Follow-up Study ofGraduates from the College of Agriculture and School of Forest Resources and Conservation from the University of Florida

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Abstract

Baccalaureate degree recipients from the College of Agriculture (COA) and School of Forest Resources and Conservation (SFRC) at the University of Florida (UF) were surveyed to determine their occupational status and to evaluate their educational experiences. The population for the study consisted of 1,388 alumni from 1989 to 1995. A total of 668 graduates or 48% of the population completed and returned the survey. The largest percent of respondents majored in food and resource economics (24%), animal science (16%) and food science and human nutrition (17%). A higher percent of respondents from the 1989 study year categorized themselves as scientists or marketing representatives while 1991 through 1994 respondents were more evenly distributed among six occupational clusters. With the exception of respondents from the 1989-90 study year, more than 30% of respondents classified themselves as graduate or professional students. Over 80% of the respondents from each study year perceived their overall experiences within their departments and at UF as excellent or good. Forty-one percent of the graduates rated the courses in their departments as excellent compared with only 10% for general education courses. Similarly, over 40% of the graduates rated the advisement they received in their departments as excellent while only 8% felt lower division or pre-major advisement was excellent. Respondents also rated teaching characteristics of COA and SFRC faculty higher in clarity, enthusiasm and organization than faculty from other colleges. The results suggest that the COA and SFRC are providing quality educational programs relevant to student needs.

Introduction

Each year the University of Florida offers some 100 degree programs to approximately 40,000 students and confers about 5,500 undergraduate degrees. Consequently, the University spends about $122 million on undergraduate education annually. Of that amount, approximately 35% ($43 million) comes from matriculation and 65% ($79 million) is appropriated from the legislature (Office of Institutional Research, 1995). In order to maintain the necessary legislative support, universities, colleges, departments, programs and educators must account for the services they provide.

In 1991 the Florida Legislature enacted an accountability process which provides for "the systematic ongoing evaluation of quality and effectiveness in the State University System ...(to) monitor performance at the system level in each of the major areas of instruction, research and public service while recognizing the differing missions of each of the state agencies" (Florida Statutes, 1991). In order to facilitate the accountability process, the Legislature established a set of indicators to assess university performance. Among these indicators were follow-up surveys of alumni, parents, clients and employers.

According to Paret (1991), follow-up studies also provide information about students' needs, expectations and perceptions of their educational experiences. Information gathered on graduates may help break down negative perceptions among high school students regarding employment opportunities in agriculture and act as a public relations tool for college recruiting. Orthel et al. (1989), Krueger and Riesenberg (1991), the Human Capital Shortages Task Force (1988) and the American College Testing Program (1989), all document that secondary education students have misconceptions about agriculturally-related careers. Most students believe that an agriculturally based education leads to a career in farming or ranching. Follow-up studies of the occupational status of COA and SFRC graduates can provide a realistic picture of careers in food, agriculture and natural resources.

Objectives

The purpose of this study was to determine the occupational status of recent graduates from the College of Agriculture and School of Forest Resources and Conservation at the University of Florida and to evaluate their educational experiences. These educational experiences include teaching qualities of professors, advisement, course work and extracurricular activities. The specific objectives of the study answer the following questions:

1. What is the occupational status of recent graduates from the College of Agriculture and School of Forest Resources and Conservation at the University of Florida?
2. What are the graduates' perceptions of their educational experiences in the College of Agriculture and School of Forest Resources and Conservation at the

University of Florida?
3. What are the graduates' perceptions of their educational experiences at the University of Florida?
4. What are the graduates' perceptions of the value of extracurricular activities and student organizations at the University of Florida?

Methods

The population for this study consisted of all baccalaureate degree recipients from the University of Florida's (UF) College of Agriculture (COA) and School of Forest Resources and Conservation (SFRC) from 1989, 1991, 1992, 1993 and 1994 academic years. Names and last known addresses of the graduates were obtained from both the Office of the Registrar and Development and Alumni Affairs. The survey instrument was sent to the population of 1,388 graduates. A total of 668 graduates or 48% of the population responded to the survey.

