

## A SUMMARY OF DISTANCE EDUCATION IN UNIVERSITY AGRICULTURAL EDUCATION DEPARTMENTS

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### Abstract

*Distance education has become commonplace on many university campuses throughout the United States. Anecdotal evidence would suggest that distance education has also become commonplace in a few agricultural education departments. However, little is empirically known about the use of distance education within agricultural education departments. The purpose of this study was to obtain baseline data for distance education activities in agricultural education departments and programs at higher education institutions. A census of the department chairs or programs leaders was used to gather data using a bimodal data collection method. An 82% response rate was achieved. Results indicated that over two-thirds of the agricultural education departments offered distance education courses. Course management software was the technology used most to deliver courses, closely followed by the Internet. The most frequent academic level of distance education courses offered was graduate courses. The average department had just over three faculty members who taught distance education courses. From an administrative perspective, the biggest motivating factor for agricultural education faculty to teach distance education courses was to provide better service to their clientele. Also from an administrative perspective, the overwhelming barrier to distance education in agricultural education departments was time constraints of faculty members.*

### Introduction and Theoretical Framework

Department chairs, program leaders, and other administrators are routinely asked to make difficult decisions regarding their respective departments. According to Fincher (2003) making these decisions occurs in five stages: 1) defining the situation; 2) choosing the criteria; 3) identifying the alternatives; 4) selecting one or more of the alternatives; and 5) verifying the results. For example, in an effort to continually meet the needs of their respective clientele, department chairs must make decisions regarding the curriculum of their respective programs, such as the format in which to deliver courses. These decisions can be complicated by a finite amount of resources. Two current options include traditional on-campus face-to-face courses and off-campus distance education courses.

When seeking alternatives to evaluate during the decision making process, Creswell and England (1994) reported that department chairs and other administrators often have difficulties obtaining adequate, quality information. Although administrators have a great deal of knowledge about their respective programs, learning about distance education practices from other agricultural education departments or programs is often more of a challenge. With a clear perspective of the national picture of distance education within agricultural education programs, more informed decisions could be made by examining a greater number of alternatives. Moreover, this national picture also has implications toward better meeting the needs of constituents including the credentialing of teachers.

Distance education has become commonplace on many university campuses.

In 1998, over 54% of all higher education institutions either offered, or planned to offer, distance education courses (Lewis, Snow, Farris, Levin, & Greene, 2000). Additionally, nearly 10% of all college students in the United States have taken off-campus distance education courses (Sikora, 2002). Countless more students have taken near-distance or hybrid distance courses.

Anecdotal evidence would suggest that distance delivery of courses has also become commonplace in several agricultural education departments. The Doc @ Distance program jointly offered by Texas A & M University and Texas Tech University, and the consortium of agricultural education departments that jointly offer online courses

and programs through North Carolina State University are examples of cooperative distance education programs. In addition to these, several other agricultural education departments are offering students the opportunity to complete courses via distance education technology.

In examining distance education within agricultural education departments, five components are of interest: the distance education practices of these departments, the demand and support for distance education, faculty related variables, motivating factors, and barriers to distance education. These components were developed into a conceptual model and used to guide this research (Figure 1).

