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Student Perceptions of Interactive Television Courses in Rural Northeast Nebraska High Schools

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STUDENT PERCEPTIONS OF INTERACTIVE
TELEVISION COURSES IN RURAL NORTHEAST
NEBRASKA HIGH SCHOOLS

by

Kevin M. Nolan

A FIELD PROJECT

Presented to the Faculty of
The Graduate College at the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Specialist in Education

Major: Educational Administration

Under the Supervision of Dr. Martha Bruckner

Omaha, Nebraska

May, 2002

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EDUCATIONAL SPECIALIST FIELD PROJECT ACCEPTANCE

**Acceptance for the faculty of the Graduate College,
University of Nebraska, in partial fulfillment of the
requirements for the degree Educational Specialist,
University of Nebraska at Omaha.**

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Date *March 29, 2002*

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TELEVISION COURSES IN RURAL NORTHEAST
NEBRASKA HIGH SCHOOLS

Kevin M. Nolan, Ed.S.

University of Nebraska at Omaha, 2002

Advisor: Martha Bruckner, Ph.D.

There is rapidly growing acceptance for using distance learning to make courses and other learning opportunities available to students who do not have easy access to courses taught in traditional classroom settings. The purpose of this study was to evaluate the effective use of Interactive Television (ITV) technology as perceived by 130 students in rural northeastern high schools in Nebraska. The study was a descriptive research study, representing 25 high schools in northeastern Nebraska. A survey procedure was utilized to explore the effectiveness of ITV technology as a teaching and learning tool as perceived by the students.

Surveys were delivered to the site coordinators of the Eastern Nebraska Distance Learning Consortium (EN-DLC) and were completed by the students during the spring semester of the 2000-2001 school year. The intent of this survey study was to determine the overall effectiveness of ITV technology courses as perceived by the students. Six questions were identified by the researcher to help to determine program effectiveness. The results are summarized below:

1. There was a 70.8% student satisfaction rate with the instruction and the use of distance learning technology in an ITV course.
2. The role interaction played in involving students in their learning and perceived success in an ITV course revealed low correlations that showed no practical significance.
3. Seventy percent of the students perceived that their performance and learning in an ITV course was as effective as in their traditional courses.
4. Sixty-eight percent of the students agreed that they needed to shoulder more responsibility in an ITV course, but only 29.5% of the students perceived improved study habits when taking an ITV course.
5. A strong majority of the students (80.8%) perceived their ITV teachers as skilled and competent.
6. A majority of the students (66%) agreed that ITV courses had an impact on their future school and career goals.

The findings of the present investigation offer reasonably strong support for the contention that courses offered through ITV technology can be as effective as traditional courses. The researcher recommended that school officials explore the various options that are available to schools in the uses of ITV technology.

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Chapter 1

Introduction

High schools throughout the United States are continually exploring the possibilities of offering students a more extensive curriculum through distance technologies. Historically, the lack of course offerings in rural areas was addressed through traveling teachers, pairing agreements, correspondence study courses, or school district consolidation. Today, technology offers additional means of delivery (Barker, 1987). This concept is especially true in the smaller, rural schools throughout the country where budget cuts have had a negative effect on providing a quality curriculum. In Barker's (1987) study it was shown that factors such as low student enrollment, geographical isolation, and teacher shortages can be addressed by television, which has the capability to produce visual and audio effects not possible with other media. Television can present abstract concepts in concrete visual terms (Martin & Rainey, 1993). One option has been to exchange course offerings and teachers among districts via Interactive Television (ITV) technology, which allows for two-way audio and video communication between the teacher and the students.

Problem Statement

Within the next few years many school districts will be facing a severe shortage of qualified teachers, especially in advanced mathematics, science, and foreign language course areas. This problem is already being faced by small school districts in northern and eastern Nebraska. School districts are currently faced with the financial impact of too few teachers and a shrinking curriculum. It is evident that school districts will need to take a proactive approach in alleviating these problems or face severe consequences.

Instruction through ITV is one way of addressing this problem. A study focusing on student perceptions about ITV, teaching methodologies involving ITV, and the overall effectiveness of the courses would be beneficial for districts of all sizes.

Purpose of the Study

The purpose of the study was to investigate the effects of Interactive Television on the perceived learning of high school students enrolled in the Eastern Nebraska Distance Learning Consortium (EN-DLC). Students in the EN-DLC were asked to complete a survey to identify the frequency of communication interactions with other students and teachers. In addition, students were asked to determine whether the interactions were personal, social, and/or work related, and whether those interactions contributed to enhanced learning in the subject area of study. Students were also administered a student opinion survey that measured demographic information and student attitudes towards the class, the technology, and the teacher's use of the technology.

Research Questions

The following questions were addressed in the study:

1. How do students perceive their satisfaction with the instruction and the use of distance learning technology in an ITV course?
2. What role does interaction play in involving students in their learning and subsequent success in a course?
3. How do students perceive their performance and their learning effectiveness in an ITV course as compared to their traditional courses?
4. How do students perceive the effect of an ITV course on student preparation, study

habits, and the understanding of course concepts?

5. How do students perceive the competence and skills of their Interactive Television teachers?

6. What effect does the ITV course have on the future school and career goals of the students?

Theoretical Perspective

Interaction has been considered a key component to success in the traditional classroom (Flanders, 1970; Fulford & Zhang, 1993; McCroskey & Andersen, 1976). Students who experience high levels of interaction with their teachers in the traditional classroom have been determined to have more positive attitudes toward learning and higher levels of achievement in the subject being studied (Fulford & Zhang, 1993; Garrison, 1990; Hackman & Walker, 1990; Ritchie & Newby, 1989). If learners are not actively engaged in the instructional session, they tend to become distracted and less motivated in their classroom performance (Fulford & Zhang, 1993).

Interactive television attempts to provide a format to generate interaction between the instructor and students at various remote sites. Students have the opportunity to ask questions, seek information, obtain clarification, and establish positive rapport with their teacher, even though, he or she may be at a distant site. However, the nature of the interactive television classroom can present problems of restricted interaction because students and the teacher are not in the same room (Fulford & Zhang, 1993). In theory, the components for effective interaction are in place. In practice, interaction can be hindered because many students depend on the physical, face-to-face presence of their teachers in the traditional classroom format.