Faculty and administrators in the COA and SFRC are the main stakeholders of the study. Administrators in COA secured the funding for the project, selected the study years and approved the survey instrument. The survey was compiled by Dr. Tracy Hoover, Assistant Professor in Agricultural Education and Communication, Dr. Jimmy Cheek, Assistant Dean for Academic Programs and Dr. Larry Connor, Dean for Academic Programs. Survey questions dealing with educational experiences and extracurricular activities were obtained from similar surveys by McGhee and Cheek (1985), Wrye and Terry (1993) and from the Florida Survey Research Center (1993). Content validity of the instrument was established by professors and graduate students in the COA and SFRC.

The instrument consists of four parts: 1. evaluation of the academic program; 2. graduates' perception of their overall college experience; 3. evaluation of extracurricular activities; and 4. personal characteristics and occupational information. In Part 1, graduates rated course work, academic advisement, and teaching qualities of professors. Teaching qualities of professors were rated for COA and SFRC faculty who taught courses in their major and faculty who taught general education courses. In each situation respondents were asked to use a five-point Likert scale (strongly agree, agree, undecided, disagree and strongly disagree) to rate their agreement with the following statements: points the professors made in class were clear and easy to understand; professors were enthusiastic about the subject; most of the professors were good teachers; lessons were well organized; professors used a variety of teaching methods to explain class and lab material; professors used a variety of questions to check understanding. A factor analysis determined the extent to which these statements validly measured teaching quality. A bifactorial structure showed the two largest Eigenvalues accounting for approximately 70% of the variance. In each situation, factor 1 (teaching quality) was defined by clarity, enthusiasm, good teachers, and organization and factor 2 (teaching technique) was defined by variety in teaching methods and questions to check understanding. A Cronbach's alpha reliability coefficient of 0.82 was calculated for items measuring teaching quality and 0.68 for items measuring teaching technique.

In Part 2, information was gathered on the graduates satisfaction with their overall experience at UF as well as their experience within COA or SFRC.

In the evaluation of leadership activities (Part 3), graduates were asked to identify the extracurricular activities they were affiliated with while attending UF. A Cronbach's alpha of 0.78 was calculated for Likert scale items measuring the value of extracurricular activities in helping students gain a better understanding of food, agriculture and natural resources, become aware of career possibilities, develop leadership and job skills and work with people.

Part 4 used open-ended and multiple choice questions to develop a personal profile of the graduates and to determine their current occupational status. Graduates were categorized by use of predetermined clusters established by the USDA (Coulter et al., 1990). After providing a description of their occupation, respondents were placed into one of the following clusters: 1) scientist, engineer, or related specialist; 2) manager or financial specialist; 3) marketing, merchandising, or sales representative: 4) education, communication or information specialist; 5) social service professional; and 6) agriculture production specialist. Respondents that did not fit into an occupational cluster were categorized as 7) graduate or professional student or 8) other.

The survey instrument, a letter of introduction and a self-addressed stamped envelope was mailed to all members in the population. Three weeks after the initial mailing, a follow-up letter and a copy of the survey was mailed to the non-respondents. A final attempt was made to contact the non-respondents three to four weeks after the second mailing.

Data was analyzed using Statistical Analysis System (SAS) for personal computers (SAS Institute, Inc., 1988). Frequencies and percentages were calculated to develop a descriptive profile of the population. Chi-squares were used to compare the gender and race characteristics of the respondents with those of the population, categories with fewer than five observations per cell were combined to facilitate the analysis.

Findings

The gender ratio of survey respondents for the five study years was 55% male to 44% female. Approximately 80% of the respondents from each study year were classified as White (non-Hispanic), whereas African American, Hispanic and Asian graduates made up 20% of the respondents. During the time of the study, the COA and SFRC undergraduate population was 77% White (non-Hispanic), 11% African American, 5% Hispanic and 7% were classified as other (Office of Administrative Affairs, 1993). A chi-square test for independence of the variables gender and race by study year showed that there were no differences between the characteristics of the respondents and the study year (X^2=2.04, p=0.73 and X^2=8.19, p=0.41 respectively)(Table 1).

