Creating a Collaborative-Based Classroom via ITV

Summer Pankonen
Colman, South Dakota 57017
605-534-3112
Email: summer.pankonen@k12.sd.us

Introduction

America has endured many trends in its educational medians. Our elementary and high schools have not been the primary target group for the medians of the past, but they are being targeted with the latest. Distance education has all the parameters to effectively generate content-based, successful classes, for students at any age. Unfortunately, it also has the ability to pass away as quickly as correspondence classes did.

Undoubtedly, technology has proven to be a fundamental component of distance education (Williams, 2001). Since its introduction to the educational environment, Interactive Television has been seen as a way of reducing costs, as well as a way to give students of all ages greater access to an enormous variety of curriculum choices (Parkay, Oaks, & Peters, 2000). As with any new instructional median, Interactive Television (ITV) has attracted incredulous critics. Although the majority of the research concerning ITV use in education supports the idea, there is skepticism that the benefits are coming as a result of depriving students of a classroom environment where collaboration and interactivity are used consistently to promote learning.

Instructors teaching via distance are continuously coping with an inflexible and often non-forgiving teaching environment (Parkay et al, 2000). The degree to how much influence this has on stimulating a constructive learning environment with student involvement and interaction continues to be discussed and argued. There is no disagreeing amongst researchers that the rigid classroom environment does indeed play a large role in the amount of collaboration that occurs.

Significance and Need

It is pertinent to the success of distant education that we continue to analyze the interaction taking place within distance courses. Research on this component tends to vary with every author. Landis (2001) agrees and responds that some researchers have been quite disappointed with the degree of interaction and collaboration currently taking place in distance learning environments. Seay, Rudolph, and Chamberlain (2001) commented on one particular study in which the faculty members at Washington State noted that they were most dissatisfied with the interaction between teachers and students at the remote sites. On the contrary, as I also did, Landis has found studies to suggest that teachers and learners report a high level of interaction and satisfaction with learning results.

South Dakota has spent an abundance of resources to provide schools with an educational median called the DDN. DDN (Dakota Digital Network) is starting to become a popular name in educational settings all over the state. The networks consist of

one-way video and two-way audio settings. Currently South Dakota has 246 video sites, which are located within K-12 schools, Technical Institutes, State Universities, and non-educational sites. Courses and mini projects are taught year round over the networks. There is little doubt the instructors are teaching to the best of their abilities. Unfortunately, this does not assure that South Dakota students are participating in content-rich, interactive classrooms that include collaborative-based activities known to promote high-order thinking.

Purposes and Objectives

The purpose of this study was to analyze instructional practices currently being used by teachers conducting classes via Interactive Television in South Dakota. The instructors who are utilizing new forms of technology for the delivery of their instruction can add valuable insight on the median (Seay et al, 2001). We can learn much knowledge from actively studying teachers currently teaching via ITV. The resulting ideas and wisdom will benefit their successors in the field of distance education.

In addition, the study also investigated instructional procedures that promote a collaborate-based classroom via distance. As a result of the research a guide for teachers containing effective instructional procedures would be generated. Guiding research objectives included:

1. Research will analyze instructional practices being used by or known to professionals teaching at a distance.
2. Constructivist educational practices will be analyzed and combined with collaborative trends. The researcher will combine this data with distance-based instructional practices to formulate ideas and practices for teaching over ITV equipment.
3. The research will consider styles of instruction that have the ability to incorporate discussion groups and Internet support into the curriculum. The product will recommend ways of integrating the concepts while teaching over Interactive Television
4. The research will analyze the amount of training teachers have had along with the quality of the education.

Methodology

Subjects

The subjects of this study were K-12 teachers, who had, or were currently instructing over the Dakota Digital Network in South Dakota. Surveys were sent to the teachers of each school who were currently utilizing their Vtel system. 32 surveys were returned. I was satisfied with the number of returned surveys.