Definition of Terms

Interactive Television. Interactive Television (ITV) is one type of distance learning. It is a two-way television system of teacher and student instruction that resembles face-to-face classroom instruction (Alford, 1991). Schools use ITV as an alternative form of teacher-to-student instruction in a classroom setting. The teacher can be present at a remote site and still have face-to-face contact and interaction with students at other remote sites.

Rural high school. The rural high schools in this study include grades 9 through 12. The high schools used in this study are located in rural eastern Nebraska communities. These are communities that have a population of 10,000 community members or less.

Eastern Nebraska Distance Learning Consortium (EN-DLC). The Eastern Nebraska Distance Learning Consortium consists of 37 rural school districts located in eastern Nebraska. The consortium was awarded an Excellence in Education grant in the spring of 1998 for the amount of 2.5 million dollars. The purpose of the grant was to develop and implement a two-way interactive video conferencing network. The network was designed to provide educational opportunities for students in the consortium including technology related courses, as well as advanced course offerings and dual credit courses from a range of post secondary institutions.

Technology related courses. For the purpose of this study, technology related course offerings include Microsoft Office and Networking Essentials training courses offered and taught through the EN-DLC network.

Dual credit courses. For the purposes of this study, dual credit courses are

defined as entry level college freshmen courses that earn college credit for high school students, as well as high school credit, while the student is currently attending high school.

Assumptions, Delimitations, and Limitations

Assumption. One assumption of this study is that the respondents will be honest in completing the surveys. The author assumes that the respondents will understand the significance of being truthful and honest with their responses for the purpose of the overall improvement of ITV technology.

Delimitations. The current study is delimited to high school students in grades 9 through 12. These students represent rural eastern and northeastern Nebraska high schools. It is not known for certain that these students' responses are representative of all students in Nebraska high schools who participate in ITV technology courses.

Limitations. One limitation of this study is that all respondents are essentially volunteers. Because their participation in the study is voluntary, it is difficult to generalize to other groups.

Significance of the Study

This study will assist administrators in the decision making process related to implementing Interactive Television technology in the classroom and help them with program evaluation of ITV technology. Administrators can use this study to more effectively serve their communities and student populations with the addition of more advanced course offerings in their school districts.

Educators will use this study to help improve their current teaching methodologies and practices. Student responses will help them identify areas of strengths and

weaknesses.

Information provided in this study will help board of education members, administrators, teachers, and the general public understand the basic principles of teaching and learning with ITV technology. School districts must have quality programs in place to enhance the educational process in their schools.

Chapter 2

Review of the Literature

The literature review will be organized according to the following outline. First, a theoretical perspective will be discussed underlying the delivery of traditional student learning and the need for other delivery systems for effective student learning. Literature regarding the theory of the importance of interaction in the learning process will be highlighted. Second, the literature as it relates to Interactive Television will be discussed. The point will be made that there is a need for the continued study of ITV in rural high schools in Nebraska. Third, a discussion of the research related to program evaluation of ITV learning will be introduced. It will focus on student perceptions of satisfaction or dissatisfaction with learning through the Interactive Television mode.

Theoretical Perspective

A major basis for the current study is the theory of interaction and its importance in the learning process. The interaction that evolves between students and teachers is a necessary component for an effective classroom learning climate. Without interaction between teachers and students, learning can be severely hampered. All of the literature points out that teacher-to-student interaction is a necessary part of an Interactive Television classroom.

In this study the theory of interaction as a significant component in the teacher-to-student learning process is closely related to Flander's (1970) study on the significance of interaction in the traditional classroom and how interaction can assist in the success of that traditional classroom (as cited in Fulford & Zhang, 1993). Gunawardena, Boverie, Gibson and Dillon (1993) and Sholdt, Zhang, and Fulford (1995) have all hypothesized

that increasing the opportunities for interaction will lead to an increase in actual interaction because students will ask more questions. With increased opportunities for interaction, students also exude a sense of belonging and of being a part of a shared environment (Kelsey, 2000). Interaction plays a vital role in involving students in the learning process. Maxwell, Richter, and McCain (1995) and Reeves and Reeves (1996) suggest that it is important to assess students' perceptions of the teaching and learning environment within the ITV classroom (as cited in Sherry, Fulford, & Zhang, 1998). Whether a student is participating in a traditional classroom or an ITV classroom, interaction between student and teacher is a significant component of that classroom.

Background of Distance Education

The use of alternative learning methods has played an important role in providing equity to learners who live in rural communities. Early distance education in Australia was described by Barlow in 1922:

So that educational assistance may reach parents whose children are situated at a distance from permanent country schools and away from the tracks followed by itinerant teachers, typed copies of instructions, directions, explanations and illustrations, forming a series of lessons on the most important subjects included in the Primary School Curriculum, are posted each week from the Primary Correspondence School in Brisbane.... Typed copies of weekly lessons carefully graded are transmitted with accompanying directions, some intended for the guidance of parents. Written lessons when finished are then

returned to the school for correction, comments and further advice.

The marked lessons are then returned to the home from which they have been received. (as cited in Stevens, 1994, p. 79)

Program Evaluation of Interactive Television

The literature shows that Interactive Instructional Television has had a positive impact on rural schools and student satisfaction (Alford, 1991; Fulford & Zhang, 1993; Garrison, 1990; Hackman & Walker, 1990; Ritchie & Newby, 1989). Advantages of ITV technology include video back-up capabilities, quality education in rural areas, small and informal classes, ability to live and work in the home community while earning credit, and ability to fax out and receive information during class (Anagal, 1996). The use of new and emerging technologies in distance education that foster live teacher-to-student and student-to-student interactivity will enable distance education to assume a respected role in the educational process according to Barker, Frisbie, & Patrick (as cited in Moore & Koble, 1995).

The literature focused on four areas of evaluation. The first area was a comparison of the traditional classroom to the ITV classroom. The second area of assessment was focused on the instructors and whether they did an adequate job of transferring information to the students. The third area is related to the adequacy of the equipment being used in an ITV classroom. The fourth area of evaluation addressed the adequacy of the classroom environment and classroom management techniques.

Student interaction can be an important component of the learning process but according to some researchers, it is not a necessity for student success in remote-site

courses. When there is less classroom interaction, the learning process can still be effective. Alford (1991) discovered that remote-site students had consistently less interaction than on-site students, but in total interactions, on-site students generally had a lower mean than remote-site students. Paulsen (1987) stated that along with teacher-to-student interaction, the opportunity for student-to-student interpersonal communication and social interaction is a significant advantage of tele communicated distance education approaches.