Of the baccalaureate degree programs offered by the COA and SFRC at the time of the study, the largest percent of respondents majored in food and resource economics (24%), animal science (16%) and food science and human nutrition (17%). Less than 10% of the respondents majored in microbiology and cell science (9%), agricultural operations management (7%) and horticultural sciences (7%). Five percent or less majored in agricultural education and communication, agricultural engineering, agronomy, botany, dairy and poultry science, entomology and nematology, plant pathology, plant science, soil and water science, fisheries and aquatic sciences, forest resources and conservation and wildlife ecology. A comparison of the respondents' majors with data on the known population showed that approximately 30% of the graduates majored in food and resource and economics, 13% in animal science and 11% in food science and human nutrition.

Forty-four percent of the respondents entered UF as high school graduates, 8% transferred from four-year universities, and 48% transferred from community colleges. Of the students that transferred from community colleges, 52% indicated they received either excellent or good academic preparation, 21% indicated average preparation and 27% said it was either fair or poor (Figure 1).

Based on their job descriptions, respondents were placed into occupational clusters established by the USDA. A higher percent of respondents from 1989-90 were categorized as scientists and marketing representatives while respondents from 1991 to 1994 study years showed a more even distribution among six occupational clusters (Table 2). Ten percent or fewer of the respondents from each study year indicated that they were education, agricultural production or social service professionals. With the exception of the first study year, over 30% of the

Table 1. Gender and race characteristics of respondents by study year.

	1989-1990		1991-1992		1992-1993		1993-1994		1994-1995	
	n	%	n	%	n	%	n	%	n	%
Gender: (n= 668)										
Female	23	38	26	41	51	46	73	44	124	47
Male	37	62	38	59	60	54	95	56	141	53
Total	**60**	**100**	**64**	**100**	**111**	**100**	**168**	**100**	**265**	**100**
Race: (n= 664)										
White (non-Hispanic)	50	83	49	77	96	86	138	82	212	81
African American	7	12	5	7	5	5	8	5	15	6
Hispanic	2	3	4	6	10	9	9	5	17	6
Asian	1	2	3	5	0	-	8	5	11	4
Other	0	-	3	5	0	-	5	3	6	3
Total	**60**	**100**	**64**	**100**	**111**	**100**	**168**	**100**	**261**	**100**

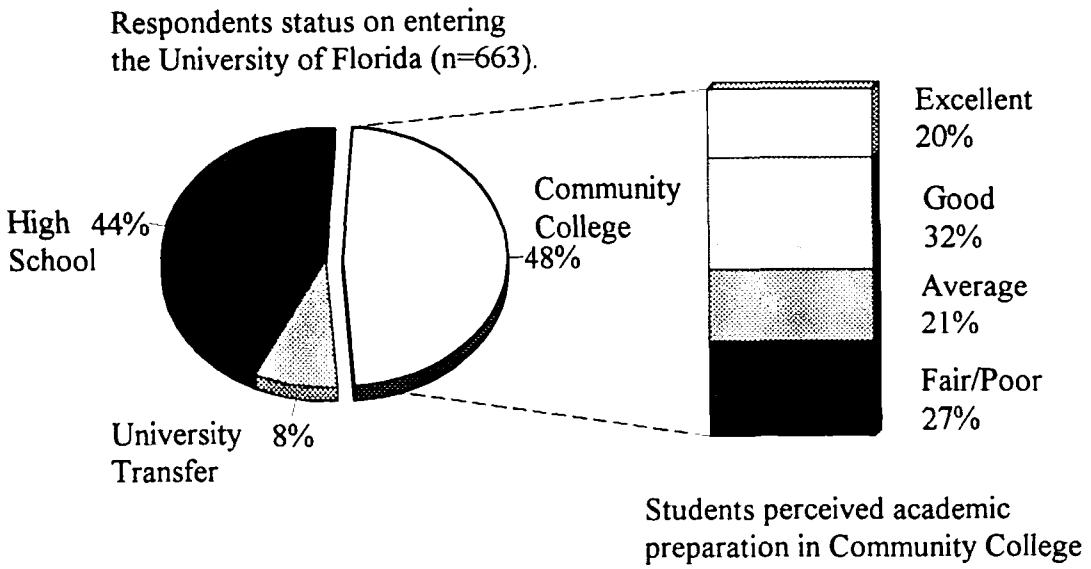

Figure 1. Respondents' status and preparation on entering the University of Florida.

