LEARNING FROM ASSESSMENT:
EFFECT OF CHANGES IN AN ONLINE COURSE
ON STUDENTS' PERCEPTIONS AND PERFORMANCE

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ABSTRACT

Student satisfaction with, and performance in, a first-offer online agrisales course was compared with that of students enrolled in a simultaneously-taught classroom course. Online and classroom students were equally satisfied with the course and the instructor using most measures, and student overall performance did not differ. However, online students tended to do better on exams while classroom students demonstrated a greater ability to apply course concepts to a practical setting. Changes were made in the online course to improve student understanding of and ability to apply course concepts. Specifically, online student exams were no longer open-note / open-book and were proctored. On-campus online students also participated in their final sales presentation with classroom students. Coinciding with these changes were improvements in satisfaction and performance among online students, and a change in their use of class resources.

KEY WORDS: agricultural sales, assessment, distance education, online

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Online course offerings continue to grow. The growth rate was 35% between 2004 and 2005 according to Allen and Seaman (2006). For many of the reasons noted in the literature, our existing classroom-based agricultural sales course was modified for its initial online offering in 2003. Our specific objectives were to diversify and expand the audience for this course, and provide more flexibility in course scheduling for students on campus. Asynchronous web-supported courses with audio-supported video or slide presentations are the most prevalent methods of distance education used in Agricultural Economics (Jensen and English, 2007). Our course was no different. PowerPoint® presentations and written materials including the course syllabus, homework assignments, and descriptions of course projects, were revised. Voice-overs were prepared for each of 18 PowerPoint® presentations which had been shortened from those used in the classroom. One presentation introduced students to the course. Each of the remainder replaced approximately one 75-minute in-class lecture. Resulting online presentations ranged from 7.6 to 30.2 minutes. The average presentation length was 18.4 minutes, coincidentally similar to the 15 minutes later recommended by Makus (2006). In-class activities and presentations by professional salespeople were used in the classroom but not offered to online learners.

In the initial offering, the design of communication and assessment of student performance components of the online course were approached naïvely. The literature demonstrates that students do what we inspect (i.e., what counts toward course credit) versus what we expect (e.g., for learning sake per se) (e.g., see Maki and Maki, 2000). However, limited experience (i.e., none) and time constraints resulted in a rudimentary structure for student-instructor communication and online delivery of assignments and performance measures (e.g., exams). The announcement feature in Blackboard® and email messages were frequently used by the instructor to communicate with students. On-campus online students could and did regularly stop by to ask questions of the instructor or to submit and pick up graded assignments and exams. Off-campus students used fax and email. Telephone correspondence was noted as an available option but was rarely used.

Motivations, satisfaction, and performance of online learners was assessed and compared to that of students concurrently taking the course in the classroom (see Wachenheim, (2004) for details not provided here). Allen and Seaman (2006) report that most chief academic officers believe that the quality of online courses is superior to (16.9%) or as good as (45%) the quality of classroom-taught courses. However, they also therefore note that nearly 40 percent believe online course quality to be inferior and they note that faculty acceptance is a constraint to development of online courses. Schmidt and Miller (2005) reported that 67% of administrators surveyed at land grant agricultural colleges expressed "great concern" about the overall quality of distance education courses and Roberts et al. (2005) suggest that faculty generally view distance education courses as inferior to those taught in the classroom. Thus, we were cognizant of the need, not only to offer a quality online course, but to demonstrate its quality through assessment.

In the initial offering, classroom students were more satisfied with the instruction in the course than online students, although there was no difference otherwise in perception of the instructor, her performance or the course. Students, either in the classroom or, where it is perhaps more important, in the online section, were self-admittedly not reading the textbook, and online

students were not listening to the audio lectures. Furthermore, student comments from the assessment of the initial offering suggested that online students were simply looking up responses to exam questions rather than learning the material before they took the exams. These findings led us to believe that our objectives for student-mastery of course content were not being met.