Anagal (1996) found that there were some drawbacks to the use of ITV technology. These disadvantages are summarized in the following statements: there was the lack of available resources for class work; classes were often impersonal and created an atmosphere which could be construed as uninviting for the student; there was, at times, an inability to interact directly with the professors; and, the expectations were not always clearly defined because information was not always received at appropriate times.

Researchers have validated that students were more satisfied with their experiences of using ITV compared with traditional instruction. There is a positive relationship between students' satisfaction with instruction and their success in the course (Fulford & Zhang, 1993; Garrison, 1990; Ritchie & Newby, 1989; Yarkin-Levin, 1983). A survey study of Iowa's Two-Way Interactive Television (TWIT) system found that 94% of the students enrolled in TWIT classes perceived that their achievement was comparable to that in the traditional classroom (Nelson, 1985). An evaluation of an ITV program in rural Minnesota found no statistically significant differences in achievement between students enrolled in ITV classes and those in the traditional program classes (Kitchen, 1987). The consensus of findings in numerous studies is that students

participating in ITV courses perform equally as well as their counterparts, who have participated in traditional classroom programs (Eiserman & Williams, 1987; Moore & Thompson, 1990; U.S. Congress, 1989). The ITV classroom, therefore, closely aligns with the traditional classroom in regard to student interaction and opportunity for achievement in various curriculum areas.

In many cases the researchers pointed out that learners preferred ITV instruction (Catchpole, 1988; Hunsanger, 1990; Nadel, 1988; Paulsen, 1987). Two-way interactive television established a link between students and faculty at the University of Texas at Austin and the San Antonio Health Center. The research indicated that graduates were satisfied with ITV instruction, and they had positive opinions about the faculty who delivered at the remote site (Ellis & Mathis, 1985; Hackman & Walker, 1990). Interactive Television medium and the delivery of course content had no significant impact on student achievement levels. Favorable attitudes were expressed by the students toward ITV instruction (Morehouse, 1987). Television delivery systems provide a means for learners at a distance to receive educational training as well as other important information according to the study by Egan, Welch, Page and Sebastian (as cited in Moore & Koble, 1995). The implications from these research studies are that students who have participated in the ITV technology have had positive experiences for the most part.

Summary

Interactive television has an interesting history that gained its roots in the basic theory of interaction. Research does suggest that for effective learning to occur, interaction can play a key role. If Interactive Television is to serve the needs of rural school children, then effective interaction through Interactive Television can be a basic

component for quality learning to occur. The application of the theory involving interaction in the classroom to ITV is relevant and should contribute to creating more effective ITV classrooms. This review of the literature has focused on addressing the informational needs of board members, administrators, and teachers as they continue to implement and upgrade ITV programs in their districts.

Chapter 3

Methods

The purpose of this study was to evaluate the effective use of ITV technology as perceived by the students in rural northeastern high schools in Nebraska. The methods used to conduct this study are described within this chapter. The major points of emphasis that are discussed within this chapter are the research design, a description of the sample, data collection, instrumentation, the research questions addressed within the study, and the analysis of the data.

The Design

The present study is a descriptive research study. A survey procedure was utilized to explore the effectiveness of ITV technology as a teaching and learning tool.

Sample

Demographic information that was collected in the survey included gender of the student, school of the student, grade level of the student, whether this was an on-site or off-site class, the expected grade of the student, and the name of the class.

Forty-four male and 86 female students from high schools affiliated with the EN-DLC were surveyed for the purposes of this study. These 130 students represented 25 of the high schools that are members of the EN-DLC. The student grade levels included 91 seniors, 31 juniors, 2 sophomores, and 4 fifth year students. The grade level for two of the students was not identified. Of the 130 students involved in the study, 49 students took the classes at the origination site and 81 students were at distant sites.

Data Collection

Surveys were mailed or hand delivered to the site coordinators of each EN-DLC

school, and students were asked to complete the survey. The survey was cross-sectional with the information collected during a short period of time after the students took the EN-DLC courses. A self-addressed, stamped envelope was included with the surveys for proper return of the data.

Instrument

The instrument that was used in this study was a survey of the students who were taking ITV courses during the 2000-2001 school year. The survey that was used was designed by Dr. Melodee Landis (see Appendix A). The survey was piloted and utilized during the 1999-2000 school year by the students who took courses through the EN-DLC. The survey was distributed to ITV classes during the second semester of the 2000-2001 school year. The intent of this survey study was to determine the overall effectiveness of ITV technology classes that were offered in the EN-DLC as perceived by the students who were participating in the study.

Research Questions

The following research questions were addressed in the study:

1. How do students perceive their satisfaction with the instruction and the use of distance learning technology in an ITV course?
2. What role does interaction play in involving students in their learning and subsequent success in a course?
3. How do students perceive their performance and their learning effectiveness in an ITV course as compared to their traditional courses?
4. How do students perceive the effect of an ITV course on student preparation and study habits?

5. How do students perceive the competence and skills of their Interactive Television teachers?

6. What effect does the ITV course have on the future school and career goals of the students?

Data Analysis

Research question 1 asked how do students perceive their satisfaction with the instruction and the use of distance learning technology in an ITV course? This question was answered from responses to survey questions number 7, 9, 10, 11, and 13. Students were asked to rate their perceptions with the instruction and the use of ITV technology in their distance learning courses. These ratings were analyzed using descriptive measures, such as means, standard deviations, and frequency counts.

Research question 2 asked what role did interaction play in involving students in their learning and subsequent success in an ITV course? Question 2 was answered from student responses to survey questions 4, 5, and 19. Students were asked to rate their interactive involvement in ITV courses and their perceived level of success in the particular ITV course. These ratings were analyzed using descriptive measures, such as means, standard deviations, frequency counts, and also the use of the Pearson product-moment correlation coefficient.

Research question 3 asked how do students perceive their performance and their learning effectiveness in an ITV course as compared to their traditional courses? This question was answered from student responses to survey questions 1 and 2. Students were asked to rate their perceived performance in an ITV course as compared to the past and present performances in their traditional courses. They were asked to rate their

satisfaction for the overall effectiveness of the distance course as compared to courses in the traditional format. This question was analyzed using descriptive measures, such as means, standard deviations, and frequency counts.

