8%*</b>

\* 0.2% missing values.

The next three questions evaluating the importance of variables to various decisions were scored on a five point Likert scale, a method commonly used to access preferences. The responses were tallied with "not important" coded as 1, "slightly important" coded as 2, ..., "extremely important" coded as 5.

#### Question 2

"How important were each of the following characteristics when you were choosing your major?" The objective of this was to determine which characteristics were important to students when making their decision to become agriculture majors. The responses indicate that each characteristic is at least slightly important with "Job Opportunities" and "Area Seemed Interesting" being especially significant (see Table 3).

**Table 3. Decision Criteria for Choosing Major.**

Variable	Mean
Job opportunities	3.144
Potential Salary	2.661
Flexibility of work schedule	2.483
Difficulty of curriculum	2.052
Area seemed interesting	4.384
Family background	2.550
Other	—
	(no one significant response)

These two criteria were most important when students were choosing a major; consequently, these two criteria should be included in the communications materials for each major.

The next two questions on the survey more specifically addressed evaluative criteria used by the students.

#### Question 3

"How influential were each of these factors in your decision to seek a specific major within the area of Agriculture and Life Sciences?" The purpose here was to determine which factors students considered influential when choosing a specific major within the college. The assumption is that the students had already decided to major in some field of agriculture. "Parents," "Aptitude Tests," and "Job Opportunities" were important factors affecting the choice of a major (see Table 4). In addition, data revealed that printed matter about the university as well as printed material about the programs in the College of Agriculture and Life Sciences were influential sources of information.

**Table 4. Decision Criteria for Choosing a College**

Variable	Mean
Career Interest/Aptitude Tests	2.486
Parents	2.213
Relatives	1.766
Friends	1.784
Representatives from Tech	1.524
Tour of Campus	1.537
Representative from College of Agriculture and Life Sciences	1.669
Alumni	1.591
High School Science Teacher	1.513
High School V-Ag Teacher	1.471
Other High School Teachers	1.502
High School Counselor	1.554
Community College Counselor	1.181
Extension agents	1.611
Job opportunities	2.835
Pamphlets from Virginia Tech	2.112
Pamphlets from The College of Agriculture and Life Sciences	2.202
College Catalog	2.251
Other (no one significant response)	—

This is significant because colleges can control this latter source of information. Challenging, thought provoking, and well-designed materials should emphasize a more current image of the College of Agriculture and Life Sciences (i.e., applying science and technology to production problems), the interesting nature of an individual major, and career opportunities. The result should be a positive and significant influence on potential students.

**Table 5. Factor Influencing Choice of a Major**

Factor	Factor Loading
<b>Factor 1 - 54% of Variance accounted for</b>	
1. Pamphlets from the College of Agriculture and Life Sciences	.87867
2. Pamphlets from Virginia Tech	.87202
3. College Catalog	.69363
4. Representative from College of Agriculture and Life Sciences	.36246
5. Campus Tour	.31615
<b>Factor 2 - 20.8% of Variance accounted for</b>	
1. Other High School Teachers	.90417
2. High School Science Teachers	.62002
3. High School Counselors	.61335
4. Vocational Teachers	.51295
<b>Factor 3 - 18.4% of Variance accounted for</b>	
1. Relatives	.82012
2. Parents	.65314
3. Friends	.52870
4. Alumni	.45807
5. Extension Agents	.32116
<b>Factor 4 - 6.8% of Variance accounted for</b>	
1. Representative from Tech	.72873
2. Representative from College of Agriculture and Life Sciences	.57120
3. Campus tour	.55100
4. Job Opportunities	.29320

To determine whether these characteristics form a pattern, the mean importance ratings from this question were factor analyzed. "Factor analysis is used to discover patterns among the variation in values of several variables. This is done essentially through the generation of artificial dimensions (factors) that

correlate highly with several of the real variables and that are independent of one another" (Babbie, 1973, p. 327).

The variables shown in Table 5 are only those with relatively high factor loadings within their computer generated factor. Factor 1 can be called print material. Each of these print material sources had a relatively high mean importance rating which indicates that this should be an important element for an effective communications strategy. The analyses of the other three factors are interesting but not entirely useful because the variables within do not have the desired characteristic of a high mean importance rating.

In addition, the variable with the highest mean importance rating in this question, Job Opportunities, had a low factor loading. The reason is that, although "Job Opportunities" is definitely an important factor in the student's decision to seek a particular major, it is not a source of information about the College of Agriculture and Life Sciences as are the other variables.

