

## **A CASE STUDY COMPARISON BETWEEN WEB-BASED AND TRADITIONAL GRADUATE LEVEL ACADEMIC LEADERSHIP INSTRUCTION**

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### **Abstract**

*Traditional leadership education instructors provide an interactive setting to promote communication skills, team building, and problem-solving skills. Simultaneously, the use of distance technology is also well documented. However, no specific research studies comparing distance education and traditional delivery methods in the area of leadership education were discovered in the course of this inquiry. Therefore, this study was initiated to begin an investigation of the plausibility of delivering leadership education courses using distance education technology. A case study method was employed and results indicated that in most instances students enrolled in both distance and traditional classes had the same perceptions of their leadership competencies and usage. This study found no significant differences between the traditional students and the Web-based students' scores on any of the five LSI scales, the Leadership Learning Scale, the Leadership Use Scale, or the Leadership Remember Scale. These results suggest that a graduate level academic leadership course can be taught as effectively as a Web-based course.*

### **Introduction**

Agricultural educators embrace student leadership education and development through support of youth organizations such as FFA and 4-H. Intuitively, however, they know that leadership education and development continue after high school or completion of youth leadership programs. Brown and Fritz (1994) documented this continuation of student leadership education and development in their study and reported that 65% of collegiate agricultural education departments actively offered leadership development courses for credit.

Researchers continued to assess the positive impact of collegiate student leadership education and development programs. Birkenholz and Schumacher (1994) researched the leadership skills of College of Agriculture graduates and found that participation in student activities in high school and college were positively related to leadership development. Schumacher and

Swan (1993) conducted a study to assess the need for formal leadership training for students enrolled in a College of Agriculture at a land grant university. The results of this study indicated that leadership development programs at the college level were needed and that students enrolled were willing to take part in this training (Schumacher & Swan). Rutherford, Townsend, Briers, Cummins, and Conrad (2002) found that teaching leadership competencies through a leadership program allows students to develop a stronger self-efficacy in their leadership roles. All these studies indicate that students enrolled in Colleges of Agriculture benefit from participation in collegiate leadership education and development programs.

The previous studies concerned leadership being taught in traditional classrooms or other face-to-face venues. However, the impact of distance-delivered collegiate educational programs is continuing a growth pattern. According to

the U.S. Department of Education's National Center for Education Statistics (1998), 62% of public 4-year institutions offered distance education courses in the fall of 1995. Distance education students are often older and are coordinating various job and family commitments with their learning opportunities (Miller & Pilcher, 2000). Distance education can help these students coordinate all their activities as well as give them a viable means to obtaining an education. Russell (1999) has compiled a multitude of studies that have found there is no significant difference between traditional education and distance education also known as the "no significant difference phenomenon." The success of distance educational programs suggests an inclusion of distant delivery methods for various content areas including leadership education.

### Review of Literature

There are many types of instructional formats available. Although leadership education has employed face-to-face delivery methods, a consideration of other formats may provide venues to attract a wider clientele. The two leadership education instructional formats that are the focus of this study are a traditional classroom setting and a Web-based classroom setting. These two formats offer leadership education settings with different learner environments and requirements. A traditional classroom is one where the students and instructor meet face-to-face. In other words, students and instructors meet at a predetermined time and location for a class. Distance education, according to the U.S. Department of Agriculture (2004), is a process to create and provide access to learning when distance and time separate the source of information and the learners.

To begin this project, a review of leadership concepts to be included in leadership education programs was initiated. Researchers have searched for the traits, skills, and attitudes that a leader encompasses. Generally, leadership educators believe leadership skills can be learned (Bennis, 2003), therefore, competencies are developed that can be

taught through leadership education courses or programs. The competencies may be derived from the Big Five dimension of traits (Lussier & Achua, 2003) which includes urgency, agreeableness, adjustment, conscientiousness, and openness to experience. Other competencies are obtained from trait theory research and include dominance, high energy, internal locus of control, integrity, flexibility, self-confidence, stability, intelligence, and sensitivity to others (Lussier & Achua). Several attitudes toward people have been infused into leadership education and include a leader or group centered approach (Cummins, 1995). As educators decipher the many aspects of leadership, they also chose many different avenues for teaching leadership.

