

**Strategies Used by South Dakota Distance Education Teachers  
And Their Effectiveness**

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### Introduction

*“The key to success in distance learning is the teacher. If the teacher on the system is good, the technology can become almost transparent. No technology can overcome poor teaching which is almost exacerbated in distance learning application.”*

--Congress of the United States  
Office of Technology Assessment

Educational institutions are embracing distance education as a means of overcoming the barriers of isolation in rural areas, cutbacks in educational funding, and the lack of available, qualified teachers. South Dakota is working hard to train its teachers to become successful in an interactive television classroom. The Dakota Digital Network (DDN) in South Dakota is a model of the systematic design and delivery of distance education using two-way video-conferencing equipment.

When educators are developing distance instruction or adapting traditional classroom instruction to interactive television, the content basically remains the same but its presentation requires new strategies. Interaction rises to the top in importance for the teacher who wants to most effectively promote learning in the distance-learning classroom. There are a variety of ways a teacher can be successful in this new arena, but one thing is certain: The newest technology cannot make up for poor instruction.

South Dakota has been striving to train its teachers to provide quality instruction at a distance using the DDN by offering a teacher institute called DTL (Distance Teaching and Learning) Academy. The main goals of this academy are to build an understanding of instructional strategies that effectively utilize the DDN, establish learning communities, and provide training for the operation of the videoconferencing equipment.

### Purpose of the Study

The purpose of this study was to identify the techniques that teachers in South Dakota have found effective for distance education. Recognizing that there is a need in South Dakota for the availability of effective classroom instruction on the DDN and that techniques that work in the traditional classroom don't necessarily work in the distance education classroom, it seemed important to draw on the expertise of those in the field to identify the instructional strategies they find most effective and use most often.

### Literature Review

In teaching over interactive television, the traditional notion of the teacher as the expert and dispenser of great knowledge whose job it is to fill the minds of the students in the classroom through the use of lecture will be driven out and replaced by a more active and student-centered learning environment. This is the most important message in the research on interactive television instruction: delivery and content need to be modified for the distant classroom.

## Literature Relating to the Effectiveness of Interactive Television Education

According to Cyrs and Conway (1997) in their textbook *Teaching at a Distance with the Merging Technologies*, research findings are consistent over the years: "There is no significant difference in learning outcomes between traditional and televised instruction, live or videotaped." They go on to emphasize that television does not affect the quality of instruction. Cyrs and Conway (1997) report that more than 600 studies over the past thirty years indicate that students learn as well, as much, and as quickly over instructional television as they do in traditional classrooms.

Distance learning students not only acquire knowledge about the content of a course, they also develop critical thinking skills (Thielke Huff, 2000). A study by Marie Thielke Huff, compared changes in the critical thinking skills of distance education students receiving instruction through interactive television to students enrolled in the same course but receiving face-to-face instruction. Thielke Huff found that both distant and on-site students increased their critical thinking skills with no statistically significant difference between the two groups with regard to their acquisition of critical thinking skills. This study points out that interaction among students and between students and instructors enhances the students' opportunity for learning to think critically (Thielke Huff, 2000).

Cyrs and Conway (1997) report that studies indicate that students can and will learn through interactive television courses. It is the quality of instruction that impacts learning. Teachers who will teach via interactive television need to learn further skills and will allow them to take advantage of this medium.

## Literature Relating to Effective Teaching Practices in Distance Education

Research shows that teaching by television requires unique skills that go beyond traditional classroom teaching methods and styles. Thomas E. Wolfe states in his article "Putting Interaction into Interactive Television," that "research strongly supports the effectiveness of interactive television as a medium for distance learning, It also indicates that the role and skills of the instructor are critical to that effectiveness" (Wolfe, 1998).

Cyrs and Conway (1997) conclude that when instructors make modifications, and the interactive television classroom includes the principles of visual thinking, student involvement, use of study guides, and appropriate presentation skills, students taking these courses perform as well or even better than students taught in a traditional classroom setting.

Distance educators and researchers agree that more interaction is better (Mottet, 1998). Cyrs and Conway define interaction on interactive television as "more than instructors asking questions. It means students interacting with other students in exercises and activities designed to promote critical thinking. It also means students interacting with media such as study guides with fill-ins, programmed learning modules, computer-based instruction, etc."

Interactive teaching methods include communication between the teacher and students and also communication among students. The type of method chosen should depend on the desired outcome of the activity. Cyrs and Conway (1997) believe that interaction promotes cooperation rather than competition among students. It is important for students to understand what type of work they will be doing and why it is important.