Table 2. Occuaptional status of respondents by study year.

USDA Categories	1989-90		1991-92		1992-93		1993-94		1994-95	
	n	%	n	%	n	%	n	%	n	%
Scientist, Engineer or Related Specialist	16	27	8	12	15	14	7	4	32	12
Manager or Financial Specialist	9	15	8	12	19	17	12	7	18	7
Marketing, Merchandise or Sales Rep.	13	22	8	12	11	10	29	17	19	7
Education, Communication or Information Specialist	4	7	5	8	5	4	10	6	13	5
Social Service Professional	2	3	1	2	6	5	7	4	18	7
Agricultural Production	4	7	6	9	11	10	16	10	24	9
Graduate/Professional Student	12	20	21	33	35	32	63	38	91	34
Other	0	-	7	11	9	8	24	14	50	19
Total	**60**	**101**	**64**	**99**	**111**	**100**	**168**	**100**	**265**	**100**

respondents indicated that they were in graduate school at the time they took the survey. Respondents who selected the category 'other' indicated that they were either unemployed or working in a job unrelated to their degree.

The majority of respondents indicated that they earn a gross income of between $20,000 and $29,999 per year. Respondents who indicated they were in graduate school at the time of the survey were not included in the analysis. Figure 2 shows that over 30% of the respondents from 1989 indicated that they were earning $30,000 or more, while roughly 10% of the 1991 through 1994 respondents were earning the same amount. This difference can be attributed to the length of time the respondents had been in the work force and the distribution date of the surveys.

In an evaluation of the academic program, graduates were asked to rate course work, advising, teaching qualities and teaching techniques of professors. Respondents rated course work and advisement using a five-point Likert scale with the following choices: excellent, good, average, fair and poor. Only 10% of the respondents indicated that the lower division or general education courses they took were excellent, 53% indicated that they were good, and 30% said average (Figure 3). In comparison, 41% of the respondents rated courses in their major as excellent and 48% indicated that they were good. When asked about elective courses in COA and SFRC, 78% of the respondents indicated that they were either excellent or good.

Graduates rated the advisement they received as lower division (pre-major) students in contrast with advisement they received in their departments. Only 8% of the respondents indicated that they received excellent advisement as lower division students, 21% felt it was good, 22% average, 20% fair and 29% poor (Figure 4). In contrast, 42% of the respondents indicated that they received excellent advisement in their departments, 33% felt it was good, 12% average, 7% fair and 6% poor.

The majority of respondents strongly agreed that COA and SFRC faculty who taught courses in their major were clear and easy to understand (24%), enthusiastic (43%), good teachers (41%), and organized (27%) (Figure 5). Approximately 20% of the respondents strongly agreed that professors used a variety of teaching methods and questions to check understanding. Graduates also rated faculty who taught general education courses. Few respondents indicated that they strongly agreed that the professors were clear and easy to understand (4%), good teachers (5%), organized (6%) and enthusiastic (8%). Less than half of the respondents (6%) indicated that general education faculty used a variety in teaching methods and 5% felt professors used a variety of questions to check understanding. For each multiple-item scale, the COA and SFRC faculty who

