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TRENDS IN LEARNER CHARACTERISTICS AND PROGRAM RELATED EXPERIENCES ASSOCIATED WITH TWO OFF-CAMPUS AGRICULTURE DEGREE PROGRAMS

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Abstract

Iowa State University began offering an off-campus master of agriculture (M.Ag.) degree in 1979 and an off-campus B.S. degree in 1991. The major for both degree programs is Professional Agriculture. In the fall of 1993, a follow-up study was conducted to evaluate the programs and to gain an understanding of the off-campus learning experience. Seven years later, another follow-up study was conducted. Data were obtained from 46 of 53 persons who graduated by fall 1993 and from 34 of 54 persons who graduated from spring 1994 to spring 2001. When compared to 1993 respondents, a smaller proportion of 2001 respondents were male and employed in farming. A greater proportion of 2001 respondents were employed in agribusiness and "other" occupations. Graduates in both follow-up studies took about five and three quarter years to complete their programs, but respondents in 2001 traveled to campus more often for reasons associated with their degree program. Year 2001 respondents perceived thirteen challenges to off-campus study as less significant than 1993 respondents. Respondents in 2001 perceived they had significantly greater access to instructors and that instructors understood their needs more than did respondents in 1993. The two most significant challenges faced by graduates in both studies were the limited number of course offerings and the difficulty in balancing school, personal, and work responsibilities.

Introduction

Distance education has become an important part of agricultural education. At first, on-campus and independent study courses were modified for distance delivery. Over the years, courses have been organized into degree programs that can be completed mostly or entirely off campus. Developments in communication and computer technology have made these types of offerings and degree programs possible. Several scholars in agricultural education have had a variety of experiences with distance education and have made it a part of the research agenda. Some studies have focused on technologies and delivery methods (Bowen & Thomson, 1995; Dooley & Murphy, 2001; Murphrey & Dooley, 2000; Swan & Brehmer, 1994). Others have addressed course design and learning (Boyd & Murphrey, 2001, 2002; Dooley, Lindner & Richards, 2003; Murphy, 1999, 2000). Some researchers have examined learner characteristics, needs, and experiences (Kelsey, Lindner, & Dooley, 2002; Shih & Gamon, 2001).

Off-campus students are different from traditional college students. Distance learners are typically older and generally maintain a professional career in addition to taking courses (Murphy, 2000; Nti & Bowen, 1998; Wilson, 1991). Miller and Honeyman (1993) described off-campus learners enrolled in selected agricultural videotaped courses as being older, generally farmers or agricultural professionals, and motivated to enroll in the program to pursue a degree. Lehtola and Boyd (1992) described agricultural distance learners as self-motivated and self-disciplined while Gulliver and Wright (1989) noted that distance learners did not place a high degree of value on interacting with other students.

Kelsey et al. (2002), however, found that students participating in the Doc-at-a-Distance program valued the interaction and support they received from other students in a cohort group.

Students who pursue degrees through off-campus programs face a number of obstacles not normally encountered by traditional college students. Off-campus students often live too far from campus to attend on-campus classes, generally have a number of competing demands placed on their time, and are concerned with the costs associated with college (Hezel & Dirr, 1990; Kelsey et al., 2002; Thompson, Simonson, & Hargrave, 1991). Asynchronous delivery technologies such as videotape can be effectively used to reduce the negative effects of obstacles related to time, costs, and convenience (Miller & Honeyman, 1993; Owen & Hotchkis, 1991). In response to student choice, asynchronous delivery methods are frequently used to deliver courses associated with the off-campus agriculture degree programs at Iowa State University. In fact, Miller and Pilcher (2002) discovered that 95% of the adult distance learners who participated in their study on learning strategies were enrolled in courses delivered primarily through asynchronous technology (i.e., videotape, Internet, CD-ROM).

