ADMINISTRATIVE PERSPECTIVES ON RURAL SCHOOL DISTRICT COOPERATION: INTERACTIVE TELEVISION IN BEAVER COUNTY, OKLAHOMA

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PREFACE

When selecting a subject on which to focus this study, it only seemed natural to center my investigation on change and leadership in the cutting-edge environment of interactive television in a rural setting. Extensive field interviews with major and minor participants and decision makers produced prodigious amounts of material which formed the basis for determining characteristics of leadership in a change environment. Leadership was revealed on an individual basis and in group situations. Acceptance of change was studied on a community level, as well as among individuals.

The outlook for future cooperatives among rural schools is hopeful. Unfortunately, the financial status of the State of Oklahoma does not now lend itself to possible future high-tech applications of such models as the one investigated in this study. Cooperatives among rural schools in the state will most probably have to move ahead without any significant funding except for local sources.

I must acknowledge several debts which I cannot repay. First, my thesis adviser and mentor, Dr. Gerald Bass, who has been constant and consistent when I thought there was no dissertation within me. I appreciate, also, the other committee members who have helped me: Dr. Adrienne Hyle, for her personal honesty in teaching and advising; Dr. Kenneth McKinley, for his openness and friendliness to me, not only in professional matters, but personally as well; Dr. Charles Edgley, for

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I am thankful for friends like Darrel Haynes, without whose computer I would be totally lost. I am further indebted to Chris Harris for her friendship and interest in my work and Eileen Dunkelgod, without whose organizational talents, thesis experience, and thoughtfulness, I would most probably be mired in the initial stages of my study.

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CHAPTER I

INTRODUCTION

> The Greek philosopher, Heraclitus, said, "One cannot step into the same river twice." He was speaking, of course, about change. We live in a world of change; we see evidence of it daily. How should we react to change? Should we quickly jump onto the bandwagon, or should we refuse to consider anything new? Many people refuse to consider change at all. They reason that if something has been acceptable for so long, why modify or reject it? The problem here is the old way may not be the best way (McClellan, 1990, p. 1).

Change is inevitable, but not constant. The only sure fact of change is that it will occur, however fast or slow its tempo may be paced. Change in distance education and distance learning is taking place with startling rapidity. The mere acceleration of change is enough to boggle the mind, but coupled with the tremendous spurt are the growing pains which are commonly associated with any type of rapid growth. Departure from the commonplace and usual is almost always a traumatic experience for people, but especially so in an atmosphere of education in general and distance education in particular (McClellan, 1990).

Distance education and distance learning are not new concepts. In the past, circumstances such as lack of adequate financing, sparsity of population, rural isolation, and topographical obstacles have caused various groups to experiment with different methods of distance learning (Kraushaar, 1976). Then, as now, financing a formal education was a major problem. Many organized towns and cities, though heavily endowed, could not support a consistent effort toward the schooling of their

young people. Only when an early type of "head" tax was levied on each child attending school, did the schools begin to experience some financial equilibrium (Soltow & Stevens, 1981). In some areas, even if adequate financing was available, isolation or topographical obstacles would force rural people to rely on home instruction. In some instances, study was on a haphazard basis. Occasionally, a planned, written pattern of study was outlined from available reading material by an established school master, no matter how far that teacher might be removed from the students. Often, a copy of the Holy Bible was the only available reading material, along with a treasured copy of some book which might have been in the family for generations (Kraushaar, 1976). Zigerell (1984) described distance learning as

> a form of instruction characterized by the physical separation of teacher from student, except for the occasional face-to-face meeting allowed for by some projects. Distance education is more than traditional correspondence study in that it presupposes opportunities for student interaction, whether live or mediated, as well as for student independence (p. 10).

Perhaps the earliest example of separation of teacher and student in the United States was seen in the person of the circuit-riding teacher (Kraushaar, 1976). In colonial America, even before the nation had been established, the idea of a circuit-riding teacher was in use in many areas. Often, several communities which could not individually afford a resident teacher would band together and collectively share the educational services of a single teacher. Variations on the original idea of the circuit-rider have included: 1) a three-month stay in a given area, with extensive study during the period of residence of the circuit-rider; 2) younger children left to the watchcare of older children when studying during the circuit-rider's absence; and 3) well-drawn plans for study during the circuit-rider's absence. From

those initial plans for study came the first crude correspondence courses.

Formal correspondence courses began to emerge by the end of the Civil War and, through time and experimentation, they developed from crude instruments to the modern correspondence study courses of today. College course work made up the majority of the initial plans of study but, by about 1890, high school courses of study were being planned for those preparing themselves for college admission (MacKinzie, Christensen, and Rigby, 1968). At first, correspondence courses had a personal flavor because author-teachers had relatively few students. Anna Eliot Ticknor personally operated the Boston-based Society to Encourage Study at Home from 1873 until her death in 1897. She insisted on personally marking each individual student's work. Surprisingly, most of her students were women, a clientele then only beginning to demand access to higher education (Kraushaar, 1976).

Universities soon began to make plans for correspondence study. The University of Chicago, under the guidance of William Rainey Harper, set up its first correspondence center in 1890. Soon other universities, such as the University of Wisconsin (1906) and the University of Oregon (1907), began to organize correspondence study on a permanent basis (Hall-Quest, 1926). Also developed during that time (1919-20) was the Marine Corps Institute (MCI) which later was followed by the United States Armed Forces Institute (USAFI) in 1941. Initial emphasis at USAFI was on the General Education Development (GED) program (Schwartz, 1963). Schwartz also noted that supervised correspondence study developed in various high schools, beginning about 1923-24. Childs (1949) stated that one of the major factors in the rise of this method was the

need of high schools, and particularly rural high schools, to enrich and diversify their curriculum.

Recent technological advances, however, have opened up opportunities for increasing numbers of learners to pursue a course of study in a different fashion. Because of rapid progress in the field of telecommunications, not only does the learner not have to be in the same place as the teacher, but the programs may also be pursued at a time most convenient to the learner (Zigerell, 1984). Naylor (1985) noted that it is in the television field that the most rapid educational advances have been made and also where another innovation has been introduced, that of telecourses distributed via satellite, microwave, or fiber-optics.

Finally, despite the views of some academics (i.e. Zigerell, 1984) that distance education projects do not reflect the best thinking or efforts of an institution and that distance education, like any other type of education, can suffer from lapses of quality, the research does document the effectiveness of distance education as a form of instruction (Naylor, 1985).

In August of 1988, an interactive television (ITV) network began operation in Beaver County, Oklahoma (See Appendix A). The system linked four separate schools in the county by means of a fiber-optic cable and provided a two-way, full-motion, digital transmission. This has enabled the four districts to electronically share teachers to increase the number of available high school courses. Facsimile (FAX) machines connected all schools for transmission of written materials. Classes were scheduled at commonly agreed upon times, with at least four time slots in the normal school day set aside for ITV programming. Initial course offerings on the network included advanced placement English, advanced bookkeeping, Spanish I, and art.

Beaver County, Oklahoma, is the most eastern of the three counties which comprise the panhandle area of extreme northwestern Oklahoma (See Appendix B). The area is some 260 miles northwest of Oklahoma City. The county consists of 1,793 square miles with a total population of approximately 7,500 residents. Though ranking fifth in the state in size, the population density is only 4.1 persons per square mile. The local economy is based largely on agriculture and cattle but is supplemented by the oil and natural gas industries. With over 2,000 oil wells and some 1,800 natural gas wells, the county enjoys one of the highest incomes per capita ($12,102 in 1984) of any county in the state (State of Oklahoma, 1987).

There are four independent (K-12) school districts in Beaver County. These four districts are roughly situated at the four points of a square located entirely inside the western one half of the county. For the 1988-89 school year, Beaver (the county seat) had an average daily attendance (ADA) of 501 students, Balko had an ADA of 172, Forgan had an ADA of 189, and Turpin had an ADA of 417 (Oklahoma State Department of Education, 1990). Secondary students from two dependent school districts (K-8 only) attend the Beaver school district; Gate Elementary had an ADA of 53 and Garrett Elementary also had an ADA of 53. The total ADA for the county was 1,385 students.

The development of the Beaver County ITV network created numerous changes in the individual school districts. Such changes were likely accompanied by uncertainty and opposition. The role of the superintendent then became that of change-agent and leader.

Statement of the Problem

A problem faced by many rural school districts is how to cooperate with other districts to provide educational opportunities which might not otherwise be available to their students. Acting alone, rural schools are becoming less able to offer diversified choices to their students. Additionally, school patrons continue to fear the possibility of involuntary consolidation and dread any loss of local control over their students' educational futures. Acting in concert, however, rural school district administrators and others are discovering new ways in which to enhance educational opportunities for their school children. The newness of interactive television places it at the forefront of the search for better and more efficient teaching methods. Important to the instigation and development of such programs is the administrative prerogative which must inevitably be exercised. How and why decisions were made and the politics of the decisions themselves have a direct and important effect on the realities of making what was once a dream into a working reality.

The investigative purpose of this study was to examine administrative and other actions and decisions, including those of the four boards of education, which led to the formation and implementation of the Beaver County ITV network. The following research questions were formulated to focus the study.

1. Where did activity start concerning the formation of an ITV network? What were the underlying initial concerns?

2. How did administrators seek to overcome the attitudes of autonomy and resistance to change on the part of the board of education and the patrons of each school district?

3. How did the school districts change as the result of the application of ITV as a method of instruction?

4. Which common leadership characteristics can be identified in each of the superintendents in this study?

5. What problems and successes have surfaced after a year of ITV operation in the county? How have they been dealt with by administrators?

6. What guidelines can be established to help future participants in similar endeavors?

Significance of the Study

Rural schools are confronted with many of the same problems as are other schools. As they attempt to surmount problems such as financial difficulties and the provision of equal educational opportunities for all of their students, administrators of small school districts must sharply focus their attention on the most effective and cost efficient means of insuring a quality education. In identifying the problems encountered, decisions made, and methods used in Beaver County, this study may be of future benefit to those in other rural schools as they evaluate possible cooperative efforts.

In focusing on the Beaver County network, it was the further intent of this study to show other rural schools that such a project could be completed. Significant also in this study might be any future uses of the guidelines which would naturally ensue from the analysis of the network. These guidelines could serve as the possible basis for legislative and State Department of Education policies regarding the formation of future cooperative projects. Finally, the success and effectiveness of the first year of operation of the Beaver County

network could have the significant effect of an increase in special grants from legislative or State Department of Education sources for the financing of more ITV projects.

Limitations of the Study

The application of the conclusions which have been drawn from this study could be limited because of the following.

1. This study examined only the four independent school districts in Beaver County, Oklahoma.

2. Much of the data resulted from individual interviews of the decision-makers and others involved in the formation of the network. The study relied then on the recollections of those participants, whose attitudes and assumptions might have changed. History and/or maturation thus could have impacted upon those recollections.

3. Some individuals originally involved in the project had moved or were no longer associated with their school districts and thus were not available for interviews.

4. Some written data sources, such as correspondence between superintendents and other documents kept by the various administrators, had been destroyed and thus were no longer available as sources.

Definition of Terms

In reviewing the literature regarding the current state of technology available in the United States, several terms are used more-or-less interchangeably by practitioners in the field. For purposes of this study, the following definitions will be commonly used.

Rural School District

> A school district with less than 800 average daily attendance (ADA) which is located outside metropolitan areas (Oklahoma State Department of Education, 1990, p. 7).

Distance Education

> Physical separation of the teacher from the student, except for the occasional face-to-face meeting for which allowance has been made in some projects. Distance education is more than traditional correspondence study in that it presupposes opportunities for student interaction, whether live or mediated, as well as for student independence (Zigerell, 1984, p. 10).

Distance Learning

> The act of focusing on the receiving end of distance education as defined by the perceived needs of the learner (Zigerell, 1984, p. 10).

Interactive Television

Any type of television delivery system which incorporates two-way video and two-way audio capabilities into its transmission and which involves feedback from student to teacher.

Teleconferencing

A one-way video and two-way audio link-up which usually uses a satellite and conference telephone calls.

Cable

> A delivery system that uses a single metal cable which transmits electric signals and is capable of handling several channels. Visual transmission and data transmission require separate channels. Once in place, cable operation is not easily expandable with regard to channel capacity. The longest effective range of cable transmission is about 30 miles (Kitchen & Kitchen, 1987, p. 17).

Fiber Optics

> A delivery system that uses glass cable which transmits light signals and is capable of carrying many channels in a single fiber. This method is easily expandable with a range of 40 miles or more (with boosters and repeaters) but is extremely expensive to install (Kitchen & Kitchen, 1987, p.20).

Microwave

> A delivery system that uses high-frequency radio waves for transmission through the air. Microwave is directional, or point-to-point, and is not easily expandable. It has a range of up to 30 miles. Its greatest advantage is security and privacy of transmission (Kitchen & Kitchen, 1987, p. 19).

Satellite

> A delivery system that has an up-link capability and corresponding down-link receivers (dishes) which transmit and receive through any of the communications satellites which circle the earth in orbit. Each satellite is capable of carrying more than 100 channels of television programming. Range is almost unlimited within the United States, but can also be extremely expensive at the outset (Kitchen & Kitchen, 1987, p. 23).

Hybrid System

> A delivery system that incorporates multiple technologies, with no single technology prevalent over another (Kitchen & Kitchen, 1987, p. 22).

Summary

The provision of educational services to students in rural areas is rapidly changing through the use of technology-based distance learning. These changes are frequently accompanied by uncertainty and opposition. The role of the superintendent thus becomes critical to the success of such innovation. The purpose of this study, then, was to investigate the formation and implementation of an ITV system in Beaver County, Oklahoma.

Chapter II contains a review of literature relative to distance learning, change processes, and leadership. The contents of Chapter III are focused on a description of the research methods employed in this study. Chapter IV contains a chronological review of the development of the Beaver County ITV system, while Chapter V provides a district-by-district analysis. The final chapter then contains a summary as well as

the conclusions and recommendations from the study. The chapter concludes with a commentary on distance learning, cooperative programming in rural schools, and the role of school administrators in such effort.

CHAPTER II

REVIEW OF LITERATURE

In the conduct of a research study, it is important to review those relevant studies which have been completed on similar topics and which form a basis upon which the current study can be designed. This chapter thus provides a review of the pertinent literature regarding distance learning and the concepts of change and leadership.

Distance Education

The historical development of distance education has closely paralleled the development of technology. That which once took the form of a letter to teach, train, or encourage others, as in the example of the Apostle Paul, has more recently been described in terms of technology-based instructional delivery systems. In between the earliest and the latest forms of distance education, many methods of delivery were developed. These took shape in three basic areas: print media, audio media, and video media.

As previously noted, letter writing was the chief means of distance education until the 1500s, when Gutenberg invented the moveable-type printing press (Langer, 1972). Print provided the means whereby correspondence study could take place. Printed home study courses in the United States were in evidence as early as 1728 (Valore & Diehl, 1987), but it remained for the University of London, in 1858, to offer a degree through correspondence study. In 1891, the University of Chicago

was the first American institution to offer college-level correspondence study, while the University of Wisconsin established a special extension division for study through correspondence in 1906 (Ruggles et al., 1982). By 1926, the Home Study Council had been formed, in order to promote sound educational practices and standards among correspondence schools (Ruggles et al., 1982). Universities and other agencies have continued the use of correspondence courses, often on a world-wide basis, for secondary and post-secondary students. Indeed, the practice has become the educational choice in many countries around the world.

From humble beginnings, audio media made rapid strides. By the early 1880s, Heinrich Hertz had identified radio waves (Parker, 1983), and Paul Nipkow, in 1884, had formulated a procedure by which images could be transmitted to another place (Ruggles et al., 1982). Though these devices had no immediate educational application, they led to the invention of the radio, which set distance learning on a new and different course. By the 1930s, a magnetic recording system with its flexible tape had been developed, and broadcast capabilities were able to be bypassed in favor of replaying material at the leisure of the learner (Ruggles et al., 1982).

Since the early 1930s, television has been regularly broadcast in the United States, but it was not until recently that video media has assumed much more significant proportions in its educational applications. Such applications, coupled with audio, include the "electronic blackboard" and "Cyclops" technologies (Hudson & Boyd, 1984). In addition, educational technology such as electronic mail and communications satellites are in common use in many school districts. The mating of computers with a telephone using a modem has also given new meaning

to distance learning. Great potential is being realized through such use of computers tied to other technologies (Ruggles et al., 1982).

Interactive television (ITV) has made rapid strides in a very short time span. Large-scale closed circuit television began in 1979 in South Carolina, with 10 television transmission stations and 6 FM radio stations providing over 176 television lessons daily (Hudson & Boyd, 1984). Other improved methods of ITV for education included the use of fiber-optic transmission in Minnesota in 1980. That program has been expanded and organized as the Mid-State Educational Telecommunication Cooperative (MSET). By 1987, MSET was offering over 10 courses toward high school graduation (Kitchen & Kitchen, 1987).

Since 1974, satellites have been used extensively in a downlink capacity. One of the earliest efforts of this type was implemented in the Rocky Mountain area and involved 68 reception stations in eight western states. Initially, one-way video and two-way audio transmission were employed in the system (Ruggles et al., 1982). Alaska, with its widely dispersed population, has also linked students on a state-wide basis with a central learning center so that remote villages could receive telephone and broadcast signals via satellite (Hudson & Boyd, 1984). In each case, the video educational applications have combined distance learning with then-current communication technology. With technologies yet to be invented, prospects for even more sophisticated video systems are on the educational horizon. The new interactive learning systems using reliable satellite transmission of quality video and audio signals have given rise to a completely new generation of distance learning in the United States (Ruggles et al., 1982).

Prominent on the international scene have been the distance learning innovations in Australia. Because of the vast distances

between learning centers, particularly in the outback, the various state governments, along with the federal government, banded together to attack the problems associated with few students and fewer teachers scattered over hundreds, and sometimes thousands, of square miles. Kemmis (1980), in a study of the utilization of satellite technology and reception purely for educational purposes, speculated that, eventually, all of Australia might be connected, in an instructional sense, by means of satellite reception. These broadcasts could provide a primary means of delivering instruction, augmented by an occasional visit from a supervisory teacher and almost daily telephone conversations.

> In the beginning, the federal government lagged far behind the state governments . . . notably the Victorian and Western Australian administrations in technological advances with regard to distance education. Once the federal bureaucrats of Mr. Hawke took hold of the problem, solutions began to flow pretty quickly (Hosie, 1985, interview notes).

Hosie (1983) evaluated a video loan program which had originated in the State of Western Australia. Located on the campus of the Western Australian Institute of Technology (WAIT) in Perth, Western Australia, the network is far flung, but comprehensive in its efforts to reach isolated students.

Conboy (1986) advanced the idea of combining computer networks with satellite reception. The Australian State of Victoria began supporting such programs in its school curriculum as early as 1978, updating the traditional correspondence methods first with computers and then with satellites.

It was the opinion of Dr. Hosie, and a majority of Australian officials who concerned themselves with distance learning, that the WAIT model was the current leading example of technology-based correspondence study in existence in Australia in the late 1980s (McKeich, 1989).

Leaders in Japan also began early efforts to use technology to support instruction. As early as 1960, well before any effort had been mounted by American educators, Japanese broadcasters had aired a series of educational broadcasts (Japan Broadcasting Company, 1969). The Japan Broadcasting Company article also discussed the reorganization of Japanese classroom structures necessary to the transformation which occurred when technology was applied in order to improve instructional productivity.

In 1986, Sahide wrote about Indonesia's use of satellite centers and the increased effectiveness which accompanied the acceptance of different teaching methods than those which were considered traditional. Students were found to be overjoyed to come to school each day in anticipation of being able to work on a computer and to be assisted by television reception via satellite.

In Canada, primarily in the western provinces, educational instruction has also taken on a high-tech look. Ruggles and others (1982) noted efforts to establish distance learning in western British Columbia. Kissock (1985) outlined a number of technological changes in his study of satellite programming in British Columbia. These included some attitudinal changes which had to occur in the transformation from traditional to technology-based methods of instructional delivery. He noted that change often had to be more greatly compensated for by teachers than by students.

Also notable in Kissock's 1985 review of technological adaptation on the part of various nations is the lack of transformation in many eastern bloc and other European countries. While early attempts to include these nations in organizations such as the International Council on Education for Teaching and the International Learning by Satellite

Conference had failed, some representation has been noted lately on the part of some European countries at the annual conventions of these organizations, as well as in the annual meetings of such organizations as the International Technology Conference, the National Rural and Small Schools Consortium, and the Educational Research Institute of Canada.

