
Iowa Data: Professional Agricultural Degree Program Graduates Assess Their Videotaped Instruction Experiences as Distant Learners

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Abstract

The purpose of this study was to describe selected teaching practices and learning strategies related to agricultural courses delivered by videotape and to describe attitudes toward videotaped instruction. Graduates of an off-campus agriculture degree program were surveyed. The author discovered five learning strategies that the graduates routinely used. Graduates agreed that each of 15 instructional practices identified by the author from previous research was important to their learning and that their instructor(s) had used each. However, graduates provided higher mean scores for importance than for instructor use on each practice. Findings suggest that graduates held positive attitudes toward videotaped instruction.

Introduction

In today's rapidly changing information society, it is important that practicing agriculturalists remain up-to-date on the development of new technology and information. College teachers of agriculture and extension personnel have traditionally offered formal and informal educational programs to practicing agriculturalists. However, many people involved in agriculture have schedules that make it impossible for them to attend conventionally scheduled and delivered educational programs. Distance education offers a promising alternative for adult learners to earn degrees and acquire current technical knowledge (Jurasek, 1993).

In the most fundamental sense, distance learning systems connect the teacher and student when face-to-face interaction is not possible. Telecommunications systems move information and carry instruction just as highways move vehicles or pipes carry water. How these systems affect the educational setting and the instructional process depends on the types of technology used. "The key to effective distance education is focusing on the needs of the learners, the requirements of the content, and the constraints faced by the teacher, *before* selecting a delivery system" (Willis, 1994). Willis suggested that this focus will typically lead the educator to select a mix of media that is consistent with specific educational purposes.

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Educational organizations are using videotapes more often to carry information and deliver instruction. The trend toward greater use of videotape is a result of their low cost and convenience for students (Miller & Honeyman, 1993). Videotaped courses are extremely popular among students enrolled in the Iowa State University College of Agriculture off-campus degree programs. Since the spring semester of 1988, college of agriculture faculty have taught 27 courses to 1,040 students using videotape as the delivery medium. The departments of agronomy, animal science, economics, entomology, agricultural systems technology, plant pathology, animal ecology, and agricultural education have delivered at least one course by videotape (Doerfert, 1995). While videotape is often the primary instructional delivery tool, students receive regular mailings of print-based materials for each course, have access to the instructor via a toll-free phone number, and sometimes participate in on-campus laboratory sessions. Presumably the demand for videotaped courses is a reflection of positive student attitudes toward this medium. Previous research (Brown, 1983; Miller & Honeyman, 1993; Weeks, 1987; Wilson, 1990) involving adult learners show generally positive attitudes toward videotaped instruction. This article describes attitudes of former agricultural distance learners toward videotaped instruction, and identifies characteristics of videotaped instruction considered most positive.

Agricultural faculty who teach at a distance are responsible for the success of their courses and face several challenges toward ensuring that success. Faculty must develop an understanding of the distant learners, must be able to adapt their teaching style to accommodate the needs of an often diverse student group, and function well as a content provider and a facilitator of learning (Willis, 1994). Educators must develop appropriate teaching behaviors to improve instruction by videotape. This article describes teaching variables that students believe are important in videotaped courses. Also, learning strategies used by former distance learners were identified.

Purpose and Objectives

The purpose of this study was to describe selected teaching practices and learning strategies related to agricultural courses delivered via videotape. Additionally, the researcher sought to describe attitudes toward videotape as a tool for

delivering agricultural instruction. The objectives of the study were as follows:

1. Describe strategies found to be effective in learning from videotape.
2. Describe perceptions regarding the importance of and the extent to which selected videotape instructional practices were utilized by instructors.
3. Describe attitudes toward the use of videotape as a tool for delivering agricultural courses.
4. Describe relationships between attitudes toward videotaped instruction and selected variables.

Procedures

The population for the study consisted of all persons who had earned a bachelors or masters of professional agriculture degree from Iowa State University. The university had awarded forty-six masters degrees and seven bachelors degrees through Fall Semester, 1993. All graduates of the professional agriculture degree program (N=53) were included in the study.

The author designed the questionnaire to gather information about graduates' experiences with the off-campus professional agriculture degree program. Components of the questionnaire germane to this article included an open-ended question related to learning strategies, several demographic questions, and three Likert-type scales. A panel of faculty and graduate students in agricultural education established content and face validity for the questionnaire.

The questionnaire asked graduates to assess the importance of fifteen instructional practices for videotape and to indicate the extent to which instructors in their videotaped courses had used the practices. Graduate responses were based on a five-point Likert-type scale. The scale for assessing attitudes toward videotaped instruction consisted of 11 items, and also used a five-point Likert-type scale. Each of the Likert scales was based on previous research

conducted by Miller and Honeyman (1993, 1994). Cronbach's alpha reliability coefficients for the importance of the instructional practices, the instructors' use of the practices, and graduates' attitudes toward videotaped instruction scales were .91, .87 and .86 respectively.