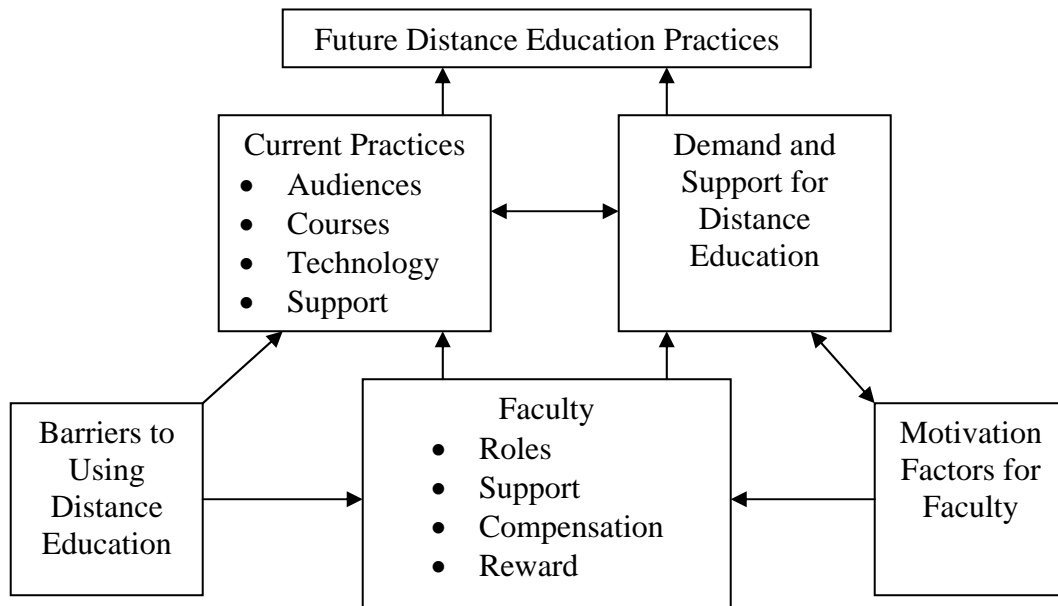


Figure 1. A Conceptual Model to Study Distance Education in Agricultural Education Departments.

The research base is limited in studies that examined agricultural education departments specifically. As such, studies of other academic disciplines were consulted to build a theoretical framework. Murphy and Terry (1998a) examined opportunities and obstacles to distance education in agricultural education utilizing the Delphi method. Although their sample included both secondary and post-secondary agricultural educators, selected findings from their study are relevant to the current

study. In terms of technologies utilized, the researchers concluded that computer-based telecommunications exhibited the greatest promise for future usage. Additionally, it was concluded that faculty and administrators considered time to be a major obstacle to the adoption of distance education. Additional obstacles included a lack of support and funding.

In a study of department chairs perceptions throughout colleges of agriculture, Bowen and Thompson (1995)

reported that department chairs were interested in providing better service to their students by subscribing to distance courses offered by nationally renowned experts, or by subscribing to courses that they would have been unable to offer due to low enrollment. They were least interested in offering multi-course programs by distance education. Responses also indicated a relatively high amount of support from their respective colleges; however, additional funding from the colleges did not accompany that support for most of the departments. Most of the department chairs also supported faculty receiving promotion and tenure credit for teaching distance education courses. A concern indicated by the department chairs was that faculty members needed additional training to teach distance education courses.

Murphy and Terry (1998b) concluded that substantial support was needed for faculty members to adopt distance education technologies. This study also indicated that faculty generally perceived that they had a lack of competence in using distance education technologies, and that they did not have access to training or assistance. Faculty members also felt that they did not have access to the necessary equipment and facilities. Additionally, faculty members did not feel that the time and effort required to develop a distance education course was valued.

In a study of American Distance Education Consortium (ADEC) members, Roberts, Irani, Lundy, and Telg (2004) reported that the majority of the institutions were delivering distance education courses to both undergraduate and graduate students. The technology used most frequently was course management software, followed by interactive video conferencing, and then the Internet. The least used technology was videotapes.

Jackson and Bowen (1993) identified six incentives that would motivate faculty members to teach distance education courses. These included recognition, additional funding, provide a better service by reaching more people, widespread demand, adequate staff support, and enough time. Inadequate funding and lack of faculty time were identified as barriers.

Murphrey and Dooley (2000) conducted a qualitative study to determine the strengths, weaknesses, opportunities, and threats to the diffusion of distance education in a college of agriculture. As strengths, the researchers reported the ability to reach new audiences and administrative support. Reaching non-traditional students was identified as an opportunity. Weaknesses were identified as limited incentives to develop and teach distance education courses and lack of skill or expertise related to distance education. Based on the findings of this study, the researchers recommended that administrative support, faculty training, and incentives be provided to help diffuse distance education within this college.

The limited literature base provides some understanding of distance education practices, faculty related variables, motivating factors for teaching distance education courses, and barriers to distance education within colleges of agriculture. However, given the social/behavioral focus of departments of agricultural education, in contrast to the bench science focus of many other departments, the findings of these studies may not be universally applicable. As such, a void exists in the literature about distance education practices within agricultural education departments or programs.

### **Purpose/Objectives**

The purpose of this study was to fill that void in the literature by obtaining baseline data for distance education activities in agricultural education departments and programs at higher education institutions. In doing so, five objectives guided this study.

1. Describe administrative perspectives of the demand and support for distance education in agricultural education departments.
2. Describe the current distance education practices of agricultural education departments.
3. Describe the capacity of agricultural education faculty related to distance education.