Change

Literature on change and leadership is well-established. While closely allied in common usage, the two phenomena are quite separate and distinct. In this portion of the chapter, studies of change are reviewed first. Following that is a review of literature relative to the concept of leadership.

> In an important sense this world of ours is a new world, in which the unity of knowledge, the nature of human communities, the order of society, the order of ideas, the very notions of society and culture have changed and will not return to what they have been in the past. What is new is new not because it has never been there before, but because it has changed in quality. One thing that is new is the prevalence of newness, the changing scale and scope of change itself, so that the world alters as we walk in it, so that the years of man's life measure not some small growth or rearrangement or moderation of what he learned in childhood, but a great upheaval (Oppenheimer, 1955, p.10)

Planned change, according to Bennis et al., (1969), is a deliberate attempt by a leader to manipulate the circumstances of existence and thereby to influence the direction the organization will take in a given matter. Gouldner (1956), in resolving the theory of Max Weber that a value-free society can be attained, stated that all change is value-oriented if the heart is used in conjunction with the head.

Change in America is such that nothing is sacred or static. Acceleration alone accounts for vast amounts of change and, as rapid change sweeps all before its surge, it is to our credit that the monumental changes thus experienced have failed to deter our compulsive

desire to invent, upset, and reestablish inherited patterns of comfort which satisfied our forebears, in favor of whatever the future holds. Change is experienced every day and in almost every walk of life. Tradition holds little for the current generation, and change only takes on the aura of how rapid and diverse it will become. It can actually be felt, on the job, at school, or in the neighborhood and spread throughout our everyday lives (Bennis et al., 1969).

Political change has been analyzed by six factors that directly relate to change in small communities and their extensions, the small schools. Swanson (1966) described these as the power structure, political regimes, citizen participation, political contention, politicization and the scope of the school, and bureaucracy or administration.

According to Swanson (1966), the power structure is usually split into the formal and informal systems; the formal portion of the system is that constituted body in which resides the legal authority of the law. It is usually visible and is recognized by the formality of its legal basis. The informal half of the power structure is the system of "who gets what, when and how." This entity is not so easily recognized and is often separate and apart from the formal structure.

The second factor in political change is that of political regimes (Swanson, 1966). A political regime is distinct from a power structure in that it is a representation of the rules of political decision making as understood by those affected and that which is interpreted and articulated by political leaders. The superintendent usually embodies the leadership of the political regime in any school situation.

The third factor is that of citizen participation and is characterized by the actions taken by citizens to alter the character, shape, policies, or programs of a system (Swanson, 1966). On its face, it acts

as a reformer to any political regime. Participation takes many forms, with numerous legal and political channels established through legitimate constitutional and other means. In some political situations, regimes may attempt to suppress some of the means available to the citizenry to participate in decision-making. Elections are the most frequently used methods of expression as citizen participants.

The fourth factor of Swanson (1966) which affects change in small communities and schools is political contention, controversy, and conflict. Problems and issues can have a far-reaching effect on the routine operation of a system. How they are dealt with can easily determine the destiny of any political regime, whether for good or ill. If the problem or issue is less apparent to the public, it can perhaps be disposed of without citizen participation and is usually handled by the administration or leadership. A potential conflict arises when a public concern exists, but the dialogue through which policy is made has not been activated. The issue then is whether the citizenry has not translated their policy preferences into demands or whether the leadership has not deemed it necessary to respond to a given problem or issue. A routine issue or problem involves a more or less habitual response which follows a general and repeated pattern of behavior and which is acceptable to general citizen preferences for administrative action. A controversial issue or problem develops as a lack of agreement among the major participants and renders the routine decision-making processes irrelevant. Major participants may have decided to contend against each other in the hope that they can achieve their individual policy preferences at the expense of others. Controversy can, and often does, erupt between groups with different economic interests, diverse population characteristics, or alliances regarding previous controversy. In most

school controversies, the critics generally oppose the school administration or board of education. In desegregation disputes, those who refuse to accept desegregation oppose the local school authorities, and so it goes.

The fifth influencing factor affecting change in small communities and schools is that of politicization and the scope of the school (Swanson, 1966). Just as controversy serves as a vehicle for setting public attitudes, so politics, in its broadest sense, serves the purpose of producing change in administrative behavior and decision-making patterns. A political demand for change calls for either a major review of existing policy or a new decision which bears on some significant value judgment or political preference by a substantial segment of those affected by such decisions. Politicization occurs when individuals become aware of the relevance of any type of government to their own lives, regardless of the level or scope of that government. Any perceived discrepancy between the actual practice and an ideal practice may elicit individual responses which will become controversial. The resulting "political tension" can very closely identify perceptions of human needs and desires to sets of actual events and conditions (Swanson, 1966).

The final factor considered by Swanson (1966) in effecting political change is that of professionalizing the bureaucracy or administration. Professionalization of the administration is most often accomplished by setting performance standards. At the same time, in the past few decades, there has been a move toward administrative positions whereby the citizenry is discouraged, though not precluded, from participation. The theory behind this move is that many of the decisions made on a daily basis are routine and therefore are unworthy of the

attention of the citizenry. Under previous and currently applied practices and policies, very few other people need to be consulted in decision making, and those are usually technically trained experts. Any professionalization of administration is designed to meet three conditions. First is the long-lasting effort to make schools run as efficiently as any corporate enterprise. Second is to insure that whatever policies are made, even those hidden from the public eye, the school must remain responsive to the public sentiment and be free from dominance by any particular public interest. The third condition to be met is that of specialization. As the scope of the school grows and increases in complexity, the specialized efforts should, in theory, yield greater effectiveness and increased quality in services rendered to the public.

Most schools operate like other organizations in that they follow certain unstated but uniform codes of behavior (Clark, 1962). The participants recognize these codes as normal elements of the organization which meet two basic but diverse requirements: maintenance of the status quo and growth. It is the second of these requirements which stimulates change. Since humans are not only rational but also social beings and the school is a group activity, it follows that the organization should afford the chance for small groups and individuals within its framework to fulfill their tendencies for equilibrium and growth. If, on the other hand, the organization fails in this responsibility, the individuals and groups which comprise the organization will likely be deterred from any initiative or expressions of interest which might aid in the ultimate growth and change of the organization. Participants in such organizations usually consider their jobs as dead-end situations

and either leave the organization after a short time or settle into a routine which is usually counterproductive to organizational goals.

Small group behavior is usually born from shared beliefs or commonly held codes of conduct (Clark, 1962). The appearance of an outside expert or "methods man" often strengthens the commonality of purpose which may or may not be already tightly woven into the character of the group once the outsider attempts to change it. "Outsider" seems to be the key word, since cultural clashes often turn on deviant behavior of the person from the outside and any small group usually attempts to return to a state of equilibrium which is culturally close to where it was prior to any attempts to change. At the least, individual group members will strive to reestablish equilibrium (Clark, 1962).

Of course, groups, like all other behavioral systems, will always tend to differentiate their parts over time. The social interaction common in many cultural rituals, such as eating, joking, coffee-drinking, and gaming, will set a given group apart from any other group. Any outsider seeking to become a part of an established group will first have to be accepted by some in the group and will also need to adapt to some of the rituals of the group in order to be considered a part of the group. In some instances, the ways of a specific group may not be conducive to management goals (Clark, 1960).

Bennis and associates (1969) noted that small group behavior is the most complex of cultural variables when attempting to predict organizational outcomes. Some groups end up in the reactive state of an "us vs. them" pattern, which tends to bring on a feeling of security through identification with the group as opposed to other groups or to the organization as a whole. Politicians tend to use such patterns to identify themselves with different groups among their constituencies. A

further example might be the classic disputes between a sales department and a production department in polarizing attitudes of each group toward the abilities of the other.

Change theory presupposes that an expert will be present to carry out any planned change (Kelly, 1955). The expert may be a person of knowledge, action, and/or expertise. Expertise is a salable commodity, since consultants abound in vast numbers in all sorts of business enterprises (Kelly, 1955). Expertise is arrived at through long experience in a given enterprise, thus enhancing the ability to effectively deal with whatever problem that may be at hand. Expertise may be genuinely earned through experience, or it may be attributed by others. In either case, how the expert is perceived largely defines the limits of that individual's influence or authority.

Reaction, which is triggered by some outside force, usually entails some type of defensive behavior, whether at the individual or group level (Lawrence et al., 1961). Proaction, on the other hand, is a more internally motivated behavior and tends to explain the self-to-world relationship of many people and some groups. The young boy struggling night and day to build something, the researcher striving to discover a new unity, or the contemplative individual searching for a deeper understanding of man, nature, or God; all of these show some evidence of proactive growth behavior.

Change must inculcate both of these types of behavior (Lawrence et al., 1961). Moreover, norms must be established to which all groups are expected to adhere if the goals of the organization are to be reached. Certain behaviors are then recognized by all groups as being valid in light of the goals of the organization, and these groups, or individuals in them, work to resolve the inevitable conflicts which will arise.

In this modern age, and with the complexity of modern organizations, adaptability is a major predictor of, and often spells the difference between, success and failure in achieving organizational goals. Indeed, many organizations have changed to bastions of fair play and freedom of thought as a means of promoting curiosity and creativity within the ranks of their workers (Marcuse, 1955). Examples of such change might include the development of "think tanks" inside corporate structures and the emergence of research and development departments in many businesses and universities.

If an organization is to change, and if the direction to be taken has been carefully studied and planned beforehand, then change, and ultimately improvement, must be influenced by some person or change-agent. Bennis, Schein, Steele, and Berlew (1973) noted that power is the ability to influence someone or something. Power thus leads to influence. They found ample evidence of the fact that power takes at least five paths which are easily identifiable. First among these power traits is coercive power, the ability of the leader to reward or punish a follower. Second is referent or identification power, the ability to be a role model. A third type of power is expert power, the power which would be associated with science and "truth." The fourth type of power is legitimate or traditional power, that type of power which issues from institutional norms and/or practices or from an historical or legal base. Last is value power, that which accrues to the leader as a result of that individual's value system.

Bennis (1973) suggested that most change-agents possess at least one form of power, while French and Raven (1969) and Kelman (1958) also asserted that two or more of the types of power are present in most change-agents. All four authors were in agreement that most change-

agents either ignore or choose to remain silent about the sources of their own influence.

Coercive power is not considered to be present in the change-agent unless that individual happens to be a member of the organization for which the change is attempted and has internal influence on its affairs (Bennis, 1973). Most change-agents, however, are external to the normal organizational structure and do not hold any formal title. More to the point is the fact that many change agents would prefer, at least intellectually, not to wield any type of coercive power, whether or not they in fact possessed it. Two points come to the front in support of this contention. First, coercive power appears to be at variance with most normative organizational goals and values and, second, there is some evidence that coercive power cannot stand the test of time unless conditions of vigilant surveillance are maintained over those who are to be influenced.

Traditional (or legitimate) power is unlikely to be attributed to the change-agent, unless that individual is a line manager acting in a change capacity (Bennis 1973). Hence, little influence accrues on the basis of traditional norms or precedents. Expert power is usually ascribed in a technical sense, but the specialization aspects of the position are often not seen as being "expert" enough to meet the entire spectrum of problems encountered in change situations. Referent (or identification) power is more readily recognized as having a rather indefinite influence over someone who wishes to emulate the change-agent. But, diversity of personality being what it is, a person in the role of change-agent will become identified with and thus influence the members of a group to varying degrees.

French and Raven (1969) agreed with Bennis that referent power cannot alone support successful change and is most likely to be allied with value power, in that influence is seen as a transmission of definite values which are admired and desired by potential followers. It is true that most of the change agents, such as Argyris, do communicate a set of embodied values to others which is consistent with what they say. Most values of this ilk are also consistent with Western civilization's notion of certain humanistic ideas, like concern for fellow humans, openness, honesty, flexibility, cooperation, and democracy. The use of coercive power, on its face, would be inconsistent with the above principles (Bennis, 1973).

Educational leaders today seem to face one crisis after another in their attempts to meet the needs of school children (Gallaher, 1967). An administrator in such schools could be said to be a "reactor" to the complexity of the problems to be faced. Rural change is especially complex, and compounded not only by the metamorphosis of the rural society, but by the lack of numbers. Every problem must be scaled down from urban values to the smaller perspectives usually found in rural communities. To keep up with solutions based on the problems of larger schools, it is vitally necessary for the leader to "act" as opposed to just "reacting" when confronted with alternatives. If the qualitative assessment of possible alternatives cannot be managed, the leader in many small school situations might lose some of the sense of oneness which is ultimately responsible for the success of the community.

Leadership

Whatever the source of power, McGregor (1954) noted that no change-agent, acting as leader, can afford to duck the unpleasant

necessity of making difficult decisions, of taking responsibility for a single course of action among many uncertain alternatives, and of making mistakes and accepting the consequences associated with failure. His notion that good human relations could eliminate all discord and disagreement was called to question by his realization that leaders can no more avoid the exercise of authority than they can avoid responsibility for what happens to their organizations. Many modern leaders have learned the dynamics of human relations theory while still adhering to the traditional theories which once were prevalent (McGregor, 1954).

Revisionist theory of organizational integration between classical and modern organizations holds that, in order to successfully integrate the two classifications successfully, the human relations perspective must, of necessity, be revised from its unsubstantiated and unrealistic aspects to meet the reality of life situations. Likert (1955), as well as McGregor (1954) and Lewin (1947), not only agreed on the foregoing but implied that the matter is much too simplified in the form already expressed. They agreed that the relationship of productivity to morale, for instance, is of doubtful correlation and that the interdependence between the two is understated in light of the complexities of any given group interaction.

Recent research findings have challenged some of the basic assumptions of the human relations model (Bennis & Nanus, 1985). For example, the question is posed whether attention is given to group process factors so that greater efficiency can be attained from group operations, or whether a leader who tries to get close to his followers is more efficient than one who does not. Another assumption under challenge is whether a leader can or should avoid hostile and aggressive attitudes directed toward him by his followers. A general consensus

developed among Likert (1955), McGregor (1954), and Lewin (1947) that organizational theory must clearly take into consideration such factors as purpose and goal, status and power differentials, and hierarchy. They also came to realize that leadership does, in fact, act in complex situations which involve much more than leading a group discussion (Bennis & Nanus, 1985).

Not everyone agrees with the previous viewpoints. McMurry (1950), for example, presented his thesis for the benevolent autocrat. He argued that consultative management (a variation of the human relations model), while preferable ideologically, is not very practical. He noted that managers are hard-driving entrepreneurs and, as opposed to leaders, do not generally believe in the human relations approach. Rather, they get results because they can evoke binding loyalty, respect, and similar attributes on the part of their followers, even though the relationship of supervisor to subordinate is rigidly controlled. McGregor (1954) suggested that, in theory, the views of McMurry might work but argued that the theory allowed little possibility for change, the production of more mature and able personnel, or conditions where responsibility can be assumed by anyone but the manager.

Argyris (1957) provided a counterview to McMurry's arguments in that, while they both started with the nature and importance of the human condition within an organized setting, they ended up with almost diametrically opposed conclusions. Argyris argued that the needs of the individual are often basically incompatible with the demands of most formal organizations. The accompanying frustration which attends this clash of the individual's need to self-actualize with stultifying requirements such as chain of command, task specialization, and span of control often triggers defense mechanisms on the part of the individual.

At stake is the attenuation of the organization's goals in rationalization of the ultimate mental health of the individual. If not successfully accomplished, the tenure of the individual within the organization is likely to be considerably shortened.

The heart of the matter is that their assumptions about human behavior led McMurry and Argyris to construct totally different organizational models. For McMurry, people are slothful and require leadership; for Argyris, people, if left free, will move naturally toward some type of growth. For Bennis (1973), the middle ground is more solid. Like Machiavelli, he holds that man is both good and evil and that certain conditions in a given organization will accentuate the expression of one or the other. The ambivalence of man's goodness and/or badness is part of the natural human condition and must be considered in any theory of organization.

Bennis (1973) also took exception to Argyris' contention that effective leadership can successfully fuse organizational and individual needs in such a way that both will arrive at some optimum point. Bennis (1983) thought that simultaneous optimization is not feasible in that accommodation and relinquishment of some objectives by both sides must be made. He pointed out that the best possible solution is one in which neither employer nor employee is at peak value but in which a degree of sufficiency in personnel satisfaction is attained which will sustain a viable rate of organizational efficiency.

Much recent change theory has concerned itself with the individual as the target of change (Bass, 1985). Education is one form of individual change (another being psychotherapy) which involves the transmission of selected knowledge and skills to normal but immature individuals. This process is usually designed to equip people to cope with

responsibilities as a person, citizen, or member of one group or another. The site of education is usually a school or a classroom which is supervised by a qualified professional who may also provide experiences in field settings.

The small group acts as a medium between individuals and the larger social systems of which they may be a part (Bass, 1985). A student is a part of a class, which in turn is a part of the larger school system. The larger system usually depends on small groups for the formulation and maturation of policies and programs. Hence, change in small groups may produce change in the wider social system as it becomes dependent upon that group for guidance and direction. While individuals often develop values by internalizing the norms of a small group such as the family, they can, in turn, change their values by joining small groups of a different orientation. Similarly, group values can be changed by attracting individuals with different value structures.

Planned change at the intergroup and community level no longer functions like the "town meeting" format of earlier times (Schindler-Rainman & Lippitt, 1971). In reality, communities no longer meet that idealized image due to an amazing number of diversified ways in which groups conduct their activities. While the values implicit in the "ideal image" generally still remain in the mentalities of many Americans, the manner in which they are translated into practice is much more complicated and vastly different from the original pattern. But, whether practiced publicly today or not, those values are still easily stated. People affected by public policies should participate in policy development and evaluation of the consequences. People should be informed about public issues and be prepared to make responsible choices

and decisions with respect to those issues. All conflicts should be confronted publicly, with efforts made to bring about viable compromise, if not outright consensus. Public officials should be accountable to the people who have given them their authority. The initiation of change should be allowed to come not only from professionals and technicians, but from volunteers as well, no matter how much the volunteers may need the help of the technicians or professionals to convert their ideas for change to actuality (Shindler-Rainman & Lippitt, 1971).

This volunteer aspect of former times has largely been replaced by a bureaucratic delivery system manned, more and more, by paid professionals. Even volunteer boards and committees, which were once in control of community agencies and organizations, are now coming under the direct control of trained administration. A good example might be the United Way and similar fund-raising bodies, which now hire professional executive directors to be certain that their organizations are properly administered and that they receive their share of donations from the general public. Schools, as public service agencies, have also come under attack for having professional leaders who are unresponsive to consumers' needs, who have an elitist attitude toward their clientele, and who generally refuse to share planning and decision-making with their patrons (Cottle, 1969).

Planned change in macrosystems takes quite another pattern than that concerning persons, small groups, organizations, and local communities (Bennis, et al. 1985). Change in national policies or cultural patterns is far less frequent and less differentiated than that in smaller groups. Therefore, the effect of a change agent will be less felt at this level. Planned change has not penetrated into the crucial bureaucratic processes of policy and decision-making. Any acceptance of

planned change is limited by the deeply entrenched, traditional attitudes and practices of governmental and intergovernmental policy-makers. In other words, they tend to perpetuate their positions and to resist change that may affect what they consider to be their inherent rights. Their strategies of change tend to be power-coercive rather than normative-reeducative (Bennis, et al. 1985). Mutually exclusive territory is thus jealously guarded through the uses of laws and administrative or judicial decrees, which are traditionally power-coercive instruments and work to compromise only if positions are roughly equal among adversaries (Bennis, et al. 1985).

The leaders involved in planned change were once thought to be destined to their roles from birth. The so-called "Great Man" theory saw power as being vested in a limited few whose inheritance inevitably marked them as leaders. All others were destined to follow, and no amount of learning or desire to lead could change that fate. But, as the emergence of leaders could not always be explained in this manner, emphasis was shifted to the notion that great events made leaders out of ordinary people such as Lenin and Lincoln. This also failed to adequately explain the practice of leadership. While these and many other theories failed to stand the test of time, leadership competencies remained constant but not understood (Bennis, 1983).

Bennis (1983) defined the transformative leader as a person who commits people to action, who converts followers into leaders, and who may convert leaders into agents of change. Bennis then summarized the existing leadership environment by identifying three major contexts: commitment, complexity, and credibility. First, he pointed out that almost 6 out of every 10 American workers believed that they did not

work as hard as they used to and that a tendency to withhold effort from the job may be increasing.

