
Educational Plans of Minority Student Participants in A University Food and Agricultural Sciences Recruitment Program

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Abstract

The study was conducted to determine educational plans of minority student participants in a university food and agricultural science recruitment program during a two-year period. Data were collected by means of a questionnaire. The subjects were comprised of 36 minority high school juniors and seniors identified as academically talented who were selected to participate in an eight-week experimental program in the food and agricultural sciences at the University. Results suggest that a majority of student participants chose the discipline areas of agriculture, home economics and health as their first choice of a college major and career. A majority were very sure about their choices. Personal and situational factors were important in students' choices. A majority felt moderately strong about career situations in agriculture.

Introduction

Perhaps the single most deterrent to student enrollment in food and agricultural disciplines in U.S. colleges of agriculture has been the negative public image of agriculture. Coulter (1985) suggests that "... we must do a better job of helping today's students become aware of career opportunities in the food and agricultural sciences profession" and that:

We must recognize that the unidimensional public image of agriculture production, combined with increasing competition from other disciplines is contributing to the reluctance of students to pursue university degrees in the broad array of academic disciplines comprising the food and agricultural sciences (pp. 19-20).

More often than not, students choose non-agriculture colleges or universities to attend, primarily because of their limited knowledge of and appreciation for agricultural science disciplines and related careers from high school coupled with insufficient guidance services (National Research Council, 1988). Those students who choose an agriculture college or

university tend to choose college majors in disciplines other than those related to the food and agricultural sciences unless otherwise exposed to programs organized and sponsored by U.S. colleges of agriculture.

Therefore, the problem this research attempted to address was: What are the educational plans of minority students who participated in a structured university food and agricultural sciences recruitment program?

Background for Study

Since 1987, the College of Agriculture and Home Economics at Southern University and A&M College has conducted the Beginning Agricultural Youth Opportunity Unlimited (BAYOU) Phase I program to attract academically talented students into its food and agricultural science curricular areas. Experimental learning about the food and agricultural system and related careers is the focus of the program.

The informal and formal approaches utilized to implement the eight-week summer program influence many students to pursue college majors in food and agricultural science disciplines. Moreover, they identify their choice of a related career and present positive perceptual impressions of the Food and Agricultural Industry. Each BAYOU Phase I student participant engages in a research project under the direction of a mentor as a culminating experience in the program (Rawls, 1994).

Objectives of Study

1. To identify the choice of college majors and careers among BAYOU Phase I participants.
2. To identify factors important in the choice of college majors and careers among BAYOU Phase I participants.
3. To identify how certain were BAYOU Phase I participants in their choice of college majors and careers.
4. To identify the perception of BAYOU Phase I participants toward careers in agriculture.

Limitations and Basic Assumptions

The research reported herein was limited to in-tact groups of students who were selected to participate in a program designed to recruit academically talented students during a two-year period. Because only high school students from selected areas in Louisiana participated in the study, generalizations were confined to that group.

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The researchers assumed that the students understood the questions and responded frankly. They also assumed that the students realized how important their contributions were in this study and were willing to share their actual personal feelings.

Design and Methodology

Design and Subjects

The design for this study was descriptive (Gay, 1987). Minority students of junior and senior classifications comprised the subjects for this research. A number of BAYOU Phase I program applications were mailed to high school officials in Louisiana. The officials were asked to disseminate the applications to interested students who met and exceeded criteria as were described in the application. These procedures yielded a large pool of applicants from which to select.

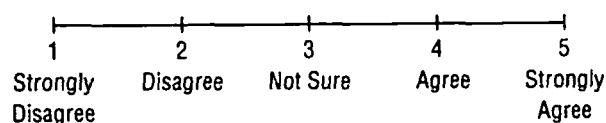
A college-wide committee screened and selected participants for the eight-week food and agricultural sciences experiential program which was fully supported by the college with stipends and scholarships provided. The selection procedures were guided by criteria such as (1) grade point average of 3.0 and above, (2) expressed interest in a food and agricultural sciences discipline in college, (3) leadership and involvement in the community, (4) positive references, and (5) American College Test (ACT) or Scholastic Aptitude Test (SAT) scores. Selection results yielded a sample capacity size of thirty-six (36) student participants—eighteen each for the summers of 1992 and 1993.

Instrumentation

The instrument used for this research was a modified version of a questionnaire used in a study entitled *High School Student Perception of College Majors and Careers* (Farm Foundation, 1989). Two sections were modified and used. In the first section of the modified version, subjects were asked to respond to questions as follows:

- 1) What do you plan to do during your first year after high school?
- 2) What is your first choice for a college major and for a career?
- 3) What factors are important in your choices of a college major and career?
- 4) How sure are you of your choice for a college major and career?