After documenting leadership education competencies, other researchers have created a positive notion that leadership education is a successful endeavor. Several researchers investigated aspects of leadership education taught in traditional settings. Cummins (1995) discovered translating leadership theory to practice was a difficult task. He found it was difficult for an agricultural leadership educator to change a person's attitude toward leadership in a short-term educational program. McNulty (1996) researched a collegiate academic leadership course and discovered that student learning style did not affect transfer of leadership theory to practice. Thorp, Cummins, and Townsend (1998) found that self-perceptions of leadership skills were enhanced following a semester long collegiate leadership course. However, they also made preliminary conclusions that gender may make a difference in how students perceive their leadership skills following a course. In another study, it was determined that following education and completion of team projects, student did transfer team theory into practice but did not change their attitudes toward leadership (Cummins & Townsend, 1999). These and other studies suggest that leadership development is enhanced through traditional face-to-face meetings but may be affected by various factors.

In developing the rationale for this study, the researchers concluded that

distance technology was appropriate for selected educational constructs. Because the success of distance technologies is well documented, a more specific investigation was launched to determine if the utilization of distance technology would affect leadership skill perceptions or attainment of leadership concepts. However, few studies were discovered that documented the use of distance delivery methods for leadership education courses. Boyd and Murphrey (2001) began a stream of research by assessing interest in leadership courses delivered via the Internet. Over 60% of the students responded that they were interested in taking a leadership development class via the Internet and over 76% preferred that the course material be taught online with a regularly scheduled meeting (Boyd & Murphrey, 2001). Therefore, students were interested in enrolling in courses taught via the Internet, if they have scheduled meeting times throughout the semester.

Boyd and Murphrey (2002) followed up with a study that would determine if an asynchronously delivered activity used within a traditional class would impact learning. These authors found that students who participated in the asynchronously delivered activity scored significantly better on exam questions relating to the topic of the activity than students who did not (Boyd & Murphrey, 2002). This result can be interpreted to mean that using asynchronously delivered activities can help to improve students learning.

In creating the theoretical rationale for this study, it was given that numerous studies support the teaching of leadership development in formal and experiential settings (Boyd & Murphrey, 2001; Boyd & Murphrey, 2002). In addition, leadership, by its very nature, has been embraced by instructors who provide an interactive setting to promote communication skills, team building, and problem-solving skills (Brown & Fritz, 1994). The use of distance technology is also well documented. However, no specific research studies comparing distance education delivery to traditional courses in the area of leadership education were discovered in the course of this inquiry. Therefore, this study was initiated to begin an investigation of the

plausibility of delivering leadership education courses using distance education technology.

### Purpose and Objective

The purpose of this study was to determine if leadership competency levels of a graduate level academic youth leadership course students differ when taught in Web-based versus traditional classroom settings. The objective was to compare leadership competency levels of participants in the Web-based section and the traditional section of a graduate level academic youth leadership course.

Based on the purpose and objectives of this study, the following hypotheses have been formulated:

H<sub>01</sub>= There is no difference between Web-based and traditional students' leadership competencies scores.

H<sub>02</sub>= There is no difference between Web-based and traditional students' self-perceived leadership skills.

### Methods

This study used a case-study research design (Dooley, 2002). Case studies analyze a limited number of events or conditions and emphasize the study and contextual analysis of their relationships using either qualitative or quantitative methods (Dooley). This study analyzed two sections of the same class that were taught with two different instructional formats. This study emphasized the relationship of instructional format with the content of the class which was leadership, in this one instance where the two sections were taught at the same time. The population was given a posttest only at the end of the semester.

### Sample

The population of this study consisted of student's enrolled in a graduate level academic youth leadership course in the Spring semester of 2003. The sample consisted of 27 students, 13 students in the

Web-based section and 14 students in the traditional section. Most of these students were “traditional” graduate students, meaning they were enrolled in a traditional graduate program and attended their classes on campus.