Complexity is the second of the contexts (Bennis, 1983). In an era marked by rapid and chaotic changes, often of the unplanned variety, Bennis found that external forces greatly affected organizations and influenced the manner in which they were led. Societal changes, whether interactive or discontinuous, were accelerating to the point that traditional information sources and management techniques had either become less effective or obsolete. Bennis noted that linear thinking, linear information processing, and incremental strategies were no match for the turbulence of the business climate. New unknowns could wreck the contemporary status of an organization faster than they could be recognized and compensated for by the leadership. In some quarters, the complexity led to what was described as a collective intolerance of ambiguity and a distinct "credibility gap."

Bennis (1983) found that leaders with good credibility, the third major context, were at a premium. Such had not always been the case. Attention to the public weal, social services, welfare organizations, and the like had spawned a morass of advocates, governmental regulations, and organized consumers, supported by the media willing to cover almost any challenge to authority. Even leaders with high levels of competency were backed into defensive stances by the attacks of these groups, and insecurity became the norm among many leaders. These attitudes were as much representative of a reluctant "followership" as of a scarcity of leaders. To opt to lead or to assume responsibility is to give up a large portion of one's privacy. Powerful people thus moved cautiously as they tried to negotiate the threatening terrain of advocacy rights groups who would question their authority. Public

sector "checkpoints" left little room for anything but rectitude and responsibility, while valid, often important and constructive ideas had fallen prey to disclosure and criticism (Bennis, 1983).

Bennis & Nanus (1985) stated that the problem of leadership was a matter of organizations being overmanaged and underled. They noted that to manage means to bring about or to accomplish, to conduct, or to have charge of or responsibility for some person or thing. To lead then is to influence or to guide in some direction, course, opinion, or action. To Bennis and Nanus, the distinction between leadership and management is crucial.

> Managers are people who do things right and leaders are people who do the right thing. The difference may be summarized as activities of vision and judgment (or effectiveness) versus activities of mastering routines (or efficiency) (Bennis & Nanus, 1985, p. 21).

Bennis (1983) identified four themes, or strategies of leadership. The first of these was attention through vision. A leader should create a focus for followers. Most good leaders have an agenda which is nothing more than an exceptional concern with outcome. Such intensity coupled with commitment is contagious, and attention is naturally paid to such a person, who does not need to rely on coercion to attract others.

The second strategy is that of meaning through communication (Bennis, 1983). While vision may have an intoxicating effect on the followers of a given leader, just believing in one's dreams is not enough. No matter how rich and well-planned an agenda may be, without communication nothing can be realized. The successful leader must manage the meaning of that vision, and master the art of communication to others. While some are more articulate than others, all good leaders exhibit their strong feelings graphically and intensely and communicate

in a direct manner, either verbally or non-verbally. The absolute key to success in most organizations is to unequivocally get the message across to everyone at every level. Communication creates meaning for people and is the manner in which small groups or individuals become aligned with the stated goals of an organization. While leaders are separated from managers in many ways, this is most obvious in their ability to communicate.

The third strategy of leadership is that of trust through positioning (Bennis, 1983). Trust implies accountability, predictability, and reliability. Trust maintains personal and organizational integrity. Though trust may be hard to define, people are aware of when it is present and when it is not. Leaders have clear, well-known positions which generally form the basis of trust from which they operate. Leaders persist in maintaining the image of trust which they have cultivated and are marked by relentless dedication to the implementation of their visions. Bennis (1983) quoted from a sign in the office of Ray Kroc, the founder of the McDonald's food empire.

> Nothing in the world can take the place of persistence. Talent will not; nothing is more common than unsuccessful men with great talent. Genius will not; unrewarded genius is almost a proverb. Education will not; the world is full of educated derelicts. Persistence, determination alone are omnipotent (p. 128).

The last strategy of leadership is deployment of self through positive self-regard. Leadership, essentially, is a human business. A characteristic of the best leaders is their ability to develop interpersonal and human relations at a very high level. Up to 90% of a good leader's time may be spent with people and the problems which accompany them. Positive self-regard generally involves an emphasis on personal strengths and a minimization of weaknesses. It does not mean that

weaknesses are disregarded, but simply that they are not the subject of deep concern. Self-regard is not egotism or obsessive self-importance. Basically, leaders trust themselves through self-respect. Compensating for weaknesses while recognizing strengths is a strong link in the chain of self-regard. Good leaders feel comfortable in leadership situations and recognize themselves as being good with people. The leader also seeks feedback on performance and strives constantly to improve skills. The positive self-regard that followers see in leaders helps to instill a sense of confidence and high expectation in the leader and motivates the follower to achieve.

Another facet to self-regard is that of putting all of one's energies into the task, not even considering failure as an option. Mistakes and errors are part of doing business and should be considered a part of learning. Good leaders embrace positive goals, pour all of their energy into the task at hand, and look to the future rather than looking back at the past. Past errors or mistakes are a beginning, the springboard of hope for new ideas. For successful leadership to occur, a fusion of positive self-regard and optimism about a desired outcome must prevail and be evident to any who would follow (Bennis & Nanus, 1985).

In summary, leaders empower others to translate intention into reality. In the give-and-take of the workplace, power must become a unit of exchange. A relationship that is creative, productive, and communicative will provide transactions which are based on power and empowerment. For it is the power which becomes the independent variable and empowerment which is dependent. If used properly, empowerment is given back to the power for further sharing (Bennis & Nanus, 1985).

Leaders embody certain ideals by which they lead their organizations and through which they are able to articulate to followers that vision which can be sustained and seen as attainable and worthy. Leadership is a responsibility, and its effectiveness is reflected in the attitudes of the followers. If the followers feel that their input has significance, they may actually feel that they can make a difference in the organization. When competence is recognized, a sense of belonging occurs and a feeling of "family" develops in the organization. Commonality of purpose tends to build bonds through a reliance on the work abilities of one another in a common cause.

Finally, when all of the ingredients of leadership are present in the organization, then work takes on a sense of inner satisfaction which is akin to enjoyment. A total immersion in the game of work causes followers to forget basic needs for long periods of time and sustains productivity at levels much higher than might be attained in lesser organizations. It is in this environment that vision leads to change.

CHAPTER III

METHODOLOGY

The educational problem which has guided this study concerns the challenges to rural schools and the degree to which such schools can cooperate to provide educational opportunities which might not otherwise be available to their students. The investigative purpose of this study was to examine administrative and other actions and decisions, including those of the four boards of education, which led to the formation and implementation of the Beaver County ITV network. The research questions which helped focus the study were as follow.

1. Where did activity start concerning the formation of an ITV network? What were the underlying initial concerns?

2. How did administrators seek to overcome the attitudes of autonomy and resistance to change on the part of the board of education and the patrons of each district?

3. How did the school districts change as the result of the application of ITV as a method of instruction?

4. Which common leadership characteristics can be identified in each of the superintendents in this study?

5. What problems and successes have surfaced after a year of ITV operation in the county? How have they been handled by administrators?

6. What guidelines can be established to help future participants in similar endeavors?

Population and Sample

For the purposes of this study, the population and sample were the same. The study focused on all four independent school districts in Beaver County, Oklahoma.

Data Collection

Interviews were conducted with all board of education members and administrators who had been actively involved during all or part of the Beaver County ITV project from inception to completion. These interviews were conducted in order to obtain a full and complete description of the perceptions of each individual regarding all phases of the project. The nature of the study lent itself to the use of a general framework of questions in the initial interviews. These interviews therefore included, but were not limited to, the following questions.

1. How did the project originate, develop, and come to completion?

2. What obstacles, such as political pressure, financial considerations, or local opposition to change, were present? How were these obstacles overcome?

Follow-up interviews with more specific questions were conducted as necessary. Other interviews were conducted with Sandy Garrett, former Director of Rural Education for the Oklahoma State Department of Education and presently the Secretary of Education for the State of Oklahoma, and knowledgeable staff members of the State Department of Education (SDE). An SDE perspective was thus established regarding the formation of the ITV network, particularly from the standpoint of curriculum and instruction.

Written sources were also reviewed and analyzed, including all relevant board minutes and other documents as they related to the formation of the cooperative network. Newspaper articles about the project were also reviewed and analyzed. All correspondence among superintendents and communications between the superintendents and their boards was analyzed, to the extent that they were made available for this study. Other documents relevant to the project, which were studied and analyzed, included the contracts executed between Panhandle Telephone and the four school districts, all applications for grants, and equipment purchase orders carried out on the part of each individual school district in providing hardware support to the ITV system.

CHAPTER IV

CHRONOLOGY

In any project which has scope and depth, a certain vision must precede the actual planning and implementation. In the present case, as will be shown in these chapters, the Beaver County cooperative was the outgrowth of the thoughts and vision of one man: Wiley Hinton, Superintendent of the Beaver School District. For several years prior to the formation of the cooperative, Mr. Hinton had been pursuing alternative solutions to some of the instructional and curricular deficiencies which, in his opinion, faced the school system.

Beaver schools had been among the first to install a satellite receiver system for educational programming. In addition, the Beaver schools had begun a "School Before School" project in 1983 in an attempt to meet some of the curricular deficiencies previously mentioned. The "School Before School" project sought to meet the needs of gifted and 2talented students through advanced studies. Mr. Hinton actively sought the opinions of the board of education members and spent a great deal of time communicating with the patrons of the Beaver schools as to their expectations regarding the education of their young people. The Beaver administrators remained open to any avenue which might prove fruitful in the pursuit of academic excellence. The use of the Discovery, Learning, and Weather Channels, as well as the offerings of the College of Arts and Sciences at Oklahoma State University, partially met some of the curricular needs of the district. Deficiencies in other

areas, such as a second foreign language, art, and English in preparation for college remained unsatisfied.

During the 1985-86 school year, at one of the informal county-wide meetings of administrators and board members, Mr. Hinton proposed the possibility of some type of cooperative effort which might involve all four of the county's independent school districts. Doug Rundle, superintendent of Forgan schools, later at the same meeting began to talk to Mr. Hinton about a cooperative effort between the two school districts. Gerald Danley, superintendent at Turpin, began looking into a possible shared effort between the Turpin and Balko schools. Richard Boothby, superintendent at Balko, also had concerns about the need to offer additional courses to meet the requirements of his college-bound students.

In each of the schools in Beaver County, the problems were different but somehow tied together. The needs were of varying significance in each district but had a common element in the need to meet mandates from the State Department of Education and from the state legislature. The informal monthly meetings among administrators and board members began to take on the form of a gripe session about the various legislative mandates and additional requirements from the State Department of Education curriculum section.

In the fall of 1985, several of the Beaver County superintendents went to Oklahoma City to consult with the State Superintendent of Public Instruction, John Folks, about possible solutions to their common problems. Included in this meeting was Sandy Garrett, the rural education specialist for the State Department of Education. The original focus of this, and subsequent, meetings was an emphasis on alternative delivery systems for instruction which could be applied to the needs of

gifted and talented students, an area of concern within each of the Beaver County schools.

The State Department of Education had originally cooperated with Oklahoma State University in arranging for any interested public schools to receive the high school German course which was broadcast by OSU via satellite. Department leaders sought further consultation with Smith Holt, Dean of the College of Arts and Sciences at Oklahoma State University, to discuss possible methods which might be used to improve the delivery of other curricular offerings to rural schools. Dean Holt explained the proposed expansion of the Arts and Sciences satellite offerings and what that might mean for the Beaver County schools. At that time, the expansion was envisioned to include physics and some type of higher math, as well as a course in German II.

The superintendents in Beaver County were desirous of meeting their perceived needs through courses of study which personnel at OSU had indicated were not yet ready to be integrated into their satellite system. Sandy Garrett thus began efforts whereby the Beaver County group could push ahead on their own with plans for an independent cooperative which would include all four high schools. Original plans called for each district to fund an equal share of the financial burden of such a delivery system. The superintendents began an extensive study of the different delivery methods of distance education, including their advantages and disadvantages.

While they wanted the best system available for their students, the superintendents were acutely aware of the cost requirements which must necessarily apply. Given the cost-cutting measures which had gone into effect in schools across the entire State of Oklahoma, financing a distance learning system which would serve the entire county appeared to

be a challenge of great proportions. On several occasions, all four superintendents discussed various ways by which such funds could be raised. Mr. Hinton suggested that the group apply for federal funding and the Beaver school district became the responsible agency for the preparation of applications for federal grant monies.

Total projected costs for a microwave delivery system in 1986 were calculated to range from $500,000 to $750,000. The original grant request, for almost $370,000, was made to the National Telecommunications and Information Administration of the Department of Commerce. It was projected that the cooperative could receive approximately $198,000 from sources other than the federal funds, for a total revenue package of about $566,000. Very little of the matching cost for the federal monies had actually been raised by members of the cooperative. A lack of political follow-up in Washington, DC, hindered efforts of the group to raise the federal portion of the cost of a proposed microwave system, as well as the matching portions which were to be raised at the local or state level.

Sandy Garrett, acting through the Oklahoma State Department of Education, began to identify other sources of funding while the federal applications were being filed and reviewed. From December 1985 through the summer of 1986, no solid sources of funding were found by either the superintendents or the personnel of the State Department of Education. Sandy Garrett used her personal contacts with some success when she and the four superintendents made a presentation to Dr. Ann Morgan, administrator for the Robert S. and Grayce B. Kerr Foundation in Oklahoma City. The original request to the Kerr Foundation at that time was for $150,000. While funding was being sought from many sources, investigation was being made into costs of different technologies.

The high cost of the microwave project was primarily due to the erection costs for the individual towers from which to transmit the programs. In continuing meetings among the superintendents, other methods of delivery were also being considered.

In August of 1985, written material was received through the State Department of Education about an innovative microwave system which was in operation in Trempealeau County, Wisconsin (see Appendix C). The superintendents discussed that option and became determined to find a way to go to Wisconsin and observe the system in action. In conversations with Sandy Garrett, the group mentioned the microwave system in Wisconsin and, through negotiations with Dr. Folks, arrangements were made for State Department of Education funding to send a small group to Wisconsin in October of 1985 for the specific purpose of observing the operation of the Trempealeau County system. It was decided that the group would report back to the State Board of Education on the advantages or disadvantages of such a system and could comment on any specific applications which might be of use in rural areas of Oklahoma, in general, and Beaver County, in particular.

Upon their arrival in Wisconsin, the superintendents from Oklahoma interviewed seven superintendents, from school districts allied both with the Wisconsin cooperative and from neighboring districts which were not members, as to their involvement in the cable and microwave aspects of the system. They received first-hand information on the internal workings of a truly integrated cooperative effort and some of the related problems which accompany such an enterprise. They also spoke to parents about the educational benefits and, in the process, discovered another aspect of the cooperative: a community education system which was then being integrated, with some success, during the evening hours

in Trempealeau Valley schools. The group presented evening classes to adults in a variety of fields of study, in alliance with the Western Wisconsin Communications Cooperative, a service with the primary mission of providing cable TV capacity to rural as well as urban communities.

According to the Oklahoma administrators, the main outgrowth of the trip to Trempealeau County was that they came back to their districts highly enthused with the possibilities of forming such a cooperative. All of the superintendents approached their individual boards of education with the idea of seeking some method to satisfy some of their perceived needs. A general committee, formed from individuals within the existing boards of education and all of the superintendents, began to explore the idea of an integrated television system. When word began to spread into the communities about the cooperative television system, several teachers in the various systems began to voice a fear of losing their jobs and their opposition to such a system. The general committee wanted a delivery system superior to the one seen in Wisconsin, so efforts were made to identify which type of system would best serve the Beaver County cooperative.

At this point in the development of the effort, Sandy Garrett wrote letters to the two state education associations' officers to assure them of the fact that such a system would serve only to supplement the existing course offerings and not to replace any teacher. When it was further explained that the system would provide additional hours of instruction to the normal curriculum, without loss of jobs to anyone, both organizations then sent letters of support to the superintendents of the four Beaver County independent school districts.

Efforts were also continued to locate funds with which to finance the system. By the early spring of 1986, word was received that the

federal funds which had been sought from the National Telecommunications and Information Administration (NTIA) would not be forthcoming. Subsequent follow-up with the NTIA administrator revealed that the application was rejected because no formal presentation had been made by the applicants to the NTIA in Washington, DC. In spite of repeated correspondence from the Oklahoma Congressional delegation in Washington about the viability of the Beaver County project, the NTIA was not made aware of the nature of the request. The NTIA administrator invited members of the cooperative to reapply, but such action was never taken. The superintendents decided that the process, requirements, and reporting were too restrictive to warrant further application.

In March of 1986, the McCaslin Foundation of Oklahoma City invited the group to make a presentation regarding their proposed cooperative. The Noble Foundation of Ardmore, Oklahoma, did the same. Presentations were given to both foundations, including a request to each for $100,000. Then, in June of 1986, a joint request was made by the Beaver County Cooperative, the State Department of Education, and the panhandle legislative delegation (consisting of Representative Walter Hill, the House Minority Leader, and Senator Tim Leonard, the Senate Minority Leader) to Representative Steve Lewis, then the chairman of the House Appropriations Committee, for a state legislative grant in the amount of $75,000.

The legislative grant was awarded to the Beaver County group for the full amount of their request and the funds were received in August of 1986. The grant monies were authorized on a one-time-only basis with no stipulation for local matching funds. The principal was immediately put into an interest-bearing account. During the 1986-87 school year, in response to the superintendents' presentation, the Kerr Foundation

granted $75,000 on a matching basis to the cooperative. Later during the same school year, $75,000 was authorized on a one-time matching basis from the McCaslin Foundation. Clearly, additional funds would need to be procured in order to accept the foundation grants. At this time, the State Department of Education again came into the picture with some limited financial assistance.

Though the small school cooperative grants distributed by the State Department of Education are competitive and sought after by many rural schools, the cooperative members were urged to submit an application for an original technical project. A combination of two grants was therefore sought by the group. The first grant application was filed by the Beaver-Forgan districts and the second was filed by Balko-Turpin. Each pair was granted $25,000 for 1986-87, the first year of the grant. Both were also funded for the 1987-88 school year. Thus, by November of 1986, funding had been obtained as follows: the $75,000 Kerr grant was matched by the one-time legislative grant and the McCaslin grant of $75,000 was matched by the two $50,000 (two-year) rural school cooperative grants for a total of $322,000.

Bids for a cable system to serve the four schools were still too high to meet the budget set out by the superintendents. The cooperative still did not have the necessary amount of funds to construct a microwave system so, as money continued to trickle in, members looked for other sources of technical expertise (See Appendix D). The superintendents had made most of the presentations together and traveled downstate a number of times, all with the support of their respective boards of education. They now began to talk to organizations such as the local telephone company, General Telephone Company (GTE) and its manager, Buddy Langley. At this critical juncture, another key individual became

involved. Ben Paul Zimmerman was not only a member of the board of education for the Balko Schools, but he also sat on the board of directors for the Panhandle Telephone Cooperative, Inc. (PTCI), headquartered in Guymon, Oklahoma. Representatives of PTCI, acting through its wholly-owned subsidiary, Panhandle Telecommunication Systems Inc. (PTSI), also began to explore the possibilities of bidding on the communications system proposed by the Beaver County cooperative. The main difference in the systems as proposed by GTE and PTSI was that GTE bid on an analog cable system while PTSI bid on a digital/fiber-optic cable. According to research conducted by the superintendents, flexibility and future costs were the main differences between the two systems. Analog is primarily an electronically conducted system which uses the modulation of a sound signal. The digital fiber-optic system is essentially a light-based means of transmission in which laser light is guided down a glass fiber. Digital equipment is almost one third more expensive than analog-type systems, but its lower maintenance costs make it cheaper over longer time periods. Thus, the Beaver County superintendents opted for the digital fiber-optic system proposed to them by Panhandle Telephone in implementing their ITV network.

The superintendents were excited at the prospect of building a fiber-optic application instead of a microwave system. Further research had shown that microwave towers already in use in the panhandle had a high rate of maintenance, and might prove too expensive for any one school to maintain over a long period of time. The notion of burying the cable up to four feet deep in already existent cooperative right-of-way was a cost-cutting factor which had not, up to this time, been considered. As the school superintendents began to approach their

boards with the idea of a fiber-optic network, enthusiasm began to build for such an endeavor.

In late 1985, during the search for funding for the project, and while research was being conducted as to the most efficient means of delivering curriculum in a distance learning situation, the superintendents had undertaken, with their boards of education, to try to educate their patrons and alleviate their fears in a variety of areas regarding any proposed networking system. To begin with, people in each community feared losing the identity and individuality which distinguished their school from all others.

A second concern in each of the communities was the quality of education to be provided by this new system. Would the same standards to which each of the four schools adhered be carried out in the new system? Whereas classroom control had been a local matter, what manner of discipline might be expected when the teacher was located over 30 miles away? Each of the superintendents stated, at one time or another in interviews, that a massive amount of planning went into the project. Since none of the schools had ever been involved in a project even remotely similar to this one, there was a vast amount of unknown policy and procedural information that needed to be discussed and determined.