The second modified version consisted of twenty-six (26) statements. These statements were designed to describe career situations in the food and agricultural sciences. The statements were arranged to elicit students' responses to each using the following scale:



Data Collection and Analysis

The questionnaire was administered to subjects during the first and sixth week of the BAYOU Phase I program in 1992 and 1993. Results represents data gather at the end of six weeks. Data collected were coded and analyzed where frequencies and mean scores were computed utilizing the Statistical Package for Social Sciences (SPSS).

Summary of Findings

Choice of College Major and Career

Participants in the BAYOU Phase I program were asked to identify their first choice of a college major and a career from a list of more than sixty discipline areas. A majority (75 percent) of the 36 students chose three discipline areas — agriculture, home economics and health — as a first choice of a college major. Two of these discipline areas are related directly to food and agriculture sciences. These data are presented in Table 1.

More than one-third (36.1 percent) of the 36 BAYOU Phase I participants chose agriculture as the discipline area for a major in college. Almost one-fourth (22.2 percent) chose home economics and almost one-fifth (16.7 percent) of the BAYOU Phase I respondents chose the health discipline area. The remaining choices of a college major by the group were observed to be two for the discipline area of engineering and one each for architecture, mathematics, fine and applied arts, biological sciences, education and business communication. There was one student who did not choose a discipline area as a college major.

The discipline areas of agriculture, home economics and health were chosen by a majority (66.5 percent) of the BAYOU Phase I students as their first choice of a career. However, the number of students who chose agriculture as a discipline area for a career was slightly different for the students who chose this discipline area as a college major. Almost one-fourth (24.9

TABLE 1 Choice of College Major and Career Among BAYOU Phase I Program Participants (N = 36)

College Major		Discipline Area	Career	
No.	%		No.	%
13	36.1	Agriculture	9	24.9
1	2.7	Architecture	1	2.7
6	16.7	Health Profession	9	24.9
8	22.2	Home Economics	6	16.7
1	2.7	Mathematics	—	—
1	2.7	Fine and Applied Arts	—	—
1	2.7	Biological Science	1	2.7
2	5.4	Engineering	4	10.8
1	2.7	Education	2	5.4
1	2.7	Business and Communication	3	8.1
1	2.7	Undecided	1	2.7

percent) of the BAYOU Phase I participants chose agriculture as a discipline area of their career choice. An increase of three and a decrease of two students, respectively, chose discipline areas in health and home economics as a career compared to their choice of a college major on these same discipline areas. The remaining choices of a career among the BAYOU Phase I sample were observed to be four for engineering, three for business and communication, and one for architecture. It was observed that choice of a career was slightly different for the choice of a college major among BAYOU Phase I participants.

Certainty of College Majors and Careers

A majority (80.6 percent) of BAYOU Phase I participants indicated that they were very sure to fairly sure of their chosen college majors. Slightly less than one-half (41.7 percent) of the group indicated that they were very sure of their college majors, while slightly more than one-third (38.9 percent) indicated being fairly sure. Only seven (or nearly 20 percent) of the 36 participants indicated that they were not sure about their college majors. These data are included in Table 2.

In term of certainty of career choices, almost one-fourth (22.2 percent) of the BAYOU Phase I participants indicated that they were not sure of their career choices. This observation was similar to the total group's opinion about their choice of college majors. One-third (33.3 percent) and almost one-half (44.4 percent) of BAYOU Phase I students, respectively, indicated that they were very sure and fairly sure of their chosen careers. This observation was somewhat similar to the participants' opinion of their college majors.

Factors important in choices of a college major and career among BAYOU Phase I respondents are presented in Table 3. Of the factors assessed, a majority (ranging from 24 to 32) of the 36 students indicated that all factors were important in their choice of a college major. Career interest, personal interest, personal happiness, and ability and skills received the most responses from BAYOU Phase I participants in terms of importance in their choice of a college major. Although the number of student responses to all factors assessed was dissimilar for career choice as compared to college major, a majority (ranging from 25 to 27) of the 36 participants indicated that their personal interest, ability and skills, personal happiness and career interest were important in their choice of a career.