Instruments

The main source for data collection throughout the research was a survey. Surveys were chosen to accommodate for the large quantity being administered and they tend to be unproblematic. The survey was created in a manor that included quantitative data as well as short answer responses.

Surveys were distributed via email. All K-12 teachers in South Dakota have a state email account, which made this median of distribution possible. The respondents were able to complete the survey and send the results back to me as an attachment.

Two phases of survey distribution occurred. The first phase involved sending the surveys to all South Dakota superintendents who were to forward the survey on to the appropriate instructors. The second phase sent duplicate surveys out to teachers who were teaching via the DDN at that particular time.

Quantitative data was organized and calculated based on frequency and percentage. The frequency distribution would determine the amount recorded for each topic.

Results

Data collection took place over a two-month period. Thirty-two responses were returned. Eleven of those were from districts that did not have anyone to participate in the survey and they were sending back a courtesy letter. In all, twenty instructors completed and returned the survey.

The instructors who participated in the study were asked to report the level of education they had received in regards to utilizing and instructing over interactive television. 60% of the instructors had no formal training on teaching via distance, they had self-trained themselves prior to their courses. 22% of the participants had been trained during a school-structured in-service. The participants gave the in-service an effective rating of "fair". Finally, 8% of the teachers had received a formal degree related to distance education. An "excellent" rating was averaged in determining the quality of the programs from which the degree was earned.

The teachers responded to ten questions regarding the typical activities happening in their classroom over an entire course. The teachers were to report the percentage of time commonly spent on each particular activity. They were also asked to rate what they felt their students' level of collaboration was while participating in each activity. The participants were asked to rate the level of collaboration based on a scale of low, medium, and high.

The most common instructional agenda was lecture. On average, of the courses included in the survey, lectures were going on 41% of the time during class periods. In regards to this, the teachers rated the level of collaboration that occurs through lecture as low. Ironically, the one activity that instructors think of as extremely low in student involvement is the most commonly used strategy in our distance classrooms.

The instructional procedure implemented second to lecture was the usage of problem and solution charts that prompted questions. These contributed for 10% of the class periods. This method of instruction received a medium rating in relation to degree of collaboration.

Of the choices to select from, the practice taking up the lowest amount of time in the classrooms was the use of debates between sites. Debates can be used as a way for students from all sites to learn and represent topics of discussion. Incongruously, debates received the highest rating of collaboration from the teachers surveyed, yet they were implemented the least.

A positive side of the survey was the amount of instructional items used to support the delivery of instruction via ITV. The teachers were to mark what support they

had used while instructing. The majority of the items would be used during a lecture-based instruction, so there is evidence that teachers are trying to further develop their lectures. Among the choices for inclusion were book illustrations, diagrams and charts, photos, semantic maps, power points, PC-generated graphics, and brief video clips.

As the graph indicates (figure1), three quarters of the participants included book illustrations along with charts and graphs in their courses. Photos, power points, and video clips were also used in over half of the classrooms responding. Semantic maps and PC-generated graphics, received the lowest amount of usage.

The next section of the survey dealt with class web sites. Teachers were asked whether they constructed and used a website that coincided with their ITV course. Although websites are not high criteria for promoting collaboration, they are essential in maintaining important "cyber" communication and interaction with students. Corresponding websites can include information and knowledge that students otherwise might not get without it. Because it is difficult to always meet the needs of every student during a class period, the website acts as a tutor if it is designed properly.

The number of participants who included websites in the distance course was surprisingly high. Ten teachers reported having made a website to accent their course. All of the collegiate instructors I contacted had websites as well. Participants were also asked to report what components they included on their web pages that corresponded with their courses. Corresponding web pages allow for students and parents to access information more efficiently. When students are absent they can usually have access to the Internet to get started on their homework. Instructors who include tutorials and notes on their web sites give students who are struggling a convenient way to develop their understandings of the topics being covered.

Almost all of the instructors had developed a site that contained the course syllabus and contact information (figure 2). Unfortunately, a large decrease in numbers occurred when pertaining to the types of components that could actually assist in the actual instruction of the course. Course tutorials and supplementary readings were each used by only participant. Four instructors implemented lecture notes.