It was agreed by the superintendents that the strongest teachers should be used to teach the network courses. Exactly which courses would be offered by each school depended, in the eyes of the superintendents, upon the needs of the entire system and the skills of the teachers. Through a process of elimination, the initial offerings of the network were determined to be art, which three of the schools needed in order to maintain their North Central accreditation; Spanish, which was needed by two of the schools to meet possible State Department of

Education mandates; advanced bookkeeping, which would expand the elective offerings of three of the schools; and advanced placement English, which was selected to aid college-bound juniors and seniors in strengthening their abilities in that area. Because of this recognition of needs-based objectives developed by the superintendents, all of the courses enjoyed a rather popular appeal among the various segments of the school populations.

Initial consultation with the State Department of Education curriculum section gave some direction to the teachers who were asked to be the first instructors on the network. Volunteers were sought from the faculties of the four schools, with emphasis on strong teaching abilities. After the initial consultation with the SDE curriculum section, the teachers were left largely on their own to develop a suitable line of instruction. While materials were freely supplied by the SDE and the teachers were free to seek advice from their corresponding counterparts in the curriculum section, the actual execution of the material remained at the discretion of each individual teacher. It was a time of trial and error to some extent, with each teacher experimenting at the outset with what seemed comfortable to them and would best meet the needs of the students in a distance learning situation. The students, never having been exposed to a like situation, didn't know what to expect. Many tried the experience initially out of curiosity or because a friend was going to take one of the courses on the network. Some, however, actually took the courses specifically for college entrance requirements or to fill an area of interest.

By December of 1987, the cooperative, having overcome most of the early financial problems, began in earnest to consult with Panhandle Telephone Cooperative, Inc. to bring the network into reality. The PTCI

board of directors, acting through Gene South, Executive Vice President for Operations, commenced negotiations with the Beaver County superintendents on the costs of the system. Although each school board had committed approximately $25,000 to the costs of such a system, the primary costs of the agreement between the school districts and PTCI were covered from the grant money already in hand. Further, the costs of all audio-visual equipment essential to the operation of the system were also offset by grant monies (See Appendix E).

An original stipulation of the grant from the Kerr Foundation was that the funds be used only for a microwave system. Therefore, it became necessary to seek permission to expend those funds for a digital fiber-optic system. The Kerr Foundation Board agreed to this change in March of 1988, and those funds were then expended in the purchase of cameras, monitors, and microphones, as well as coaxial cable with which to interface the coders, decoders, and other digital equipment with the terminal equipment. A significant stipulation added to the agreement by PTCI was that the system, and services thus furnished, would be used only for educational purposes. The school boards thus agreed that the system would not be used for any resale or bypass purposes. The agreement has since been amended to allow the presentation, after school hours, of programs such as hunter safety courses and extension courses from Northwestern Oklahoma State University and Panhandle State University.

From an initial expenditure of approximately $322,000 for the underground installation of the fiber-optic cable laid to the four schools, the annual payment to the telephone company totaled $64,500, to be paid out over a five-year period. These costs were to be paid from the grant monies already on deposit in the bank account set up for the

cooperative. It is estimated that the last payment can be met just from the interest which will continue to accrue on the investment of principal during the payment period. Since Oklahoma boards of education are not legally able to financially obligate future boards, the agreement between PTCI and the school districts included a required escape clause which allows a future board of education in any of the involved districts to give 60 days notice of intention to withdraw from the ITV network.

While the school cooperative was designed as a four-way fiber-optic instructional television network, room was left for expansion, should the need ever arise, and alternatives were left open by PTCI to the schools. Among these were the ability to expand the system into the other two panhandle counties, if the eight or nine independent school districts located in those counties wished to join the educational cooperative. It was noted that any expansion costs into Texas or Cimarron counties would be shared equally by the schools affected by the expansion, not by the four Beaver County districts. Costs for any such expansion would be prorated on the same basis as to the Beaver County group, but adjusted for inflation. The schools and PTCI would provide for on-site maintenance and replacement costs and for the equipment which that entity had originally furnished and installed. The same stipulation applied to any possible future loss of equipment, with the exception that negligence would not relieve either party of its liability. Equipment security was discussed at length and security provisions were implemented from the outset. Finally, with the signing of the contracts between the individual schools and PTCI, the actual work of installing the cable and control equipment began in the late spring of 1988.

Beginning at Balko, the cable was laid at a depth of four feet, in order to protect it well and to insure that it didn't interfere with other utilities which were already in place and which might need maintenance at some future time. Over 55 miles of cable was installed to connect the communities and schools together.

The trenching crews proceeded at normal speed until rain and persistent standing water conditions forced them to slow down and finally suspend operations both in late May and again in June of 1988. At that point, the schedule for finishing the installation in time for the start of school in late August was in jeopardy. While the Beaver County ITV board discussed the possibility of delaying the implementation of the system until the start of the second semester, Mr. Zimmerman brought the issue before a PTCI board meeting and, as a direct result, more crews were put into the field to speed operations. On more than one occasion, when low spots were encountered, the crews laid the cable right down through the water and mud. Additional technical crews were brought in to connect the cable at the various sites. A common presentation area was arranged in each school, with suitable television reception facilities and room for all students to be seated in a position from which they could view a teacher in the classroom as well as a teacher and the participating students from the other sites. By common agreement, all of the participating schools also agreed to build private observation areas at each school, so that visiting individuals or groups could observe the system without disturbing the class. Indeed, many outside groups have since toured one or all the sites in order to gain an appreciation of the uniqueness of the network.

Each district involved in the network has estimated the total cost for the preparation of their facility to receive ITV programming, to not

exceed $5,000. By doing much of the work in-house, one district spent just over $2,000 to remodel and improve their facility to accept ITV reception. Of course, equipment and related costs were covered by grant monies in the initial payment to Panhandle Telephone.

While the makeup of the network classroom was slightly different at each school, the common equipment included the following: (1) two sets of four television monitors; (2) a dais and control center, including a telephone and facsimile (FAX) machine, for the teacher to send and receive daily assignments; (3) three cameras; (4) microphones over the student and teacher areas; (5) ample lighting; (6) standard classroom tables for students; and (7) a one-way observation area for visitors.

Four of the monitors were set in front of the teacher's console and face the students. They were labeled for each of the other three school districts and the local monitor which showed what the teacher was transmitting to all sites. The four other monitors were attached to the ceiling and faced the teacher, providing the same reception as the students' monitors. The raised dais also contained a control center which included buttons to operate the three cameras, one of which recorded the teacher, another recorded the students, and the third was mounted directly over the teacher's console work area, so it could be used to show pictures from a book, charts, drawings, or other images such as those for use on an overhead projector. Three omnidirectional microphones were suspended from the ceiling, two over the student area and one over the teacher. Though all of the teachers initially used a lapel microphone in class, they were not needed, since the other microphones were so sensitive that a student who might be whispering at the back of one classroom could easily be heard in all of the other classrooms.

All of the classrooms had lowered ceilings with plenty of light. Instead of desks, students sat at tables, facing the teacher and the four monitors. Finally, at the back of each of the classrooms was either a set of dividers or a separate room, with observation windows for visitors. If the class was taught from another district, a classroom supervisor was present at each non-teaching site. However, the students generally paid attention only to the network teacher.

Finally, on August 24, 1988, the second day of regular classes for the 1988-89 school year, the system came on-line at all four schools. After over three years of planning and implementation, ITV was at last a reality in Beaver County. Each problem and difficulty had been met and surmounted at each individual school and across the system as a whole. A few small problems, mainly logistical in nature, continued on into the first few weeks of school, but the fine tuning of the system eliminated most of the snags. Also, the initial reaction to the system was cautious, both on the part of the students participating and the new ITV instructors. However, camera shyness or "stage fright" was quickly lost, and the classes settled down into a normal routine. Eventually, the participants paid little attention to the fact that they were on camera and education became a reality and not a novelty for all four of the initial classes.

As the notoriety of the new system began to spread, its features became the subject of articles and news stories. In addition, different groups, many from out-of-state, came to see the system in action. In much the same way that the Oklahoma administrators had gone to Trempealeau County, Wisconsin, educational groups came to observe the effectiveness of this system in its first year of operation. Oklahoma's Governor Henry Bellmon arranged for his personal aircraft to fly the

administrators of the Kerr Foundation out to Beaver County so that they might see the fruits of their grant to the cooperative. Additionally, several different groups of state legislators were flown to the ITV school sites along with all of the members of Taskforce 2000, a state-wide committee composed of educators and businesspersons charged with the responsibility of studying problems in common education and recommending adequate solutions. Thus the observation booths and rooms served the network well in the first few months of its existence.

Pride in the new ITV system continued to grow. Townspeople and patrons were taken on tours, often while class was in session, so that they could more fully appreciate the effectiveness of such an innovation. Often, programs of local interest were shown over the network, with patrons of all four school districts invited to attend. Residents of nearby nursing homes were brought to the school sites to see the classes in action. Throughout all of the public relations efforts exerted by each district, the Panhandle Telephone Company administration cooperated in every way, knowing that the effects of the schools' public relations would benefit them also.

The point most often discussed with visiting administrators or government officials was the relatively inexpensive cost of the system to the schools. Panhandle Telephone Company administrators and the four superintendents answered many questions about the cost-effectiveness of the system. It was pointed out during these times of questioning that the corporate structure of the telephone cooperative allowed the deferment of the total cost of the system over a five-year period. Under non-cooperative methods of corporate structuring, the school district cooperative would have been required to pay the full installation costs upon completion of the project. Having been furnished with

the above facts, many observers went away with a more favorable impression of the possibilities for cooperation between public service agencies and public schools.

Two of the more excellent features of the system were its resiliency and flexibility. In the first year of operation, the system experienced very little down time and often could be brought back on-line within an hour or two after disruption of service. Familiarity with the components of the system resulted in a fine-tuning which allowed more precise resolution of the monitors and audio equipment. The FAX machines proved to be a boon to the ITV teachers. Assignments were given out daily, and tests were transmitted and received over the system. Finished tests were transmitted back to the originating teacher, just as if the students and teacher had been in the same classroom. Overhead cameras were utilized for diagrams, pictures, and other written material, so that very little time was lost in writing on chalkboards. Students in other schools who wished to show their work to the teacher at the originating school had only to bring it to the overhead camera for close scrutiny or hold their work up to either of the monitoring cameras for general observation. While the Turpin art classes came to rely heavily on this method, it was utilized in the other classes to a lesser degree.

Students adapted to the differences in observing the work of the teachers on television instead of live in the classroom. They also developed the skill of watching what other students in the system were doing and could even ask students at distant locations how they arrived at the solutions they had derived. In the higher level English offerings, readings were regularly given over the system, with comments and constructive criticism following from all sites. Creative writing

abounded across the system, and copies were transmitted to anyone interested in the work of any other student. An anthology was created of the poetry, short stories, and other creative writings of the students and published for the edification of all of the schools.

As the newness of the system wore off and a routine was established, students and teachers alike began to accept the unusual nature of the system and take it for granted. Suggestions for improvement were offered by both the teachers and their students, and experimentation began to enhance the expectations in each school. Various methods were tried and either became a part of the usual routine or were rejected as unsuitable to the needs of the classes. Some methods from regular instruction were included in the television presentations but, more often, innovative techniques or simply trial and error dictated how a class proceeded with its work. The art class became especially adaptive under the direction of Mr. Robinson. The class agreed that television was an unusual medium from which to teach, and, therefore, unusual techniques could be tried, with the right reserved to modify or eliminate anything that did not work out to the satisfaction of both the class and the instructor.

In a time of great expectations and greater innovation, the State Board of Education relaxed its guidelines on instruction and curriculum content to accommodate the ITV presentations. It was expected that the Beaver county system, as the forerunner of future cooperative efforts in high-tech settings, would initially supply the framework and basis for future research which would, in turn, provide guidelines at the state level for similar ventures. It was agreed that the atmosphere for change could evoke numerous new methods of instruction and curriculum content and, having no one with previous expertise in the medium of

television instruction, the State Board wisely allowed some flexibility in how the Beaver County programs were structured. Future expansion was also given consideration and the State Department of Education area supervisor, M. C. Rider, was authorized to work in conjunction with the superintendents and their committee to review the effectiveness of the first year's offerings and to make recommendations to the State Department of Education regarding the expansion of already existent classes and the implementation of any new offerings. Accreditation was extended to all of the initial offerings of the network.

The superintendents have continued to supervise the operation at their school sites and meet as a committee of the whole to deal with problems which arise concerning all the schools.

CHAPTER V

THE FOUR SCHOOL DISTRICTS

As was noted in the review of literature, Swanson (1966) pointed out that change rarely occurs without being accompanied by contention, controversy, or even conflict. Resistance to change among the participants in a system often results in the suspension of normal decision-making processes. The manner in which resistance to change is handled usually determines the destiny of the leader, whether for good or ill. Quite often, leadership is the key factor to successful change when normal administrative procedures are bypassed due to resistance.

In this chapter, the leadership process will be examined in the context of technological change. The findings are reported from each of the four school districts in section 5 organized alphabetically (Balko, Beaver, Forgan and Turpin). Following these four sections, the final portion of the chapter provides a summary of all four districts highlighting the cooperative nature of this process of change.

Balko

Though the smallest of the school districts, Balko is quite a progressive school. As has been pointed out previously, innovation was not a new experience in the quest for better learning methods. As with many small schools, the primary limitations were availability of certified teaching personnel and finance. Luring quality teachers to such an isolated area is not an easy task. Consequently, certain benefits are

provided to the teaching staff. Teacherages are available as an incentive for good teachers to stay at Balko, in addition to the salary they are paid. A good percentage of the teachers have local attachment or are from the panhandle area. Some of the certificated staff at Balko live as far away as Beaver, 28 miles distant. Others live on farms and ranches around the community and school. The faculty is close-knit and competent. An easy informality exists between the board of education, administration, faculty and their patrons.

Discipline is not a large problem in the district. Richard Boothby has been superintendent at Balko for the last 13 years, and has provided stability and progress in the district during that time. His constant desire is to see that the schoolchildren are benefitted in whatever way possible. He has been charged by the board of education with keeping abreast of the latest offerings in curriculum and periodically advising them of the newest methods of instruction and delivery. With general revenues dropping in the school district due to the elimination of the hold-harmless portion from the state financial funding formula, Balko could ill afford to spend any significant portion of their budget on so large a venture as a county-wide cooperative. The initial reaction in the school district was that such a network would probably end up as a pipe dream. Too, the oil bust was in full swing in Oklahoma and particularly in the Balko area. Gross production revenues, which made up a substantial portion of the district budget, were down for three years in a row, and the board of education was extremely aware of the tightness of the financial times. Superintendent Boothby adjusted his administrative practices to the availability of funds, and the prospect of a cooperative appeared to be almost a necessity for Balko.

The primary concerns in the school district centered themselves around the ultimate ability of the school to provide an adequate number of students to make a cooperative network practical. Balko had shared some special education materials and teachers before with other schools, but Mr. Boothby knew from past practice that grant dollars would not be forthcoming from private sources if enough students were not served. Thus, from a realistic standpoint, Balko could only benefit from any proposed cooperative in the county. Sparsity and distance, two of the primary isolation factors in determining rural schools, both played on the side of Balko in their endeavors. Balko has only 159 students enrolled in the school from Kindergarten through the twelfth grades, but serves an area of 305 square miles. Their student population problem is indicative of almost all of the schools located in the Oklahoma Panhandle and in the surrounding areas of the Texas panhandle, southwestern Kansas, southeastern Colorado and northeastern New Mexico. Few teachers wish to travel the enormous distances required in order to work as a cooperating teacher among one or more districts in the region. Many of the school districts must provide free housing and higher pay in order to attract the quality teachers who will pay dividends in learning excellence.

Balko has in the past, of necessity, had to offer some courses on an alternating year basis, in order to best utilize the qualifications of the teaching faculty. The value of some teaching areas is almost incalculable, and the ultimate worth of most faculty is determined by how many subject areas they might be able to teach. Some districts must offer incentive pay to attract the harder-to-find teaching majors, such as mathematics and the sciences. Failure to do so could result in lessening their ability to maintain their accreditation standing up to

state department of education minimum standards. Balko is no different from many other smaller schools in striving to meet minimum mandated curriculum offerings so that their students can compete on an equal basis with other students which might come from more favorable educational environments.

Balko was not without adequate leadership in the community at large. The board of education consisted of a dedicated group of members which changed only slightly in the time when the cooperative was being formed. The board leader throughout the period of change in the district was Ben Paul Zimmerman, a farmer and construction contractor, who also held seats on the board of directors of both the Panhandle Telephone Cooperative, Inc., and its wholly owned subsidiary, Panhandle Telecommunications Systems, Inc. The Balko board of education has a combined average tenure among its members of 6.8 years of service. Two members, Leon Bell, with 6 years, and Don Williams, with 10 years of service, retired from the board during the time when the project was under consideration and being implemented.

Ben Paul Zimmerman had a total of 20 years of service as the senior member on the board. Other members ranged from ten down to two years on the board during the formation of the network. Stability of board members contributed to the solid backing the board gave the administration during this crucial time. At no time during this period did the board change its philosophy about pursuing its goals concerning the cooperative. The community was apprehensive about the proposed system until public relations efforts by Mr. Boothby and the board removed some of their concerns.

Finance was critical during this time, and with the possibility of cutting down the teaching force at Balko, neither community nor faculty

was quick to embrace the idea of spending much needed money on an unknown high-tech venture. Communication about the proposed network was filtered carefully by the administration and board due to the circumstances already mentioned. Consequently, attitudes about the system ran on the negative side until Mr. Boothby could finally show all concerned parties that Balko would be out very little expense to join the cooperative. Skepticism was still very high in the district until complete financial backing was obtained. When it was finally learned that no teaching faculty would lose their jobs, and that, indeed, extra teaching assignments might issue from the network, the faculty finally began to warm up to the notion that a cooperative might be to the advantage of the district in the long run.

As the administration began to contemplate what courses might aid the curricular needs of the school, it was noted that Balko and Turpin had strong math programs, which might be of use in either Forgan or Beaver. At the same time, Balko needed extra outside courses to round out its elective offerings. Though cautious with its finance, the board was completely supportive of administrative efforts to bring Balko into alignment with the other three schools in their pursuit of a cooperative network.

The early negative attitudes of the faculty put a damper on their involvement in the all-important planning stages of the effort and, consequently, they were not consulted as much as Mr. Boothby would have liked, when scheduling and methods were being discussed. As implementation proceeded, Mr. Zimmerman and Mr. Boothby represented Balko at the frequent meetings held by all the districts on a joint basis. As the High School Principal, Fred Weibling assisted Mr. Boothby in working with the other principals to formulate an integrated schedule which

would work efficiently. A good portion of the summer of 1988 was spent by the two administrators in preparing Balko's part in the network. The board was consulted at intervals and was informed of progress by Mr. Boothby at all board meetings. Complete autonomy and authority was given to Mr. Boothby by the board to commit Balko to the various agreements which inevitably had to follow in order for the system to work precisely.

Mr. Boothby and Mr. Weibling presented a time-on-task workshop to show the faculty and board how the course work should be handled. Though Balko had never been exposed to an 8-period day, it became necessary to adjust the schedule accordingly to meet the demands of the ITV system for the four districts. The administration also conducted a student needs inventory to see what interests might be prevalent in Balko, while faculty and community were consulted to see what extracurricular courses might be offered after school hours to constituents.

Balko decided to use aides to monitor ITV courses offered from other schools. Such small details as setting clocks and bell systems to ring simultaneously became an exercise in repetition until everyone was operating more-or-less in precision. Give-and-take became the order of the day, primarily because of the advantages which would accrue to the students. Some initially disgruntled members of the faculty eventually were won over when they began to see the positive effects the system was having on student learning. Mr. Boothby encouraged the faculty to visit the ITV center early and often to see how well the students maintained their interest in classes taught from other schools. Time-on-task became a watchword for the instructors on the system, and some of it even rubbed off on other faculty members at Balko.

Because Bookkeeping was a subject not offered at some of the other schools, Balko chose that subject as their offering to the ITV system. Mr. Boothby taught the initial course. Continuing his duties as superintendent and also preparing each day to teach on the network gave Mr. Boothby very little time for outside activities. The only one of the superintendents to actively teach on the network, Mr. Boothby gained the peculiar perspective of both sides of the operation of the system. As an ITV teacher, he could empathize with the other teachers in their struggle to master a different teaching technique and the students' efforts to adjust to a new way of learning. As a superintendent, he could look on the administrative side of the equation and the logistics necessary to bring about change in the district. Often, the other superintendents sought his advice with respect to the time needs of their own instructors in the early going of instruction. A direct outgrowth of his early experiences led to giving most of the ITV teachers an extra period of planning for their presentations over the network. It must be kept in mind that, with the exception of Mr. Boothby, all of the other teachers carried a full teaching load in addition to their ITV teaching duties.