4. Describe administrative perspectives of motivational factors for faculty to teach distance courses in agricultural education departments.
5. Describe administrative perspectives of the barriers to distance education in agricultural education departments.

### Methods/Procedures

Data were collected for this study using a researcher-developed instrument. According to Salant and Dillman (1994), survey questions can seek to ascertain two kinds of information from respondents: their attributes or their attitudes. Questions that address attributes are usually simple and straight forward. Respondents will likely provide the same response if asked the same question again, thus minimizing measurement error (Salant & Dillman). The instrument used in this study contained 19 descriptive items, two rating scale items (1 = Low...5 = High), and two open-ended questions that sought attribute information. The instrument was checked for face and content validity by a panel of experts from the Department of Agricultural Education and Communication at the University of Florida.

The questionnaire was administered using a bimodal method that consisted of a web-based form, followed by a paper version. Both methods followed procedures outlined by Dillman (2000). Brashears, Bullock, and Akers (2003) reported that using a bimodal data collection method has proven to be an effective, cost-controlling alternative to traditional mailed surveys.

The population for this study was all university agricultural education departments and/or programs as listed in the *AAAE Directory of University Faculty in Agricultural Education* (Dyer, 2002). The contact person chosen for each department was the department chair or program leader ( $N = 88$ ). These individuals were deemed as the most likely source for the data in question. Given the small number of departments, a census of the population was used. Six participants responded that their

university no longer has an agricultural education program and were dropped, which adjusted the number of departments to 82. Usable responses were received from 67 departments for an 82% response rate. This study was descriptive in nature and inferences were not attempted. Therefore, non-response error was not deemed to be an issue. Consumers of this research are cautioned that the findings reported are applicable only to the 67 departments that responded.

Quantitative data was analyzed using SPSS. Frequencies and percentages were reported for nominal data. Rating scale items were treated as interval data and reported using means and standard deviations. Qualitative data was analyzed using a constant comparative method to group similar items (Glaser & Strauss, 1967). Each response was compared with the others and either placed into a category with similar responses or used to begin a new category.

### Results/Findings

Department chairs and program leaders generally have considerable impact on the course offerings within their departments or programs. The first objective of this study sought to describe administrative perspectives of the demand and support for distance education in agricultural education departments. Of the departments that offered distance education courses ( $n = 42$ ), the perceived need or demand for distance education courses was moderately high ( $M = 3.83$ ,  $SD = .95$ ) (Table 1). The overall perceived need or demand for distance education was slightly lower ( $M = 3.32$ ,  $SD = 1.32$ ). Similarly, of the departments that offered distance education courses, the perceived support from their college was average ( $M = 3.24$ ,  $SD = 1.02$ ), while the overall perceived support for distance education was lower ( $M = 3.08$ ,  $SD = 1.14$ ). Another aspect of support for distance education is funding distance education course and programs. A total of 26% of the department chairs ( $f = 11$ ) indicated that they received additional funding for these courses and programs.

Table 1  
*Department Chair Perceptions of Demand and Support for Distance Education*

|   | Departments Offering<br>Distance Courses |           | All Departments |           |
|---|--|-----------|-----------------|-----------|
|   | <i>M</i>                                 | <i>SD</i> | <i>M</i>        | <i>SD</i> |
| The Need or Demand for Distance Education   | 3.83                                     | .95       | 3.32            | 1.32      |
| Support for Distance Education From College | 3.24                                     | 1.02      | 3.08            | 1.14      |

*Note.* A five point Likert-type scale was used (1 = Low...5 = High).

The second objective of this study sought to describe the current distance education practices of agricultural education departments. An appropriate starting point was to examine the number

of courses offered by each department. Twenty-five departments (37%) offered no distance education courses during the 12 months preceding this study (Table 2).

Table 2  
*Distance Education Courses Offered in the Previous 12 Months*

| Number of Courses | Number of Departments | %    |
|-------------------|-----------------------|------|
| 0                 | 25                    | 37.3 |
| 1 to 5            | 24                    | 35.8 |
| 6 to 10           | 13                    | 19.4 |
| 11 or greater     | 5                     | 7.5  |

Twenty-four departments (35%) offered between one and five courses, 13 departments (19%) offered 6 to 10 courses, and five offered 11 or more courses. Of the departments that offered distance education courses ( $n = 42$ ), the number of students enrolled in distance education courses ranged from 4 to 260, with a mean of 62 students.