Next, the participants were asked whether or not they included online threaded discussion boards into their courses. 11% of instructors had included them as a means for getting students collaborating about subject topics, etc. This meant that a overwhelming majority of participants, (89%) did not included discussion boards. From the comments received, many of the high school teachers expressed a desire to implement the discussion boards, but felt they were not adequately prepared to initiate them into their courses.

The final sections of the survey were devoted to the participants' solutions for implementing collaborative-based activities, interactivity, and dialog within their distance classrooms. The answers were to be short answer statements, and a wide variety of answers were credited.

Many of the teachers participating had their own activities that promoted collaboration. Partner activities topped out the numbers as far as collaboration goes. Pairing the students with classmates from all sites and having them interview one another, work on projects together, participate in group case studies, and team projects were all examples of what is currently taking place over the DDN.

Interactivity took many forms with the participants including having relevant subject competitions between sites, charades activities, chained activities, field trips, and

labs. One instructor reported spending as much as half the class period doing math problems together. (See Appendix 2 for the entire list of answers)

Promoting dialog was pretty common amongst all the participants. Many suggested keeping a log of who had spoken during class to assure everyone participated. One teacher suggested covering current events at the beginning of the class period to start students conversing. Another suggestion was to keep informed and ask about extra curricular activities the students at all sites were participating in. (Appendix 3)

Recommendations

Collaborate-Based Learning

Cut down on lecture time! "Learning is active mental work, not passive reception of teaching."(Tam, 2000) Implementing collaborative-based instruction into distance education where numerous minutes of lecture had previously been, would be to the advantage of the students. I understand that there are numerous situations where lecture seems the only strategy to use. However, research doesn't support using lecture as the primary instructional strategy, whatever the median may be.

The idea of lecture was adapted from the 19th century model of the German university. It was here that scholars would "lecture" to students about their research (Glaser & Poole, 1999). Classrooms today are not necessary filled with highly motivated students. In fact just the opposite is found far too often. As Glaser comments, students are often in required courses or find themselves choosing from a minimal list of electives. When combining these student characteristics with an instructional method that does little to anything to promote interaction and collaboration, you have a classroom that is not promoting high-ordered levels of thinking.

The perspective of constructivist learning is formed around collaboration. Learners collaborate not only with their peers, but with the instructors and environment as well (Tam, 2000). A collaborative learning environment doesn't have the limitations confined to a classroom and although distance education can provide a unique context for its implementation, collaborative learning can be achieved. A goal of devoting 30%-60% of each class period to student activity is encouraged and will undoubtedly get students collaborating with one another. (Videoconferencing) The characteristic of a genuine collaborative classroom includes the sharing of knowledge among students and teachers, shared authority between the two, using teachers as mediators, and finally, heterogeneous groupings of students (Kulieke et al, 1990) Throughout my research I was able to observe a variety of courses and projects occurring over the DDN. It was my experience that teacher talk time accounted for at least 85% of the allotted time.

A recent study published in the Iowa Encyclopedia of Action Research outlined guiding principals to help create a constructivist-learning environment. In the study, Mary Herring (2001), collaborated with a panel of professionals to redefine the principles educators use to achieve the level of constructivism they felt appropriate for today's distance classrooms.

The fourth guiding principle associated with interactions occurring in the student learning environments. After the panel's collaboration the following suggestion resulted: "Develop learning experiences, which encourage the social negotiation of knowledge to

provide learners with the opportunity to evaluate individual understanding of concepts and to expand individual and shared understandings."

The developed principle initiates the importance of student interactions within their environment. A favorable attitude amongst students is expected to rise if the learning experience allows them to congregate with their classmates and learning materials (Herring, 2001)

Online Discussion Boards

Strategies that promote the gathering and sharing of information, as well as collaborative problem solving and questioning, are difficult to devise and carry out in any educational setting (Williams, 2001). Courses instructed via distance provide more extensive barriers preventing these from being accomplished. As times change though, the barriers are continuing to be climbed through the usage of online discussion boards.