More efficient use of time became the order of the day as well as a distinct necessity for the ITV teachers in the early going. Proper preparation required many extra hours in the already crowded schedules of the teachers. Often, having no previous experience in such matters, material presentation and class-work did not take up the entire time period of the class, and teachers would have to improvise. Fortunately, experience taught Mr. Boothby and the other three teachers to have an abundance of material ready at all times, and to anticipate a wide variety of questions about the new delivery techniques.

Mr. Boothby has begun to bring the community solidly behind the new system, with the help of his board. Senior citizens have used the system to pull in programs of interest to them and to lay plans with other similar groups for possible future offerings over the system. Sportsmen's groups have had presentations over the network for hunter safety and other presentations by local wildlife authorities. What once was viewed with skepticism is now being accepted community-wide due to proper application of the many uses of the system and good public relations which tend to reinforce the positive attributes of the network.

Balko had audio problems over their portion of the network at first, but these were worked out gradually by means of adjustment. The school experienced problems in changing their school day to the 8-period format employed in the network. These problems included the adjustment of their bus routes, reworking the special education schedules of those children being served, and adjusting the regular schedule to meet the ITV schedule. Mr. Weibling spent many hours attempting to build a schedule which would best utilize the teaching talents of his limited faculty. Those initial problems have been overcome in all areas, primarily by persistence and cooperation in the district. Plans are being made to expand the community and after-hours usage of the system, through a hookup with either Panhandle State University in Goodwell or Northwestern Oklahoma State University in Alva.

Mr. Boothby states that interactive television is the best means of distance education delivery systems in use in education today, barring actually having a teacher in the classroom. He points out that monitors are often not necessary in the remote classrooms due to the teacher being able to see and hear completely the actions of all of the

students in their charge. Expansion is expected to enhance the capabilities of the system to meet even more needs of Balko students as well as those of the other three schools. During the off-hours of the system, the superintendents will often use the ITV hookup instead of having an audio telephone conference. Frequently, the principals and some teacher groups use the system for informal meetings. Staff development plans have proceeded in the county based on a supplementary usage of the network to augment state mandates on the subject. It is envisioned that eventually, teachers may arrive at their respective sites and hold joint professional meetings without the added bother of driving several miles as in times past.

Several students in the Balko schools are contemplating a concurrent enrollment during school hours with the two universities already mentioned, in addition to any evening offerings the two universities may make. In that event, the students would be advanced in their preparations to attend college. Another important future use of the ITV system is to connect all four schools together in some type of vocational-technical endeavor. Those plans are in the infancy stage, however.

Mr. Boothby still seeks quality instructors at Balko to offer even wider dimensions to the system. With the cooperation of the board, he has looked into offering additional pay to anyone teaching over the network, thereby stimulating additional interest among the faculty. With the opening of many subject areas to Balko students, their horizons seem limited only to their imaginations, once the expertise of quality teachers is engaged.

Budgetwise, it is hoped that many more ITV courses can be offered to encourage Balko students (and still save money in the district). Cost-effectiveness has long been a major concern in rural circles, and

ITV is one application which stands the test of dollars spent in reference to children served. At Balko, though the community is used to change in order to cope with the problems confronting them, their expectations are almost uniformly surpassed by the uniqueness of the network. Even those affected most by the change, the students, express admiration for the way in which they are taught and quickly develop an attitude of work and accomplishment in the ITV classes even if they are not experiencing success in regular on-site classes. Time-on-task in the first year has been excellent, despite only 45 minutes allotted for each ITV and regular class in the 8-period day.

Balko students have an opportunity to be exposed to many subjects not normally open to small schools, due to the curricular arrangement within the system. While the State Department of Education has been very flexible in their recognition of the unique aspects of the delivery on the network, they have insisted that certification be upheld in the case of ITV instruction which applies to credits for graduation. Under these requirements, the network is limited only by the certification of the instructor.

Mr. Boothby, together with the other superintendents, is looking ahead to future utilization of the system which might not be within the scope of current vision. Applications as yet unknown need to be explored, and these administrators are supplying the cooperation and vision to their faculties, boards and communities which will lead them successfully into the 1990s. Plans are being made on an administrative level to develop a think tank at Balko, whereby the ideas and suggestions of all interested persons will be considered in future applications of district resources to enhance opportunities for the students of the district.

It is this type of leadership, typified by Mr. Boothby, which has identified Balko as a leader in several areas of education, notwithstanding the size of the school. Smaller does not have to mean inferior in the eyes of the board, administration, faculty and community of Balko. Mr. Zimmerman stated it best when he mentioned that the board and community are geared to change through their outlook on life and their attitudes toward superior education for their children. A philosophy like that cannot long be denied. The community, acting through the board, is fully committed to the hiring of future administrators and faculty who will continue to embrace their philosophy that ITV and similar methods of instruction could be the means through which Balko will retain its school for years to come. The life of the school and, ultimately the community, is at stake in this venture.

As Mr. Boothby seeks to lead the school district into the 1990s, he envisions expanded offerings from all four schools over the ITV network. He would like to see the system operate all eight periods of the school day with the individual option to either participate or hold the classes in their own school. Diversity of class offerings is what the district seeks, so that they can offer many electives that otherwise would be unavailable to their students. It is hoped that some required courses in the curriculum not currently being offered at Balko can become available over the ITV network. With the expanded offerings, the board and Mr. Boothby have made plans to invite concurrent enrollment with either Panhandle State University or Northwestern Oklahoma State University for their college-bound students.

In the past few years, Balko has offered a total of 57-59 credits for graduation in their high school. With the inception of the ITV network, the administration hopes to expand the offerings so that the

diversity offered to Balko students will be second to none in the county. They would also like to offer evening work over the network to adults in the community who wish to better themselves or study for high school credits for graduation. Mr. Boothby would like to see remedial work on the system after hours for those needing extra help in regular classes. Another area of service could be those who wish to study in order to pass the General Education Development (GED) tests.

Senior citizens and local civic leaders have offered their expertise in tutoring and community programming, and the local home extension club would like to make use of the network on a county-wide basis after regular school hours. This type of community public relations is well within the scope of requirements which Panhandle Telephone Co. set forth in order for the network to be used for educational purposes only. The board of education would like to see short courses taught on almost any subject after hours in the future, possibly by qualified and interested faculty members at Balko. The feeling of the board is that the potential in human resources has only begun to be taped, and that the educational horizon is limited only to the willingness of individuals and groups to use the network. They, along with Mr. Boothby, his faculty and students, are already looking for more advanced applications of this system and possible updating of the equipment, so that Balko can stay on the leading edge of technology.

Now that the system is in use, the board and administration are looking for total involvement by as many students and patrons as possible so that the dollars already invested by the district will yield the highest return for years to come, not only for the school children of Balko, but the community as well. In short, they feel that they know a good investment when they see it, and to fail to put the network to

its fullest use would be inconsistent with their desires for academic excellence for Balko Schools.

Beaver

Beaver has a long history of innovation, perhaps not matched anywhere in the area. Since the early sixties, the school district had been involved in several types of cooperatives with neighboring schools, particularly Forgan, their closest neighbor. Special education sharing was not new to the district either, since the district participated in many different programs in the past. The attitude in Beaver was one of foresight and innovation.

Over $20,000 was spent earlier in the 1980s to bring German by Satellite to Beaver. Wiley Hinton, then the superintendent of Beaver Schools, went to Oklahoma State University to visit with Smith Holt, Dean of the College of Arts and Sciences about the possibility of receiving some type of foreign language via satellite from OSU. Eventually, program was developed under the auspices of the university, and Beaver Schools ushered in distance learning in Oklahoma. Since its inception, the program has expanded to over 265 schools in several states, with over 1,500 students enrolled.

Clearly, the status quo was not acceptable to Beaver Schools, and after initiating the German by Satellite program, they began to use the Discovery and Learning channels, as well as the weather channel. R. J. Maxwell, former area supervisor for the State Department of Education helped gain SDE approval for Beaver to offer programs from the Discovery and Learning channels for high school credit to their students. Mr. Maxwell also helped initiate the contact with OSU for satellite instruction. Beaver Schools had curricular needs which equalled those of the

other three schools in the county, so Mr. Hinton began the search for alternate methods of delivery. He began to discuss these alternates with Doug Rundle, superintendent at Forgan. They agreed to approach the State Department of Education through its superintendent, John Folks, to discuss viable alternatives.

After traveling to Trempealeau County, Wisconsin, Mr. Hinton came back to Beaver with high enthusiasm. He was convinced that Beaver could improve instruction even more if some type of interactive teaching network could be made affordable. He communicated his enthusiasm to his board and faculty.

The Beaver Board members average over 7 years tenure, reflecting the stability of the area. Arlyn Harris is the senior member with over 23 years service to the community. Two long-time members, John Shaw with 12 years service, and Earl Hoover, also with 12 years of service, retired from the board in 1987 and 1988 respectively.

Because Beaver is an academic leader in the region, the attitude of the community and patrons is that their schools must be supported fully. Consequently, popular backing of the administration and board are practically unparalleled in the panhandle area. In spite of declining funds for schools across the county, the community fully supported educational innovations which were brought before them by Mr. Hinton and the board. Public relations improved greatly in the community when Mr. Hinton and his assistant superintendent, Jim Bouse, opened the school so the public could see innovation in action. The German by Satellite program was observed by many townspeople while still in its infancy, and the satellite was used to receive community programs and public broadcast programs before and after school hours. Senior

citizens came to view programs of interest to them from the satellite, and weekend presentations were made from previously recorded programs.

Wiley Hinton was superintendent of Beaver Schools for 18 years prior to his retirement in July of 1988. His board president has pointed out that Mr. Hinton enjoyed the respect of both the entire town and the board of education. Initial reluctance to his suggestion that Beaver take part in an ITV cooperative lay in the fact that the financial condition of the district was worsening year by year in spite of his careful efforts to preserve fiscal stability.

While Beaver has the largest school district in the county, at 426 square miles, it also has the largest enrollment of students at 519. Transportation is a major concern in the district. Virtually the entire eastern half of the county is served by the Beaver school transportation system. Some students even provided their own transportation in order to attend Beaver High School, when they could have attended other high schools closer to their residences.

Information was given out to the community, faculty, and students when available, but a fear of the unknown temporarily caused mixed reactions to the project. The board agreed to set aside $20,000 at the outset. Though the dollar outlay was great, the administration and board felt the money was well spent. From the beginning, Mr. Hinton kept his board and faculty well informed regarding the development of the ITV system.

Mr. Hinton was determined to see the project through, and the board backed him fully. At the same time, the other superintendents were having similar problems in their districts. Many trips were made to Oklahoma City to attempt to draw support from any quarter. Often, the superintendents would travel and room together, so discussion of the

network tended to monopolize the conversation almost constantly. Mr. Hinton was the most influential of the four superintendents at the state department level, and he spent long hours with Dr. Folks, the state superintendent, in attempts to gain financial support for the project. Sandy Garrett began to represent Dr. Folks with the Beaver county group and used her contacts around the state to open doors in financial circles. In time, their joint efforts were duly rewarded.

The Beaver Faculty was much like their counterparts in the county. They feared the loss of their jobs if an ITV system were implemented, and only good public relations by Mr. Hinton and the board eased their fears. Mr. Hinton held several faculty meetings to keep the teachers abreast of current happenings. The faculty was asked to influence the community about the advantages an ITV network in educating their children. It was largely through these methods that the public was brought around to a position of support for such a system. When the entire educational establishment in a small town becomes enthused about a project, the enthusiasm quickly spreads throughout the community. In Beaver, the school is the heart and soul of the town and the focal point about which most community activity revolves.

Mr. Hinton has explained the total involvement of Beaver Schools in many of the innovative programs over the years as being expected behavior. The board of education has simply taken it for granted that Beaver would be in the forefront of any educational innovation. A sharper focus in Oklahoma on such topics as increased high school graduation requirements, higher college entrance standards, special education amplification and provision for gifted and talented students has fueled the need in Beaver to search out economic, efficient alternative methods of instruction and delivery.

The administration polled both its student body to establish needs and the faculty to see what course offerings they might be able to contribute to the cooperative. Master teachers were sought in classes which did not overlap and which contributed to the greatest needs among all the schools. No attempt was made to displace the required subjects, and it was mutually agreed that basics would not be taught initially on the network, but rather elective and supplementary courses.

It was finally decided that the contribution of the Beaver faculty would be a course in honors English for any ITV participant who wanted to build up their English proficiency for advanced placement at a college. Sheryl Melton was selected to teach the course. She was a veteran teacher who had taught many years of senior level English and, for the last two years at Beaver, had taught advanced placement English to upper level juniors and seniors, in addition to her regular teaching duties. According to her principal, Mrs. Melton accepted the challenge of teaching on ITV out of love for her students and a distinct desire to see them succeed.

Though a busy teacher at school and active in the community, Mrs. Melton is known to be highly efficient and a teacher who demands the best from her students at all times. She is well respected for her discipline and for her empathy with her students. In the eyes of the Beaver administration, Mrs. Melton was the ideal teacher to test the initial effectiveness of the ITV system due to her keen ability to keep her students on task in her classes. She felt good about accepting the ITV assignment because of past experiences of cooperation with Mr. Hinton and Mr. Bouse. She was aware of their support in the past and had reason to believe that she would receive equal support in this new endeavor.

Mrs. Melton had always used student/parent contracts in the past to keep good discipline in her classes, and now she extended this practice to her ITV class. Since the class was very much desired by all of the students enrolled, she used the contracts with the other three schools to good advantage. Thus, discipline became a secondary concern, and self-motivation took over in the case of most of her students. Since the course was planned from the ground up, Mrs. Melton felt free to incorporate the practices which had worked for her in the past. She explained this to all her students on the ITV network and set high expectations from the outset. Though there was some initial grumbling from students who did not know her, everyone quickly settled down into the class routine or dropped back into regular English at their own school site.

In the summer of 1987, a significant event occurred in the Beaver district. Mr. Hinton retired as superintendent, and the board quickly named his assistant superintendent, Jim Bouse as superintendent. Mr. Bouse had been with the Beaver school system for a great number of years, had been a former principal and had been responsible for writing nearly all of the grants for the Beaver Schools in the past. He was the designated grant writer for the cooperative when federal dollars were being sought.

Part of the reasoning of the Beaver board in hiring Mr. Bouse to succeed Mr. Hinton was that both men had been working very closely together from the inception of the project, and it was thought that very little expertise would be lost in the transition. It might also be noted that Mr. Hinton recommended Mr. Bouse to the board as his successor. The board, acting out of respect and taking what they considered to be good advice, accepted Mr. Hinton's recommendation. Having

travelled with Mr. Hinton to virtually every meeting that occurred among the superintendents, Mr. Bouse was congratulated and quickly accepted as an equal with the other superintendents.

As the certainty of the project became clearer to all of the participants, the real work of putting the network together began. Rodger Hilton, the Beaver high school principal, began the work of making a schedule which was difficult for the Beaver faculty, but which had to be dovetailed with the schedules of the other three schools. The Beaver teachers were not used to operating on an 8-period day with only 45 minutes per period. Some were concerned that the short time span did not allow sufficient time to teach some of the subjects.

As the schedule was being constructed for the first year of ITV operation, the four principals spent many hours in conference calls and face-to-face meetings. Much time and patience was needed in order to smoothly weave regular classes, vo-tech students and special needs students into such a tight schedule. The Beaver students complained about too many classes with too much homework under the new system and wondered why the board of education was raising the number of credits which must be earned before a senior could graduate. Flexibility became the byword of 1988, and the patience of the principal and counselor was sorely tried.

Gradually, the instructional picture began to emerge. The initial camera shyness faded in the face of a more compelling need to learn. Mrs. Melton admitted that her gravest concern in the beginning was keeping the students involved in the lesson and being proficient in time-on-task. She had no previous problems in regular classes but was apprehensive that in the shorter 45-minute periods the students were not

getting all the material they needed. Homework began to take on a more important aspect in her view of the class.

Beaver needed a class in art and another class in a foreign language other than German. Those needs were fulfilled by Forgan and Turpin, and the school began to move toward their stated goal of reaching North Central academic standards. In an economic sense, the ITV system was turning out to be a boon to the district. Having spent slightly less than $5,000 to remodel a room for ITV use, Mr. Bouse estimated that the district saved over $20,000 in salaries and fringe benefits by not having to hire additional teaching personnel in the three subject areas received in Beaver from the other schools.

After a year of ITV operation, the Beaver board and administration are well pleased with the effects of the ITV system on their students. They prefer that a community education program be implemented after school hours with classes such as crafts, beginning guitar and similar exposure offered according to the desires of the community. It is also their desire that the community education phase of the ITV sustain itself, in that the participants would bear the cost of instruction and materials. The board has agreed that certain presentations across the network could be offset by district funds as a public relations gesture.

While the educational change in the Beaver district appeared to take place in an informal atmosphere, the reality is that leadership on both the board and in administration persisted in surmounting negative factors which developed in the community. Effective communication overcame much of the resistance to change in the Beaver system.

Though Mr. Bouse and the board are quick to recognize the fact that ITV is not as effective as having a live teacher in the classroom, they feel that the Beaver County system is the best alternative avail-

able at this time. They see the future applications of the network in a variety of ways; 1) a means of conducting county-wide alumni meetings without involving participants in long trips; 2) concurrent college enrollment for junior and senior students and recent graduates who wish to begin their college work early; 3) adult education before and after school; 4) the network presentation of unique assemblies which might not ordinarily be available to the combined student bodies of the four schools; 5) a county-wide pre-screening of kindergarten children; 6) senior citizens activities during the day or evening when the system is not in use; and 7) a county-wide restructuring of staff development among faculties, thus eliminating travel outside the district for professional development. Mr. Bouse points out that the scope of the network is limited only by the imagination of those using it.

He sees the network as a major device for uniting the people of Beaver County, yet maintaining the individuality of each community involved. He views the network not as a panacea, but as a means to the end that the schoolchildren of Beaver can be given the best possible education. Both Mr. Bouse and his board of education continue to look not only at applications of the present system, but also at new methodologies on the horizon which might fit into the ITV system.

Forgan

Though one of the smallest schools in the Oklahoma, Forgan is also in the forefront of academic excellence in the state. Forgan is the smallest school in the state to hold the coveted distinction of being a member of the North Central Accrediting Association of Secondary Schools. The board of education at Forgan is one of the most forward

looking bodies of its kind state-wide and constantly seeks innovative means by which to advance educational opportunity for its students.

The school district has been ably led for the past 17 years by Doug Rundle. As superintendent, he has consistently been at the forefront of educational change in his district. He has never been willing in the past to settle for second best for the students in his care. The faculty is a close-knit and capable group and gives of its time unselfishly when teaching the students in the district.

Troy Bowles is the secondary principal at Forgan and works well with Mr. Rundle. Mr. Bowles' leadership is so esteemed by the board that they feel the district is in good hands when Mr. Rundle must be away serving on the many committees and groups to which he has been elected or appointed. The two men work well as a team, and set high expectations for all phases of the schools' operation. The students tend to respond to the high quality of instruction at Forgan. The graduates of Forgan schools have found success in many different ways, and a great number of them go on to higher education in some form or another.

The Forgan board of education is a seasoned group. The average tenure among the members is 10.8 years, with very little turnover in past years. The acknowledged leader on the board is Mark Mayo, a veteran of 25 years service. He is a past president of the Oklahoma State School Boards Association, and is one of its most tireless workers. His advice is sought on many subjects by the state association. Only one member has retired during the time of the planning and implementation of the ITV network. Jerald Radcliff left the board in 1988 with 10 years of service to Forgan schools. Valene Albert, the

vice president of the board, has over 15 years service and works well in the school setting.

Collectively, the board takes its responsibilities very seriously. Consequently, they hold the school to the highest possible standards and charge Mr. Rundle to keep them informed on educational matters. His longevity with the Forgan schools is a testimony to his abilities. Stability is enhanced when fine faculty are engaged and retained at a school, and that is precisely the case at Forgan. Turnover is not a problem at the school, and dedication beyond normal school hours and at school sponsored activities is evident. Many excellent teacher/student relationships abound at the school.

Cooperatives have been a way of life for Forgan since the early 1960s. In 1985, it came as no surprise to Mr. Rundle when Wiley Hinton, then the superintendent at Beaver, mentioned a need for certain courses in the curriculum at his school. Forgan needed an Art course to bolster their electives and maintain their standing with North Central. Additionally, several of the college-bound students at Forgan needed advanced work to prepare them for testing out of courses.