Research question 4 asked how do students perceive the effect of an ITV course on student preparation and study habits? Question 4 was answered from student responses to survey questions 3 and 6. Students were asked to rate their perceived satisfaction of an ITV course as it relates to student preparation, the development of study habits, and their understanding of important course concepts. The question was analyzed using descriptive measures, such as means, standard deviations, and frequency counts.

Research question 5 asked how do students perceive the competence and skills of their ITV teachers? Question 5 was answered from the responses to survey question 8. An analysis was done regarding how students perceive the competence and skills of their ITV teachers. Descriptive measures, such as means, standard deviations, and frequency counts were used in the data analysis of this question.

Finally, research question 6 asked what effect does the ITV course have on the future school and career goals of the students? This final question was answered from the student responses to survey question 12. Students were asked to rate their perception on what effect does an ITV course have on their future school and career goals. Once again, descriptive measures, such as means, standard deviations, and frequency counts were utilized in the data analysis of this question.

Additional student feedback was provided by questions 14, 15, and 16. These questions provided brief narrative feedback from the students. Information described the

likes and dislikes of the ITV classes, as well as a general statement of what had been learned through the experience of this ITV class. This analysis of these data provided additional information regarding ITV technology.

Summary of Methodology

A survey of students who were taking ITV courses in the EN-DLC was conducted. The survey was mailed or hand delivered to the coordinators of the distance learning sites. The results of the survey described the current student perceptions of the effectiveness of ITV technology and how the uses of this technology assisted the students with their academic goals. The data analysis for this study included descriptive measures, such as means, standard deviations, and frequency counts for the research questions posed in this study.

Chapter 4

Results

Introduction

Responses to the survey instrument provided useful information regarding student perceptions about various areas of the Eastern Nebraska Distance Learning Consortium Program. The data collected allowed the researcher to assess satisfaction both overall and with specific aspects of the distance learning program. Data analysis was provided using the SPSS for Windows Level 10 Base Program. The questionnaire contained 13 items scored on a 5-point Likert-type scale (1 = strongly disagree, 5 = strongly agree) and 3 open-ended items for student comments. Additional information included student gender, grade level, site information, course grade expectations, and the title of the course. One hundred and thirty students participated in the study.

Results According to Research Questions

Table 1 provides the data for research question 1 in determining how students perceived their satisfaction with the instruction and the use of distance learning technology in ITV courses. Data from survey questions 7, 9, 10, 11, and 13 are summarized using valid percent figures (see Table 1). Responses for all five of the survey questions indicated high percentages of agreement.

Research question 2 asked what role interaction played in involving students in their learning and subsequent success in a course. The data were correlated using students' perceived course grades as their perceived measure of success in the course. Although there were statistically significant correlations between student interaction (survey question number 4) and course grade ($r(126) = .206, p = .020$) and student

Table 1Responses to Student Questionnaire Items Regarding StudentSatisfaction with Instruction and Use of Distance Learning Technology inan ITV Course

	#7 Awareness in a timely, clear fashion	#9 Few technical problems	#10 Few scheduling problems	#11 Broader course selection	#13 Recommen- dation to others
Strongly disagree	3.8%	7.7%	6.9%	1.5%	4.6%
Disagree	4.6%	20.8%	16.9%	5.4%	3.8%
Neutral	22.3%	20.0%	20.0%	5.4%	13.8%
Agree	52.3%	40.8%	43.8%	27.7%	29.2%
Strongly agree	16.9%	10.8%	12.3%	60.0%	48.5%

Note. Column figures do not add to 100 because of rounding.

relationships (survey question number 5) and course grade ($r(119) = .179$, $p = .050$), the correlations were low and therefore, not practically significant.

Table 2 displays the data representing research question 3, which determines how students perceive their performance and their learning effectiveness in an ITV course as compared to their traditional courses. The data were provided by students' responses to questions number 1 and 2 of the survey. Frequency counts and valid percentages are displayed in the table and show the results of student responses. Over 70% of the students agreed that they can learn as much or more from an ITV course as a traditional class. The results showed that 19.2% disagreed and 10% of the students were neutral. More than 47% of the students surveyed felt that distance learning classes were comparable in rigor to traditional classroom courses. It is also noted that 31.2% disagreed that ITV courses were as easy as traditional courses and 21.1% remained neutral in their response to survey question 2.

Table 3 displays student attitudes regarding their preparation and study habits as they pertain to distance learning courses. The results show that 68.4% of the students surveyed agreed that they needed to place more responsibility on themselves when taking a distance learning course. Ten percent disagreed with this, and 21.5% reflected a neutral position on the question of responsibility. However, only 29.5% of these students felt that they had developed better study habits in these courses. Thirty-one percent disagreed and 39.5% were neutral when asked whether their study habits had improved.

Student perceptions of the competence and skills of their ITV teachers is

Table 2

Responses to Student Questionnaire Items that Determine How Students Perceive

their Performance and Learning Effectiveness in an ITV Course as Compared to

Traditional Courses

	#1 Learning is as effective in ITV classes as traditional classes	#2 ITV classes are as easy as traditional classes
Strongly disagree	7.7%	7.8%
Disagree	11.5%	23.4%
Neutral	10.0%	21.1%
Agree	36.2%	35.2%
Strongly agree	34.6%	12.5%

Table 3Responses to Student Questionnaire Items Regarding Student Preparation and StudyHabits as they Pertain to ITV Courses

	#3 Student needs to take more responsibility in an ITV class.	#6 Students develop better study habits by taking an ITV class.
Strongly disagree	0.0%	8.5%
Disagree	10.1%	22.5%
Neutral	21.5%	39.5%
Agree	33.8%	20.2%
Strongly agree	34.6%	9.3%

addressed with research question 5. The results indicated that 80.8% of the students had positive or strong positive feelings about their teachers' skills and competency levels. Only 9.2% disagreed with the question of teacher skills and competencies. Student comments included overwhelmingly positive information about their teachers' knowledge of the subject, skill in delivering effective lessons, and positive interactions between the students and their respective teachers.

