

Utilizing Industry Experts and Interactive Video to Teach a Poultry Science Course

Donald Kennedy and David Agnew
College of Agriculture, Arkansas State University
State University, AR 72467

Abstract

An interactive-video course was designed to utilize poultry industry experts to teach a poultry science course to both employees of two poultry companies and traditional college students. This course was unique in that the "off-campus" site was the originating site for 10 of 14 class sessions. Two surveys were administered to the students enrolled in the course to assess their attitudes toward this type of instructional delivery and the course in general. Students responded with positive attitudes toward their experience with this interactive-video course. Both groups completed the course with an overall "B" average. Course averages were 88.3 ± 6.1 and 82.1 ± 6.7 (based on 100 points) for off-campus and on-campus students, respectively. The use of interactive-video provided an effective technique to use poultry industry experts to train industry employees off campus and enhance poultry science instruction on campus.

Introduction

The Arkansas poultry industry employs one of every 12 full-time workers making it the leading employer in the state (Arkansas Poultry Federation, personal communication). Many of these jobs require a college degree with technical training in poultry/animal science and business (Pardue, 1997). Poultry industry employees and potential employees must stay abreast of new information and technology that is impacting the industry. The need for adult education of non-production, agricultural employees has been documented in various studies in Kansas and Ohio (Anderson, 1982; Harbstreit et al., 1989). Furthermore, employees of two major poultry companies (ConAgra and Townsends Farms of Arkansas) have expressed the desire to take poultry science courses. However, these courses are not available to them through traditional means.

Arkansas State University in Jonesboro (ASUJ), is a non-land grant institution that offers B.S. and M.S. degrees in agriculture. However, because of limited resources, it is unable to offer the amount of expertise in poultry science to ideally prepare students for a career with the poultry industry. Pardue (1997) suggested that distance learning has the potential to ameliorate some of the problems associated with the lack of specialized expertise in poultry science at

some universities. To accommodate the needs of both industry employees and traditional college students, the College of Agriculture at ASUJ, ConAgra, and Townsends collaborated to design an interactive-video course titled Integrated Poultry Production. The purpose of this manuscript is to describe course development and discuss the effectiveness of instructional delivery using interactive video.

Methods

Integrated Poultry Production (ANSC 4943/5943) is a three-credit-hour, undergraduate/graduate course including basic principles of broiler production and management. The first author served as course coordinator and instructor-of-record. This course was offered for the first time during the fall semester of 1996. The class met one night each week to accommodate off-campus students. The course was delivered using a fully-interactive video system at ASUJ ("on-campus") and Ozarka Technical College ("off-campus"). The room on campus had six monitors and the off-campus site had two. Both sites were equipped with voice-activated microphones. Visual-aids were transmitted using a document camera, a slide projector (ELMO TRV-35H), and video player. Video recordings were made of each lecture and available for student use.

The students at the off-campus site were older part-time students, and except for one, were employed full-time with either ConAgra or Townsends (Table 1). The employment status and other demographic details of the off-campus students were typical of distance learners (Biner et al., 1994; Dille and Mezack, 1991; Miller and Honeyman, 1993). The on-campus group were more traditional agricultural students - younger, undergraduates, and full-time.

Students met in a classroom for 14 sessions and at ConAgra and Townsends facilities for one field trip. Thirteen poultry industry experts made presentations in their speciality areas. All guest instructors held at least an M.S. degree, but most had a Ph.D. or D.V.M. Management of ConAgra and Townsends shared the responsibility of procuring poultry experts to teach the course. The guest instructors neither requested nor received compensation for participating in this course.

Table 1. Selected student-demographic data from both distance learning sites.

	On-campus	Off-campus
Number of undergraduate students.	15	12
Number of graduate students.	5	6
Number full-time employed with the poultry industry.	0	18
Average years of experience with the poultry industry.	0	10

In most cases, guest instructors were contacted in advance by the ASUJ course instructor to discuss the mode of delivery and to identify needs and concerns of guest instructors about their presentations. All guest instructors were given a 10-minute orientation by a site facilitator prior to class which included operational procedures and instructions on equipment use.