The College of Agriculture at Iowa State University began offering an off-campus M.Ag. in Professional Agriculture in 1979. The off-campus program in Professional Agriculture expanded to include a B.S. degree in 1991. The purpose of the off-campus agriculture degree programs is to provide post-secondary agricultural education opportunities to persons who are unable to or prefer not to study on campus (Miller & Honeyman, 1993). In the fall of 1993, Miller (1995) conducted a follow up study of graduates of the off-campus degree programs. Miller was motivated to conduct the study to generate knowledge of agricultural distance learners, their experiences with off campus degree programs, and the obstacles they face in pursuit of their degrees to use in creating higher quality programs that are more responsive to student needs. New leadership and other changes that were under consideration for the off-campus agriculture degree programs stimulated interest in conducting a second follow-up study to examine trends in learner characteristics and experiences.

In the years since Miller's 1993 follow up study, distance education and related educational technologies have developed rapidly. According to a report by International Data Corporation (as cited in American Federation of Teachers, 2001), the percentage of colleges offering distance education courses increased from 62 to 85 percent from 1998 to 2002. Projected enrollments increased from one-half million to over two million during the same period. As further evidence of development, consider the fact that no graduate surveyed in 1993 had ever used a graphics-based web browser (PBS, n.d.) nor had they experienced all of the learning tools associated with this level of technology. High profile distance learning providers such as the Western Governor's University did not exist (Western Governors University, 2003). Much had changed in seven years and the time was right to examine trends related to students and their experiences with the off-campus agriculture degree programs.

Purpose and Objectives

The purpose of this trend study (Ary, Jacobs, & Razavieh, 2002) was to identify changes in learner characteristics and program related experiences associated with two off-campus agriculture degree programs. The study was guided by the following objectives.

1. Compare alumni of the off-campus agriculture degree programs who graduated prior to spring semester 1994 with those who graduated between spring 1994 and spring 2001 on selected demographic characteristics.
2. Compare alumni of the off-campus agriculture degree programs who graduated prior to spring semester 1994 with those who graduated between spring 1994 and spring

2001 on selected program-related experiences.
3. Compare alumni of the off-campus agriculture degree programs who graduated prior to spring semester 1994 with those who graduated between spring 1994 and spring 2001 on their perceptions of selected obstacles to off-campus study.

Methods

The population for the study consisted of all persons who had earned a B.S. or M.Ag. in Professional Agriculture from Iowa State University through spring semester 2001. The population was studied at two points in time. Forty-six master's degrees and seven bachelor's degrees had been awarded through fall semester, 1993. All 53 of these graduates were surveyed in the fall of 1993. In the spring of 2001, all persons who had graduated between spring 1994 and spring 2001 were surveyed. Thirty master's and 20 bachelor's degrees had been awarded during this time (Table 1).

Table 1
Sample Sizes and Response Rates of Graduates by Academic Level

	1993		2001	
Group	*f*	%	*f*	%
Masters total	46	100	30	100
respondents	42	91	24	80
Bachelors total	7	100	20	100
respondents	4	57	10	50
Total sample	53	100	50	100
Total response	46	87	34	68

Relevant portions of the questionnaires used to collect data in 1993 and 2001 were identical. A six-point Likert-type scale with response categories ranging from insignificant (1) to significant (6) was used to measure graduates' perceptions related to obstacles faced by off-campus students. An item pool for the perception scale was generated by interviewing administrators, advisors, professors, and students associated with the off-campus agriculture degree programs. Ten students enrolled in the off-campus programs participated in a field test of the instrument. Ultimately, 13 obstacles were selected for the scale. Cronbach's alpha was calculated to estimate the internal consistency of the scale and resulted in a coefficient of .71 for data collected in 1993 and .83 for data collected in 2001.

The questionnaire included the obstacles scale in addition to selected demographic questions and questions related to graduates' experiences with the off-campus programs. A panel of faculty and graduate students in agricultural education judged the questionnaire to be content and face valid.