In determining what effect an ITV course has on the future school and career goals of the students, 66% of the students were in agreement that the ITV course did have an effect with those goals. Survey results indicated that only 11.7% disagreed that their distance learning course would benefit them in future planning options. Twenty-two and one-half percent were neutral about the implications these courses had on future planning.

Results According to Open-ended Questions

The three open-ended questions revealed additional information concerning student attitudes about distance learning courses. A majority of the students responded to these three questions, which gave additional information about student perceptions of distance learning through ITV technology. Survey question 14 generated 130 responses; survey question 15 generated 106 responses; survey question 16 generated 108 responses.

The first open-ended question concerning what students liked best about distance learning classes generated a total of 130 responses. Frequent responses were categorized into several areas. Overall, the participants indicated a positive reaction to distance learning classes. Forty-four student responses indicated that distance learning courses

broadened their curriculum with college level and other advanced courses, and this was an aid to them in pursuing their future plans. Thirty-four students responded that these courses provided them with an opportunity to meet and interact with new students and teachers. Fifteen students responded that the new experience was fun and challenging to them. Another fifteen students responded that they enjoyed having good teachers who cared about students in the ITV program. Other responses were infrequent but identified pleasure with furniture and equipment (8), a self-paced atmosphere of responsibility for their own learning (4), and an opportunity for a slower paced, one-on-one environment (6). Only four responses indicated that they liked nothing about the experience.

The responses to the second open-ended question of what students liked least about distance learning classes generated 106 total responses. Twenty-eight student responses indicated a dislike for the lack of teacher availability and individual attention outside of class time. Twenty-one students commented that the technical problems that occurred were their greatest dislike. Fifteen students disliked that they were not able to either see or interact with all of the students from the other distant sites. Fourteen students indicated that they had difficulty adjusting to new methods, technology, and course rigor. Ten students indicated a dislike for the scheduling and calendar problems that occurred. Other responses were less frequent but indicated dislike in the following areas: discipline problems with students from other schools (6); accomplished less than previous years; pace too slow (4); walking outside in the cold to participate in the distance learning class (3); the distance (2); poor selection of classes, seeing myself on the monitor, and everything in general (1).

The final open-ended question that asked what have students learned about

distance learning drew 108 total responses. Twenty-one student responses indicated a great experience and way to broaden the curriculum. Nineteen responses indicated that the classes are challenging and as good as any other class in school. Seventeen students indicated a unique and enjoyable way to interact with other students. Fourteen respondents commented that they were learning about technology, and it was improving education. Fourteen other respondents indicated that consolidation of classes through ITV technology made for more effective education. Eight students responded that they learned that they did not like distance learning classes. Other responses were infrequent but indicated the following information: students can take on extra responsibility (3); it is too difficult to pay attention (3). Four comments generated one response for each: I should have signed up for more; college will be more difficult; it is too technologically dependent; I learned a different kind of mathematics.

Summary

Overall, the student satisfaction survey provided useful information regarding students' perceived satisfaction with ITV distance learning technology. The data collected allowed the researcher to assess satisfaction both overall and with specific aspects of the ITV courses. Frequency counts, valid percentages, and correlation analysis were some of the measures that were used to break down the data and report the initial findings of the study. Open-ended questions also provided the researcher with additional information for reporting the results of the study.

Chapter 5

Conclusions

Introduction

The purpose of this study was to evaluate the effective use of ITV technology as perceived by 130 students in rural northeastern high schools in Nebraska. The study was a descriptive research study. Forty-four male and 86 female students participated in the study, representing 25 high schools in northeastern Nebraska. A survey procedure was utilized to explore the effectiveness of ITV technology as a teaching and learning tool as perceived by the students participating in the study.

Surveys were hand delivered or mailed to the site coordinators of the Eastern Nebraska Distance Learning Consortium (EN-DLC). The survey was cross-sectional with the information collected during the spring of the 2000-2001 school year. The intent of this survey study was to determine the overall effectiveness of ITV technology classes that were offered in the EN-DLC as perceived by the students who participated in the study.

The results of the survey indicated current student perceptions about the instruction and the use of distance learning technology in an ITV course. The results of the survey also helped clarify what role interaction played in involving students in their learning and subsequent success in an ITV course. Other questions asked by the researcher and answered by the students were:

- “How do students perceive their performance and their learning effectiveness in an ITV course as compared to a traditional classroom course?”
- “How do students perceive the effect of an ITV course on student preparation

and study habits?”

- “How do students perceive the competence and skills of their ITV teachers?”
- “What effect does an ITV course have on the future school and career goals of the students?”

The data analysis for this study included descriptive measures, such as means, standard deviations, frequency counts and also the use of the Pearson product-moment correlation coefficient for the research questions posed in the study.

Additional student feedback was provided by student responses to three open-ended questions. These questions provided narrative feedback from the students regarding their likes and dislikes of the ITV classes, as well as a general statement of what had been learned through the experience of participating in one or more ITV classes.

Discussion of Results

The findings of the present investigation offer reasonably strong support for the contention that courses offered through ITV distance learning technology are as effective as traditional courses as perceived by the students who participated in them. This study concurs with past studies that have found that distance learners should not be viewed as disadvantaged in their learning experiences (DeLoughry, 1988; Moore & Thompson, 1990; Souder, 1995; U.S. Congress, 1989). The current study shows a high percentage of student satisfaction with ITV technology.

The first area of discussion depicts a positive student perception and satisfaction with the use of ITV technology. According to the results, students do have a positive perception about ITV technology. Although the uniqueness of this form of distance learning is evident by student responses, the majority of students (70.8%) perceived ITV

learning as effective as traditional classroom learning. Most students (69.2%) were able to access ITV classes in a timely and clear manner. One significant advantage, as perceived by the majority of the students (87.7%), was that it did give them broader curricular choices. Many of these choices involved the opportunity to participate and gain credit for college level classes. One student remarked, “The best thing about taking ITV courses in high school is being able to complete courses for college level credit.” Another student summarized, “ I am one step ahead for the classes I will be taking in college. The classes are challenging, and I would not have this opportunity without this program.” This was an advantage for a significant number of the students. As a result of this opportunity, 77.7% of the students did feel comfortable in recommending ITV courses to their peers. Although there was a small amount of dissatisfaction with technical (28.5%) and scheduling (23.8%) problems, it was evident that the instructional advantages far outweighed the technical and scheduling problems that did occur. Some student comments indicated that they would certainly have taken these classes at an earlier date if they would have been given the opportunity. Overall, a high level of satisfaction with instruction was indicated by the students who participated in the study.