Ten of the presentations originated from the off-campus site because this site was more convenient for most of the guest instructors, which were usually servicing the poultry companies in Batesville the day of their presentation. The four remaining lectures originated from the on-campus site. Facilitators were present at both sites during each class session.

Handouts from guest instructors were delivered to the ASUJ instructor via mail or facsimile for distribution to students at both sites. All students were evaluated based on their performance on midterm and final examinations. Exam questions submitted by guest instructors were compiled to develop examinations. All examination questions were objective (i.e., multiple-choice and matching). In addition, graduate students were required to submit a term paper as part of their evaluation.

An instrument developed and field tested at Pennsylvania State University (Layfield, personal communication) and adapted for this course, was used to assess student opinions about instructional delivery using interactive video. The standard ASUJ course and instructor evaluation instrument was also administered. Students responded to these instruments anonymously during the last class session.

Results and Discussion

The participation by management of ConAgra and Townsends of Batesville with identifying and scheduling guest instructors was invaluable. Each guest instructor was very willing to participate in teaching this course. They were well organized and were experienced at delivering presenta-

tions, especially to industry employees. Although these instructors had no previous experience using interactive-video equipment, they were able to reach an effective level of proficiency, with the help of the site facilitators. Several instructors commented that they were impressed with the technology and enjoyed gaining experience in its use. One problem with implementing this course was motivating the industry employees to complete the university admission process before the deadline. The admissions office reported admission delays were from slow arrival of students' immunization records and official transcripts from other colleges and universities.

Student attitudes toward the interactive-video class are presented in Table 2. Statements one through six were designed to identify student attitudes toward the instructional equipment and technical problems. Most (80%) students agreed that interactive video was an effective instructional medium (statement one). However, 26% of the on-campus group indicated they were distracted by the camera (statement two) as compared with 17% of the off-campus group. Compared with only 6% of the off-campus students, 26% of the on-campus students agreed or strongly agreed that technical difficulties (statement three) through interactive video restricted their learning. Audio quality (statement four) and picture quality (statement five) were appropriate for the majority of students at both sites. Differences of opinions concerning technical difficulties among these two groups could be attributed to the fact most (77%) of the presentations originated from the off-campus site. In one instance, lack of appropriate equipment at the off-campus site prevented a computer presentation from being transmitted to the on-campus site. As a result, the on-campus group could only listen to the presentation. Good communication between the course coordinator and guest instructors well in advance of presentation dates, and knowledge of equipment availability at all sites, are critical to minimizing potential technical problems. Nevertheless, 68% of the on-campus group disagreed or strongly disagreed with statement three as compared with 75% of the off-campus

group, suggesting that technical difficulties were not a major hindrance for the majority of students.

Statements seven through twelve (Table 2), primarily focus on the student's ability to personally interact with fellow students and instructors during an interactive-video class. More than 88% of all students agreed or strongly agreed that this type of class allowed adequate interaction between themselves, fellow students, and instructors. Fifty-eight percent of all students agreed or strongly agreed that a class using interactive video was as good as a face-to-face class (statement 13), and 75% of all students agreed that they had control over their learning (statement 14). However, a lower percentage of off-campus students (56%) than on-campus students (63%) agreed or strongly agreed with statement 13 even though 10 of the 14 classes off campus were face-to-face with the instructor. The reason for this response is unclear. Possible explanations may include: off-campus students were older and were less accustomed to video technology, and had less experience with interactive video by the end of the course when surveys were made. Furthermore, 74 and 63% of the students on-campus and off-campus, respectively, agreed or strongly agreed that they would take another course using interactive video (statement 15).

Student perceptions of their comfort level before and after the course toward interactive-video technology are presented in Table 3. It should be noted that students responded to both before and after statements during the last class period. Off-campus students perceived that they were significantly more comfortable with interactive video after the course than they were before the course, based on differences in their response means (before vs. after). No significant changes in comfort level of on-campus students were revealed. Perhaps, the off-campus group felt their comfort level increased because most of the presentations originated from their site; therefore, they relied less on the technology, as compared with the on-campus group.