The author collected data for the study with a mailed questionnaire. The author completed two follow-ups of non-respondents to encourage their participation in the study. Forty-two masters graduates and four bachelors graduates completed and returned the questionnaire for a response rate of 87%. Sixty-three percent (29) of the respondents had taken at least one videotaped course through the off-campus professional agriculture degree program. The findings reported in this article are based upon responses provided by this group of 29 graduates.

Results

Approximately 83% (24) of the graduates were male. The graduates ranged in age from 27 to 63 years, with an average

Table 1. Means and Standard Deviations for Importance of and Instructor Use of Videotape Instructional Practices

Item	Importance		Instructor Use		Mean Difference
	Mean	S.D.	Mean	S.D.	
1. The instructor(s) demonstrated command of the material that they were teaching.	4.52	.51	4.28	.59	.24
2. Supporting materials (text, study guide, etc.) contributed to my understanding of the courses(s).	4.46	.50	3.72	.88	.72
3. The instructor(s) were enthusiastic.	4.38	.56	3.90	1.01	.48
4. The instructor(s) spoke clearly	4.38	.56	4.14	.58	.24
5. Lessons were interesting.	4.35	.61	3.62	1.05	.73
6. The instructor(s) made clear the relative importance of the information presented.	4.31	.76	3.66	.90	.65
7. The instruction required me to think.	4.31	.47	3.90	.86	.41
8. The instructor(s) provided a structured outline of content to be taught.	4.28	.53	3.93	.37	.35
9. Tests required application of the course content.	4.28	.59	4.07	.75	.21
10. The instructor(s) spoke at an appropriate pace.	4.24	.58	4.03	.57	.21
11. The organization of content within a given lesson was logical.	4.24	.58	3.90	.49	.34
12. The instructor(s) effectively communicated the material to be learned.	4.24	.69	3.75	.79	.49
13. The instructor(s) demonstrated the interrelatedness of the course concepts.	4.17	.76	3.62	.68	.55
14. The instructors explained what I should know or be able to do as a result of viewing the videotapes.	4.14	.64	3.48	.91	.66
15. "Real world" application of content was stressed by the instructor(s).	4.11	.67	3.63	.97	.48

Importance: Mean 4.29 Std. Dev. .39

Instructor Use: Mean 3.84 Std. Dev. .49

Note: Based on Scale: 1 = strongly disagree; 2= disagree; 3= undecided; 4= agree; 5=strongly agree

age of 44.28 years and a standard deviation of 8.83. Graduates had taken as few as one but as many as 15 videotaped courses with an average of 4.04 courses and a standard deviation of 3.86.

The questionnaire asked graduates to describe strategies they had found to be effective for learning from videotape. Twenty-one (72%) graduates described their approach to learning from videotaped lessons. Strategies routinely mentioned included: (1) taking notes, (2) viewing videotapes in segments, (3) pausing tapes to think or take notes, (4) viewing tapes at specific times each week, and (5) viewing tapes a second or third time. One graduate reported making an audiocassette tape of the lesson to review while traveling.

Table 1 shows the means and standard deviations for the importance of and instructor use of 15 videotape instructional practices. Graduates agreed that each instructional practice was important for their learning and that their instructor(s) had used each. However, graduates provided higher mean scores for importance than for instructor use on each of the 15 practices. The differences between the importance ascribed to each practice and the extent to which graduates perceived that instructors had used them are also presented. The largest differences were noted for the providing quality supporting materials, presenting interesting lessons, explaining what students should learn from the videotape, and showing the relative importance of the information presented.

The reader may correctly argue that each of the 15 practices applies not only to the distant setting but also to conventional settings. Farr and Shaeffer (1993) suggested that

the principles of distance education and conventional education are analogous. And, Willis (1993) wrote "for the most part, effective distance teaching requires the enhancement of existing skills, rather than developing new abilities". However, the 15 practices listed in Table 1 are particularly important for distant learners (Cyrs & Smith, 1990; Gibson, 1985; Miller & Honeyman, 1994; Thompson, Simonson & Hargrave, 1991; Wilson, 1991).

Table 2 shows the means and standard deviations for individual statements on the attitude toward videotaped instruction scale. Results indicate that graduates provided more positive responses for statements related to the convenience of videotaped instruction, opportunities for learning provided by videotaped course, and the ability to control the pace of learning. Items that yielded lower mean scores suggested that graduates felt isolated and would prefer traditional methods of instructional delivery over videotape. The overall mean for graduates' attitude toward videotaped instruction was 3.72 (agree or positive) with a standard deviation of .59.