The second area of discussion regarding the current study was to interpret what role interaction has played with involving students in their own learning and subsequent success in the ITV course. The correlations were low and as a result showed that there was no practical significance, but there are some important factors which come into play. Traditional classroom instruction often takes place in an impressionistic fashion within the interactions of an instructor and students. Teacher-to-student interaction is altered in distance learning, especially the informal aspects of discussion that occur before and after

class sessions (McCleary & Egan, 1995). In other words, a teacher who is physically present within the classroom can make a greater impact on students by moving extremely close to students, physically touching students, or by striking up a verbal conference with individual students and only be one or two feet away. These types of strategies can have a tremendous impact on the students within the classroom.

Several student responses indicated that it was important to have some outside contact with the distance learning teacher. One student commented, "I enjoyed learning from a teacher in a different city." Another student summarized, "The teacher explains everything to us. If I need help, she helps right away. I can honestly say that I have learned more this year than the past three years." In the traditional classroom students have immediate access to their teacher and to the other classmates. There was a definite theme from student questionnaires that this need for student-to-teacher interaction is important to them. Interaction does occur through ITV technology, but there is a difference between the face-to-face personal approach in the traditional classroom and the distant televised face-to-face contact made available through ITV technology. The interaction that takes place between the student and the teacher is important, but in an ITV classroom setting, the off-site teacher is not always readily available to the student. Even so, the correlation between students' structured and limited interaction with their teachers in ITV courses and their perceived course grades in the ITV courses, still showed that the students did perceive a successful learning experience in the final outcomes of the course. Ninety-three percent of the students who took ITV courses perceived they were obtaining either an A or B for the final grade in the course.

Although teacher availability to students' individual needs was a primary

consideration as a concern, some students perceived that this was an obstacle that could be overcome through increased student responsibility for their own actions and input into their courses. One student expressed, "There is too little interaction. It depends a great deal on the teacher since the teacher has a significant impact on what happens in the classroom." Another student said, "I was not able to communicate as easily with my teachers. The system shut down as soon as the class was over so I would either have to call or e-mail my teachers for extra help." This concept was reinforced by another student who summarized, "I disliked the fact that I could not interact outside of class time; if I was unclear with what the teacher wanted, there was no way to find out."

The researcher noted that there were some differences of opinion by the students in the study regarding the advantage of an available teacher within the classroom. Student responses indicated that there was interaction with their teachers during the instructional period, but once the class ended, student-teacher interaction ceased. Some student responses indicated that they would like to have an opportunity to visit with their instructors outside of class time also. An available calling time on the telephone, the exchange of e-mail, or the use of the fax machine for communication purposes might provide some possible strategies for additional communication between the students and their off-site teachers after the instructional period has ended. But, it is premature to conclude that the delivery system has absolutely no impact on student learning.

A third area of analysis pertained to how students perceived their performance and their learning effectiveness in an ITV course as compared to a traditional course. Based on student responses to the survey, a majority of the students (70.8%) perceived no difference between the two modes of delivery. One student explained, "It works just

as well, if not better, than a standard classroom situation.” Student comments indicated that effective teachers instruct students whether it is on site or at a distance. Another student noted, “I enjoy learning from teachers in different places!” A significant majority of the students (93%) perceived their grade as above average in the ITV courses. These perceptions are indicative of high student performances and achievement levels in the ITV courses. The small minority of students who indicated dissatisfaction were generally dissatisfied with their teacher. It may be that the teacher is the primary indicator of student perceived success in a course whether it is a traditional course or a course offered over an ITV network.

The perception that seems to be made clear throughout this study and complies with other researchers on this subject is that ITV instruction is not superior to traditional classroom presentation. ITV instruction provides an alternative way to deliver curriculum. Based on the fact that a strong majority of the students (93%) perceived their course grades as above average, this type of delivery system appears effective from the students’ point of view. Students perceive themselves as effective learners in the ITV courses. The question is not which form of instruction is the best, but rather what is effective instruction (Moore & Thompson, 1997; Whittington, 1987). And so, this study adds to the existing evidence that distance learners should not be viewed as disadvantaged in their learning experience (DeLoughry, 1988; Moore & Thompson, 1990; Souder, 1995; US Congress, 1989). The ITV learners in this study perceived that they gained a variety of skills and competencies that are also offered through traditional instruction. The investigator agreed with these statements and the question regarding effective instruction. However, as in other studies (Moore & Thompson, 1990; US

Congress, 1989), there are unique aspects of instruction associated with distance learning technology in the classroom. Student commitment, maturity, and motivation are necessary qualities. Student feedback from the instructor and classroom interaction with other students are other important components in participating in ITV classes. Findings of the current study do concur that ITV course instruction can be as effective as the traditional mode of instruction.

The fourth area of analysis questioned student attitudes about their responsibility, preparation, and study habits as they pertained to ITV courses. High percentages of students (68.4%) agreed that the characteristic of self responsibility was one that they needed to fulfill in ITV courses. The fact that the teacher is not always present within the classroom is a natural indication that the responsibility tends to shift more significantly to the student. The investigator concurred with McCleary and Egan (1995) that distance learners, to some degree, are at a disadvantage due to limited informal interaction with the teacher. Even though there could be a slight disadvantage with the absence of informal interaction, learning is still as effective as it is in a traditional course. Obvious implications are that the student will need to take on a little extra responsibility in a course of this type. Various student comments paralleled this line of thinking. One student commented that he disliked “not being able talk to the teacher before or after school.” Another student said, “I disliked not being able to have easy access to the teacher, but it did make me take more personal responsibility.” One student summarized this issue explicitly when she wrote, “It made me more responsible and independent by forcing me to get assignments done and turned in on time.” The majority of the students perceived additional responsibility as a major component while taking an ITV course.

Although most students were in agreement that ITV technology made them more responsible students, several students did not necessarily agree that an ITV course helped them become students with more effective study habits. Some of the statements of the dissenting students (31%) and those students who remained neutral (39.5%) did not necessarily support the statement that better study habits are established in an ITV course. These students suggested a different line of thinking. Their rationale suggested that students in traditional courses developed effective study habits also. Only 29.5% of the students agreed that students who took an ITV course developed better study habits. There is little or no difference distinguished between these two modes of learning. The higher percentage of dissenting and neutral responses would support the student attitude that effective student study habits are developed in all types of course delivery systems. Improved study habits are developed in traditional classes as well as ITV classes.