Forgan could offer courses in Spanish and perhaps one or two other areas, but had no method of delivery to the other schools short of the going to the other sites to teach. Past experience had taught Mr. Rundle that circuit-riding teachers had a short tenure due to excessive fatigue and burnout. Some other alternate methods of delivery needed to be explored. Both Mr. Hinton and Mr. Rundle had knowledge of a new method of delivery called microwave instruction which was in operation in either Minnesota or Wisconsin. They decided to bring the subject up at one of the county meetings to explore the possibilities of forming another cooperative to meet the needs of their schools.

In one of their county-wide meetings in early 1985, the subject was raised, and the other two superintendents in the county, Richard Boothby of Balko and Gerald Danley of Turpin, both agreed that legislative and State Department of Education (SDE) mandates were putting pressure on their schools' curricular framework. In the fall of 1985, the four superintendents went to Oklahoma City to talk to State Superintendent, John Folks. Dr. Folks brought Sandy Garrett, the rural education specialist, into the discussions with the four administrators. When it was mentioned that a distance learning system was being used in Wisconsin, the SDE agreed to send a delegation of administrators and others to Trempealeau County, Wisconsin, to observe their microwave system in action and report back to the State Board of Education.

It was thought that their findings would form the basis for methods of application for Oklahoma schools in the future. Mr. Rundle represented Forgan on the trip and came back from Wisconsin filled with enthusiasm over what he had experienced. The Forgan board listened to Mr. Rundle's report and immediately saw the possibilities of future applications for their own school. But, in a time of decreased funding to most of the panhandle schools, there was no way for Forgan to fund even a share of such a system. The superintendents sought estimates on what a microwave system might cost in Oklahoma. A preliminary figure of $500,000 to $750,000 first came to light for a state-of-the-art system similar to the one in Trempealeau County.

Initially, the board agreed to set aside $20,000 to match any possible grant money which might be received, but quickly felt political pressure to rescind the vote during the hard financial times. Mr. Rundle made numerous trips downstate seeking financial help, often in

the company of the other superintendents. Eventually, persistence paid off for the group, and funding began to develop from several sources.

When the reality of the network became apparent, Mr. Rundle met with the other superintendents to discuss the needs and abilities of each school. Beaver and Balko both needed a foreign language, and Forgan had the teacher to supply their needs. Forgan, in turn, needed electives to supplement their coverage in the basic subjects. As soon as the contribution of each was decided, it then became the responsibility of each school to provide a qualified teacher for ITV instruction.

Forgan was most fortunate in their choice of teachers. Deloris Heglin had been the Spanish teacher at the school for 10 years. In what must surely be one of the more interesting assignments in the state, Mrs. Heglin also taught Home Economics in the system. Upon being asked to teach on the network, she felt honored and a little fearful that she might not succeed. She had taught Spanish at Forgan for many years, but had no experience with any type of distance teaching.

Discipline had been a strength for Mrs. Heglin, and her classes knew that she set high expectations for her students. Consequently, anyone who was not interested in work carefully avoided Mrs. Heglin's classes. Her students, however, did respect her and many returned to thank her for helping during their high school days. Her awareness that the administration and her board supported her fully helped to bolster her courage about ITV teaching.

Still, feelings of inadequacy pervaded her thoughts, and she sought help from the curriculum section of the SDE in forming a plan of instruction. Only after meeting with a specialist in Spanish did she feel that she might be able to teach successfully. Materials were supplied from SDE, but the formulation of plans came largely from

experience. Mrs. Heglin began to incorporate past successful methods into her plans. She spent large amounts of time planning instructional sequences and kept written records of her methods for future use. She was caught up in the enthusiasm which she felt from Mr. Rundle and the board and actually became jealous of time which had to be spent outside the ITV preparation.

She developed a distinct pride in her ITV teaching, and her infectious attitude carried over into the regular faculty, so that they came to observe her teaching methods during their planning periods. The administration gave her time off from her regular teaching duties to visit the remote sites and meet her students face-to-face. She actually taught lessons from each of the remote sites and used the live meetings at each site to set her expectations and encourage the students to do their best. She was determined that they would do more than just take a course in Spanish; she wanted to meet their needs for a foreign language to the extent that they would want to continue into a second course in Spanish during the second year of operation.

So great was her impact on the Forgan faculty that other teachers began to come to the administration and ask if they might be given a chance to teach on the ITV system. Having already been conditioned by working in an 8-period day, Mrs. Heglin was aware of the stress of preparation in several different subjects each day. The inner discipline she had learned in her earlier experiences at Forgan thus prepared her for the task at hand. She felt that Mr. Rundle had pre-conditioned her for her role in the ITV network, otherwise she would never have been so successful.

Mr. Bowles spent a very hectic summer in 1988. Even though the rest of the network patterned their schedules on that of Forgan, there

were many problems with the plan of instruction. The principals spent a great deal of time together in consultation about scheduling. Another major point of consideration was the collective calendar of each school. Each of the schools had previously set their calendars for the next school year before the certainty of the network was known. Now, the superintendents, with their individual board's support, gave authority to the principals to take whatever steps were necessary to rearrange all of the calendars so that they would mesh together for the common good of the cooperative. Though some days could not be brought into line at such a late date, each school purposed to consult each other prior to setting the next year's calendar. Very little discord was seen in the scheduling, because of the willingness of each district to give in order to receive. The spirit of cooperation was remarkable for its ability to overcome feelings of autonomy among the administrators and their boards.

Leadership on Mr. Rundle's part was most evident in his communication with the board during this time. Other aspects of leadership appeared during discussions over meeting time deadlines. Warren Moon, the field supervisor for Panhandle Telephone Co. stayed in close contact with Mr. Rundle, and any information passed between them as individuals was shared with each of the other superintendents.

Efficiency in time-on-task had been a major concern of the SDE and the superintendents when opting for the 45-minute periods necessary to make a full school day. The efficiency of Mrs. Heglin helped to reinforce the point that distance methods need not suffer in the comparison with the effectiveness of regular classroom methods when time-on-task is considered. When the academic future of schoolchildren is at stake, any educational method will eventually come under scrutiny as to its efficiency. At Forgan, the comparison came out nicely on the side of

ITV. Whether the difference was the instructor or some other variable cannot be ascertained at this stage of the ITV development.

Earlier in their effort to bring foreign language to Forgan, the district had tried German by satellite from Oklahoma State University. For various reasons, the initial classroom effort failed, and the students from that class were among the first ones asked to join the ITV instruction. At that point, the earlier experiences had discouraged many of them to further exposure of high-tech methods. Mr. Bowles wondered if some of the students could function at all in such a class. Consequently, students had to be encouraged to overcome the fear of failure which they had experienced earlier. At this time, some of the faculty was still unconvinced that this was an effective methodology. Their attitude of wait and see affected some of their students.

As the school district looks to the future, those in charge are delighted, first, by the manner in which the system has been received and also with the seemingly excellent results they have obtained in the first year of operation.

Mr. Bowles is especially pleased with the idea that if some of his students should miss a class over the ITV system, he has only to tape the class as it occurs and save the tape for later viewing. Alternatively, the instructor may tape the lesson at the live teaching site and send it to the site which was forced to miss the presentation. In either event, the cooperative has set up a daily courier service expressly for the movement of materials which could not feasibly be transmitted over the facsimile machines. Each site is connected with all other sites by mail every school day.

Future applications and expansion are unlimited in the eyes of Mr. Rundle and the Forgan board. Having seen such good results from the

expenditure of so few dollars, the board now stands ready to remain on the leading edge of technology. Mr. Rundle is now making plans for community education over the network in the evening hours, and some form of concurrent enrollment for high school juniors and seniors with either Panhandle State University at Goodwell, or Northwestern Oklahoma State University at Alva. Other applications of current technology might include remedial courses over the network at appropriate hours and help for people who wish to return and finish their high school work. Preparation for General Educational Development (GED) testing, senior citizen programs, and civic presentations have sparked much interest in Forgan.

The board was well aware that the technology which was in the system was state-of-the-art, but Mr. Mayo was highly interested in the rapid growth of further technical developments in the field. All of the Oklahoma administrators who traveled to Wisconsin in 1985 were clearly impressed with the clarity of transmission of the Beaver County fiber-optic system in contrast to the microwave system they had first observed in Wisconsin.

According to Mr. Bowles, the full effectiveness of the network is still in question. It is hoped that after the first two years of operation, a testing program can ascertain what progress students are making under ITV instruction and whether their time-on-task is adequate under the 45-minute time restraints. He also sees future testing as a means to determine further course offerings on the network. Mr. Rundle feels that the public relations aspect of the system has been worth the time and dollars expended, in that the community has been made aware of what action must be taken in order for Forgan to retain their school in

the future. The Forgan faculty has become vitally aware of their own time-on-task responsibilities in light of adjustments to the new system.

Under no circumstances will the board at Forgan give up the academic advantages they enjoy. To do any less to maintain that edge would be to deny the rights of children under their care.

Turpin

At the outset of discussions concerning whatever possibilities might exist to form some type of cooperative, Turpin occupied a unique position in Beaver County. Of the four schools involved, Turpin was the only one with a rising average daily attendance. All three of the other schools in the county either struggled to maintain their student population, or were gradually losing students. Since the start of the oil bust in Oklahoma, the other three partners in the cooperative had slowly declined. This was not the case at Turpin. They had lost some attendance at first, when oil related families moved elsewhere but, since the economy of the district was not so closely tied to the farming/ranching and oil/gas economy of the region, the Turpin Schools did not sustain the losses experienced by other schools.

One of the main differences between Turpin and the three other schools in the county is its geographic location. Situated in the extreme northwest part of Beaver County, it is located only 13 miles from the city of Liberal, Kansas, which has a population of approximately 15,000. Since the Turpin school district extends to the Kansas state line, two housing additions located in the northern part of the district give the area an urban look. While farming and ranching shape part of the economic outlook of the district, some of the townspeople drive to

Liberal to work. Though the town of Turpin has a population of less than 500, their patrons expect the best from the school.

The school system has been a leader in the past in technological innovation. A Pratech system was installed at Turpin, where each classroom in the high school was connected to the main media center. Teachers could preset a video tape in the main control room and play it in their individual rooms by remote control. A television was installed in each classroom to receive the Pratech system, but was also connected to receive local television, satellite, and cable programs. Technological reception had long been the practice in the system, with the media center taping many educational programs. Their film library has continued to grow at a steady pace over the past few years until it now ranks among the best in the panhandle area for any size school.

Gerald Danley has been superintendent at Turpin for over 13 years and has kept up the tradition of academic excellence in the school district. He is the type of administrator who tends to foster innovation no matter what school district he serves. He is surrounded by able principals and a quality faculty, many of whom have been hired into the district during his tenure. Pride in the school has been established first through academics, then through the extra-curricular programs of the district. Morale has remained high in the system for a number of years and shows no sign of changing, except possibly for the better.

The board of education at Turpin enjoys the same stability noted in its neighbor schools. Turnover is light in the district, and the patrons of the system tend to reelect members to multiple terms. Like the other school systems in Beaver County, Turpin is blessed with members who have long tenure on the board. Larry Clapp is the senior member, with 14 years service. Kerry Wheeler retired from the board in

January of 1989 with 15 years of service. Jack Newhouse, another member with long tenure, was transferred out of the district by his employer. Both men made significant contributions to the implementation of the ITV system.

Mr. Newhouse, an employee of Panhandle Eastern Pipeline Co. of Liberal, Kansas, was an expert on utility right-of-way management and procurement. His advice was invaluable to the Beaver County cooperative when they were negotiating with Panhandle Telephone concerning the costs of implementing the network. Other members of the board contributed greatly to the county organization and in leadership capacities in the district. Under Mr. Danley's leadership, the board considered and accepted changes in curriculum, teaching methods and physical facilities which they thought would better the academic climate for Turpin students.

In considering the possibility of some type of interactive system for Turpin, much research was conducted by Mr. Danley and the board. An assessment of needs in the district found several deficiencies in curriculum which the board had been unable to remove in the past. With the duel concerns of cost to the district and benefits for Turpin students firmly in mind, the board moved to commit themselves initially to an expenditure of $20,000 which would match the commitments of the other three districts. The Turpin board was well aware of the fact that state mandates and other demands were being made of all the Beaver County schools, and that some districts even stood to lose their school. In the past, Mr. Danley had pointed out the dangers of forced consolidation at some future time.

It was with renewed interest that the leaders of Turpin schools looked at alternatives within their ability to meet those demands.

Turpin needed foreign language to meet future state mandates, and their college-bound students could benefit from any advanced level courses which were not already being offered at the school. Previous experience with satellite reception had been stimulating, but more exposure was needed from the standpoint of enriching the regular curriculum in the district. Mr. Danley led the board in helping to convince the community that the school needed to cooperate in the proposed venture. The rationale for joining the other county schools was that benefits far outnumbered the risks to Turpin Schools, and that the school might be saved from possible consolidation by their cooperation in a network.

Much like their counterparts in the other districts, the faculty at Turpin had the same initial misgivings when told of the possibility of an ITV network. Their fear was similar to those in other schools in that it was unclear to them if their jobs were in jeopardy. At that time, reductions in force were never far from the surface in any of the districts, and the common complaint was that dollars should not be spent on some program which was totally unknown to the county, and then have the schools lay off teachers after the fact. While the teachers felt alienated from the decision-making process, good communications from Mr. Danley and the board eased their fears.

Communication during the early going was not so much a matter of failing to enlighten faculties and communities, but more a matter of the superintendents having little to communicate regarding the system. Indeed, the administrators were feeling their way as they moved toward the reality of what had once been only a dream. The faculties of the four schools were equally in the dark, but Turpin's faculty showed a great deal of maturity in patiently waiting for information about the proposed system, and in building up the board and administration in the

community. The faculty had been treated fairly in the past, and had survived previous financial hard times. They had faith enough in Mr. Danley and the board to wait until the unknown became known, and all the facts were made public with regard to building such a system.

Since Turpin Schools required 24 credits to graduate, extra electives through ITV instruction would add to the variety which the district could offer its students. Many Turpin students were willing to try the courses if only for the novelty of the situation, but no one had previously been exposed to the type of teaching which would be encountered over an ITV network. Since the project was to have pilot project status in the eyes of the State Board of Education, flexibility and innovation were stressed in the cooperative.

There had been previous discussion of possibly consolidating all of the special education needs in the county onto the ITV network to offset reduced federal funding to the schools. Many ideas were advanced throughout the district as to possible applications under the new technology. It was noted that too many schools on the network might reduce the efficiency when scheduling became a concern. It was also noted that rapid expansion could multiply the problems associated with such growth. If and when phases II and III were implemented, the additional course offerings to the system could impair the future effectiveness of the ITV curriculum.

Mr. Danley and the Turpin board recognized that the ITV system was not a panacea, but that it was a supplement to the regular curriculum of the school. Turpin could offer one course that could benefit the entire system, and that was art. None of the other schools had an art program, and everyone involved with the network had concerns that such a visually oriented course could be successfully taught on ITV.

With art as their contribution to the network, Turpin turned to the teaching talents of Dick Robinson. Mr. Robinson was a veteran teacher who had confessed to being burned out on teaching. But, when informed that art was to be Turpin's contribution to the network, he discussed the situation with his wife. They agreed that he would attempt to teach on the ITV system and either do his job well or they would leave Turpin and go to some other school district. During the summer of 1988, having made that decision, he turned his entire attention to planning a curriculum which could easily be adapted to television teaching. Like all of the other new ITV instructors, he had no experience with the medium, and had witnessed only one other presentation of any type of material over a TV network.

He met with the art specialist at the State Department of Education in Oklahoma City, but received mostly materials and some verbal support. The newness of ITV teaching in Oklahoma could be traced to the fact that Oklahoma State University was the only public school, at any level, which regularly telecast educational programs and instruction.

The excitement of having the opportunity to teach art to the entire school population of Beaver County rubbed off from Mr. Robinson to almost everyone at Turpin Schools. He became a very vocal spokesman for the abilities of the system, and even asked to address various meetings so that he could extol the virtues of the network. He also began to adapt his material to teach it to adults, should the opportunity ever arise. He went out of his way to visually reinforce the students in his remote classrooms, and singlehandedly built his curriculum up to the point that it has now become a model for other art teachers. All of this enthusiasm from a man who was almost totally burned out on teaching just three months prior to the start of the

1988-89 school year. Mr. Robinson is quick to admit that the arrival of ITV art to Beaver County is probably the main factor in prolonging his professional career.

Because of the newness and the combined novelty of art instruction over the ITV network, many visitors came to Turpin specifically to observe Mr. Robinson's classes. The popularity of his course gave Mr. Robinson a unique situation regarding discipline. Each student was allowed one mistake before being asked to leave the class. With a waiting list to take his course, there was never any shortage of willing students. As he gradually adapted his style in working with the monitors to help students in the remote classrooms, he felt that perhaps he wa neglecting the students in his own classroom to some extent.

Mr. Robinson meets students from his remote sites at athletic contests, and he enjoys visiting at the remote classrooms as often as possible. On some occasions, he has gathered his materials and gone to one of the remote sites to visit his classes live. During those times, he would present the lesson from the remote site. This practice has proved quite popular with the remote schools. As an art teacher, he is bold in his approach to different teaching methods and will experiment freely with new ideas. His theory is that, since new ground has not been broken in his discipline in many years, why should he not be the one to introduce new teaching methods? He is quick to drop any practice which doesn't work, or is ineffective.

Future anticipation in the district seems unrestrained. Turpin sees this system as a partial solution to the problem of consolidation among districts. The board of education is now less fearful for the survival of the school. Remaining concerns for the future centered mainly in three areas; 1) that the newness of the technology in the

system might wear off or be superseded by even more technical means as yet unknown to the network; 2) that the system might lose its relative effectiveness due to political ploys outside the ability of the network to cope with them; 3) that the district might not be able to finance expansion of the system in the future. Alternatives should be explored to the fullest extent as participants become more familiar and comfortable in their use of the network. More than any of the other three schools, Turpin expressed the hope that possible future administrators hired to replace anyone leaving or retiring be committed in advance to the continuation of the network.

Turpin schools believe that they have made a good investment in the new network, and that its ultimate value is yet to be realized. Mr. Danley sees the system as an excellent way of meeting the needs of several community organizations and has begun plans to include them in the future planning of the network. The Turpin advisory committee has been increased to include senior citizens, garden clubs, agricultural organizations, and farmer/rancher clubs.

If evening hours on ITV become available to community groups, several of the above organizations have expressed a definite interest in setting up county-wide meetings via the ITV network. Surveys conducted at Turpin have shown that educational materials from a variety of organizations could be utilized in the ITV programming. Instructors on the network are always looking for examples from the community to illustrate their points, so there appears to be no limit to the number and scope of organizations which might wish to contribute.

The board of education has authorized Mr. Danley to implement plans for integrating their Pratech system with the ITV receivers and to explore possibilities of introducing other Turpin High School classrooms

into the network. From this, it is clear that the intent of the board is to bring the system up to its highest technical potential, thereby assuring the highest quality of education to their students. While the Turpin board sees the ITV network as a combined effort by all of the county schools, they do not want Turpin to be left behind when the technology under which they are now operating begins to become obsolete. Mr. Danley has told his board that, at the pace technological development is changing and improving, the Beaver County network might possibly need to upgrade its hardware every three to five years to stay abreast of new technology.

One of the additional benefits which Mr. Danley and the Turpin board hope to realize from their participation in the ITV network is that time-on-task will be improved among regular faculty. Staff development is being planned for the future which will include elementary teachers in workshop and seminar participation. Mr. Danley continues to share technological improvements with the other districts and visits often with the other superintendents to keep abreast of their innovative plans.

Summary: Balko, Beaver, Forgan, and Turpin

The previous sections of this chapter have detailed a chronological description of events as they occurred from inception to completion of the project. The principal performers have been identified, along with those who played lesser roles in this study. The setting under which the entire sequence of events took place has been fully described, and the conditions set forth regarding the group as a whole.

In addition, each school district was studied in its individual setting, and the unique circumstances found at each school were detailed

in separate sections. Major actors and involved individuals were studied at their common sites. While that focus was more generalized, the key people involved at each site will now be scrutinized from a more detailed standpoint.

Overview

The changes which were brought about by implementation of the ITV network in Beaver County followed a definite pattern, as is the usual case in most organizations. The leadership which was exhibited by the four superintendents in the system also followed a general pattern, although each man accomplished change in his own peculiar manner. The style of leadership varied according to the personality involved. The common theme uncovered through all of the schools in this study was focused into several areas. Among them are leadership, communication, motivation, persistence, planning, resolution of conflict and overcoming of resistance to change.