**Question 4**

"How important were the following characteristics to your choice of the program at Virginia Tech as opposed to other universities?" This question assesses the evaluative criteria which the students felt were important in their choice of a specific university. The purpose of this question was to determine if Virginia Tech has any perceived strengths over other universities that were influential in the student's decision to attend Tech. Criteria such as "Low Tuition," "Good Location," "Outstanding Reputation," "Wide Range of Degrees Offered," and "Future Job Placement" were important to the students (see Table 6). As a result, promotional materials should emphasize the perceived strengths of Virginia Tech's College of Agriculture and Life Sciences.

Again, a factor analysis of this data puts the information into a more useful form. The variables in Factor 1 encompass academic as well as non-academic specifics about the agriculture program at this university (see Table 7). One group of variables ("Degree Offered," "Future Job Placement," "Facilities," "Faculty," and "Extra Curricular Activities") were influential because of their high importance ratings, so devoting a section of the recruiting material to this information should be influential.

Factor 2 is very important because not only do all of the variables have the desired characteristic of a high importance rating but they all relate to academic specifics about the program at Virginia Tech. Virginia Tech needs to emphasize the quality of the academic program in their recruiting material.

While the variables in Factors 3 and 4 do not have the desired characteristic of high importance ratings, the two correlated variables in Factor 5 do have this characteristic. Tuition and location of Virginia Tech both differ from the rest of the variables in the question

in that they are both constraints upon the students. Since these constraints are important criteria, information about them should be provided.

#### Subsets of the Sample

Another important issue is whether differences exist among subsets of respondents. To address this question, sets of cross tabulations were calculated as follows: (1) Each student's major, enrollment age, and whether or not they have an agricultural background — by the variables in Table 3, 4, 6, and "Whether they were introduced to agriculture in high school;" (2) Each student's major, and enrollment age — by whether or not they have an agricultural background. The cross tabulations discussed here are those that show statistically significant differences among student groups.

The first significant difference among students in different majors was how influential the variable of "Job Opportunities" from the question in Table 3 was when choosing a major. This cross tabulation had a chi square of 49.4 with 12 degrees of freedom and  $p < .0001$ . The students whose responses were greatly different were the Forestry and Wildlife Resources majors. While 72% of the non-Forestry students felt that "Job Opportunities" were important, very important, or extremely important, only 47.2% of the Forestry and Wildlife Majors felt that way. The differences among majors for the cross tabulation of major by "Salary Potential" show a similar trend. These results are noteworthy because the students' importance ratings are very much in line with the opportunities that they will face upon graduation. The student going into Forestry is there because he or she really likes it. Stressing the limited opportunities available to forestry majors in the promotional materials is essential, but this information will matter less to the students who enroll in this field because they are motivated by their interest in the subject matter.

The other important difference among majors relates to whether or not the respondent has an agriculture background. This cross tabulation had a chi square of 71.7 with 24 degrees of freedom and  $p < .0001$ . Overall, half of the sample has an agriculture background. The major exceptions to this rule are Dairy Science and Biochemistry and Nutrition. While 88% of the Dairy Science majors have an agriculture background, only 29% of the Biochemistry and Nutrition majors have an agriculture background. Taking the extreme differences in the nature of the backgrounds of each of these two kinds of students into account when developing promotional materials and targeting the recruitment efforts accordingly should provide for more effective results.

The last distinction among majors involves the importance ratings analyzed in the factor analyses. Dairy Science majors rated their parents, extension agents, and the inter-collegiate judging contests as more important criteria or sources of information for deciding upon their collegiate major and which

**Table 6. Decision Criteria for Choosing Virginia Tech**

Variable	Mean
Tuition	3.145
Location	3.064
Reputation of Virginia Tech	3.560
Reputation of College of Agriculture and Life Sciences	3.451
Family	2.591
Friends	2.032
School Counselors	1.602
High School Teachers	1.622
Facilities at Virginia Tech	2.924
Specific Degree Offered	3.280
Faculty at Virginia Tech	2.718
Scholarships	1.925
Inter-Collegiate Judging Contest	1.578
Job Related Experience	2.584
Undergraduate Research Opportunities	1.932
Co-op program	1.873
Collegiate Extra-curricular Activities	2.369
Future Job Placement	3.129
Other (no one significant response)	—

university to attend than did the other majors in the College. These differences also point to the impact of an agricultural background on Dairy Science majors.

The research conducted for the College of Agriculture and Life Sciences at Virginia Tech did identify criteria students use to make decisions about enrolling in a program at a particular university and choosing a major. The following section discusses the implications of this information for Virginia Tech and other universities.