Wolfe (1998) found that some successful methods of interaction include teaching interview, case study, and group discussion. He suggests teachers ask frequent, in-depth questions and foster interactive discussions within the distance classroom. King and Witney (1998) report that student-teacher interaction plays a major role in any learning environment and then when learners are active participants in the learning process, they perform better. In their evaluation of engaged learning activities, they found that students liked interactions with students at a remote site, role playing, good feedback and examples. Some students did report, however, that they wished the instructor would just lecture.

Teachers in South Dakota have been receiving formal training in successful methods of teaching over interactive television through the Distance Teaching and Learning (DTL) Academies that were implemented in the summer of 2000. During this three-week academy, participants learn the basics of operating the video conferencing

equipment and adapting curriculum for distance delivery (Bauck, 2001). In their evaluation of this process in South Dakota, Simonson and Sparks (2001) report that “the lengthy training provided in the DTL Academies is an excellent technique that alleviates apprehension.”

In summary, this brief literature review reveals several concepts: (1) Distance education can be as effective as traditional classroom instruction, (2) teachers need to learn the skills and modifications necessary to make distance education effective, and (3) interaction is vital to the effectiveness of a distance education experience.

### Methodology

This study involved the use of an emailed questionnaire. The questionnaire was developed by the researcher after a review of distance education literature. This questionnaire was reviewed by experts in the field and pilot-tested by teachers.

The instrument listed techniques that educators might use when teaching over interactive television. These techniques were categorized as follows: study guides, presentation, small groups, reinforcement – verbal, reinforcement – nonverbal, and assessment. The respondents were asked to indicate how frequently they use each technique for distance classes. On the frequency dimension, a 5 on the scale indicated the technique was used “very often,” 4 = “often,” 3 = “sometimes,” 2 = “seldom”, 1 = “never,” and DK was used for “don’t know.”

The respondents were also asked to rate the effectiveness of these techniques. On the effectiveness dimension, 5 on the scale indicated “very effective,” 4 = “somewhat effective,” 3 = “rather effective,” 2 = “ineffective.”

The survey was distributed to teachers in South Dakota who have used the Dakota Digital Network (DDN), South Dakota’s two-way video-conferencing network.

### Findings

Findings are listed according to each category of the study.

#### Study Guides

Most of the teachers who responded use some type of study guide, and they find study guides to be very effective for the distance education classroom. The most common types of study guides used are an outline of notes and a checklist of items to be covered. The least common type of study guide used is a word picture. However, several teachers indicated uncertainty about the meaning of the term.

#### Presentation

Lecture is the most common means of presenting information used by this group of teachers, with a five to ten minute lecture being slightly more common than a short three to five minute lecture. Lectures longer than ten minutes are seldom used. These teachers rated lecture as a very effective means of presenting information and indicated that the longer the lecture, the less effective it became. These teachers seldom use a guest speaker, although most indicated they thought it was an effective technique.

Video clips followed by discussion are seldom used by the respondents, but they indicated it would be a very effective presentation technique. Longer videos are very seldom used.

Having student groups present information from parts of a chapter was not often chosen as a means of presenting information, but it was seen as a very effective technique. On the other hand, students reading a selection out loud and discussing it with the group was seldom used, although it was perceived as an effective technique.

One of the most common techniques used by these teachers is demonstration and demonstration followed by practice, and they find them to be very effective. Storytelling by the teacher is seldom used but seen as effective. Field trips followed by discussion are almost never part of the distance education classroom for this group of

teachers, although they find it to be effective. The use of PowerPoint to present information varied greatly among the respondents. In general, they indicated using it either often or never. PowerPoint was seen as a very effective means of presenting information.

Visual analogies are seldom used by these respondents, but they find visual analogies to be very effective.

#### Small Groups

In general, this group of responding teachers did not use many group activities. The exception to this is discussion in pairs then with the whole group. These teachers indicated they occasionally use that technique and found it to be extremely effective. However, other small group activities such as case studies, role playing, skits, TV commercials, group exams, and webquests were seldom or never used, but most teachers indicated a favorable reaction to the effectiveness of such techniques.

#### Reinforcement

The survey included a list of verbal reinforcement techniques, many of which are not commonly used in the classroom such as writing rap-style lyrics of key content points, song lyrics used to illustrate a point, personal vignette, student or teacher pantomime, and poll. Most teachers indicated they almost never use these techniques, and few teachers even rated their effectiveness. As a whole, however, those that did rate the effectiveness of these techniques ranked them as very effective.

Teachers also responded to a list of non-verbal reinforcement techniques. Very few provided a rank for their perceived effectiveness of the techniques. Drills and games were the most common non-verbal reinforcement technique of those listed, but were used slightly more than "seldom." Used never or seldom by most respondents are crossword puzzles, flashcards, puzzles, mnemonics, and true/false statements. As a whole, these techniques were seen as being effective.