Correlations were calculated to describe relationships between graduates' attitude toward videotaped instruction and selected variables (Table 3). The correlations ranged in magnitude from low to substantial. The correlations indicated that graduates with more positive attitudes toward videotaped instruction tended to be female, were younger, had taken more videotaped courses, and were more likely to report that their instructors had used the 15 videotape instructional practices outlined in Table 1.

Conclusions, Recommendations, and Implications

The strategies that graduates reported to be helpful in learning from videotaped instruction were consistent with the findings of Miller and Honeyman (1994). The author concluded that the graduates of the professional agriculture degree program had learned to exploit the nature of videotaped instruction by viewing in segments, pausing the tapes to think or take notes, and viewing the tapes a second or third time to reinforce learning. Although all graduates experienced some measure of success in videotaped courses, this study does not provide a sufficient basis for determining the relative importance of particular learning strategies. Further research is needed to determine the qualitative and quantitative differences in learning behaviors between high and low achieving students in videotaped courses. Researchers and college teachers of agriculture should compare the learning behaviors of students with differing levels of achievement as a basis for making recommendations about how best to learn from videotapes.

Overall, graduates perceived the 15 videotape instructional practices to be important for their learning and perceived that the practices had been

Table 2. Means and Standard Deviations for Statements on the Attitude Toward Videotaped Instruction Scale.

Statement	Mean	S.D.
1. Learning through videotaped instruction was convenient.	4.64	.48
2. Videotaped courses allowed me to control the pace of my learning.	4.35	.61
3. Videotaped courses provided me with learning opportunities that I otherwise would not have had.	4.21	.94
4. I would enroll in another videotaped course.	4.07	.59
5. I would recommend videotaped courses to my friends.	4.00	.89
6. Videotaped courses should be utilized more often to deliver agriculture-related instruction.	3.90	1.15
7. I enjoyed learning from the videotaped lessons.	3.83	1.00
8. Learning through videotaped courses was boring.	3.21*	1.08
9. I would not have taken videotaped courses if I had some other means of acquiring course credit.	2.97*	.91
10. I felt more isolated as a student when I took courses by videotape.	2.90*	1.11
11. I preferred videotaped courses to traditional classroom instruction.	2.83	1.04

Mean 3.72 Std. Dev. .59

Note: Based on Scale: 1 = strongly disagree; 2= disagree; 3= undecided; 4= agree; 5=strongly agree

* Items 8, 9, and 10 were negatively stated, thus data for these statements were reverse coded to make consistent interpretation of the scale possible.

Table 3. Correlations Between Attitude Toward Videotaped Instruction and Selected Variables

Variable	Correlation	Description of the Association ^a
Instructor use of effective videotape instructional practices	.50	Substantial
Number of videotaped courses completed	.37	Moderate
Age	-.22	Low
Gender ^a	.22	Low

^a Davis, 1971

^a r_{pb}

used by their instructors. However, the extent to which the practices were used by instructors was lower than the perceived importance for each of the practices. College of agriculture faculty were doing a relatively good job of teaching through videotape, but efforts should be made to help faculty integrate more of the effective practices into their instruction. College of agriculture faculty should be provided an opportunity to participate in a formal program aimed at assisting them in improving the design, organization, and delivery of agricultural courses offered via one-way instructional television.

The instructional practices listed in Table 3 were considered to be important for learning by the graduates of the professional agriculture degree program, and the extent to which graduates perceived the practices had occurred was positively related to their attitude toward videotaped instruction. Agriculture faculty who teach at a distance might consider doing a self-assessment and ask their students to assess the extent to which they use the practices. A small number of practices could be targeted and consciously integrated into future distance teaching efforts. Feedback on the extent to which the practice was effectively used could be sought from a trusted colleague and from students enrolled in their course(s).

Faculty should routinely consider the learning preferences of their students when planning, organizing, and delivering courses. Faculty should also consider that any instructional media, including videotape, will be more or less obliging to a particular student's learning style (Ullmer, 1994). A body of research exists which demonstrates a significant improvement in student achievement and attitudes when teaching styles are congruent with learner preferences (Griggs, 1991). A challenge to college teachers of agriculture is to discover innovative teaching strategies that exploit the potential of the teaching medium.

Videotaped instruction provides a suitable means of offering credit courses to distant learners. This study shows that graduates were more positive about videotaped instruction when they perceived to a greater extent the use of effective instructional practices by their instructors. Therefore, quality instruction is key to maintaining the acceptability of this medium with distant learners.

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