Student attitudes toward the instructor and course as measured by selected items from the standard ASUJ teacher/course evaluation form are included in Table 4. Compared with on-campus students, ratings given by the off-campus students were higher in all areas except presentation of subject matter (statement four). Most (79%) of the on-campus group indicated the course was highly valuable (statement six). Unfortunately, the off-campus group failed to respond to statement six. Both groups completed the course with an overall "B" average. Course averages were 88.3 ± 6.1 and 82.1 ± 6.7 (based on 100 points) for off-campus and on-campus students, respectively.

Conclusions and Recommendations

Interactive-video provided an effective approach for using poultry industry experts to train industry employees off campus and enhance poultry science instruction on campus. This course provides an example of a technique ("reverse" distance education) universities could use to improve instruction in disciplines where faculty expertise is limited. Furthermore, traditional college students are exposed to practical experiences and problem-solving strategies that are encountered in industry. Establishing a good rapport with the appropriate industry can greatly facilitate the implementation of this type of instructional program. Furthermore, good communication between the course instructor and guest instructors is critical to minimizing potential technical problems, especially at the remote site. Most of the problems with the off-campus group occurred prior to the course during the enrollment process. An "easy access" admission policy for non-traditional students should help increase enrollment. In general, students responded positively to statements about the course with the majority indicating that interactive video was good as a face-to-face class and they would enroll in another interactive-video course. Most of the on-campus students ranked the course as highly valuable to them. One industry employee who took the course commented: "this was great, let's do it again."

Literature Cited

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Table 2. On-campus (ON, N=19) and off-campus (OFF, N=17) student attitudes toward interactive-video class.

Statement	Site	SA ²	A	U	D	SD
1. The interactive capability of the instructional medium used for this class was effective.	ON	21.1	52.6	10.5	10.5	5.3
	OFF	35.3	52.9	5.9	0	5.9
2. I found the presence of cameras and TV screen distracting.	ON	5.3	21.1	10.5	42.1	21.1
	OFF	0	17.7	11.8	29.4	41.2
3. Technical difficulties through interactive video restricted my learning.	ON	10.5	15.8	5.3	57.9	10.5
	OFF	0	5.9	0	52.9	41.2
4. The audio quality of the interactive video was appropriate.	ON	21.1	42.1	21.1	15.8	0
	OFF	29.4	58.8	11.8	0	0
5. The picture quality of the interactive video was adequate.	ON	21.1	57.9	10.5	10.5	0
	OFF	35.3	47.1	11.8	5.9	0
6. The use of the graphic camera (ELMO) enhanced my learning.	ON	21.1	47.4	26.3	0	5.3
	OFF	25.0	37.5	31.3	0	6.2
7. I was able to interact adequately with my fellow students.	ON	31.6	57.9	10.5	0	0
	OFF	41.2	58.8	0.0	0	0
8. I felt I received enough attention from the instructor.	ON	31.6	57.9	5.3	0	5.3
	OFF	23.5	64.7	11.8	0	0
9. I received adequate preparation for using the technology related to the course.	ON	21.1	57.9	21.1	0	0
	OFF	29.4	52.9	17.7	0	0
10. I had access to the instructor when I needed help.	ON	42.1	52.6	5.3	0	0
	OFF	41.2	47.1	11.8	0	0
11. The site facilitator was helpful in addressing my concerns	ON	10.5	78.9	5.3	5.3	0
	OFF	23.5	76.5	0	0	0
12. The instructor involved students from both locations in class discussion.	ON	36.8	52.6	5.3	5.3	0
	OFF	23.5	58.2	5.9	0	11.8
13. A class using interactive video is as good as a face-to-face class	ON	21.1	42.1	15.8	15.8	5.3
	OFF	23.5	29.4	17.7	17.7	11.8
14. The class gave me control over my own learning.	ON	15.8	63.2	15.8	0	5.3
	OFF ³	11.8	58.2	5.9	0	11.8
15. I would take another coursing using interactive video.	ON	26.3	47.4	10.5	0	15.8
	OFF ³	25.0	37.5	31.3	0	6.2