In fact, there was no difference in overall course performance; although grades on individual activities did differ. Online students did better on rudimentary homework assignments and exams but were less able to apply course concepts to a practical setting. Application exercises included the "Ready Set Sell" (RSS) activity and the associated paper, and a paper relating their day with a sales professional to course content. Thus, by their own admission and as supported by their lesser ability to apply course concepts, online students did not engage themselves in discovering much beyond that necessary to complete the assignments and open-note / open-book exams. It is not clear whether this was a reflection of the course being online or that they needed stronger motivation to increase their exposure to available resources. Assuming the latter, resulting objectives for revision of the online course were to increase student use of supporting materials (especially audio-supported lectures) and their performance on applied activities.

METHODS

Course Revisions

There is a plethora of literature that demonstrates at least a correlation between course attendance and performance and, except when attendance is mandatory or explicitly rewarded, attendance reflects a motivation to learn (Siebert et. al., 2006). An online course environment requires redefinition of the concept of attendance. The audio-supported PowerPoint® presentations were intended to replace the traditional lecture. Thus, we hoped to increase student use of the audio-supported presentations and, wherever possible, other course materials.

Motivating student (quality) time with course materials was attempted by replacing open-note / open-book exams with proctored exams. Rather than being able to look-up responses to test questions, students would have to know the material the exam (potentially) covered before they took it. As such, the theory was that they would be motivated to spend more time mastering the broad range of material covered.

Further motivation was offered to highlight the importance of being able to apply course concepts in a practical setting. During the first offering, the handful of on-campus online students were brought together to make their sales presentation (RSS activity) to one individual. As they made their presentation, other students observed under the hypothesis they would learn from doing so. Alternatively, classroom students were evaluated in groups by one of approximately ten sales professionals in a "big event" finale to the course. After the sales presentations were completed for the classroom students, the students and sales professionals went out to dinner together to further discuss the presentations and a plethora of other topics related to sales. In other words, online students simply came into a conference room on campus for an hour and made their sales presentations with other students, whom they had not met within the context of the class, observed other students doing the same, and then went on their way. Classroom students attended "RSS night"!.

In this initial offering, online students did not perform as well on their sales presentations, although it was not clear if this was because those choosing the on-line section were different (e.g., more introverted), less motivated or otherwise had a different experience, or if their sales professional was a particularly strict grader. They also did disappointing relative to their classroom peers on the paper describing their experience and relating it to course concepts. Stephenson et al. (2005) found that classroom students gained interest in specific topics discussed in class when compared to their distance education counterparts and that they evaluated their class more positively. We hoped to bring some of the classroom discussion to our online students. To allow for investigation of observed differences, and to help motivate the students to be well prepared for and succeed in their presentation, on-campus online students during the revised offering participated in RSS night with the classroom students.

Course Evaluation

The course evaluation instrument did not change substantially from that offered in the previous year. The instrument remained anonymous. Collected information included student demographics and student motivation for enrollment, satisfaction with the course, and participation in course activities. Parametric t-tests were used to compare mean numeric responses between the classroom and online students and to compare responses by students in the first-offered and revised online courses. [Some online responses for 2003 are slightly different from those reported in Wachenheim (2004) because only the on-campus online students

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were included for this analysis. The one off-campus online student did not complete the course.] Students were asked to indicate those (aided) factors that motivated or otherwise influenced their decision to enroll in the course and indicate the importance of each. Factors include: the course fit a category of electives for their academic program, they had an interest in the subject, time of course offering or the instructor was important, and the course had been recommended. In addition, online students were asked to indicate those factors which influenced their selection of the online section and to indicate the importance of each.

Students were asked about their satisfaction with the course, the instructor, and fairness of evaluation. Open-ended questions requested students' suggestions. Online students were also asked about the effectiveness of the course and their level of comfort and experience with the Internet and with the online course.

Students were asked about their level of participation in class activities including attending (or listening to online) lectures and reading the textbook. Online students were asked on what they relied to complete their exams. All students were asked to rate course components by degree of usefulness to their overall level of learning in the course.