According to student perceptions, the amount of responsibility taken by students in any type of course is purely an individual's decision. One student described the experience as "a different experience because the teacher is not right there to prod the student." "There is a lot of homework, but a little amount of time." Another explained, "You have to pay close attention because you are not in total contact all of the time. It is harder to learn." Whether a course is taught from a distance or taught face-to-face in the traditional classroom mode, the amount of responsibility taken by the student is strictly the student's own choice. One student summarized the ITV experience in the following statements:

Through ITV learning I was able to take classes that I would not have been able to take at my school. I liked having different teachers who used a variety of

different teaching methods. I was not able to communicate as easily with my teachers, but distance learning is an excellent way to bring classes to a school that cannot otherwise offer them.

Students did perceive ITV technology as an effective way to learn. It provided them with curriculum opportunities that were not always possible.

It was interesting that students scored their ITV teachers extremely favorably even though a strong majority of the students perceived that they were required to take on more individual responsibility in the courses. This fifth area of the study definitely received the most favorable responses (80.8%) from the students who completed the study. Students had strong, positive perceptions about their teachers' skills and competencies. Very few students disagreed in this particular area. Those that did disagree (9.2%) were those who had strong commentaries of dislike for their ITV teachers. Their comments indicated that "the teacher gave them too much work, delivered too fast or too slow, or did not care enough about them as a student." It was interesting that they were in the minority with the total study group.

The implication for this area of the study was that students either really enjoyed and benefitted from the distance learning technology or students disliked and gained very little from the distance learning experience. In the latter case, these students expressed that they would not participate in ITV courses in the future.

Overall, the classroom teacher still remained the most influential component in the effective student learning process. One student summarized it well. "It is a good experience because the student is exposed to new techniques and skills by excellent teachers. It is also a great way to bring new and challenging classes to small, rural schools

that do not have the teacher expertise at the home site.” Whether the teacher is in the classroom in person, or at a distant site, he/she is still the most important component of the learning process as perceived by the vast majority of the student respondents.

The final area of interpretation that was addressed in this study was the future implications for the students who were taking ITV courses. Again, a strong majority of the students (66%) indicated that ITV courses will help them achieve their goals and career plans. The results of the study indicated a strong positive perception by a majority of the participants in the study. Very few students (11.7%) did not see the importance of utilizing ITV course technology to assist in career preparation and development.

Smaller, rural schools can be at a great disadvantage when it comes to curricular offerings. ITV and other distance learning technologies can help to narrow this wide gap. A greater number of advanced course offerings is certainly one aspect of assistance to high school students. Without these technologies students would not have the opportunity for advanced level course offerings. Several students commented that the ITV courses “gave them the opportunity to take a class that was not currently offered in the school.” Thirty-three percent of the students indicated in their narrative statements that ITV courses assisted them with their future goals in two distinct ways. First, these courses allowed them to gain introductory level college credit in a variety of curricular areas. Secondly, these courses helped them to achieve certain career goals by providing for them the opportunity to take an advanced level course that their school did not currently offer within the curriculum. Therefore, ITV and other forms of distance learning technology are necessary if all schools, and especially small, rural schools, are to provide a high quality

of education for their students.

Recommendations for Practice

As a result of this study several recommendations are made to educational officials who are involved in the implementation of effective teaching and learning practices. First, school officials need to continue to explore and implement new forms of technology as effective delivery and learning tools for teachers and students. Instructional Television technology and other forms of distance learning can provide cost efficient opportunities for delivering a wide variety of instructional programs. As school districts continue to face such obstacles as budget lids, teacher shortages, and the need to cut dollars from the budget because of federal, state, and local shortages of funding, it is important to explore these effective means of educating the current and future student populations.

Secondly, additional dialogue about ITV technology and other forms of distance learning technologies is necessary to expand curriculum alternatives for both rural and urban schools. Additional dialogue is needed to help guide the use of these technologies in a manner that will continue to benefit all student populations. Benefits can be provided for students who plan to attend two or four year post secondary educational programs or for those students with immediate career goals in technology related courses. This dialogue needs to include students, parents, teachers, administrators, and board of education members in all communities throughout the state. ITV distance learning technology provides another choice for boards of education, administrators, and teaching staff to make when constructing a quality educational program.

Finally, as with any instructional program, further evaluation and continuous research regarding the effectiveness of such programs are a necessity. The educational

community continues to be saturated with new and effective forms of distance learning technologies. These distance learning technologies need to be reviewed, assessed, and continually studied in order to provide school officials with the best possible practices in teaching and learning opportunities. Student, teacher, administrator, and the general public perceptions can all provide valuable information when it comes to making choices about important instructional practices. All of these groups have relevant information, and this information should continue to be gathered and evaluated. School officials should continue to examine current research regarding the issues that surface with these types of programs in order to make them as effective as possible for all learners.

Recommendations for Future Study

Several recommendations for further study are suggested as a result of the findings of this study. First, distance education through ITV technology is an innovation that needs continual evaluation. Future studies should continue to examine the profile of an effective distance learner and the required factors for a successful distance learning experience as a basis for designing optimal distance learning programs.

Future research can still play an important role in studying the factors that lead to effective learning in a variety of settings, including ITV technology and new forms of distance learning technologies. It is important that researchers continue to explore the impact that these new forms of technology have on student learning.

Secondly, the concept of the traditional course versus the effectiveness of some type of distance learning course may be an area that could require further study. New forms of technology are making distance learning models popular ones with more and more schools. Researchers need to continue to investigate student, faculty, and

administrator perceptions about the effectiveness of these types of learning. Through these investigations and the exploration of possibilities and limitations in offering distance learning courses, valuable information can be made available to study the question of which form of learning produces better performances of effective student learning.

A third area of future research is in the area of student and teacher perceptions about technological advances in ITV education. Further study of student and teacher perceptions about ITV and other types of distance learning technologies could give educators additional insight into the question of the effectiveness of these programs and the amount of responsibility placed upon the learners in this type of instructional process. Future investigations may be able to point out areas that involve the need for greater student and/or teacher responsibility. One question that might be addressed is whether student assessment results show that students at a distance achieve as well or better than those students in traditional classrooms? The continual collection and sorting of this type of data can certainly help to answer such questions.