Discussion boards have allowed instructors to create a closed community within their courses. The discussion boards can perform a variety of jobs. Among others, the tool can act as a delivery of learning materials such as readings and assignments. Most importantly, online discussions within a particular group have the ability to generate interaction about assignment topics, develop collaborative conversations, and allow students to post assignments for others to review and critique (Barnes, 2000).

In a handbook for instructors teaching at Ohio State University, Nancy Chism (2002) outlines specific goals for using discussions within a course. First she prioritizes the building of group among the students. In sharing through the discussions, the students undoubtedly share bits and pieces of their background, social culture, etc. Secondly, Chism considers the discussions as a chief way for instructors to share information with the classes. One specific collaborative learning approach she promotes is called "jigsaw". An online example of jigsaw would include asking students to research a specific topic, or parts of a more complex subject. Each student would contribute a "piece" of the whole topic. After reading all of the students' postings, the entire subject would have been covered.

Chism outlines a variety of other goals for online discussions including using them as a means for teachers and classmates to provide feedback, and as a way to further students' communication skills. Although discussion boards are utilized in the classroom in many ways, the main goal of creating a more collaborative-based learning environment is one step closer to being met when they are put to use.

Research has produced sufficient results showing that engaging in an online discussion promotes the development of critical thinking, collaboration, and reflection for the participants (Williams, 2001). When used in conjunction with an ITV course, discussion boards can adequately increase the amount of interaction and collaboration happening amongst the participants.

The survey results indicated that only two of the instructors surveyed actually incorporated discussion boards into their ITV courses. Of the college-level instructors I contacted, half of them had used online discussion boards in their courses.

Interactivity

Interactivity is really the key to creating a collaborative-based classroom. This pertains to regular classroom environments, as well as courses being taught with four

remote sites. Some general strategies were combined and posted through the Pacific Bell Knowledge Network. They include:

- Bring the participants in early. Use some type of game or question that will "tap their affective domain" within the first 5 minutes of class.
- Devote anywhere between 30%-60% of the class period to student activity.
- Try to redirect class time by breaking up lecture time into no more than 15 minutes at one time. Including some type of learner-centered response or activity after this period is necessary to promote accountability for the student's own learning.
- When grouping students try to encourage inter-site partners.
- Try to accumulate the same number of questions from all sites and make sure the question is repeated for everyone to hear and comment on.
- Try to have other students respond to the question before the instructor.

Discussion

The number of students actively involved in distance education continues to rapidly increase. In South Dakota the DDN equipment has opened doors to students that never seemed possible before. Budget and curriculum cuts have forced many districts to cut elective classes within the curriculum. Students are now able to take these courses over the DDN. It is pertinent though; that our districts continue to monitor the courses their students are taking. Throughout my study I was able to observe courses being taught to high school students. I was unpleasantly surprised by the lack of interactivity and mere absence of collaboration occurring. Students taking classes via distance still need to be taught at a level that raises them from short-term processing into a level of high-order thinking.

The individuals who participated in the survey showed encouragement to my thoughts on South Dakota's progress with distance education. Although many classes are lacking key agendas I would eventually like to see in all ITV classes, many of the instructors are incorporating beneficial components pertaining to interactivity, and the majority commented on the need for self-improvement. The fact that almost 60% of the individuals took the time to train themselves to instruct via ITV shows that they are willing to go the extra mile to improve our educational system in South Dakota.

References

Bader, M.B., Roy, S. (1999). Using technology to enhance relationships in interactive television classrooms. Journal of Education for Business, 74, 357-362. Retrieved March 12, 2002, from ProQuest database.

Barnes, S. (2000). What does electronic conferencing afford? Distance Education, 21, 236-247.