While these are only a few of the many variables which are involved in this study, they nevertheless constitute the most important points around which activities took place in the process of accomplishing change. How the major actors performed on an individual basis, and as a group, will be analyzed in this summary. As the group of four superintendents began to lay the strategy of change, they moved, either tacitly or explicitly, in directions which previous training and/or experience had prepared them to follow. The following variables will thus be examined.

Leadership

The leadership characteristics of the group, as a whole, were commonly tied to the idea of a project becoming reality. In this specific study, the dream of some interactive method of instruction in an educational setting motivated the superintendents to transform their present situation into another reality that, at that time, was almost completely alien to methodology which had been in common use in the past. Yet, there was some commonality of process, but a new medium in which to experiment. Most of the superintendents confessed that fear of the unknown was the principal inhibitor in own personal thoughts about the project. Once convinced that the method was sound, and that it could be applied in their individual district with their present personnel, each superintendent moved in his own way to lead those individuals in his district who possessed power and influence..

In all four schools, the power structure included the board of education, and specifically certain members who wielded power and influence over others, whether on the board or in the community. The attitude which was prevalent was a desire for much more than superficial or cosmetic change. Those in charge of the affairs of each school district saw a chance to accomplish real, changes in the instructional processes in their school. To be sure, the changes were political, but there was no indication as to how much coercion was used in each district. A significant factor uncovered by this study was that a key person was identified in each district, who was convinced of the value of an interactive method of instruction, and who gave himself completely to support of the both idea and his superintendent.

Each key person in the district had to see both the short and long term effects of such a system as clearly as possible in relationship to

their perception of the needs of their school. Vision entered in at this point. A dream is only an extension of vision, and most leaders possess this ability in some form or another. But, each leader must apply the critical ability to realize the limitations of reality in their organizational structure. Evidently, several people of vision came to the forefront in each school to contribute to the transformation which took place.

The task was largely left to each superintendent to be not only the transformational leader, but the transactional leader as well. The actual accomplishment of the goals each district had set was left in the care of each superintendent with full responsibility placed on his shoulders. The faith of each board in the decision-making ability of their superintendent suggests a relationship developed from long mutual experience. Such was the case in each district regarding the day-to-day implementation at the school site. Each superintendent possessed the critical ability to retain their vision about the project and still carry out the daily tasks which would ultimately contribute to its completion. Quite often, both characteristics are present in many leaders, but not necessarily in all.

The leadership variable of charisma was not highly investigated in this study, but the four superintendents all were recognized as good managers of situations in most phases of school operation. The present faculty and staff in each school generally felt comfortable in knowing each superintendent's expectations and whether they, as individuals, were meeting those expectations. All four of the superintendents and their principals were well seasoned in their positions, and each administrator had the confidence of their boards of education. It remained the responsibility of the administrators to further lead the

faculty by introducing a new way of going about teaching. The emotional reactions to change are often thrust directly on the leaders in the school. It was important that each superintendent exhibit the self-confidence necessary to convince his faculty that the change was non-threatening, necessary and good for the district in general. To varying degrees, this was accomplished in each school district.

Communication

In this study, a single theme appears again and again in the documentation. Each superintendent had to be a good communicator in all directions within his sphere of influence. By all directions, it is meant that he had to communicate upwardly to his board of education, horizontally to his peers in the teaching profession and downwardly to the students and the patrons which would eventually be most effected by the proposed changes. To a great degree, the ease with which change was accepted in each district correlated closely with how well the superintendent communicated with the above groups. If one group was neglected in communications over another, then the superintendent eventually paid a price in the eyes of the neglected group.

Whether by design or simply from lack of information, the superintendents acknowledged that often the faculty was most affected by their failure to properly communicate. When the superintendents had information which seemed important to the project, they often communicated it to their boards or to their board presidents. But, to some extent, the facts were not passed to the faculty, for whatever reason. Many faculty expressed frustration at not knowing what was happening in their district regarding the project. They felt that most of the lack of communication was due to the administrators not being in a position to

know what progress was being made in the implementation of the system. Also noted was the administrators' unwillingness to put out erroneous information.

Interestingly, most school patrons felt that they had been supplied with sufficient information by the board and administration, or they expressed no excessive need to know about details surrounding the network. Each of the superintendents brought out that fact that once having been convinced, their boards of education carried the ball in helping to sell the community on the merits of the system. Most members of the board left the convincing of the faculty to the superintendents and their principals.

Finally, communication among the superintendents moved to a higher level than is usual among chief school officers. Though an great amount of their communication was verbal, and was carried out over the phone, each superintendent attempted to keep all three of his colleagues informed when information needed to be shared. Indeed, during the first year of operation of the network, the superintendents held many conferences after hours on the ITV system and hashed out their logistic and operational problems. By prior design, part of the agreement between the districts and Panhandle Telephone made allowance for just such activities. It was the express wish of Panhandle Telephone that every type of educational endeavor be held over the system, so long as the bounds of propriety were not overstepped. Thus, faculty and staff began to plan staff development activities on the system, as well as holding departmental planning sessions on a county-wide basis instead of commuting long distances to professional meetings.

Motivation

All of the superintendents appear to be of the newer thinking that management style has moved away from the past practice of giving orders or directions to obedient subordinates to the contingency theories of interaction. While all four of the superintendents, out of necessity, still rely on the economic cost-benefit assumption in their districts, they recognize the value of showing consideration for human relationships with others. While they are still responsible for initiating structure and maintaining task awareness, they all seem to be aware of the human relations side of the equation.

No attempt was made to measure levels of coercion in the four districts, but faculty responses indicate that part of their motivation was directed from the base that they could expect to benefit from any expansion which might result from participating in the ITV system. After a year of operation, the regular faculties of each school became aware that future evaluative criteria would be predicated partially on their ability to keep their students in a high time-on-task mode. The main impetus for this change came directly from the needs of the ITV teachers to appropriately use their time on-camera.

More teacher motivation came from the possibility of a pay raise if selected to teach on the network. A greater incentive to accept the prospect of change in this unusual form came from the superintendents when they assured the faculties that not only would their positions be secure in the future, but the threat of consolidation would more likely be reduced significantly. Having understood these facts, they were more disposed to be good ambassadors for the network among the townspeople and their friends. When a balanced ITV operation had been attained in the districts, the faculties tended to move back toward a normal school

atmosphere. They felt that they had the professional latitude they needed to function effectively in teaching, and tended to be well motivated toward their individual tasks.

According to Maslow's (1954) theory of work motivation, people have a hierarchy of needs. Some of the faculty members who were interviewed appeared to be near the top of the Maslow's highest level. Once their needs for security (i.e. professional job safety) had been met by proper authority, they tended to ignore them in favor of higher levels of needs such as affiliation and recognition and even to the highest need of self-actualization. It would appear from the interviews that motivation remains at a higher level in these school districts than might be evidenced in the general school faculty population.

Persistence

To state that the Beaver County Superintendents persisted in their quest to implement a network is understating the fact. Mr. Rundle, the Forgan superintendent, stated that he was quite sure a few agency grant directors grew somewhat tired of seeing the group coming and, if given the chance, would have avoided them altogether. If sheer determination entered into the equation, then these four men deserve high grades for their willingness to stay with the project until seen to its completion. More than one board member was heard to remark that the system owed its very existence to the determination of all four men that a network was eventually going to become operative in the county. When financial help was not forthcoming in the early stages of the search for funds, the superintendents began a steady canvassing of state agencies and other potential sources of income to the extent already mentioned above.

The four superintendents felt that if they had failed in any phase of their financial persistence, it would have been in failing to go, as a group, to Washington, DC. to follow up the application for federal funds. Ultimately, the group decided not to re-submit the federal grant application in light of the first refusal, not because of being turned down (the grant director had indicated a more favorable response if re-submitted) but primarily because of too many limitations on how the dollars could be spent. In their estimation, the superintendents felt that the red tape was too thick to offset any advantage in accepting federal funding. Also, by this time, other more local sources of possible revenue had indicated a favorable reaction to any presentations which the group might make. More than once, Sandy Garrett had used her influence by opening doors to the various foundations around the state.

Once the implementation of the system was underway, all of the superintendents usually kept abreast of the situation with regard to the installation crews. When inclement weather slowed and eventually stopped the installation of the cable in late May and early June, the operations vice president for Panhandle Telephone was visited on a regular basis until he agreed with the field foremen and superintendents that cable could be laid right through puddles of water and mud. Again, persistence had paid off for the superintendents.

Planning

Perhaps the most obvious of the areas investigated in this study was that of planning. As the superintendents sat down and began to address their common needs, the outline of a plan began to form. A resounding theme for the group was to "plan your work and work your plan." Investigation proceeded into various methodologies. Two of the

schools had not had success in participating in the German by Satellite program which originated from Oklahoma State University, so that type of delivery system was quickly ruled out as a possibility. Also uncovered by investigation was the fact that the ultra-high frequency use of an Instructional Television Fixed Service would not be conducive to the overall needs of the group. In addition, past usage of shared teachers convinced the superintendents that their common good would not be served by attempting that form of instruction.

The earliest planning by the group centered around the previously mentioned medium of microwave transmission. Only after visiting the Trempealeau County, Wisconsin network did the group fully assess the overall high cost of microwave systems. Planning was temporarily set back by the momentary denial of federal funding for the project. But, as other sources of funding appeared on the horizon, planning of the project proceeded at a brisk pace. As the reality of a network approached, planning increased by involving principals, faculty and support staff.

Leadership at this critical point hinged on the acceptance of events thus far by the faculties involved. Most of their skepticism had been removed by the endorsement of the project by the state offices of the American Federation of Teachers and Oklahoma Education Association, but board and administrative reassurances finally carried the day. Even in light of those assurances, several teachers in the various districts were not convinced that interactive television was right for their district. Interviews with administrators and board members placed most of the blame for early resistance to the project largely on fear of the unknown. Teachers nearing retirement or unsure of their positions in

the districts were afraid of the changes which the proposed system might generate.

This, however, was not the case among the school patrons and the communities at large. Planning for proper communication in their districts had paid off handsomely among patrons. Students generally took a wait-and-see attitude toward the project. Planning for students proceeded along the lines of needs and interest assessments. Scheduling in the non-ITV curriculum temporarily took second place to the start-up needs of the ITV class scheduling. The principals met many times during the summer of 1988 to plan how the classes would proceed. Then, they went to their individual sites to attempt to unravel the tangled schedules which the ITV system had created.

Now involved in the total planning of the new network, the faculties relied even more heavily on the leadership of the superintendents and their principals to avoid tangles involving regular classes at their own schools. Effective planning prevented most of the expected confusion. In the summer of 1988 all four superintendents laid out the districts' course of action to their boards, principals, and finally to their faculties, so that further planning could take place. Discontent slowed, for the most part, after the first year of operations was finished. This study did not reveal whether resignation to the facts, or acceptance of the situation to the individual teachers' satisfaction was the actual cause of waning dissent.

Resolution of Conflict and Overcoming Resistance to Change

The last two variables in this study appear to be closely related, and thus will be summarized together. When the satisfaction of an

individual with the status quo is disturbed, conflict and resistance to change are sure to follow. Change appears to be the main instigator of conflict, both among those interested in change for the better and those wishing to maintain what they see as a perfectly satisfactory situation. Resolution of that conflict tests the will of administrators and other key leaders to the utmost. As previously mentioned, the study showed that certain individuals in all of the districts openly conflicted with the boards and administration when they perceived that their jobs might be at stake. How quickly those doubts were removed in each district seems to be closely correlated with the communication factor mentioned earlier in this summary.

All of the superintendents mentioned meeting with their faculties at various times to discuss happenings and events regarding the network. Individual meetings were held both formally and informally to reduce fears on the part of individual teachers. Eventually, the faculties were counted upon heavily to sway opinion in the communities. How well the administrators did their job in communicating the needs of the school to their faculty members directly affected the ease with which the community was won over. Feedback from the community often dictated the posture of the administration in dealing with dissatisfaction about the proposed changes. But, an even more important aspect was uncovered in resolving the conflicts which arose around acceptance of the new system: problems which were already endemic in the existing system well before the implementation of ITV were brought to the forefront and aired out among the participating groups.

Many previous points of conflict were resolved in each of the participating districts, and a series of committees were formed to resolve most of the problems and report their progress back to the board

of education. The superintendents admit that some patrons and a few teachers simply had to be bypassed while attempting to bring the network on-line in time to start school in the fall of 1988. Pride in the abilities of the system and in the successes of the first year of operation have generally erased most of the dissent and resistance to the network. According to the interviews of key persons in each district, resistance to the ITV system has either ceased or gone underground. In either instance, the vast majority of patrons, students, faculty and communities are in full support of the system, and pride has generally replaced any previous discontent.

CHAPTER VI

ANALYSIS OF RESEARCH QUESTIONS

In the previous two chapters, data obtained through numerous interviews and reviews of pertinent documents were presented first in chronological order and then in descriptions and comparisons of the four independent school districts in Beaver County. This chapter provides a review of the findings specifically organized by the six research questions which were originally established in Chapter I.

Research Question 1

The first research question focused on the issue of the original conception of the Beaver County interactive television (ITV) network. A part of that question dealt with the underlying initial concerns which prompted the four districts to begin efforts to establish a cooperative program.

As early as the 1983-84 school year, Wiley Hinton, superintendent for the Beaver schools, was seeking additional ways whereby that school system could offer more courses for their students. Mr. Hinton had already played a part in the initiation of a German I program, later to become the Arts and Sciences Teleconferencing Service at Oklahoma State University, which was distributed to high schools via satellite and had implemented several other innovative programs in the Beaver schools. Additionally, at their monthly meetings he sought the opinions of his colleagues in the other school districts in Beaver County. According to

Doug Rundle, superintendent at Forgan, "Wiley Hinton was the driving force in meeting the needs of his students, and also in including our schools in his plans."

While specific problems were different in each district, they also experienced much in common. All four districts needed additional course offerings, and each school felt the pressure to meet new mandates from the State Department of Education and the state legislature. Both Balko and Forgan were affected by a lack of qualified staff and by established limits in the length of the school day. Forgan had thus embarked on an eight-period day in order to offer more courses to their students. The entire ITV network later adopted the eight-period format.

The monthly county administrators' meetings served not only as opportunities to discuss issues and concerns, they also provided an opportunity for superintendents to air their problems and frustrations. Cutbacks in state funding had severely undermined any feeling of financial security previously held by the four superintendents. Proposed reductions-in-force across the county had produced nervous faculties and even more nervous boards of education and administrators.

Mr. Hinton's idea for some type of county-wide cooperative effort initially fell on deaf ears in two of the districts. However, when it became clear that each school would gain equally from the cooperative and that consolidation was not the motive for any proposed joint effort, the mood for change began to soften.

The needs of the two smallest schools were clearly focused in order to avoid any attempts at future consolidation and, at the same time, to increase their abilities to meet more of the curricular needs of their students. Both Beaver and Turpin had similar needs, but on a lesser scale. It was finally agreed among the four superintendents that

some form of interactive television system could benefit all of the county schools and that further study should be instituted. Mr. Hinton pointed out that while the four had not always been in perfect alignment on various issues which faced their schools, they now saw a common way to aid each other and to help themselves.

Research Question 2

The second research question considered one set of the implications of the efforts to begin the Beaver County ITV. This focus was on the manner in which the administrators sought to overcome the attitudes of autonomy and resistance to change on the part of their boards of education and the patrons of their school districts.

Swanson (1966) noted that political change in small communities, and their extensions the small schools, could be analyzed by six factors: (1) power structure, (2) political regimes, (3) citizen participation, (4) political contention, (5) politicization and the scope of the school, and (6) professionalization of the bureaucracy (administration). According to Swanson, the power structure is usually divided into both formal and informal systems. While the formal system is visible to all, the informal system often is not visible, though it can be effective in determining "who gets what, when and how." The Beaver county schools each had invisible and visible systems which were identified by the four superintendents. One of the four admitted bypassing the informal part of his district's power structure to some extent because of its close ties to his faculty. The other three superintendents also bypassed some elements in their districts, but to a much lesser degree.

A political regime is differentiated from a power structure in that a regime is usually a representation of the rules of political decision making as understood by those affected and as interpreted and articulated by political leaders (Swanson, 1966). The superintendent usually embodies the leadership of the political regime in any school situation. By virtue of the long tenure of each superintendent in his district, leadership qualities of the political regime were well established. Each board of education had, over time, developed complete respect for the superintendent. This respect had extended into each faculty and community as well and allowed all four men to effectively lead their districts.

Swanson's third factor, citizen participation, was encouraged in three of the four districts but with some controls or limitations imposed in each of the districts. While the school boards and superintendents in all four districts used citizen input, whether gathered by formal or informal means, some suppression of community input was noted in two of the districts. One superintendent mentioned that his board accepted some informal citizen input, but paid scant attention to it in their decision making. In no case was any election or other formal system provided whereby the citizens' opinions might collectively be made known. Members of two of the school boards noted that the cost of an election would be too expensive for their districts to bear when public input could be heard at board meetings.

Swanson's (1966) fourth factor is political contention, or controversy and conflict. The actual implementation of the ITV system was not assured in any of the four districts until financial backing had been secured and the issue of consolidation had been handled to the satisfaction of the patrons. Two of the four superintendents noted that

their districts lagged far behind the other two in accepting the idea of a cooperative, waiting until the two issues of financing and consolidation had been firmly resolved. It is significant that a formal part of the power structure, the school board members, played a large part in informing the patrons, faculties, and students in the two communities whose superintendents played the major roles in pushing ahead for the cooperative.

Politicization, Swanson's fifth factor, occurs when individuals become aware of the relevance of any type of government to their own lives, no matter what the level or scope of that government. As part of the politicization, tension may result from the differences between actual and ideal practices of the governmental entity. In Beaver County, politicization was adequately accomplished in each district, but outstandingly so in one district. The superintendent of that district stated that the perceptions and desires of his patrons about the ITV network were closely identified with previous successful events and practices in the district and presented no substantial threat to plans of the administration or board.

The data gathered in this study showed that Swanson's (1966) final factor of professionalization of the bureaucracy (or administration) was well documented in all but one of the four districts. While all four superintendents made efforts to operate their systems efficiently, in at least two of the districts policies concerning everyday school operation were either nebulous or partially hidden from the public. Data gathered in both of these districts showed that some deliberate effort, greater in one district than in the other, had been made to hide either the substance of policies or the rationale for decision making from the patrons. One superintendent stated that it was his opinion that the

patrons didn't need to know "too much" about the day-to-day operation of the school. Evidence from the other three districts did not show a similarly strong position by the other superintendents.

Research Question 3

The third research question was focused on outcomes of the cooperative venture. Data were sought to identify how the school districts had changed as a result of the application of ITV as a method of instruction.

It was the perception of all four superintendents that the ITV network had changed their districts in many positive ways. All four noted that the common scheduling of the ITV system tended to streamline the normal schedules at their schools. Other activities and events gravitated around the network as the second year of operation began. Prior to ITV operations, three of the four schools had trouble scheduling normal in-school classes to best meet the needs of their students, particularly as they approached graduation and planned for postsecondary activities. The "slaving" of all four districts' schedules forced the relocation of nonacademic activities to the end of the school day, after ITV operation has ceased. Other class options were accordingly "locked in."

Similarly, it was perceived that time-on-task had been maximized over the ITV network, by limitations on the available broadcast time and the number of courses desired, and that the effect had been transferred by teachers into their regular classes because of the similar limitations created by the eight-period school day with its shorter class periods.

Administrative supervision also changed as a result of the implementation of the cooperative. The principals reportedly focused on more direct supervision of some instructors under the shorter class sequence involved in the eight-period day. Administrators reported that teacher evaluations in three of the four districts began to reflect better utilization of time, even among faculty who were not teaching on the ITV system.

After the first year of existence, the principals in the cooperative districts saw themselves as being more directly involved in the day-to-day operation of the ITV system than were the superintendents. All but one of the superintendents agreed. Once the network was fully implemented, the superintendents tended to move on to other projects and left the operations of the system to the ITV instructors and principals. One superintendent stated that he took only occasional notice of the operation of the system after the first month and usually had nothing to do with it except for the periodic conferences with his peer superintendents. The perceptions of the superintendents were that, while the network had changed their schools greatly, their own administrative practices had been modified very little after the first year of operation.

Research Question 4

Focusing on the superintendents, the fourth research question concerned the identification of common leadership characteristics in the superintendents in this study. The work of Bennis and his associates formed the basis for the analysis of data relative to this question.