To gain a better understanding of the audiences of agricultural education distance education courses, the academic levels of the courses were examined (Table 3). Of the departments who offered distance courses, 66% ( $f = 28$ ) offered courses at the undergraduate level, 83% ( $n = 35$ ) offered courses at the graduate level, and 28% ( $f = 12$ ) offered in-service programs.

Table 3  
*Academic Level of Distance Courses Offered by Agricultural Education Departments (n = 42)*

| Academic Level     | <i>f</i> | %     |
|--------------------|----------|-------|
| Undergraduate      | 28       | 66.67 |
| Graduate           | 35       | 83.33 |
| Inservice Training | 12       | 28.57 |

Further data were collected to determine the occupation of the primary audience of students who enrolled in distance education courses offered by agricultural education departments. Of the departments that offered distance education courses, 23% ( $f = 10$ ) indicated that their students were primarily agriculture teachers (Table 4). Another 10 department chairs indicated that their students were primarily full time students.

Sixteen percent ( $f = 7$ ) specified that extension agents were their primary students and another three department chairs (7%) indicated that their students were primarily from business and industry. Six department chairs (14%) indicated that their distance student population was varied enough to prohibit clearly indicating which of the previous occupations represented the majority of their students.

Table 4  
*Primary Occupations of Students Enrolled in Distance Courses (n = 42)*

| Occupation                 | <i>f</i> | %     |
|----------------------------|----------|-------|
| Agriculture Teachers       | 10       | 23.81 |
| Full Time Students         | 10       | 23.81 |
| Extension Agents           | 7        | 16.67 |
| Business and Industry      | 3        | 7.14  |
| A Combination of the Above | 6        | 14.29 |

Describing the distance education practices of agricultural education departments also necessitated examining the types of technology used to deliver distance education courses. Of the departments that offered distance education courses, the technology most utilized was course management software (such as WebCT and Blackboard).

Twenty-nine departments (69%) used some type of course management software (Table 5). Twenty-three departments (54%) used the Internet or World Wide Web and 20 (47%) used interactive video conferencing. Videotapes and compact discs were the least used technology, utilized by only 11 departments (26%).

Table 5  
*Distance Technologies Used by Agricultural Education Departments (n = 42)*

| Type of Technology             | <i>f</i> | %     |
|--------------------------------|----------|-------|
| Course Management Software     | 29       | 69.05 |
| Internet/World Wide Web        | 23       | 54.76 |
| Interactive Video Conferencing | 20       | 47.62 |
| Videotapes or CDs              | 11       | 26.19 |

The third objective of this study was to describe the capacity of agricultural education faculty related to distance education. Of the departments that offered distance education courses, the number of faculty that taught distance courses ranged from 1 to 12 ( $M = 3.62$ ,  $SD = 2.56$ ). Of these departments, seven (16%) had faculty that were dedicated strictly to distance education. This included five departments with one faculty member,

one department with two faculty members, and one department with five faculty members.

The support given to faculty members that teach distance education courses is also a component of faculty capacity. Of the departments that offered distance education courses, 85% of the department chairs ( $f = 36$ ) responded that their faculty members have access to training related to distance education (Table 6).

Table 6  
*Support to Individual Faculty for Developing and Teaching Distance Courses (n = 42)*

| Support Item                                   | <i>f</i> | %     |
|--|----------|-------|
| Access to Training                             | 36       | 85.71 |
| TA/Graduate Assistants                         | 14       | 33.33 |
| Additional Compensation for Teaching Courses   | 11       | 26.19 |
| Staff Support                                  | 9        | 21.43 |
| Additional Compensation for Developing Courses | 7        | 16.67 |

Fourteen departments (33%) had faculty members that received either teaching or graduate assistants to help with distance education courses. Eleven (26%) indicated that faculty members receive additional compensation for teaching distance courses, while only seven departments (16%) compensated faculty for developing courses. Nine departments (21%) provided additional staff support to faculty members that teach distance education courses.

Faculty members in agricultural education departments serve several roles in distance education (Table 7). Of the departments that offered distance education courses, 93% ( $f = 39$ ) have faculty that serve as distance education instructors, 36% ( $f = 15$ ) have faculty that serve as researchers, 30% ( $f = 13$ ) have faculty that train other faculty on distance education issues, and 30% ( $f = 13$ ) have faculty that serve as consultants.