Student performance was measured including overall class grade and percentages obtained on the individual components. Students were also asked to self-assess their understanding of course content and the amount they learned about agrisales from the class. To allow student responses from the anonymous survey instrument to be compared with student performance, each student submitted their survey instrument with a self-selected identification number shared with an office staff member who reconciled their responses with their grades.

RESULTS

Respondent Characteristics

Of the ten online students completing the survey in the revised course, three were off-campus students taking the course through a school within our state university system, but residing out of state. The remaining seven were on-campus students. Twenty-six classroom students completed the survey. The majors of the online and on-campus students were similar. Over half of each were majoring in the department (Agribusiness and Applied Economics) or in Animal and Range Sciences, with the others in each section disbursed throughout the College of Agriculture, Food Systems, and Natural Resources.

Eighty and ninety-two percent of online and classroom students, respectively, were juniors and seniors, similar to student classes represented in the previous year. However, in the previous year, 73 percent of classroom students and all of the online students were seniors as compared to 58 and 70 percent in the current year, respectively. That is, seniors were better represented in the previous year. As was true in the previous year, 77% of classroom students were male. Seventy percent of the online students were male (including all of the on-campus online students) in 2004 as compared to all of the online students in 2003.

In 2004, the average online student age (23.7 years) was older than the average classroom student age (21.8) (p = .021). And, while the previous year, the average online student worked more hours and took more credits than their classroom counterparts, in 2004, hours worked, semester credits, and GPA did not differ between the sections.

Motivation for Course Selection

The course is not required for any academic major or minor. Students considered at least moderately important all factors presented as potentially influencing their decision to enroll. An interest in the subject matter was assigned the highest importance rating for classroom students (5.04 where 1 = not important and 6 = very important), but was not as important for online students (4.2, p = .047). The most important factor for online students was time offered (5.1 versus 4.0 for classroom students, p = .043). Classroom students reported the instructor was slightly more important (3.4) than did online students (2.7), but the difference was not significant. In 2003, average level of assigned importance was not significantly different between the sections for any of the factors except time of course offering.

In a question posed only to online students, as in 2003, online students in 2004 identified as very important in influencing their selection of the online section the fit of the course to their schedule and flexibility; and, as moderately important that it was the only option available to them. They assigned a much lower level of importance in 2004 to the number of weeks required to complete the course (3.9 versus 5.7 in 2003, p = .054) and the overall time commitment (3.2 versus 5.5, p = .041); and less importance to the idea that they prefer learning independently (2.0 versus 3.5), although the latter was not statistically different. The online course was offered over eight weeks versus a traditional sixteen week course. Remaining unimportant was that they thought they would learn more online.

The number of courses the average student had taken online increased from .25 to 4.6, although student comfort level and experience with the Internet did not change. The average student reported a higher level of enjoyment with learning online, and a higher average level of agreement that they learn better online, and indicated they were more likely to take another class online in 2004 than during 2003, although the differences were not significant.

Satisfaction with Course

Student satisfaction with the course and the instructor, and the fairness of evaluation were measured and compared. Satisfaction with instruction in the course increased from the previous offering for both sections, but substantially more for the on-line section (Table 1). Both sections were also more satisfied with the instructor. The difference between the sections was greater during 2003 (as was the variance in response), but significant only in 2004. Online student perceptions of the quality of the course increased substantially from 2003, and were similar to those of the classroom section in 2004. Again there was no difference between the sections in perception of the fairness of grading, and both increased from the previous year.

The numeric increase in satisfaction with the fairness of grading among online students was surprising. We were concerned that adopting proctored-only versus previously open-note / open-book exams would result in more rigor than students expected based on input from friends. In the online section, 43% of those indicating a recommendation was important in their decision to enroll in the course indicated the course had been recommended by a friend, presumably one who had taken the course previously or had otherwise heard about it (that is, about the previous course offering which included open – note / open-book exams). It also counters anecdotal feedback from students in our revised online introductory course in macroeconomics. A proctored final exam was introduced and several students expressed, somewhat strongly, their displeasure at this change from the previous course offering. Presumably they had obtained information about the course from a friend who had taken it when the final was not proctored and had expected the same.