Data for the study were collected by mailed questionnaire. The questionnaire, a cover letter, and a stamped return envelope were sent to all (N = 103) persons who had earned a degree in Professional Agriculture through spring semester 2001. Approximately four weeks after the initial package was mailed, a second complete package was sent to all nonrespondents. No additional follow-ups were conducted in 2001. Two weeks after the second complete package was mailed in 1993, however,

telephone calls were made to all nonrespondents to encourage participation in the study. In 1993, 42 master's graduates and 4 bachelor's graduates completed and returned the questionnaire for a response rate of 87%. In 2001, 24 master's graduates and 10 bachelor's graduates completed and returned the questionnaire for a response rate of 68% (Table 1). The researchers followed Lindner, Murphy, and Briers' (2001) recommendations for handling nonresponse. The protocol for comparing early and late respondents was used. No statistically significant differences between early and late respondents were observed. The researchers concluded that the results of this study were generalizable to the intended target population.

Data were analyzed with the SPSS personal computer program. Appropriate statistics for description were used including, percentages, means and standard deviations.

Results

Graduates of the off-campus agriculture degree programs prior to spring 1994 ranged in age from 27 to 67 years. They were, on average, 45.04 years old with a standard deviation of 9.19. Most (89.1%) of the graduates were male. Persons who graduated between 1994 and 2001 ranged in age from 25 to 60. Their mean age was 43.56 with a standard deviation of 8.73. A majority (79.4%) were male.

Graduates were asked to identify their occupation at the time they enrolled in their degree program and to identify their occupation at the time they participated in this study. Table 2 shows a decline in the proportion of graduates who were farmers or agricultural extension workers from 1993 to 2001. The proportion of graduates who reported occupations in agribusiness or "other" areas increased from 1993 to 2001. Almost half (46%) of the graduates surveyed in 1993 indicated that a change in their occupation or position within their occupation was influenced by their off-campus agriculture degree. Forty-two percent of graduates surveyed in 2001 credited their off-campus agriculture degree with occupational changes.

Table 2
Occupation of Graduates at the Time of Enrollment and at the Time of the Survey

	At Time of Enrollment		At Time of the Survey	
Occupation	1993 %	2001 %	1993 %	2001 %
Farming	34.8	23.5	34.8	14.7
Agricultural Extension	21.7	8.8	23.9	14.7
Agribusiness	19.6	26.5	19.6	26.5
Agricultural Education	8.7	8.8	4.3	11.8
Soil Conservation	6.5	11.8	6.5	5.9
Other	13.0	26.5	28.3	32.4

Note. The numbers represent the percentage of respondents who indicated employment in each occupation. Some respondents indicated more than one occupation.

Graduates were asked to rank four motivating factors for enrolling in the off-campus agriculture degree programs. Graduates participating in the 1993 and 2001 surveys ranked pursuing a degree as the most motivating factor and rated acquiring current technical knowledge second. Graduates participating in the 1993 survey rated enjoyment of learning new information third and career advancement fourth while those participating in the 2001 survey rated career advancement third and enjoyment of learning new information fourth (Table 3).

Table 3
Mean Rankings and Standard Deviations for Factors that Motivated Graduates to Enroll in the Off-Campus Programs

	1993		2001	
Motive	*M*	*SD*	*M*	*SD*
Pursuing a degree	1.59	.90	1.52	.87
Acquiring current technical knowledge	2.52	.99	2.82	.88
For the enjoyment of learning new information	2.93	1.09	3.27	1.01
Career advancement	3.12	1.17	2.84	1.30

The amount of time taken to complete the off-campus degree programs ranged from a low of 24 months to a high of 126 months for graduates surveyed in 1993 and from a low of 3 months to a high of 168 months for graduates surveyed in 2001. Table 4 shows that a higher proportion of graduates surveyed in 2001 graduated in five years or less when compared to graduates surveyed in 1993. However, the rates at which 2001 respondents graduated beyond five years slowed considerably. For example, 91.3% of graduates surveyed in 1993 had graduated after eight years whereas 76.5% of graduates surveyed in 2001 had graduated after eight years. Graduates surveyed in 1993 and in 2001 took, on average, five and three quarter years to complete their program. It is important to note that B.S. degree students were expected to enter their program after having completed all general education requirements. General education requirements accounted for approximately half of the credits required for the B.S. degree.