**Table 7. Factors Influencing Choice of a University**

Factor 1 - 56.7% of the Variance accounted for	Factor Loading
1. Undergraduate Research Opportunities	.67384
2. Co-op Program	.58033
3. Job Related Experience	.56371
4. Job Placement	.49975
5. Extra Curricular Activities	.54313
6. Collegiate Judging Contests	.45463
7. Facilities	.38683
8. Faculty	.34511
9. Scholarship	.34263
10. Degree Offered	.32574
Factor 2 - 16.5% of the Variance accounted for	
1. Reputation of College of Agriculture and Life Sciences	.76501
2. Reputation of Virginia Tech	.70622
3. Faculty	.61926
4. Facilities	.52961
5. Degree Offered	.41280
6. Job Placement	.35848
Factor 3 - 12.7% of the Variance accounted for	
1. High School Teachers	.75749
2. High School Counselors	.71541
3. Friends	.38203
4. Family	.29682
Factor 4 - 8.1% of the Variance accounted for	
1. Family	.54494
2. Friends	.53525
3. Collegiate Judging Contests	.38361
4. Scholarships	.29475
Factor 5 - 6.1% of the Variance accounted for	
1. Location	.64206
2. Tuition	.53186

## Implications and Conclusions

If the potential students are presented with information on the evaluative criteria they consider to be most important when choosing a university or major, the probabilities for successful recruiting are increased. The results of the research described above indicate when students should receive promotional materials: (1) while high school juniors and seniors and (2) while college freshmen and sophomores. The research results also provide guidelines for the kind of information which should be included in the promotional materials. First, the basic message should describe the college's purpose as the application of science and technology to the study of agricultural issues. Second, the materials should appeal to the students' most important evaluative criteria for choosing a major: how interesting the major is, the associated job opportunities, and the salary potential. Some of the most important evaluative criteria for choosing among institutions appear to be the quality of the institution, the constraints of tuition and location, and specifics about the particular major in which the student is interested. Lastly, the only source of information students rate as being influential is printed material. Using this information in designing promotional materials should increase the effectiveness of Virginia Tech's College of Agriculture and Life Sciences' promotional plan.

Regarding the generalizability of the research results, the criteria for choosing a particular university may differ from one university to another and should be researched further. Some important influence

factors such as "Parents," "Aptitude Tests," "Job Opportunities," and "Printed Material," are very general and may well be important for students at other institutions. The variables identified as being relevant for students choosing particular majors such as Forestry and Wildlife Resources, Dairy Science, or Biochemistry and Nutrition are likely to apply to other students interested in those same majors at other institutions. Again, additional research is necessary to assess the generalizability of the results.

While the information presented here provides general guidelines for developing subject matter for recruiting materials, individual programs should conduct research among their own students. The important implication of this research is to provide an example of how this kind of research can be conducted and how the results can be used to address the problems of declining enrollment. By fully investigating the students' decision process of choosing a particular institution and major, administrators can then effectively develop promotional materials, thereby fulfilling Kotler's (1976) requirements for utilizing a marketing orientation to develop recruiting strategies.

## References

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# Student Retention Increased by Ag Partners

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Attrition experts suggest that incoming students who closely identify themselves with other college students or groups will be less likely to drop out of college. Astin (1977) states that "Efforts to increase student involvement will not only enhance the student's ability to persist but will also intensify the impact of the undergraduate experience on the student's personality, behavior, career progress, and satisfaction." During the 1982 fall semester a program referred to as Ag Partners was initiated in the UN-L College of Agriculture. Ag Partners is a systematic college program that was designed to enhance the student's opportunity to personally identify with other students, student groups, and ultimately lower the attrition rate. Incoming freshmen are paired with a supportive upper class student who helps orient them to college, acquaints them with their advisor, introduces them to

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organizations and groups, and advises them on proper study habits.

During its first year of operation the program was evaluated using a control group of university freshmen enrolled in the College of Agriculture who were not matched with a partner. The results clearly indicated that the program made a positive difference in the participants and this difference became even more remarkable when comparisons with the control group were made.

## Background

This study consists of a follow-up of two groups of freshmen participants in the Ag Partners program: those freshmen students who entered the University during the fall of 1982-83 and during the fall of 1983-84, respectively. It should be noted that the first group of freshmen (1982-83) was selected from students who were enrolled in an Agriculture Communication course. The second group of freshmen (1983-84) consisted of students who volunteered to participate in the program in response to a letter sent out to all incoming freshmen who planned to enroll in the College of Agriculture during the first semester 1983-84.