Table 1 Satisfaction with the Course

Statement (Satisfaction level with)	Level of Satisfaction[z]						Sign. of Difference (online)[y]
	--------------------2003--------------------			--------------------2004--------------------			
	Classroom	Online	Sign. Of Difference	Classroom	Online	Sign. of Difference	
Instruction in the course	4.77	3.75	.022	5.08	4.70	.195	.055
Instructor as a teacher	4.83	4.25	.302	5.35	4.70	.030	.533
Quality of the course	4.73	3.75	.051	5.19	5.30	.694	.005
Fairness of grading procedures	4.41	4.75	.600	5.00	5.33	.388	.241

[z] Likert scale response where 1 = very poor and 6 = very good.
[y] Significance of comparison of response of online students in 2003 compared to 2004.

Student satisfaction with the quality of the course rose for both sections, and substantially so for the online section. In fact, online students were now numerically more satisfied than their classroom counterparts, while previously they had been less satisfied. Average level of agreement was also higher among those in the revised online course offering as compared to 2003 that the course challenged students to think (p = .089), that their performance was evaluated fairly (p = .060), and that they would recommend the course to others (p = .053). There was now no difference between the classroom and online sections in belief the course was intellectually stimulating and about the amount students learned. Averages for online students increased substantially from the previous course offering (p = .023 and p = .003, respectively).

Although student perceptions of student/instructor interaction among online students decreased only slightly from the previous year, classroom student perceptions improved such that they now perceived student/instructor interaction more positively than did online students (p = .063). And, the primary theme of online students' responses to open-ended questions was that they desired to get together with the instructor and other students, particularly at the beginning of the class. These comments were somewhat surprising because there was no significant decrease in student satisfaction with the level of student/instructor interaction, and there was an increase in level of agreement that student/teacher interaction was at an appropriate level, although in reality again, such was minimal (for example, in general online students had few queries and few actively sought additional information about any particular component of the course). In both years, students were provided with an audio-supported slide introduction which covered course objectives and expectations, and emphasized the 'how to contact your instructor' information. Although we did not ask students specifically what presentations they listened to, the data suggest a greater percentage of students listened to this presentation during the second year. Perhaps their increased experience with online courses raised their expectations regarding the potential for communication.

Online students were also asked to indicate their level of agreement with statements about the effectiveness of the online course and their level of comfort and experience with the Internet. In the first offering, the average student was neutral on whether distance learning was an effective format for the class (3.5 where 1 = strongly disagree and 6 = strongly agree). This

increased considerably for the revised offering (4.8, p = .023). Students tended to agree that the course made good use of technology and that Blackboard® was an effective tool for accessing PowerPoint® slides, homework assignments, and announcements. In 2003, average level of agreement that Blackboard® was effective for accessing presentations with audio was low (3.5). In 2004, student response to the audio-supported PowerPoint® presentations was much more positive (5.3, p = .049), perhaps because the average student tended to listen to most of them as compared to few by the average student during the first offering. The actual presentations did not change. Finally, students reported being comfortable with this online course in both years, but their average level of agreement that they enjoy learning online and that they learn better online increased numerically.

Activities

Students were asked about their level of participation in class activities. During the first year, classroom students attended a far greater percentage of lectures on average (94 percent) than students listened completely (20 percent) or partially (16 percent) to online lectures. There was a wide range in percentage of online lectures listened to at least in part (3 to 83). Reasons noted by online students for not listening to more online lectures included that it was unnecessary to listen to excel in the course and lack of access to a computer with the appropriate software and/or speakers. We had yet to recognize the advice of Wachenheim (2005) of not letting your students down by making it unnecessary to learn the material to earn a passing grade. During the revised offering, classroom students continued to claim strong attendance (averaging 95 percent). The percentage of audio-supported presentations listened to by online students increased dramatically; the average student reported listening to 88 percent of the presentations in their entirety and almost all of them at least partially.