Table 4
Time in Months Taken by Graduates to Complete the Off-Campus Programs

	1993[a]		2001[b]	
Number of Months	%	Cum. %	%	Cum. %
< 25	2.2	2.2	14.7	14.7
25-36	6.5	8.7	5.9	20.6
37-48	10.9	19.6	23.5	44.1
49-60	21.7	41.3	11.8	55.9
61-72	19.5	60.9	2.9	58.8
73-84	19.5	80.4	11.8	70.6
85-96	10.9	91.3	5.9	76.5
97-108	4.4	95.7	5.9	82.4
109-120	2.2	97.8	8.8	91.2
> 120	2.2	100.0	8.8	100.0

[a] M=69.72, SD=22.77. [b] M=68.56, SD=42.48.

Graduates of the off-campus agriculture degree programs experienced a variety of delivery methods for their courses. Persons who were surveyed in 1993 may have taken several courses taught at off-campus sites through conventional methods. Videotape was a popular delivery tool during their tenure as students. Courses were also offered via satellite broadcast and through two-way audio and video communications technologies. This group would have been required to attend one or more on-campus sessions for each off-campus course that they took. Persons surveyed in 2001 also experienced a variety of delivery methods. After 1993, asynchronous delivery methods such as videotape and web-based courses became very popular. Methods that required students to attend classes at specific places and times became much less popular. The requirement to attend on-campus sessions was also discontinued shortly after the 1993 survey. The trends in course delivery made it possible for students to travel to campus less often. However, Table 5 demonstrates that graduates surveyed in 2001 actually came to campus more frequently than those surveyed in 1993 for reasons related to the off-campus programs.

Table 5
Number of Times Graduates Traveled to Campus for Reasons Related to the Off-Campus Programs

	1993		2001	
Number of Times	%	Cum. %	%	Cum. %
0 to 10	39.1	39.1	25.0	25.0
11 to 20	26.1	65.2	37.5	62.5
21 to 30	21.7	87.0	12.5	75.0
31 to 40	8.7	95.7	6.3	81.3
41 to 50	2.2	97.8	3.1	84.4
51 to 60	2.2	100.0	3.1	87.5
> 60	0.0	100.0	12.5	100.0

Graduates were asked to rate the significance of 13 obstacles to off-campus study using a six-point Likert-type scale. Table 6 reveals that taken together the 13 obstacles were considered to be less significant by graduates surveyed in 2001. For example, 45.7% of graduates surveyed in 1993 rated the obstacles slightly or moderately significant while only 22.6% of graduates surveyed in 2001 provided ratings this high. The overall mean score for 1993 respondents was 3.34 with a standard deviation of .67, but the overall mean for the 2001 respondents was 2.97 with a standard deviation of .88.

Table 6
Perceived Significance of 13 Obstacles to Off-Campus Study

	1993[a]		2001[b]	
Perceived Significance	%	Cum. %	%	Cum. %
Insignificant	0.0	0.0	3.2	3.2
Moderately insignificant	10.9	10.9	25.8	29.0
Slightly insignficant	43.4	54.3	48.4	77.4
Slightly significant	41.4	95.7	12.9	90.3
Moderately signficant	4.3	100.0	9.7	100.0

Note. Scale: 1=insignificant, 2=moderately insignificant, 3=slightly insignificant, 4=slightly significant; 5=moderately significant; 6=significant.
[a] M =3.34, SD =.67; [b] M = 2.97, SD =.88

To further elucidate graduate's perceptions of the 13 obstacles to off-campus study, the percentages of respondents who rated each obstacle as slightly significant to significant are presented in Table 7. Three obstacles were perceived to be slightly significant to significant by a majority of graduates surveyed in 1993 and 2001. The three obstacles were "limited number of courses offered", "difficulty in balancing school, personal, and work responsibilities", and "cost of the program". The proportion of respondents who rated five obstacles as slightly significant to significant declined by 12% or more from 1993 to 2001. With the percentage of decline in parentheses, these obstacles included; "faculty did not understand student needs" (19.4%), "lack of access to library facilities" (16.7%), "lack of access to instructors" (14.5%), "attending sessions held on campus" (12.5%), and "limited number of courses offered" (12%).