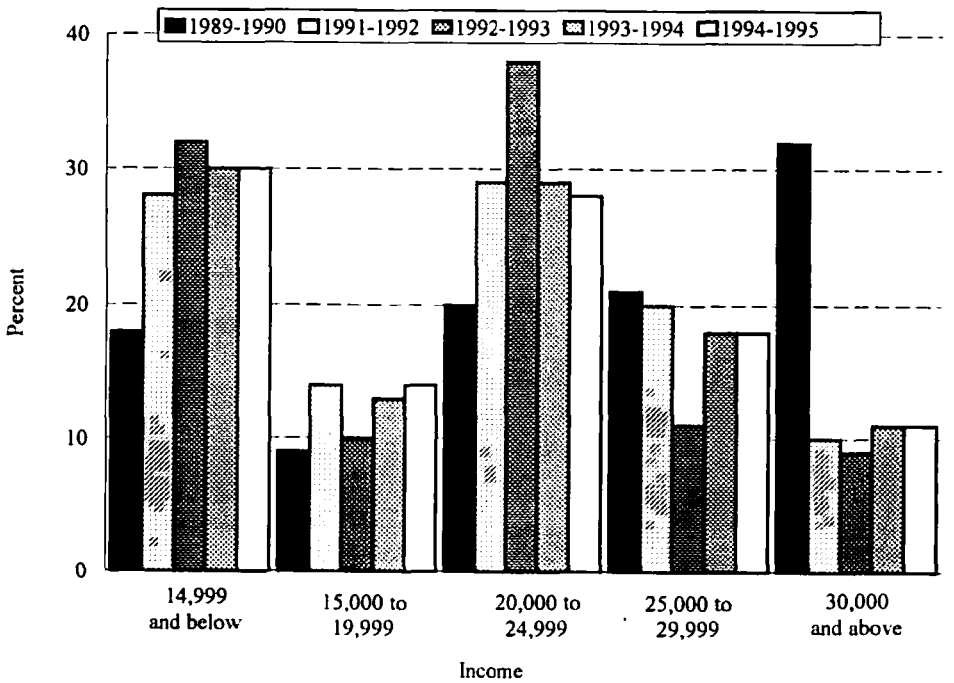

Figure 2. Respondent's income by study year (n=524).

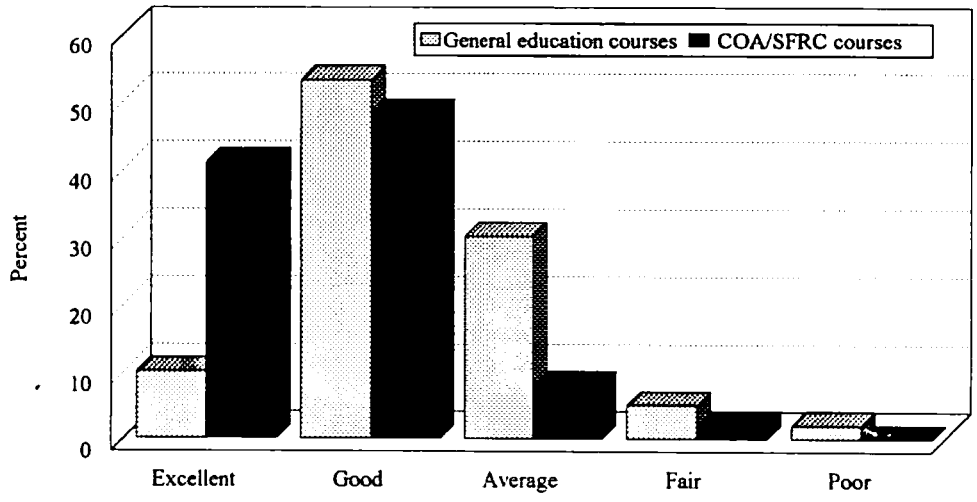

Figure 3. Respondents' ratings of general education or lower division courses compared with COA/SFRC courses.