This graduate level academic youth leadership course was a 3 credit course that meets one day a week for three hours. In the Spring semester of 2003, two sections of this course were offered. One section was a traditional classroom setting where the class met with the instructor in a one day/three-hour format each week of the academic semester. The other section was taught via the Internet using the university’s WebCT platform. This section was organized much like the traditional section. The class was segmented into modules and each module contained all the information the students would need. Each module contained multiple lessons and assignments as well as any handouts, PowerPoint, activities, and streaming videos the students needed to view.

Students self-selected the particular sections knowing one was offered traditionally and the other as Web-based. The students who selected to enroll in the Web-based section completed the entire course via the web. These students did not have face-to-face contact with their peers or the instructor and were free to complete the assignments at their leisure as long as they met the deadlines for the class. The expectations and material were exactly the same for each section. The only difference in course methodology was the format of delivery for the material.

### *Instrument*

A three part questionnaire was used in this study. The first section of the questionnaire focused on how much the participant remembers and uses the information or competencies taught in this graduate level academic youth leadership course. The participants based their responses on a Likert-type scale ranging from 1-strongly disagree to 5-strongly agree. There were two scales in this part of the instrument. The first was the Leadership Remember Scale, which asked the participants how much of the competencies they remembered from the graduate level academic youth leadership course. This scale had a reliability of 0.70 in the current study, an acceptable level of reliability. The second scale was the Leadership Use Scale, which asked the participants how much they use the competencies from this course. This scale had a reliability of 0.60 in the current study, an acceptable level of reliability.

There were also six items in this section that determined the Leadership Learning Scale Score (Table 1). These items were meant to investigate how the participants’ perceptions and practices changed after completing the graduate level academic youth leadership course. The participants based their responses on a Likert-type scale ranging from 1 – strongly disagree to 5 – strongly agree. The more points the participants garnered, the more perceived learning of leadership competencies occurred. This scale had a reliability of 0.78 in the current study, an acceptable level of reliability.

Table 1  
*Leadership Learning Scale items*

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1. I incorporate theories from the graduate level academic youth leadership course into my current leadership practices.
  2. Learning activities (games & “doing” activities) were beneficial in learning leadership concepts.
  3. Out of class projects (ex. Create your own theory, book review, leadership workshop) aided in learning leadership concepts.
  4. My perceptions of leadership changed after completing the graduate level academic youth leadership course.
  5. I changed my own leadership thoughts after completing the graduate level academic youth leadership course.
  6. I changed my own leadership actions after completing the graduate level academic youth leadership course.
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The second section was used to assess the respondent’s self-perceptions of leadership skills. These questions are known as the Leadership Skills Inventory (LSI) and were used in several leadership studies beginning with Townsend and Carter at Iowa State University in 1981 (Bruck, 1997; Cummins, 1995; Thorp et al., 1998; Taylor, 1998). The LSI consists of 21 statements describing various leadership and life scales. These statements correspond to five internal scales for analysis: working with groups, understanding self, making decisions, communicating, and positional leadership. Reliability coefficients on the original instrument ranged from .41 - .79. These coefficients are recognized by leadership education scholars as consistent over time. Since the inception of the LSI (Townsend & Carter, 1981), the scale reliabilities have

yielded similar results. A review of past studies indicated that the coefficients were constant and it was postulated that respondents varied responses as they thought of differing leadership situations. Therefore, although not in the highest ranges, the scales were used in the study to continue the line of inquiry of other leadership education researchers. (Thorp et al.; Bruck, 1997; and Taylor, 1998). See Table 2 for a description of the LSI scales. The participants based their responses on a Likert-type scale ranging from 1-strongly disagree to 5-strongly agree.

The final section covered demographic information that included gender, rating of leadership expertise, time spent on the course material during a week, learning style, and preferred method of instruction.