Table 7
Percentage of Respondents Who Selected Slightly Significant, Moderately Significant, or Significant for Each Obstacle

Obstacle	1993	2001
1. Limited number of courses offered.	82.6	70.6
2. Difficulty in balancing school, personal, and work responsibilities.	71.7	67.6
3. Lack of access to library facilities.	65.2	48.5
4. Cost of the program.	60.9	55.9
5. Attending sessions held on campus.	47.8	35.3
6. Course offerings did not fit needs.	47.8	47.1
7. Lack of scholarships.	47.8	45.5
8. Lack of access to instructors.	47.8	33.3
9. Lack of access to other students.	43.5	41.2
10. Dealing with a number of different departments.	39.1	41.2
11. Faculty did not understand student needs.	37.0	17.6
12. Accessing financial aid at the University.	34.8	33.3
13. Prerequisites required for classes.	19.6	23.5

Conclusions, Recommendations, and Implications

The characteristics of clientele served by the off-campus agriculture degree programs had changed significantly in a seven year period. A greater proportion of graduates surveyed in 2001 were women. In addition more graduates in 2001 were employed in agribusiness and "other" occupations while fewer were employed as farmers or extension workers. Graduates surveyed in 1993 and 2001 were primarily motivated to enroll in their programs to pursue a degree.

However, in 2001 graduates placed more emphasis on career advancement. A similar proportion of graduates surveyed in 1993 and 2001 credited their degree with occupational change. These data should be reviewed by curriculum planners as they work to align program outcomes with clientele needs, interests, and motivations. Curriculum planners must anticipate the changing environment and design distance education programs to meet the current and future needs of clientele.

The average amount of time taken to complete the off-campus agriculture degree programs reported by graduates surveyed in 1993 and 2001 was almost the same. Data for 2001 revealed that a higher proportion of graduates completed their degrees in five years or less. This may indicate progress in making it possible for students to complete their degrees in a timely manner. Even so, approximately 44% of graduates surveyed in 2001 took more than 5 years to complete their program. It is a realistic expectation that the off-campus agriculture degree programs take longer to complete than comparable on-campus degree programs. This conclusion may have policy implications for the masters degree program. At Iowa State University students are expected to complete their masters degree program within five years. Otherwise the student's major professor and the director of graduate education for the program must request a time extension from the dean of the graduate college. As the number of students in off-campus programs grows, on-campus rules and regulations need to change to meet the realities of distance learners.

Graduates surveyed in 2001 came to campus more often for reasons related to the off-campus agriculture degree program than those surveyed in 1993. Policy changes, course delivery changes, and advances in communication technology would lead one to expect a different finding. Perhaps the 2001 graduates came more often simply because they wanted to. This may demonstrate that the off-campus students valued face-to-face human contact and were willing to pursue opportunities to have such contact independent of program requirements. Research needs to be conducted on the value of residency requirements and on-campus components of distance education programs.

Significant progress has been made to lessen the significance of obstacles faced by off-campus students. Obstacles on which the greatest degree of improvement was achieved include: "faculty did not understand student needs", "lack of access to library facilities", "lack of access to instructors", attending sessions held on campus", and "limited number of courses offered". Much had changed in seven years that may have contributed to this progress. Some examples include: coordination of distance education across the university had become more standardized; faculty had participated in a range of professional development activities related to teaching at a distance; the requirement to attend on-campus sessions was discontinued; the World Wide Web made various documents more readily available; and electronic mail enhanced the ability of students and faculty to communicate. In spite of the progress, data from this study clearly indicate the priorities for continued improvement remain unchanged from 1993. The need to support students in achieving a balance among competing responsibilities still exists. Library access needs to be made available via the internet. Efficiencies need to be found to control increases in program costs. Faculty, staff, and administrators associated with the off-campus agriculture degree programs should work to improve distance education offerings and to increase the number and variety of courses. Universities offering distance education programs should consider sharing course offerings to increase the variety of courses available to students and to lessen the need for any one institution to offer an increasingly large number of courses.

There is a demand for distance education offerings and degree programs in agriculture at the graduate level. Existing programs can be improved and new programs can be better designed by seeking input from individuals who have participated in higher education distance education programs. The findings from this study indicate there is still much to be done.

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