Table 7  
*Distance Education Roles of Agricultural Education Faculty (n = 42)*

| Role             | <i>f</i> | %     |
|------------------|----------|-------|
| Instructor       | 39       | 92.86 |
| Researcher       | 15       | 35.71 |
| Faculty Training | 13       | 30.95 |
| Consultants      | 13       | 30.95 |

Teaching, researching, training, and consulting require time from faculty members. Nineteen department chairs (45%) indicated that distance education activities were part of the normal workload for faculty members (Table 8). Seven departments

(17%) consider distance education activities as an additional workload for faculty members. Fifteen departments (36%) have distance education activities that are both part of a regular and an additional workload.

Table 8  
*Agricultural Education Faculty Workload for Distance Education Activities (n = 42)*

| Faculty Workload                    | <i>f</i> | %     |
|-------------------------------------|----------|-------|
| Regular Workload                    | 19       | 45.24 |
| Additional Workload                 | 7        | 16.67 |
| Both Normal and Additional Workload | 15       | 35.71 |

The fourth objective of the study sought to describe administrative perspectives of motivational factors for faculty to teach distance courses in agricultural education departments (Table 9). Of the departments that offered distance education courses, 13

department chairs (30%) indicated that faculty are motivated by the ability to provide better service to their students. Increasing student enrollment was a motivating factor for faculty in an additional three departments (7%).

In ten departments (23%), chairs indicated that financial incentives, either to the individual faculty member or the department, were a motivating factor. Six (14%) reported that faculty members are motivated by the opportunity to be involved in a futuristic or innovative educational practice. Four (9%) indicated that faculty members are motivated intrinsically to teach distance courses, while another four said that faculty teach distance courses for recognition. An

additional two department chairs (4%) indicated that faculty members who teach distance courses are looked upon favorably during faculty evaluations. Two department chairs (4%) reported that receiving additional support staff was a motivating factor for faculty members to teach distance education courses. In four departments (9%) teaching courses via distance delivery was described as part of the normal duties and thus extra motivation was unneeded.

Table 9  
*Administrative Perspectives of Factors that Motivate Faculty to Teach Distance Courses*  
 (n = 42)

| Factor  | f  | %     |
|---|----|-------|
| Provide Better Service                                    | 13 | 30.95 |
| Financial Compensation (Individual or Departmental)       | 10 | 23.81 |
| Involvement in a Future/Innovative Educational Experience | 6  | 14.29 |
| Intrinsic   | 4  | 9.52  |
| Recognition   | 4  | 9.52  |
| Distance Education is a Normal/Routine Activity           | 4  | 9.52  |
| Increase Enrollment                                       | 3  | 7.14  |
| Favorable on Faculty Evaluations                          | 2  | 4.76  |
| Extra Support to Faculty                                  | 2  | 4.76  |

The fifth objective of this study sought to describe administrative perspectives of the barriers to distance education in agricultural education departments. Of the 67 department chairs that contributed to this study, 34 (50%) conveyed that time constraints are a barrier to

distance education (Table 10). Nineteen (28%) indicated that the costs of implementing distance education or the lack of funding was a barrier. Similarly, equipment limitations were reported as a barrier in 13 departments (19%).

Table 10  
*Administrative Perspectives of Barriers to Distance Education (n = 67)*

| Barrier                               | <i>f</i> | %     |
|---------------------------------------|----------|-------|
| Time Constraints of Faculty           | 34       | 50.75 |
| Costs/Lack of Funding                 | 19       | 28.36 |
| Equipment Limitations                 | 13       | 19.40 |
| Technical Knowledge/Technical Support | 11       | 16.42 |
| Demand for Distance Education         | 4        | 5.97  |
| Lack of Recognition for Faculty       | 4        | 5.97  |
| Pedagogical Concerns                  | 3        | 4.48  |
| Administrative Issues                 | 3        | 4.48  |

Eleven department chairs (16%) listed a deficiency in technical knowledge about distance education or a lack of technical support as a limitation. Four department chairs (5%) indicated that lack of sufficient demand for distance education was a hindrance, while four chairs (5%) also conveyed that a lack of faculty recognition was also an obstacle for distance education. Pedagogical concerns were an impediment to distance education for three departments (4%). Additionally, administrative issues were a barrier for three departments (4%).