Students were asked to rate course components and activities according to their usefulness to overall learning in the course (Table 2). Classroom students assigned a moderately favorable level of usefulness to the instructor and the speakers, with the usefulness of the instructor rating increasing slightly in the second year. Online students found the instructor less useful and, although the usefulness numeric rating increased substantially from 2003, it was still significantly less than that assigned by their classroom counterparts. The most dramatic change observed was the average usefulness rating for the online lectures (from 1.75, on a scale from 1 = not useful to 6 = very useful, to 4.70, p = .000). Online students had relied more on the textbook than their classroom counterparts, although the gap narrowed and neither section found it particularly useful. Again during 2004, a majority of students in both sections considered it unnecessary to read the book or they had not even purchased it.

Table 2. Perceived Usefulness of Course Components[z]

Statement (Level of usefulness)	Perceived level of usefulness[z]						Sign. of Difference (online)[y]
	----------------2003----------------			----------------2004----------------			
	Classroom	Online	Sign. Of Difference	Classroom	Online	Sign. of Difference	
Instructor	4.8	3.5	.208	5.3	4.4	.004	.230
Speakers	4.8			4.9			
Online lectures		1.7			4.7		.000
PowerPoint® slides	4.6	4.0	.319	5.1	5.0	.800	.264
Textbook	2.0	3.0	.065	2.3	2.7	.420	.737
Day with a sales professional	4.7	5.0	.527	5.0	5.2	.678	.679
SWAS paper[x]	3.5	3.5	.958	4.2	4.1	.808	.365
RSS homework assignments	4.3	3.5	.114	4.4	4.8	.139	.056
RSS activity	5.0	3.5	.019	5.1	5.4	.367	.010
RSS paper	3.5	3.0	.489	4.0	4.5	.161	.019

[z] Likert scale response where 1 = not useful and 6 = very useful.
[y] Significance of comparison of response of online students in 2003 compared to 2004.
[x] SWAS stands for Sashay with a Salesperson and depicts the day with the salesperson activity.

There was no statistical (or important numeric) difference between the sections in how useful they considered spending a day with a salesperson. This was again somewhat surprising because one might expect the salesperson to provide information to online students their counterparts received from lectures and, particularly, guest speaker presentations, and they provided the students some face-to-face contact for the class. During the first year, classroom students found more useful the "Ready Set Sell" activity wherein they were required to demonstrate their abilities in the sales process. During the second year, there was no difference and the average online student's ratings for the assignments, activity, and paper associated with RSS were numerically higher than that of their average classroom counterpart. The increase for each for the online students was large and significant (Table 2). This was encouraging because it supported the decision to include online students in RSS night with the classroom students, although perhaps students also found the activity more useful because they had a more thorough understanding of the material from listening to the online lectures.

Online students were asked what they relied on when taking their exams, specifically to assign a percentage to each available resource. During the first year, because students reported that their textbook was not particularly useful, it was surprising that the percentage this resource was relied upon by the average student was 39. Half of the students indicated they relied on the textbook for 60 to 90 percent of their work on the exam (the other half relied mostly on the PowerPoint® slides without audio). Based on some of their responses to open-ended questions (e.g., did not like the book because there is no index), we suspect they had been using it to "look up" answers for the open-book exams. During the revised course offering, that with proctored, closed-note/closed-book exams, the average student reported relying 38 percent on the audio-supported PowerPoints® and only 9.5 percent on the textbook. These averages were statistically greater, and less ($p = .004$ and $p = .049$), respectively, than in 2003.