Another question that could be studied further is the topic of interaction. Is there a distinction between in-class interaction and out-of-class interaction? Several student comments in this study indicated that there might be a problem with student-teacher interaction outside of class time. Further study could address the topic of interaction patterns of students and teachers during the class and outside of the instructional time of the class.

Because the scope of this study focused on student perceptions about the effectiveness of ITV distance learning technology, the investigator believes that it would be beneficial to explore a fourth area of future investigation. This investigation could

target the overall effectiveness of ITV technology as perceived by educators from differing viewpoints. Future research could explore the views of those teachers that currently teach ITV courses. In a slightly different twist, future studies could also focus on those teachers within the school that do not currently teach ITV or any other type of distance learning technology. The investigator believes that it would be beneficial to decision makers to note the perceptions from both viewpoints.

As the concept of teaching from a distance continues to grow, it is evident that it will be necessary to involve more teaching faculty in the process. Because of this fact, it would also be appropriate to study another important group that is involved in the decision making process for best instructional practices: Administrators perceptions about the effectiveness of ITV technology or any other distance learning technologies of apparent interest would provide a fifth area of investigation for future study.

Administrators are the group that make the instructional recommendations to their boards of education. Financial, as well as facility and staffing implications, need to be studied and addressed in order to make informed decisions about this issue. A study of this nature would provide valuable insight regarding the analysis of needs from this important viewpoint.

Summary of Conclusions

Overall, student perceptions were mostly positive about ITV technology. Students were satisfied with the instruction and the use of ITV technology within their courses of study. Interaction between teacher and students is a concern and an important factor in an ITV course, and although the correlation between student perceived interaction and course grades was not practically significant, there are some important

factors to consider about being an available teacher for all students. Students perceived that their performance and learning in an ITV course was as effective as their performance and learning in traditional courses. Most students agreed that they needed to take on more responsibility in an ITV course but the development of their study habits was no different than the study habits developed in their traditional courses. A large majority of the students perceived their ITV teachers as both skilled and competent in the delivery of the courses. And finally, a majority of the students agreed that taking ITV courses directly impacted the planning of their future school and career goals.

The expectations for the public school educational system have changed drastically during the past few decades. It is recommended that school districts continue to study and to utilize innovative approaches in teaching and delivery systems for all students. School improvement is always a current issue in education. ITV technology provides one alternative for addressing some of these current issues of staffing shortages, depleted curriculum offerings, and financial obstacles that school districts face.

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Appendix A

Survey Information

April 26, 2001

Dear EN-DLC Site Coordinator and Site Instructors:

My name is Kevin Nolan and I am the secondary principal at Tekamah-Herman Community Schools. I am currently completing the research necessary for a Field Project that would fulfill the necessary requirements for a Specialist Degree in Educational Administration. The purpose of my Field Project is to assess student satisfaction about interactive television courses in rural northeast Nebraska high schools. Information gained from this study could be used for current program evaluation so your school's participation in this study would be greatly appreciated.

Enclosed with this letter are the necessary copies of the survey instrument. I ask that you distribute this survey to each of the students who are currently taking a distance learning course through the EN-DLC. The survey will take each student approximately 10 minutes to complete. Student responses will be completely anonymous.

I would appreciate the return of the completed surveys in the enclosed postage paid envelope as soon as possible. Participation in this study is voluntary. To help me keep track of the schools who have returned the completed surveys, I have enclosed a return check-off card. After your students have completed the surveys, please return the check-off card in a separate mailing so I will know that your school has completed the survey instruments, and at the same time, your students' responses will remain anonymous. Also, please let me know if you would like to receive a copy of the results of the study.

Thank you for your time and attention to this request. Your participation in this study is greatly appreciated.

Sincerely,

Kevin M. Nolan
Principal Investigator

M. Martha Bruckner, Ph.D.
Primary Reviewer

Enclosures: Interactive Television Surveys

Return Envelope

Check-off card

ITV STUDENT SURVEY

Circle the letter that best describes your feelings about the statement on the left. The letter to be circled are defined as follows:

SD means You **STRONGLY DISAGREE** with the statement.

D means You **DISAGREE** with the statement.

N means You are **NEUTRAL** regarding the statement.

A means You **AGREE** with the statement.

SA means You **STRONGLY AGREE** with the statement.

NA means This statement is **NOT APPLICABLE** to your situation.

- | | | | | | | |
|--|----|---|---|---|----|----|
| 1. I can learn as much or more from a distance learning class as a traditional class. | SD | D | N | A | SA | NA |
| 2. Distance learning classes are as easy as other classes. | SD | D | N | A | SA | NA |
| 3. A distance learning class requires me to take more responsibility in what I learn. | SD | D | N | A | SA | NA |
| 4. I interact as much in my distance learning class as a traditional class. | SD | D | N | A | SA | NA |
| 5. I have developed a relationship with students in other districts as a result of my distance learning class. | SD | D | N | A | SA | NA |
| 6. I have developed better study habits as a result of my distance learning class. | SD | D | N | A | SA | NA |
| 7. I was able to find out about the distance classes in a timely and clear fashion. | SD | D | N | A | SA | NA |
| 8. My distance learning teacher was competent or skilled at teaching via distance technologies. | SD | D | N | A | SA | NA |
| 9. There were few technical problems | | | | | | |

- | | | | | | | |
|---|----|---|---|---|----|----|
| associated with the distance class. | SD | D | N | A | SA | NA |
| 10. There were few scheduling problems associated with the distance class. | SD | D | N | A | SA | NA |
| 11. I can take courses via distance that I would not otherwise be able to take. | SD | D | N | A | SA | NA |
| 12. My distance learning course has helped me with my future plans after high school. | SD | D | N | A | SA | NA |
| 13. I would advise other students to take a distance learning class. | SD | D | N | A | SA | NA |
14. What did you like best about your distance learning class?
15. What did you like least about your distance learning class?
16. What have you learned about distance learning?

Additional Information:

17. Circle: Male or Female Grade Level: 9 10 11 12

18. Was this class taught from your site? yes no

19. What grade do you expect to receive in the class? A B C D F

20. Name of distance learning class: _____