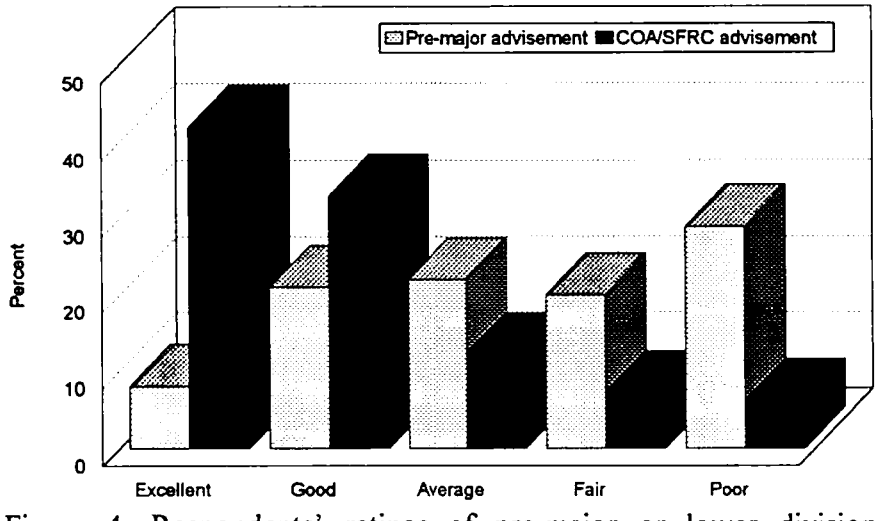

Figure 4. Respondents' ratings of pre-major or lower division advisement compared with COA/SFRC advisement.

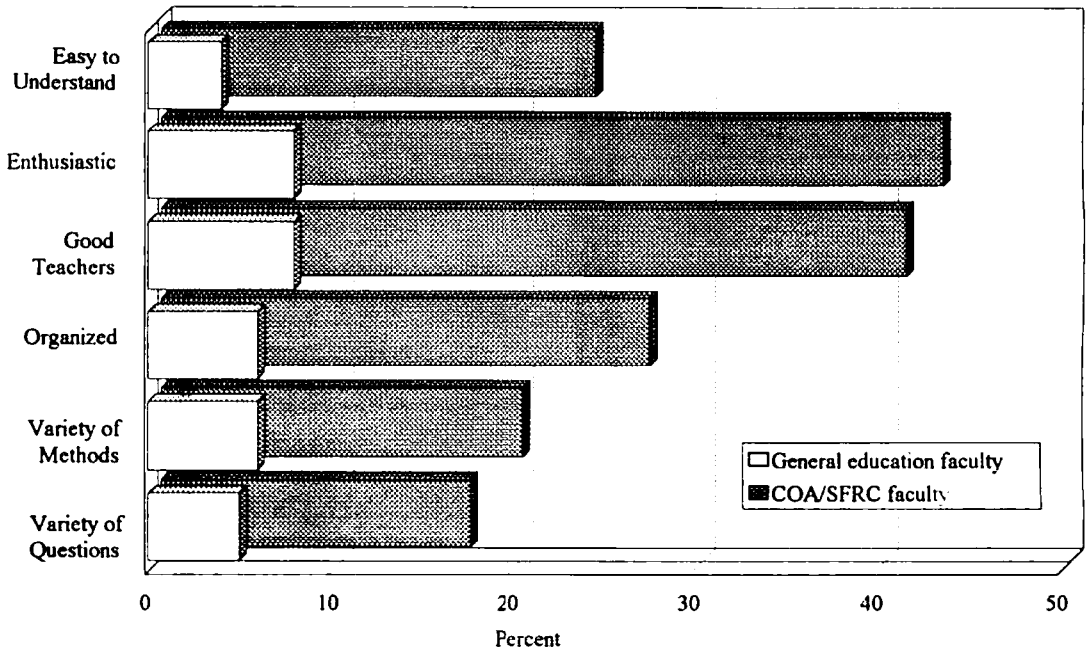

Figure 5. Percent of respondents who strongly agree with statements of teaching quality and technique.

taught courses in the student's major rated higher in clarity, enthusiasm, teaching, organization and variety of teaching methods and questions to check understanding than faculty who taught general education courses.

Roughly one-third of the respondents indicated that their overall or cumulative experience at UF was excellent, 53% felt it was good, and 19% felt it was fair or poor. Over half of the respondents rated their overall experience within the COA and SFRC as excellent, 37% felt it was good and 6% fair. When asked to reveal their three most valuable experiences while at UF, respondents stated that the professional associations and friendships they developed with professors was their most valuable experience. Involvement in extracurricular activities and meeting new friends were also considered valuable experiences. Other responses included feelings of personal development and classes that allowed students to gain hands-on experience.