### **Conclusions, Implications, and Recommendations**

Given the methodology employed in this study, the conclusions drawn are applicable only to the respondents. Based on the objectives of this study, the following conclusions were drawn. Demand for distance education courses is moderately high; however, support from colleges in the form of monetary assistance, time allotments for developing and teaching distance-delivered courses, and technical support appear to be lower. This is inconsistent with Bowen and Thompson (1995), which conveyed a higher degree of support from

the college administration. Over two-thirds of the agricultural education departments offered distance education courses, with an average of 62 distance students at each department, although the range varied from four to 260 students. The majority of the departments offering distance education courses had less than five courses taught via distance delivery. This was consistent with the findings of Bowen and Thompson, who reported that department chairs were not interested in offering extensive distance education programs. In this study, only five departments offered 11 or more distance education courses.

Distance delivery of courses has become commonplace in many agricultural education departments in the United States, although variation exists among departments. Given that the moderately high demand for these courses indicated by department chairs, it is recommended that departments that do not currently offer distance education courses explore the possibility of doing so – or the possibility of collaborating with other departments that do. This should enable better service to clients and enhance the ability to reach more students. The very nature of distance education creates enhanced potential for

joint efforts among agricultural education departments. This concept may be particularly valuable to smaller departments without sufficient resources to offer a complete program. Existing cooperative distance education programs, such as Doc @ Distance, can serve as models for other departments that wish to offer similar programs.

Course management software is the technology used most often by departments to deliver courses, closely followed by the Internet. This is consistent with the results reported by Murphy and Terry (1998a) and Roberts et al. (2003). Other lesser-used technologies included video conferencing and videotapes.

The most frequent academic level of distance education courses offered from agricultural education departments was graduate courses, and to a lesser extent, courses were offered to undergraduates. Some were also used for delivering inservice training. This finding differs slightly from the audiences reported by Roberts et al. (2004). Agriculture teachers and full time students were the primary occupations of distance education students. However, extension agents and business and industry professionals were also enrolled.

Of the departments who offered distance education courses, the typical agricultural education department offering distance education courses has just over three faculty members who teach less than five distance education courses per year. Very few departments have faculty members that are solely dedicated to distance education. The most common role of agricultural education faculty related to distance education is that of instructor. To a lesser extent, faculty members served as researchers, faculty trainers, and consultants.

Distance education activities are often considered to be a part of the normal workload of faculty members. However, some departments consider distance education activities as additional workload and compensate faculty extra for developing and/or teaching these courses. The support item most often available was access to training. This finding contrasts the findings of Murphy and Terry (1998b), who reported only limited training access. To a much

lesser extent, faculty members had graduate assistants, staff support, and additional compensation.

According to department chairs, faculty are motivated to teach distance education courses for a variety of reasons, including to provide better service to their clientele, financial compensation for either the individual faculty member or the department, being involved in an innovative/futuristic educational practice, intrinsic motivation, recognition, part of the normal duties, increase enrollment, favorable on faculty evaluations, and extra staff support. These findings are consistent with those of Murphrey and Dooley (2000) and Jackson and Bowen (1993).

From an administrative perspective, the largest barrier to distance education in the agricultural education departments who responded appears to be the time constraints of faculty members. This finding supports a decade-old study by Jackson and Bowen (1993), indicating that this problem still remains unsolved. Additional barriers included costs and equipment limitations, lack of technical knowledge or support, lack of demand, lack of recognition for faculty, pedagogical concerns, and administrative issues. Murphy and Terry (1998a) along with Murphrey and Dooley (2000) also identified several of these barriers.

Providing additional compensation and recognizing faculty for distance education activities are motivating factors for faculty in the departments sampled. It seems appropriate that faculty members teach distance education courses, and that a reward system be devised. However, it is also recognized that time demands on faculty are a limiting factor and thus a barrier to all faculty having an opportunity to participate. Additionally, lack of faculty expertise and insufficient knowledge about distance education are also barriers. Therefore, if adequate time and training are not available, departments may resist offering distance education courses. Distance delivery tends to make average instructors look poor. Proper training and assistance must be provided if distance delivery of courses is to be successful and beneficial to both the institution and the clients served.

The findings of this study are applicable only to the respondents. Therefore, it is recommended that this study be replicated using a random sample to allow generalization to the population. A limitation of the findings of this study is that only administrative perspectives of faculty motivation and barriers were examined. It is recommended that further research be conducted that addresses these same phenomena using faculty members as the sample. Given the rate at which technology changes, it is recommended that this study be replicated periodically to see how technological changes affect the usage of distance education in agricultural education departments.

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