Course Performance and Perceived Learning

There was no difference in the overall performance of classroom versus online students in either year (Table 3). This is consistent with Duvall and Schwartz (2000) and Batte et al. (2003). Although Stephenson et al. (2005) found that overall online students did not perform as well as their classroom counterparts and that performance differed depending on student SAT scores (direct relationship). They found that only those online students with the highest SAT scores performed equally well to their classroom counterparts.

In the first year of the current study, grades on individual activities did differ, however. Online students received higher grades on exams. In 2004, classroom students performed better on exams, although the difference was not significant. Again, exams for online students were open note/open book and taken by students at their own pace during the first year, but closed note/closed book and proctored during the second.

In 2003, online students performed worse on activities more explicitly designed to test their ability to apply course concepts, those associated with the day with the salesperson and the RSS activity and paper. The average difference was slightly less than one grade. Average online student performance improved for each in 2004, while performance among the classroom students only improved for the day with the salesperson paper. Classroom students still performed better on this paper although the improvement for online students was significant. Improvement for online students in the RSS night activity and, particularly, the associated paper, was dramatic, although not statistically significant.

There remained no difference in students' self-reported understanding of course content between the sections or their level of agreement that the course built an understanding of concepts and principles. The average perceived amount learned by online students increased considerably (from 4.0 to 5.2 where 1 = not much and 6 = a great deal, p = .003) to a level comparable with that reported by classroom students. Online students in the revised course also considered the course more intellectually stimulating (p = .034) and considered themselves more challenged (p = .089) than they did in the previous year.

Table 3. Course Performance[z]

Component	Course Performance (percentage)						
	----------------2003----------------			----------------2004----------------			Sign. of Difference
	Classroom	Online	Sign. Of Difference	Classroom	Online	Sign. of Difference	(online)[y]
RSS activity	90.3	83.4	.054	90.0	90.2	.594	.577
RSS paper	88.0	79.7	.040	89.7	90.4	.757	.261
SWAS paper[z]	84.4	75.0	.074	89.6	80.1	.000	.013
Average exam	84.1	91.2	.095	85.5	81.3	.210	.488
Overall percentage	89.3	87.7	.588	88.8	86.4	.184	.676

[y] Significance of comparison of response of online students in 2003 compared to 2004.
[z] SWAS stands for Sashay with a Salesperson and depicts the day with the salesperson activity.

DISCUSSION

To date, online instruction has largely been adopted on the faith that it is preferred by some learners and maintains the quality of instruction offered in on-campus courses. Research to support or refute these hypotheses and that which seeks to explain in depth what influences learner preference, satisfaction, and success with the relative learning styles remains somewhat limited. An initial investigation into the online section raised concerns that students may not 'learning' as much as those taking the course in the classroom. Audio-supported PowerPoint® presentations were provided to online students to replace classroom lectures and, other than the inclusion of sales professionals to a much greater extent in the classroom section, the courses were similar. Therefore we hypothesized differences in ability to apply material maybe because on line students were not as motivated to master the material. Introducing proctored exams were an attempt to motivate students and, it appeared to do so. Although students did not do as well on these exams, they did no worse than their classroom counterparts under similar test-taking situations. Their ability to apply course concepts, however, improved dramatically.

Student Satisfaction and Performance

Online students were no longer less satisfied with instruction in, and the quality of, the course, and now found it no less intellectually stimulating as their classroom counterparts. This was encouraging because we presumably made it more difficult. Students' workload and instructor expectations increased with the move to proctored, closed note/closed book exams and a more professional environment for their sales presentation. Online students' ability to apply course concepts to practical settings improved substantially although their overall course grade did not change. That is, during the revised course offering, online students did as well as their classroom counterparts, when the previous year it just "seemed" as though they did because their overall grade was not different. Also a bit surprising (but as in the previous year), was the general satisfaction with the role of the instructor given the lack of instructor interaction with online students. Clearly in this case the communication expectations of online students remain different than those of their classroom counterparts, and apparently less than what we expected.