Table 2  
*Leadership Skills Inventory Internal Scales*

Scale	Item #	Statement	Reliability
Working with Groups	1.	I can cooperate and work with a group.	0.64
	2.	I get along with people around me.	
	4.	I believe in dividing the work among group members.	
	8.	I listen carefully to opinions of group members	
	12.	I believe that all group members are persons.	
Understand Self	3.	I feel responsible for my actions.	0.56
	5.	I understand myself.	
	13.	I am sure of my abilities.	
	17.	I accept who I am.	
	18.	I feel responsible for my decisions.	
Communicating	10.	I can lead a discussion.	0.48
	14.	I am a good listener.	
	19.	I can give clear directions.	
	20.	I can follow directions.	
Making Decisions	7.	I consider all choices before making a decision.	0.70
	11.	I use past experiences in making decisions.	
	15.	I use information in making decisions.	
Positional Leadership	6.	I feel comfortable teaching others.	0.80
	9.	I am respected by others my age.	
	10.	I can lead a discussion.	
	16.	I feel comfortable being a group leader.	
	19.	I can give clear directions.	
	21.	I can run a meeting.	

### Analysis

The data were analyzed using the Statistical Package for the Social Sciences (SPSS). Hypotheses were tested using *t*-Tests. With such a small group size, an alpha level of .10 was set a priori.

### Results

The results of this study are reported based on two hypotheses. The first hypothesis stated  $H_{01}$ =There is no difference between Web-based and traditional students' leadership competencies scores. To obtain these results, an independent sample *t*-Test was used to compare the Web-based students and the traditional students' scores on the following scales: Leadership Learning Scale, Leadership Use Scale and the Leadership Remember Scale.

On the Leadership Learning Scale ( $t = -.388$ ,  $df = 1$ , and  $sig = .701$ ), Leadership Use Scale ( $t = .324$ ,  $df = 1$ ,  $sig = .749$ ), and Leadership Remember Scale ( $t = .830$ ,  $df = 1$ ,  $sig = .415$ ) no significant differences were

found between the traditional students' and the Web-based students' scores (Table 3). The Leadership Learning Scale measured the students' self-perception of how much of the leadership competencies they learned from graduate level academic youth leadership course. Therefore, the Web-based students and the traditional students did not differ in their self-perceptions of how much they learned.

The Leadership Use Scale measured the students' self-perception of how much they used the leadership competencies they learned from graduate level academic youth leadership course. Therefore, the Web-based students and the traditional students did not differ in their use of the competencies learned. The Leadership Remember Scale measured the students' self-perception of how much they remembered the leadership competencies taught in graduate level academic youth leadership course. Therefore, the Web-based students and the traditional students did not differ in how much of the competencies they remembered.

Table 3

*Independent samples T-Test comparing Web-based and traditional students' Leadership Learning Scale score, Leadership Use Scale score, and Leadership Remember Scale score*

Treatment	<i>N</i>	<i>M</i>	<i>SD</i>	<i>T</i>	<i>Sig</i>
Leadership Learning Scale <sup>a</sup>					
Web-based	12	23.08	3.919	-.388	.701
Traditional	14	23.64	3.433		
Leadership Use Scale <sup>b</sup>					
Web-based	12	47.33	7.328	.324	.749
Traditional	14	46.64	2.977		
Leadership Remember Scale <sup>c</sup>					
Web-based	12	57.92	5.551	.830	.415
Traditional	14	56.36	4.012		

<sup>a</sup> Scores range from 0.00 to 30.00. Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree. <sup>b</sup> Scores range from 0.00 to 68.00. Scale: 1 = Do Not use, 2 = Seldom Use, 3 = Use It On Occasion, 4 = Use It All The Time. <sup>c</sup> Scores range from 0.00 to 68.00. Scale: 1 = Do Not Remember, 2 = Recognize The Name, 3 = Remember A Little, 4 = Remember The Whole Theory.

The second hypothesis stated  $H_{02}$ =There is no difference between Web-based and traditional students' self-perceived leadership skills. To obtain these results, an independent sample *t*-Test was used to compare the Web-based students and the traditional students' scores on the following scales of the Leadership Skills Inventory: Communicating, Decision Making, Understanding Self, Positional Leadership, and Working with Groups.