² Scale: SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly Disagree

³ One blank response

Table 3. Students' perception of their comfort level with instructional delivery using interactive video before and after the course.²

Statement and Site	Before Course Mean ± SD	After Course Mean ± SD
1. Interacting via interactive video during class time when called upon.		
On-campus (N= 13)	2.0 ± 1.0	2.0 ± 0.8
Off-campus (N = 13)	2.5 ± 0.6	1.9 ± 0.9
Overall (N = 26)	2.3 ± 0.9	2.0 ± 0.8
2. Seeing your picture on TV.		
On-campus (N= 13)	1.9 ± 0.9	2.1 ± 0.8
Off-campus (N = 13)	2.2 ± 0.7	1.7 ± 0.6
Overall (N = 26)	2.1 ± 0.8	1.9 ± 0.7
3. Having the instructor call on your site for a response.		
On-campus (N = 12)	2.0 ± 1.0	2.2 ± 0.8
Off-campus (N = 13)	2.2 ± 0.6	1.8 ± 0.4
Overall (N = 25)	2.1 ± 0.8	2.0 ± 0.7
4. Interacting with other class members.		
On-campus (N = 13)	2.0 ± 1.0	2.1 ± 0.8
Off-campus (N = 13)	2.1 ± 0.8	1.6 ± 0.5
Overall (N =26)	2.0 ± 0.9	1.9 ± 0.7
5. Knowing your verbal comments were on TV.		
On-campus (N = 13)	1.9 ± 1.0	2.0 ± 0.7
Off-campus (N = 13)	2.2 ± 0.7	1.8 ± 0.4
Overall (N = 26)	2.1 ± 0.8	1.9 ± 0.6
6. Communicating with the instructor electronically.		
On-campus (N = 11)	1.9 ± 1.0	2.1 ± 0.8
Off-campus (N = 13)	2.4 ± 0.5	2.0 ± 0.6
Overall (N = 24)	2.2 ± 0.8	2.0 ± 0.7

² Scale: 1= Very comfortable, 2 = Comfortable, 3 = Uncomfortable, 4= Very uncomfortable

Table 4. On-campus (N = 18) and off-campus (N = 17) student attitudes toward the instructor and course as measured by selected items from the institutional evaluation form².

	Ranking					Mean ± SD
	1	2	3	4	5	
	%					
1. Objectives clarified by the instructor. (1 = vague, 5 = clear)						
On-campus	5.6	5.6	11.1	55.6	22.2	3.8 ± 1.0
Off-campus	0	0	0	11.8	88.2	4.9 ± 0.3
2. Organization of the course. (1 = poor, 5 = exceptional)						
On-campus	5.6	0	27.8	44.4	22.2	3.8 ± 1.0
Off-campus	0	0	11.8	41.2	47.0	4.4 ± 0.7
3. Knowledge of subject matter. (1 = poor, 5 = superior)						
On-campus	11.1	11.1	11.1	44.4	22.2	3.6 ± 1.3
Off-campus	0	0	0	35.3	64.7	4.7 ± 0.5
4. Presentation of subject matter. (1 = not clear, 5 = clear)						
On-campus	5.6	0	22.2	55.6	16.6	3.8 ± 0.9
Off-campus	0	11.8	41.2	23.5	23.5	3.6 ± 1.0
5. Ability to arouse interest. (1 = poor, 5 = good)						
On-campus	5.6	5.6	27.8	44.4	16.6	3.6 ± 1.0
Off-campus	0	5.9	17.7	41.2	35.3	4.1 ± 0.7
6. General estimate of course ^y (1 = little value, 5 = great value)						
On-campus ^x	0	5.6	22.2	44.4	22.2	3.9 ± 0.9

² Standard Arkansas State University Teacher/Course Evaluation Form.

^y Off-campus students did not respond to this statement.

^x One blank response.