In an evaluation of leadership activities, graduates listed the extracurricular activities and student organizations they were associated with while attending UF. Roughly 80% of the respondents indicated that they were involved in at least one extracurricular activity and 57% indicated that they were involved in more than one activity. The majority of respondents indicated that they were active in departmental clubs and honor fraternities. Respondents were also active in organizations outside COA and SFRC such as intermural sports and organized community activities.

Respondents rated the overall value of their extracurricular experiences (Table 3). Over three-quarters of the respondents indicated that extracurricular activities helped them (very much or much) develop skills which enabled them to work with people. Over 50% indicated that extracurricular activities helped them develop leadership skills and made them aware of career possibilities while only 42% indicated that extracurricular activities helped them to understand food, agriculture and natural resources better. Despite the modest ratings, 96% of the respondents recommended students take part in extracurricular activities and student organizations, stating that extracurricular activities helped them "gain leadership experience" and "develop skills not taught in the classroom".

Summary

The purpose of this study was to determine the occupational status of baccalaureate degree recipients from COA and SFRC at UF and to assess their perceptions of their educational experiences. The educational experiences included course work, advisement, teaching quality and extracurricular activities.

The majority of respondents from the first study year (1989-90) were employed as scientists, marketing representatives, and graduate students. Although respondents from the 1991 through 1994 study years were more evenly distributed within the six USDA occupational

Table 3. Respondents ratings of the overall value of extracurricular activities for the combined study years.

Extracurricular activities and student organizations ...	Very Much		Much		Some		Little		None	
	n	%	n	%	n	%	n	%	n	%
Helped me understand food, agriculture, and natural resources better (n=575)	120	21	119	21	179	31	80	14	77	13
Helped me develop leadership skills (n=575)	237	41	122	21	140	24	49	8	27	5
Helped me work with people (n=576)	264	46	183	32	89	16	23	4	17	3
Helped me develop skills needed in my current job (n=558)	182	33	109	19	140	25	64	12	64	12
Made me aware of career possibilities (n=577)	172	30	143	25	150	26	65	11	47	8

clusters, over 40% of the respondents indicated that they were either graduate students or working in a job unrelated to their degree. Less than 10% of the respondents indicated that they were education specialists, social service professionals, or agricultural production specialists. According to Coulter et al. (1990), there are roughly 48,000 annual openings for college graduates with expertise in food, agriculture and natural resources and only 43,500 qualified graduates. The greatest employment opportunities are in the marketing, merchandising, science, and engineering fields while communications, education, and agriculture production fields will experience an excess in the number of graduates for those positions (Coulter et al., 1990).

Over 80% of the respondents from each study year perceived their overall experiences within their departments and at UF as excellent or good. Forty-one percent of the respondents rated the courses in their departments as excellent while only 10% rated general education courses as excellent. Similarly, 42% of the respondents rated the advisement they received in their departments as excellent and only 8% felt lower division or pre major advisement was excellent. Respondents rated teaching qualities and techniques of COA and SFRC faculty significantly higher than faculty that taught general education courses. However, in both situations, respondents rated teaching qualities of professors higher than teaching techniques. Considering the limited amount of time available to teach a specific amount of material, faculty often have no choice but to use lecture as the primary means of instruction in higher education. On the other hand, the impediment to instructional variety may be the faculty's lack of academic preparation in educational methodology.