On the Communicating scale ( $t = .369$ ,  $df = 1$ ,  $sig = .715$ ), Decision Making scale ( $t = 1.174$ ,  $df = 1$ ,  $sig = .252$ ), Understanding Self scale ( $t = .730$ ,  $df = 1$ ,  $sig = .472$ ), Positional Leadership scale ( $t = .500$ ,  $df = 1$ ,  $sig = .621$ ), and Working with Groups scale ( $t = .421$ ,  $df = 1$ ,  $sig = .677$ ) no significant differences were found between the traditional students and the Web-based students' scores (Table 4). This scale measured the students' self-perception of their skills dealing with communication. Therefore, both the students in the traditional class and the Web-based class believed they possessed good

communication skills. The Decision Making scale measured the students' self-perception of their decision making skills. Therefore, both the students in the traditional class and the Web-based class believed they possessed high levels of decision making skills. The Understanding Self scale measured the students' self-perception of how they understand themselves and their actions. Therefore, both the students in the traditional class and the Web-based class believed they truly knew themselves and that their actions reflected that. The Positional Leadership scale measured the students' self-perception of their positional leadership abilities. Therefore, both the students in the traditional class and the Web-based class believed they had acquired high levels of positional leadership. The Working With Groups scale measured the students' self-perception of their abilities to work in groups. Therefore, both the students in the traditional class and the Web-based class believed they had the ability to work well in groups.

Table 4

*Independent samples t-Test comparing Web-based and traditional students' Communicating Scale score, Decision Making Scale score, Understanding Self Scale score, Positional Leadership Scale score, and Working With Groups Scale score.*

Treatment	N	M <sup>a</sup>	SD	T	Sig
Communicating Scale <sup>b</sup>					
Web-based	12	17.58	1.929	.369	.715
Traditional	14	17.36	1.151		
Decision Making Scale <sup>c</sup>					
Web-based	12	13.50	1.446	1.174	.252
Traditional	14	12.79	1.626		
Understanding Self Scale <sup>d</sup>					
Web-based	12	22.92	2.575	.730	.472
Traditional	14	22.29	1.816		
Positional Leadership Scale <sup>e</sup>					
Web-based	12	27.08	2.746	.500	.621
Traditional	14	26.57	2.472		
Working With Groups Scale <sup>f</sup>					
Web-based	12	23.50	1.508	.421	.677
Traditional	14	23.21	1.888		

<sup>a</sup> Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Disagree. <sup>b</sup> Scores range from 0.00 to 20.00. <sup>c</sup> Scores range from 0.00 to 15.00. <sup>d</sup> Scores range from 0.00 to 25.00. <sup>e</sup> Scores range from 0.00 to 30.00. <sup>f</sup> Scores range from 0.00 to 25.00.

### Conclusions and Recommendations

This study found no significant differences between the traditional students and the Web-based students' scores on any of the five LSI scales, the Leadership Learning Scale, the Leadership Use Scale, or the Leadership Remember Scale. This suggests that a graduate level academic youth leadership course can be effectively taught as a Web-based course. These findings fall in line with the "no significant difference phenomenon" compiled by Russell (1999). In addition, the study strengthens the argument that leadership theory can be learned as suggested by Bennis in 2003. Similarly, because students in both the traditional and distance sections learned and remembered the leadership competencies, this study suggests that students can learn leadership in many

ways. There may be a slight link between the McNulty (1996) findings that learning style does not influence a student's transfer of leadership learning to practice. However, this study did not support the finding of Boyd and Murphrey (2002) who indicated that asynchronously delivered leadership activities helped improve students' learning.

From the outset of this study, it was given that both distance delivery and leadership education have been studied by multiple researchers. The results of this study impact both fields, and it suggested, in the simplest conclusion, that leadership education can be taught using distance delivery. It should be noted by readers that the contradiction with Boyd and Murphrey (2002) suggests continued investigation to maximize distance delivered leadership education courses.

The findings of this study suggest that leadership instructors have an option to choose Web-based or traditional instruction when delivering a graduate level academic youth leadership course and students can be confident that leadership concepts can be learned via the web. Agriculture educators can be confident in choosing Web-based instruction as a means to deliver leadership courses.

Leadership education is being taught in many colleges and universities through Agricultural Education departments. This study shows that instructors can reach a far greater audience through the use of Web-based instruction to teach leadership at a graduate level and expect similar results as classroom teaching.

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