TABLE 2 Certainty of College Major and Career Among BAYOU Phase I Program Participants (N = 36)

College Major		Degree of Certainty	Career	
No.	%		No.	%
15	41.7	Very Sure	12	33.3
14	38.9	Fairly Sure	16	44.4
7	19.4	Not Sure	8	22.2

TABLE 3 Factors Important Choice of College Major and Career Among BAYOU Phase I Program Participants (N = 36)

College Major		Important Factor	Career	
No.	%		No.	%
32	88.9	Personal Interest	25	69.4
31	86.1	Ability and Skills	25	69.4
31	86.1	Personal Happiness	27	75.0
33	91.7	Career Interest	25	69.4
24	66.7	Availability of Job	27	75.0
22	61.1	Major and College	13	36.1
21	58.3	Income After College	12	33.3
24	66.7	Prestige of Career	20	55.5

Perceptions of Careers in Agriculture

The means for factors related to careers in agriculture as perceived by the total sample and subsamples are reported in Table 4. Factors are listed in rank order based on the means for the total sample. BAYOU Phase I students were asked to respond to twenty-six factors describing career situations in agriculture. From among the twenty-six factors assessed using a "1" to "5" scale, only eight were rated above average (3.0 and above) by the total sample. These results are presented in Table 4.

The mean ratings of factors by the total sample ranged from 3.13 to 4.47. The factors most strongly agreed upon by all BAYOU Phase I participants were:

- 1) People with college majors in business, such as marketing, finance, and economics, can find employment in an agriculture-related career;
- 2) People with college majors in the sciences, such as chemistry, genetics, and biology, can find employment in agriculture-related careers;
- 3) College graduates who major in agriculture and agriculture-related majors earn salaries as high as those earned by graduates in most other majors;
- 4) Graduates with college degrees in agriculture and agriculture-related majors are sought after by many multinational corporations;
- 5) Graduates with college degrees in agriculture and agriculture-related majors are able to pursue science-oriented careers;
- 6) Graduates with college degrees in agriculture and agriculture-related majors often pursue business careers;
- 7) Most agriculture-related careers require graduate training in fields such as genetics, microbiology, and chemistry;
- 8) Most careers in agriculture are very dependent on weather conditions such as drought and floods.

When BAYOU Phase I students were grouped according to subsamples, it was observed that participants in the program during the summer of 1992 rated four less of the eight factors above average (3.0 and above) than did the total sample.

The mean ratings for all factors of this subsample ranged from 2.95 to 4.95. This subsample rated seven of the eight factors above average, indicating moderate to strong agreement of this subsample to these seven factors. The factor rated differently by this subsample than the total sample was: Most careers in agriculture are very dependent on weather conditions, such as drought and floods.

TABLE 4 Mean for Factors Related to Careers in Agriculture as Perceived by the Total Sample and Subsamples of BAYOU Phase I Participants

Factors ^a	Total Sample Mean
People with college majors in business, such as marketing, finance and economics, can find employment in agriculture-related careers	3.37 ^{b, c}
People with college majors in the sciences, such as chemistry, genetics, and biology, can find employment in agriculture-related careers	4.26 ^{b, c}
College graduates who major in agriculture and agriculture-related majors earn salaries as high as these earned by graduates in most other majors.	4.15 ^{b, c}
Graduates with college degrees in agriculture and agriculture-related majors are sought after by many multi-national corporations.	4.12 ^{d, e}
Graduates with college degrees in agriculture and agriculture-related majors are able to pursue science-oriented careers.	4.00 ^f
Graduates with college degrees in agriculture and agriculture-related majors often pursue business careers.	3.36 ^{b, c}
Most agriculture-related careers require graduate training in fields such as genetics, microbiology and chemistry.	3.34 ^{d, e}
Most careers in agriculture are very dependent on weather conditions, such as droughts and floods.	3.13 ^f

^aFactors are listed in rank order based on means for total sample

^bSubsample 1 mean is higher than mean for total sample

^cSubsample 1 mean is higher than the mean for subsamples 2

^dSubsample 2 mean is higher than the mean for total sample

^eSubsample 2 mean is higher than the mean for subsample 1

^fSample means are the same

There were similarities in the way the total sample, BAYOU Phase I participants of 1993 and participants of 1992 rated these eight factors above average (3.0 and above). The total sample rated all eight factors above average, while BAYOU Phase I participants of 1992 and 1993 rated seven and eight factors above average, respectively. The mean rating for all factors of BAYOU Phase I participants of 1993 ranged from 3.32 to 4.47. The factor that was rated above average by this subsample and different from the total sample, but similar for participants of 1992 was: Most careers in agriculture are very dependent on weather conditions, such as droughts and floods. Both of the total sample and subsamples of BAYOU Phase I participants responded to the eight factors describing career situations in agriculture in a positive manner consistent with the reality of careers in agriculture.