The information obtained in this follow-up study will be used to meet accountability requirements, inform stakeholders, and recruit students. Data gathered on the graduates' occupational status and educational experiences can be used as a recruiting tool to dispel negative perceptions of high school students regarding careers in food, agriculture and natural resources. The administration, faculty and advisors of the COA and SFRC should be pleased with the feedback from their graduates. The positive feedback from respondents in this study is similar to results from follow-up studies by Wrye and Terry (1993), the Florida Survey Research Center (1993), and Barkley (1993). In each study, participant's satisfaction with their educational experiences was used as evidence of program quality. However, if participant satisfaction is the goal, at what level of satisfaction do administrators and educators assess program quality? Since the majority of respondents indicated that the advisement they received in their departments was either excellent (42%) or good (33%), do administrators set 75% as the standard by which to judge future programs or do they strive to achieve higher levels of respondent satisfaction? Barkley (1993) challenges agricultural educators to aspire to the level of excellence when every graduate can claim to be "very satisfied" with his or her investment in education.

Literature Cited

American College Testing Program. 1989. High school student perceptions of agricultural college majors and careers. Oakbrook, IL: Farm Foundation.

Barkley, A.P. 1993. Consumer satisfaction: Response from Kansas State alumni. NACTA Journal, 37: 43-47.

Coulter, K.J., A.D. Goecker, and M. Stanton. 1990.

Employment opportunities for college graduates in the food and agricultural sciences. Washington DC: Office of Higher Education Programs, USDA.

Florida Statutes. 1991. Chapter 91-55, Sec. 240.214.

Florida Survey Research Center. 1993. A survey of opinion among University of Florida alumni (1990-1992 graduates). Unpublished data.

Human Capital Shortages Task Force. 1988. Attracting scholars to prepare for careers in the U.S. food and agriculture system. Washington DC:Office of Higher Education Programs, USDA.

Krueger. D.E. and L.E. Riesenberg. 1991. Careers in Agricul ture as perceived by high school juniors and seniors. Proceedings of the 18th National Agricul tural Education Research Meeting, Los Angeles, CA.

McGhee, M.B. and J.G. Cheek. 1985. Assessment of the preparation and career patterns of agricultural education graduates, 1975-1985. Journal of Agricultural Education. 31(2): 17-22.

Office of Administrative Affairs. 1993. University of Florida Fact Book. Gainesville, Fl.

Office of Institutional Research .1995. Undergraduate degrees. credit hours, and cost of degrees at the University of Florida: A preliminary project report. Unpublished.

Orthel, G.R., J.L Sorensen, S.R. Lierman, and L.E. Riesenberg. 1989. High school students percep tions of agriculture and careers in agriculture. Proceedings of the 16th National Agricultural Education Research Meeting, Orlando, FL.

Paret, A.M. 1991. A follow-up of female graduates of the College of Agriculture at Oklahoma State Univer sity from 1985 to 1989. NACTA Journal, 35(3): 46-49.

SAS Institute. 1988. SAS procedures guide (Release 6.03). Cary, NC: Author.

University of Florida. 1992. Institutional self-study report 1991-1992. Unpublished.

Wrye, C.L. and R.T Terry. 1993. Occupational status and educational needs of College of Agricultural Sciences graduates. Proceedings of the 42nd

Student Use and Perceptions of Distance Education Technologies

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Abstract

We use a Sophomore-level wildlife conservation course to evaluate the effectiveness of distance education technologies. We examine student preferences for and the cost efficiency of videotape versus live broadcast technologies. Based on responses from in-class surveys we find that some technologies, such as a live phone bridge, were costly and ineffective forms of communication. Students preferred to spend extra time outside of lecture for discussion groups with an on-site faculty or other students.

Introduction

Jackson (1995) presented an overview of the expanding technologies used in distance education. Educators have experienced a rapid transition from resident classroom teaching, to correspondence study, to audio and video teleconferencing and Internet courses (Jackson, 1995; Kelly, 1990). This transition requires instructors to develop new skills for curriculum development and delivery and to keep up-to-date on the quickening pace of technology adoption and change in the telecommunications and Internet areas.

Educators have the same basic issues of effective teaching when using new technology. How do we encourage interaction and questions? How do we evaluate our effectiveness? How do we select and promote those areas where our effectiveness joins with student preference and enthusiasm? Distance learning gives us more choices to address these issues using various technologies, and more difficulty in being selective and efficient with our choices. The purpose of this paper is to evaluate effectiveness of technologies used in distance education courses.

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