Course Activities

During the initial course offering, online lectures clearly did not replace classroom time. It was not clear whether students did not listen to the online lectures because they did not find them useful or visa versa. Student assessment responses from the second course offering provide evidence it was the latter. Given the proper motivation to understand the course material, and by extension (one would hope), listen to the lectures, average student usefulness rating assigned to these lectures soared. Development of the online presentations was by far the most involved part of converting the course for an online offering. Initially we were disappointed that this effort was apparently not warranted. The second assessment demonstrates that it is not enough to merely provide the course resources, students need to be motivated to use them. This is the message of Maki and Maki (2001) who conclude that activities for online learners need to be accompanied by contingencies that will motivate students to engage in them.

We also hypothesized that exposing students, including online students, to multiple individuals working in a profession related to the class can help them learn and help motivate them to learn. Perceived usefulness of the day with the salesperson among online students did not change between the first and second offering, contrary to our expectations. We had expected that students would find this activity more useful if they understood and were able to interpret more of what they were seeing, because they had previously learned the content (because, for

example, they listened to the online lectures). This warrants further investigation. Students did, however, consider much more useful during the revised course the RSS activity, and all of its components. Unlike the first year when they were segregated to a less elaborate experience, the revised course allowed that online students participate with the classroom students in RSS night. There is no overwhelming evidence of such (e.g., we did not ask them), but we expect that the inclusion of numerous industry professionals gave the activity more credibility as representing a "real" sales call. If it was perceived as more important, it may have motivated students to do a better job. Because students were able to observe and learn from the performance of more of their peers and were directly exposed to more sales professionals for a longer period of time, they may have learned more.

Similarly, it may improve the online course to have students spend more time with a larger number of professionals (e.g., by spending more than one day with a salesperson, having them watch videotaped presentations by sales professionals). Another possibility is to have online students exert more effort in reflecting on their time with their salesperson within the context of course content (e.g., write a longer, more reflective paper than their classroom counterparts).

Final Comments from the Instructor

During the revision process for Wachenheim (2004), a reviewer asked whether we were satisfied with our initial results. We reported that the course was not successful in that our online students self-reportedly did not engage themselves in discovering much beyond that necessary to complete the assignments and exams. It was not clear whether this was a reflection of the course being online or that we simply needed to motivate them to become more exposed to available resources. In this revised offering, evidence suggests that our methods to improve student engagement with course materials were successful; students reported listening to a much larger percentage of the audio presentations, and performed better in their practical application of the material, the RSS presentation and paper and the SWAS paper. However, we recognize that proctored exams (which we expect motivated use of the online lectures) may not be a sustainable solution if students are not on-campus, and we continue to look for venues to motivate students to become and stay engaged.

<div align="center">SUMMARY</div>

Students completing an initial offering of an online agricultural sales course did not perform as well in applying course concepts as did their classroom counterparts. To improve student use of class resources, particularly online lectures, open note/open book exams were replaced by proctored exams. Online students also completed their final sales presentation with sales professionals in a grand finale event with students enrolled in the classroom section. Coinciding with these changes were improvements in satisfaction and performance among online students, and a change in their use of class resources.

Satisfaction with instruction in the course increased from the previous offering for both the classroom and online sections, but substantially more for the on-line section. Online student perceptions of the quality of the course increased substantially from the previous offering, and were similar to those of the classroom section. Average level of agreement was also higher during the second online course offering that the course challenged students to think, their

performance was evaluated fairly, and they would recommend the course to others. There was now no difference between the sections in belief the course was intellectually stimulating and about the amount students learned.

During the initial offering, average level of agreement that Blackboard® was effective for accessing presentations with audio was low, but increased dramatically for the second offering. The actual presentations did not change, but students' use of them increased considerably. During this second offering, they also found them much more useful.

There was no difference in the overall performance of classroom versus online students in either year, although the breakdown of graded activities for online students differed during the initial offering. During the second year, online students' performance on exams decreased (which was expected because they were moved to a proctored format), but they did better on activities requiring practical application of course material.

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