Conclusions

1. A majority of the students in the BAYOU Phase I Program during the past two years chose the discipline areas of agriculture, home economics and health as their first choice of a college major. A similar observation existed regarding participants' choice of a career. Interestingly, two of the three discipline areas chosen by students as a college major and career were related to the food and agricultural sciences. Most BAYOU Phase I students indicated that they were very sure about their choice of a college major and slightly less than one-half felt very sure about their choice of a career.
2. A majority of the BAYOU Phase I participants indicated that eight factors were important in their choice of a college major. These factors were: (1) personal interest; (2) ability and skills; (3) personal happiness; (4) career interest; (5) availability of job; (6) major and college; (7) income after college; and (8) prestige of career. Factors important in the choice of a career as indicated by BAYOU Phase I students were: (1) personal interest; (2) ability and skills; (3) personal happiness; and (4) career interest.
3. Of the twenty-six factors studied, the total sample of BAYOU Phase I students rated eight above average (3.0 and above), indicating that they were in agreement with these factors pertaining to careers in agriculture. These factors rated in this way present careers in agriculture as being integrated with science, technology and business.
4. When BAYOU Phase I students were grouped according to year of participation, those that participated during the summer of 1992 moderately to strongly agreed (3.0 and above) with the eight factors pertaining to careers in agriculture similar to the total sample of participants on all except one factor. That factor was: Most careers in agriculture are very dependent on weather conditions, such as droughts and floods. This subsample rated seven of the eight factors above average. BAYOU Phase I Program participants of 1993 rated factors assessed above average (3.0 and above), which indicated moderate to strong agreement on these factors by both subsamples.

Implications

The BAYOU Phase I program has proven to be an effective recruitment method for the College of Agriculture and Home Economics and could be for other similar university programs as they attempt to increase enrollment. The program has been highly successful, particularly during the past two years. Of the thirty-six students who participated during this period, more than 75 percent has enrolled in food and agricultural science disciplines at the university. A great percentage of them were awarded scholarships.

Efforts should be made to increase the number of students in BAYOU Phase I and other similar programs for assuring broader as well as realistic exposure of students to college majors and careers in the food and agricultural sciences. A follow-up study of BAYOU Phase I participants should be conducted.

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BOOK REVIEWS

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Jay V. Huner, editor. *Freshwater Crayfish Aquaculture in North America, Europe, and Australia*. Food Products Press, 1994. 312 pp. Hardbound \$54.95.

The need for a good source of information on crayfish farming has been filled with the publication of this book. The book is a comprehensive, research-based presentation of the best available information on crayfish production in North America, Europe, and Australia. The editor has done an outstanding job of bringing together a team of authors from all three continents.

The book is organized into three parts based on geography: North America, Europe, and Australia. In each part, the authors provide a thorough explanation of the important information. The part on North American crayfish farming is more detailed than that for Europe and Australia. Citations are included referencing the reader to the appropriate articles and research reports.

The book begins with taxonomic and life cycle considerations with crayfish. It builds the commercial production of crayfish on

this foundation. Marketing and economic considerations are presented. Individuals considering going into crayfish production can benefit considerably from sample budgets and cost analysis information.

A number of tables and figures are used to illustrate the manuscript. These are very effective in helping inform the reader. A minor criticism here is that some of the photographs are not sharp and cropped to the subject. Good line drawings are used to help contrast and compare species as well as to provide other important details.

The part of the book on North American crayfish culture should be very useful in the south and other places where crayfish are grown. Emphasis on water facilities, water management, and forage needs depicts Louisiana conditions. The section on diseases represents a major synthesis of information. Individuals in other areas with similar climates will find the information most applicable. An extensive bibliography is valuable to a reader who wants to get more details on crayfish farming in North America. It also illustrates the strong research undergirding of the book.

The editor of the book is exceptionally qualified for this work. The editor was also an author of important sections of the book. The editor has authored other books and materials on aquaculture. The other authors demonstrate strong capabilities in the field of crayfish farming. The entire author team is to be commended for their efforts.

The book can be used as a reference in teaching aquaculture classes. In situations where classes may be offered on crayfish aquaculture, this would definitely be the text to use.

Freshwater Crayfish Aquaculture is a one-of-a-kind book and should be very useful to all people interested in aquaculture.

Jasper S. Lee
Agricultural Educator
Lee and Associates