#### Assessment

Questioning is the assessment technique on the survey that all respondents use often or occasionally and rank as a very effective technique. All respondents use written tests often or occasionally and rank them as very effective. Another assessment technique used by these teachers occasionally and found to be very effective is a worksheet that is corrected in class. A progress quiz (short self-tests that are not graded) and a quizzical (students question each other following a presentation) were seldom used, and the few who provided an effectiveness rank listed them as effective. Some teachers found asking students to provide a one minute oral summary of a major point of the lesson to be effective. Techniques including journals, essays, and PowerPoint presentations were shown to be used either often or never by the responding teachers.

### Discussion and Conclusion

The purpose of this study was to learn which techniques South Dakota distance educators are using and how effective they find these techniques. These teachers are providing study guides for student use, giving short lectures and demonstrations, discussing in small groups, and using a variety of traditional assessment tools including worksheets, tests, and questioning. They are using techniques they find effective, but they also ranked some techniques as very effective that they are not using.

Cyrs and Conway (1997) conclude that when instructors make modifications, and the interactive television classroom includes the principles of visual thinking, student involvement, use of study guides, and appropriate presentation skills, students taking these courses perform as well or even better than students taught in a traditional classroom setting. Are South Dakota instructors making modifications include the principles of visual thinking in the interactive television classroom? This study suggests these modifications are being made to a limited degree. Are teachers making modifications for sufficient student involvement? This study suggests that students are involved through questioning and worksheet activities. Are teachers using study guides? The teachers who responded to this survey use study guides in some form and find them to be very effective. Are teachers using appropriate presentation skills? The teachers who responded to this study tend to use traditional presentation skills such as lecture.

One limitation of this research is the low number of respondents. If the survey had gone out in the middle of the school year rather than at the end, I believe the response would have been better. I sent the surveys out in May. After two weeks I sent them again to those who hadn't responded. Several weeks later I made phone calls to many of the teachers asking them to respond to the survey. Some indicated that they do not check their school email during the summer. I believe research is continuing on this topic at the Department of Education and Cultural Affairs in South Dakota through student evaluations taken at the end of each semester. It is important to routinely assess the effectiveness of methods of deliver and assessment in the interactive television classroom.

Table 1 – Survey results

Frequency	Mean	Effectiveness	Mean
<i>Study Guides</i>			
2.5	Outline of notes	3.0	
2.3	Interactive study guide	2.9	
1.9	Fill-in-blank notes	3.0	
2.5	Checklist of items to be covered	2.7	
1.6	Word picture	2.3	
2.0	Diagram to label	3.1	
<i>Presentation</i>			
2.8	3-5 min. lecture	2.8	
3.3	5-10 min. lecture	2.7	
2.3	Lecture longer than 10 minutes	2.2	
1.7	Guest Speaker	2.4	
2.1	Video clips followed by discussion (trigger video)	2.8	
1.6	Longer video	2.6	
2.5	Student groups present information from parts of the chapter	3.0	
2.6	Demonstration	3.2	
2.9	Demonstration followed by practice	3.2	
1.5	Field trip – discuss in class	2.5	
2.3	Storytelling by teacher	2.6	
2.2	Visual analogy	3.0	
1.9	Students read selection out loud and discuss	2.6	
2.4	PowerPoint to present information	2.8	
<i>Small Groups</i>			
2.8	Discussion in pairs then with the whole group	3.6	
1.4	Case studies		
1.5	Role playing		
1.7	Skits		
1.4	Prepare TV commercials	*2.8	
1.6	Group exam – small group decides on answers to exam		
1.7	Webquests		
<i>Reinforcement - verbal</i>			
1.3	Rap It Up – students write rap-style lyrics of key content points		
1.3			
1.5	Song lyrics – students identify why certain lyrics reinforce points in a lesson		
1.3	Personal vignette – Students relate personal experiences to a topic	*2.6	
1.3	Student pantomime		
1.3	Teacher pantomime		
1.1	Poll		
<i>Reinforcement - nonverbal</i>			

1.7	Crossword puzzle	
2.3	Drills	
1.5	Flashcards	
2.3	Games	*2.6
1.4	Puzzles	
1.3	Mnemonics	
1.8	True/False Statements	
	<b>Assessment</b>	
1.6	Journals	2.8
2.5	Worksheet and correct in class	3.3
2.4	Progress Quiz – short self-tests that are not graded	3.0
3.5	Questioning	3.3
2.1	Quizzical – students question each other following a presentation	3.7
2.1	One minute summary by students of a major point of the lesson	2.9
1.7	Reflections – respond to “I realized that...,” “Today I learned...”	3.2
2.0	Students make PowerPoint presentations	3.1
3.1	Written Test	3.0
1.9	Essays	3.0

\*The responses for this entire section were averaged due to a low number of responses.

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**Key Word Form**

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