Chism, N. Handbook for instructors on the use of electronic class discussion. Retrieved March 25, 2002, from Ohio State University Web site: http://www.osu.edu/education/ftad/Publications/elecdisc/pages/home.htm

Glaser, R.E., Poole, M.J. (1999). Organic chemistry online: Building collaborative learning communities through electronic communication tools. Journal of Chemical Education, 76, 699-703.

Herring, M. (1997). Development of design guiding principles for constructivist-based distance learning environments. Encyclopedia of Distance Education Research in Iowa, 57-61.

Kulieke, M., Bakker, J., Collins, C., Fennimore, T., Fine, C., Herman, J., Jones, B.F., Raack, L., Tinzmann, M.B. (1990). Why should assessment be based on a vision of learning? Retrieved February 13, 2001, from http://www.ncrel.org/sdrs/areas/rpl_esys/assess.htm

Landis, M. (2001). A Comparison of interaction in AV-based and internet-based distance courses. Educational Technology & Society, 4(2). Retrieved March 28, 2002, from ProQuest database.

Parkay, F.W., Oaks, M.M., Peters, D.C. (2000). Promoting group investigation in a graduate-level ITV classroom. T.H.E. Journal, 27, 86-97. Retrieved March 3, 2002, from ProQuest database.

Seay, R., Rudolph, H.R., Chamberlain, D.H. (2001). Faculty perceptions of interactive television instruction. Journal of Education for Business, 77, 99-105. Retrieved March 13, 2002, from ProQuest database.

Tam, M. (2000). Constructivism, instructional design, and technology: Implications for transforming distance learning. Educational Technology & Society, 3(2). Retrieved March 28, 2002, from ProQuest database.

Videoconferencing. (2002). Retrieved March 24, 2002, from http://www.kn.pacbell.com/wred/vidconf/instruct.html

Williams, S.W., Watkins, K., Daley, B. (2001). Facilitating cross-cultural online discussion groups: Implication for practice. Distance Education, 22, 151-167. Retrieved Feb. 20, 2002, from ProQuest database.

Figure 1: Instructional Support

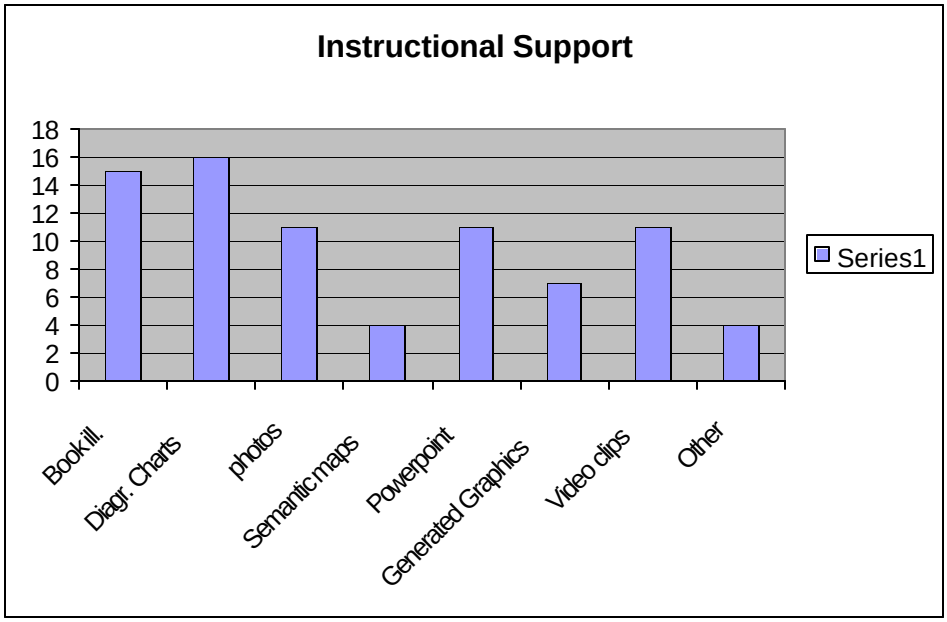

Figure 2 Website Components out of 11 participants:

Course Syllabus	8
Contact Information	9
Illustrative Materials	3
Audio/Video Clips	2
Supplementary Readings	1
Discussion Boards	2
Lecture Notes	4
Tutoria ls	1

Appendix 1

Distance Educator Survey

This survey will aid in research being conducted through a Star School Grant being funded by the SDADE. The findings will assist in establishing a guideline for instructional practices currently being used over the DDN. Please take a few minutes to complete this survey and send it back via email as an attachment to the following address. Summer Pankonen@k12.sd.us

School District_____

Name (optional)_____

1. Please identify the percent of training you have received in relation to teaching via Interactive Television, and indicate the quality of that training.

	% of training received from this source	**Quality:**			
		Poor (1)	**Fair (2)**	**Good (3)**	**Excellent (4)**
a. Self-taught or on-the-job work experience.	60.4%		2.23		
b. Inservice (workshops/conferences)	21.5%		2.4		
c. Formal degree	8.15%			3.66	

2. Do you have a web page that directly corresponds with the course you teach over the DDN? **11/20 58%**
   a. If yes please select which of the following components you include on the page.

   #of the 20 participants who included particular items:

   8 Course syllabus
   10 Contact information
   3 Illustrative materials
   2 Audio/video clips
   1 Supplementary readings
   2 Discussion board
   4 Lecture Notes
   1 Tutorials
   2 Other:

3. Over the course of a year/semester, roughly estimate the percentage of your time that is dedicated to the following tasks in your classes that are being connected over the DDN. Then indicate the degree of collaboration you feel the students obtain from it.

Instructional Method	% of time spent on activity	Level Of Student Collaboration: (please check) Low (1)	Medium (2)	High (3
a. Teacher lecture time.	41.4%	1.6		
b. Individual student presentations.	9.3%		2.3	
c. Pair and share (pairs of students discuss and present topics).	7.2%		2.4	
d. Instant review sheets.	5.5%	1.6		
e. Problems and solutions charts or question prompts.	9.5%		2.2	
f. Large group work	8.9%		2.3	
g. Role playing	3.7%		2.5	
h. Debates	1.1%		2.5	
I. Guest speakers	2.2%		2	
j. Other (explain)	13.1%		2.6	

4. Do you use any means of electronic discussion boards threaded forums?
   Yes 11% No 89%

5. Please check any of the following that you have used to support the delivery of your instruction over the DDN.

   # out of 20 Participants:

15	Book Illustrations	**11**	Power Points
16	Diagrams or Charts	**7**	PC-Generated Graphics
11	Photos	**11**	Brief Video Clips
4	Semantic Maps (to present (relations graphically	**4**	Other

6. Briefly describe other means you have used to get your students collaborating in your distance class?

See Appendix 2

7. Please explain how you encourage dialog and participation in your class.

See Appendix 3
Appendix 2 - Participant Responses to Open Ended Questions

Question 6: Briefly describe other means you have used to get your students Collaborating in your distance class?

- Having Science Fairs over the DDN (both sites could have an individual fair at their local school)
- Pairs interview one another
- Classes ask each other review questions
- CD and various audio activities
- Working math problems out as a group
- Everything I did in the regular classroom
- Team projects for motivation
- Keep seating charts to maintain account for which student had contributed
- Photos and Imovie activities
- Computer simulations and labs
- Chained activities
- Meeting for field trips, or labs
- Case study scenarios
- Showing and interest and talking about all the sites extracurricular activities

Appendix 3 - Participant Responses to Open Ended Questions

Question 7: Please explain how you encourage dialog and participation in your class.

- Providing extra credit for students who participate
- Putting responsibility on the home site to help other sites begin communicating
- Pairing students in a variety of ways
- Encouraging small group discussions
- Reading allowed with following questions
- Directed questions
- Current even discussion at beginning of course
- Work out problems together
- Relevance games (ex. bingo and charades)
- Keeping a chart that allows teacher to know who has participated
- Discussion and review activities