Bennis (1983) had defined a transformational leader as a person who commits people to action, who converts followers into leaders, and

who may convert leaders into agents of change. Any leader who exerts power, then, would ultimately influence someone or something. Power thus leads to influence (Bennis et al., 1973). Five power traits were identified by Bennis and his associates: first, coercive power, the ability of the leader to reward or punish a follower; second, referent or identification power, the ability to be a role model; third, expert power, the ability to be associated with science or "truth"; fourth, legitimate or traditional power, that which issues from a historical or legal base; and, lastly, value power, that which accrues to a leader as a result of that person's value system.

All of the Beaver County superintendents possessed coercive power. While three out of the four evidently used it sparingly, the fourth used it on several occasions in his district to accomplish specific goals regarding the ITV project. In regard to the ability to be a role model, faculty and board members ascribed varying degrees of status to the superintendents. Through long associations with the communities and patrons, the four set a model for others to emulate.

Perhaps an outgrowth of role power was expert power. While the people in each community reasoned that, since the superintendent was in his current position, he must be an expert in his field, members of each faculty, in describing the superintendent, were more likely to recognize other types of power than expert power. Both faculty members and patrons recognized the traditional power of the superintendents and principals in administering their schools.

Finally, while all of the superintendents were recognized as operating from certain desirable value systems, two of them were described in their communities as having particularly outstanding individual values. These two men were looked upon as being excellent

examples regarding personal values and, as such, were considered to be invaluable to the community and thus hard to replace. In summary, each of the four superintendents exhibited at least two forms of power.

Each superintendent, to varying degrees, exhibited honesty, openness, flexibility, cooperation, and a concern for those with whom he worked. Most used their power judiciously and sparingly. Little use of coercive power was noted among three of the four superintendents. The limited use of coercive power was primarily attributed to the individual strength of personality exhibited in those superintendents and the length of tenure already attained by the each. Each was thus secure in his position and in his ability.

Research Question 5

The problems and successes that surfaced during and after a year of ITV operation were the focus of the fifth research question. In particular, efforts were made to determine how the administrators had dealt with the problems which had arisen.

Success has obviously followed the implementation of the ITV system in Beaver County. Not only were more course offerings being offered to students through the network, students were perceived to have greater confidence in their ability to succeed in a different style of learning. Further, their ability to maintain time-on-task had reportedly been improved in both the ITV and normal class settings.

Teachers were more cognizant of their use of teaching time, thereby increasing their efficiency in the shorter time frame allotted as a result of the eight-period day. The network thus had generally exceeded the expectations of its originators. Also notable in the successes of the system was the expansion of the districts' community

education programs during afterschool hours. County home extension programs, evening college courses for adults, and county-wide sharing of staff development programs had been implemented, to name only a few.

Problems also developed along with the successes. Scheduling difficulties were common at the outset in every school. While teaching methods and their efficiency had gradually increased, the ITV students' early learning experiences were affected by the necessary experimentation. Certain methodologies were developed, only to be later discarded as unfit for use in at ITV capacity. In short, the initial novelty of the system was its chief enemy.

The administrators had approached each problem jointly. Superintendents and principals from all four schools worked hand-in-hand to solve the problems which emerged. Gerald Danley, superintendent at Turpin, noted that hard work, persistence in attacking common and individual problems, and mutual communication led to the solutions for most problems.

One problem, which had yet to be unsolved, was how to approach any future expansion of the network into Texas and Cimarron counties. The diversity of offerings which could evolve from such an expansion might present an entirely new series of problems. Richard Boothby, superintendent at Balko, noted that "we plan not to cross that river until we get there. Maybe by that time we will have been able to hire a system-wide coordinator to relieve each school administrator of those headaches."

The superintendents effectively led their districts through the time of change. They accomplished this not as miracle workers, but as committed educators who planned carefully and worked hard to carry out their plans. As a group, they persisted in their quest for funding of

the project and continued to persist through all phases of its implementation.

During the implementation process, both superintendents and boards learned that individual concession was sometimes necessary to help alleviate common problems which tended to arise in the cooperative efforts. Perhaps this cooperative would never have come to reality had it not been for the constant communications among the superintendents and the combined boards in their county-wide meetings. Effective administrative practices by the superintendents assured the ultimate success of the cooperative.

Research Question 6

In order to provide an application of the findings, the final research question guided the identification of guidelines which could assist participants in similar cooperative endeavors. The analysis provided the following material.

The superintendents found that planning, hard work, persistence, and communication were important in all phases of the process from inception to implementation. But they also learned greater and more valuable lessons which could aid in the formation of future cooperatives.

First among these lessons is that knowledge and understanding of the political/governmental system in Oklahoma is a valuable tool. Decisions regarding educational funding in the State of Oklahoma are highly subject to the political process, particularly when considering supplemental funding through grants or other means of distribution. A thorough understanding of the political process is necessary in order to effectively seek such funding for educational projects. Political

connections are important and were well used by the Beaver County superintendents while funding was being sought.

An excellent example of political connection is the intervention of Sandy Garrett, the Rural Educational Specialist at the State Department of Education (SDE), on behalf of the group when dealing with the Kerr and McCaslin foundations, as well as with the legislature and the SDE. Ms. Garrett's importance in approaching these funding sources cannot be overstated. Another example of political connection was the influence exerted upon the Oklahoma State Board of Education. Through their cooperation, exceptions to curricular and instructional regulations were granted so as to allow flexibility of operational practices in the network's first year. In return, the Beaver County ITV Cooperative helped set the standard for guidelines by which future ITV systems could be measured. Manipulation of the political process paid large dividends to the Beaver county group.

Another lesson to be gained from this study is the importance of partnerships with existing agencies. The fact that Ben Paul Zimmerman sat on both the Balko school board and on the Panhandle Telephone Company, Inc. (PTCI) board of directors was a most fortunate political connection for the Beaver County superintendents. His intervention with the telephone company on behalf of the Beaver County group came at a critical time and significantly influenced the outcome of the entire project.

What was regarded as a near miracle of philanthropy by the residents of the four school districts turned out to be a well-calculated, planned business decision. As Gene South, Executive Vice-President for Operations for PTCI, pointed out:

> Our board of directors reasoned that if the schools closed in Beaver County, then we would ultimately lose customers.

> It only stood to reason that aiding the schools might bring us more customers than before.

An additional point of interest was the financial arrangements made between PTCI and the Beaver County schools. Because PTCI is a rural utility cooperative, their tax status under Oklahoma law enabled them to offer a lower total cost of installation to the ITV group and to defer the payments out over a five-year period. Non-cooperatives have no such status in Oklahoma and therefore cannot be as competitive in installation costs and repayment packages. Such liaisons between schools and interested agencies should be explored carefully and fully in future similar efforts.

CHAPTER VII

SUMMARY, CONCLUSIONS, RECOMMENDATIONS, AND COMMENTARY

Summary

The educational problem which has guided this study concerns the challenges to rural schools and the degree to which such schools can cooperate to provide educational opportunities which might not otherwise be available to their students. The investigative purpose of this study was to examine administrative and other actions and decisions, including those of the four boards of education, which led to the formation and implementation of the Beaver County ITV network.

The research questions which helped to focus the study were as follow.

1. Where did activity start concerning the formation of an ITV network? What were the underlying initial concerns?

2. How did administrators seek to overcome the attitudes of autonomy and resistance to change on the part of the board of education and the patrons of each school district?

3. How did the school districts change as a result of the application of ITV as a method of instruction?

4. Which leadership characteristics can be commonly identified in each of the superintendents in this study?

5. What problems and successes have surfaced after a year of ITV operation in the county? How have they been dealt with by administrators?

6. What guidelines can be established to help future participants in a similar endeavor?

For the purposes of this study, the population and the sample were the same. The study focused on all four independent school districts in Beaver County, Oklahoma. All board of education members and administrators connected with every phase of the project were interviewed to obtain the perceptions of each person toward the project. All available written sources pertaining to the formation of the cooperative network were reviewed and analyzed. Included in this analysis were correspondence between individuals and collectively among the group of administrators, as well as other documents from the school district files.

From the initial idea of a cooperative in 1985 to its implementation in August of 1988, results were due largely to planning and hard work. As each school district laid plans for participation in the project, information and communications were mutually shared with the other schools, primarily through the superintendents. The boards of education and administrators held county-wide meetings on a regular basis to stay abreast of events and discuss common problems. Concessions by each school helped to ease the problems inherent in preparing a joint ITV schedule and contributed to the overall feeling of oneness which is still evident.

Prominent in this sequence of events was the securing of adequate project funding from several sources. Included were the Kerr and McCaslin Foundations, the state legislature, and two small school grants from the State Department of Education. Another key event occurred when

Panhandle Telephone Cooperative, Inc. brought the costs of installation within the financial means of the Beaver County group. Also notable is the persistence of both cooperatives in meeting installation deadlines during the summer of 1988, so that the ITV system could come on-line at the start of the 1988-89 school year.

Conclusions

Five general conclusions have been developed concerning leadership and change in this study of the Beaver County ITV network and the administrative perspectives and resulting practices which grew out of the implementation of the system.

1. Forming rural school cooperatives, whether based upon current technology or not, could possibly ease the financial burden on and expand course offerings for smaller schools. Small and rural school districts tend to have limited educational opportunities due to a lack of an adequate number of faculty or a shortage of financial resources. Such was the case in Beaver County.

2. Leadership is a most important prerequisite for change. The exercise of leadership must embrace vision, teamwork, cohesion, cooperation, guidance, and conciliation, among other traits, if success is to be experienced. No matter what their individual leadership styles, all four superintendents managed to accomplish change in their own districts as well as to band together to effect group change. Each also had to overcome adversity and negative attitudes among faculty and patrons.

3. Those in positions of power established frequent and substantive communications, but only marginal information was imparted, at least initially, to the staff, patrons, and students. One reason for the lack of communication in some districts was that there often was no

information to give. This dearth of information only served to encourage the spread of rumors through the informal networks which exist in every school and community. A second reason for not communicating downward was the fear by the superintendents that financial uncertainty or possible loss of faculty might doom the project before it could even get started. They therefore did not want to encourage high expectations within their communities. There were frequent communications among superintendents and boards due to the frequent county meetings, numerous joint trips to Oklahoma City, frequent phone calls between schools, and monthly board briefings on details regarding the project.

4. Stability of tenure in their positions, for both superintendents and key board members, lends continuity to all phases of school operation. A mutual respect, developed over years of cooperation, led to general community satisfaction with the leadership capabilities of superintendents and key board members. The general feeling in all four districts was that the schools were in good hands, regardless of what transpired. Effective leadership was thus able to overcome adversity and resistance to change.

5. Teamwork is a vital factor in the formation of a cooperative program. Previous experience in cooperative efforts of a more limited nature had prepared the schools for the give-and-take that was necessary to sustain a project of this magnitude. The periodic county-wide meetings of administrators were not unique, but regular joint meetings of boards of education across Beaver County marked a distinct departure from normal procedures. New members on the board were expected to attend not only all local meetings, but statewide meetings and the monthly county meetings as well. The superintendents in each district were also able to develop local teamwork among board members, faculty,

students, and administrators, resulting in a larger, cohesive group which could more easily surmount the problems and differences of opinions which inevitably surface in such a venture.

Recommendations

Four major recommendations have been identified in relation to this study.

1. Because of the large number of small schools in Oklahoma, there is a great need for more research in all phases of small school operation. The literature base of research tends to be focused on the larger schools which have entirely different problems. Further studies should especially be conducted regarding rural cooperatives and educational change in small school settings; the identification of leadership traits among change agents, especially in the technological society of the 1990s and into the Twenty-first Century; and the long term effectiveness of interactive television as an instructional medium.

2. The Oklahoma State Board of Education should once again appoint a rural education specialist who can deal with the problems unique to small schools. One of the first responsibilities of that administrator should be the development of guidelines and time frames for the establishment of small school cooperatives. Adequate funding for such projects should be available on a matching basis for those districts whose board members and patrons are willing to tax themselves at a higher level to improve the quality of educational experiences provided for their schoolchildren.

3. Superintendents should facilitate the creation of future cooperatives through the formation of, or more active involvement in, a county-wide or other area administrators' organizations. An added

benefit might be acquired by inviting interested school board members to attend those meetings. Such meetings could then form the basis for the discussion of common interests and needs.

4. Superintendents and school board members should explore every avenue of cooperation between their school districts and other organizations within their service area. Since rural electric cooperatives (at least in the State of Oklahoma) enjoy unique tax status, partnership ventures with the local cooperative should be carefully explored. Each stands to benefit from helping the other, especially where the expertise of one organization can be of benefit to the other.

Commentary

The vast majority of rural school administrators want to provide the greatest variety of curriculum, for their students, which is within the ability of their school. They are also concerned that their graduates be as competitive as possible in college.

It is to this end that the Beaver County group entered into their interactive television (ITV) cooperative. Several unique aspects of the cooperative stood out as a result of this study. In concert, they blended together to bring about the desired result which the group originally sought. It is the opinion of many who have been involved with the network that without the intervention of Ben Paul Zimmerman, who sits on both the Balko school board and the board of directors at Panhandle Telephone Cooperative, Inc. (PTCI), the network would not be the reality it is today.

Using its unique tax status within the State of Oklahoma, PTCI was able to spread the installation costs of the ITV network over a five-year period and thus reduced any undue financial burdens on the schools.

While PTCI looked on the action as good business practice, the schools viewed their intervention as a godsend. Mutual liaisons between schools and interested service agencies should be fully explored in the future.

Financially, the cooperative benefitted from two fortunate circumstances. First was the intervention of Sandy Garrett and other State Department of Education officials on behalf of the cooperative. Without their help, the project might still be unrealized. Secondly, the unique status of the network brought it wide attention from educators and other influential people and thus attracted additional funds. Future financial efforts revolving around advanced technology types of cooperatives might not be able to attract similar levels of funding.

The change in this study was designed for the improvement of the four school districts. Barriers were overcome primarily by the exercise of leadership in all of the districts. The key board members and the superintendents in each district would not allow the dream to die. As previously mentioned, the proposed change was handled in the school districts in different ways and with varying degrees of success, according to the personality and leadership ability of those directly involved.

Several lessons have been gained from this study. Among them, three appear to be important in any future endeavor.

First, finance stood out as a valuable point of focus in the Beaver County effort. Needs were considered, financial abilities of the four districts were examined, and funding was secured as early as possible in the project.

Secondly, planning cannot be understated. Success was maximized and problems were minimized by detailed advanced planning in each of the four districts as well as among the group members.

Lastly, communication and openness played a large role in the formation of the cooperative. Key people in each district kept the school staff and patrons as informed as possible under the circumstances. The mutual sharing of information gave unity and bonding to the individuals who made up the cooperative group. Field interviews affirmed this fact.

A major stumbling block to any future change might be an attempt to hide or withhold information or details from any segment of the school population. Decisions made openly can expect more acceptance from those they affect. Mutual trust is the cornerstone to success in cooperatives.

Finally, warm feelings for the Beaver County cooperative were developed as a result of this study. In striving to meet the needs of their students, the people have rallied in support of the ITV system. It is seen for what it is: a very good way to expand course offerings, not only to the school population, but to the patrons as well. It is the hope of this author that the Beaver County network is only the prototype for a series of cooperatives which will eventually stretch across the length of our state. Such networks could prove to the salvation of many rural and small schools in the years to come.

Regardless of the technology involved, cooperatives are tools worthy of consideration in implementing change, and rural school leaders would do well to explore all such avenues with neighboring districts. The very existence of their schools may well hinge on the outcome of their collective efforts to meet the mandates and expanding educational requirements in Oklahoma today. It is the further hope of this author that all rural and small schools will be highly successful in providing quality educational experiences to the students placed in their charge.

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APPENDIXES

APPENDIX A

DESCRIPTION OF THE BEAVER COUNTY INTERACTIVE TELEVISION COOPERATIVE

Beaver County

★ Balko
★ Beaver
★ Forgan
★ Turpin
Independent School Districts

Interactive TV Cooperative

Beaver County, Oklahoma

Interactive TV strengthens rural curriculum

The Beaver County Interactive TV cooperative, an innovative, four-way fiber optic instructional television cooperative, has strengthened the educational opportunity of 1,300 students at four rural schools in the isolated Oklahoma panhandle.

"It's worked far better than we anticipated," said Doug Rundle of Forgan Schools, one of the members of the network which began operation in fall, 1988. It has quickly become a model of innovative education for rural areas throughout the nation.

Connected by 52 miles of fiber optics cable, Forgan and Balko, Beaver and Turpin Schools have combined to offer their students advanced placement English, art, Spanish and accounting.

Simply put, the interactive TV allows students and teachers to sit in studio classes while they see, hear, talk, and learn with their counterparts in the four neighboring districts. It gives students access to courses they wouldn't otherwise have in small schools--crucial to meeting increased state accrediting requirements.

"We just decided that being in a geographically isolated area shouldn't be a disadvantage to our kids," said Beaver Supt. Jim Bouse. "This is an alternative educational delivery system where we can all share curriculum."

Cooperation of local private enterprise made the system possible, because its total cost--estimated at about $1.5 million--was beyond local resources.

Exact cost of the project, completed after about three years of grant hunting, work, dedication, and good luck, is uncertain, the superintendents said. Together they raised about $322,000 in grant funds. That's where Panhandle Telephone Co. of Guymon stepped in and helped with the construction and installation of the system. Without its commitment to rural America and quality education, the superintendents stressed, the system would not have been built.

BUSY ART CLASSROOM—Instructor Dick Robinson pauses from helping Turpin students to check TV monitors showing students at work in three other Beaver County classrooms. Interactive TV monitors behind him give him a view of the other classes when he's teaching from the teaching station at the front of the room. Mirrors are one-way windows from the adjacent viewing room for visiting educators. Robinson moves freely from the podium to view student work, and overhead cameras project student work for entire classes to view.

The real cost to the individual school districts has been the remodeling and construction of television classrooms--at prices from about $2,000 to $5,000.

The system answers two key non-metropolitan issues--lack of educational opportunities and resources, and an inadequate telecommunications infrastructure to assist with economic development.

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*Page 2

Cooperation key to success of fiberoptics

"We've made two main discoveries," said Supt Gerald Danley, Turpin "Teachers are better prepared, and students spend more 'time on task,'--there's little wasted time "

Danley is speaking of the successful beginning of the Beaver County Interactive TV system in the Oklahoma panhandle, and he and his fellow superintendents agree there's one key to its success--cooperation

Cooperation between themselves, the school boards, the teachers, state government, private foundations, private business, and the students all have made the revolutionary fiber optic system work far beyond their expectations

"If we weren't close-knit and strong friends, able to disagree agreeably, we wouldn't be here today," said Doug Rundle, Forgan superintendent.

"There was a lot to overcome Education has so many territorial things that must be torn down or this will never work," he explained

"Four of us had to learn how to think as one. We've all given and taken, collectively and in the personality of our boards

"Some are little things, like which clock we go by What do we do if snow closes one school and not the other?"

Rundle and Beaver Supt Jim Bouse said two of the major obstacles were adoption of 45-minute periods and eight-period days

"In addition, it took us two years to adopt uniform school calendars and schedules," Bouse said

"I tell you, starting something like this, all four superintendents best be thinking along the same lines or it's not going to work," added Turpin Supt Gerald Danley

As with any school program, teachers have been the key to success, the superintendents said Bouse said to begin the program, and offer courses beneficial to the other schools, each superintendent picked a successful class and teacher ,those most enthusiastic and perhaps the least inhibited by technology

"Television will magnify both good and bad traits, and we wanted to build success in, we had to have strong teachers, but they did it on a voluntary basis with lots of unanswered questions--including no in-service training," said Rundle

One of the most common questions about the project is cost, and Supt Richard Boothby said it's hard to answer, noting cooperation with Panhandle Telephone Co made the system possible

"I'd guess the price tag was about $1 5 million, but we couldn't afford that We received about $322,000 in grants, and individual schools remodeled their own classrooms Other than that, it didn't cost us anything," he said Danley added the districts were probably out more sending personnel to Wisconsin on an investigatory trip two years ago than in construction

There have been problems, but cooperation and technology have solved most of those

One of the earliest was logistic how to transport assignments and homework "Circuit riders" were used until Danley found out about FAX machines All four schools now FAX homework, study sheets, tests, assignments, even art work from classroom to classroom

The full advantages of the network have not yet hit home, Rundle said

For instance, the Beaver County Community Education system uses the facilities in the evenings Courses in aerobics, a travel series, image improvement, people's law, making education games, fruit trees, and landscaping are offered to adults in the county All they do is show up at one of the four schools and participate

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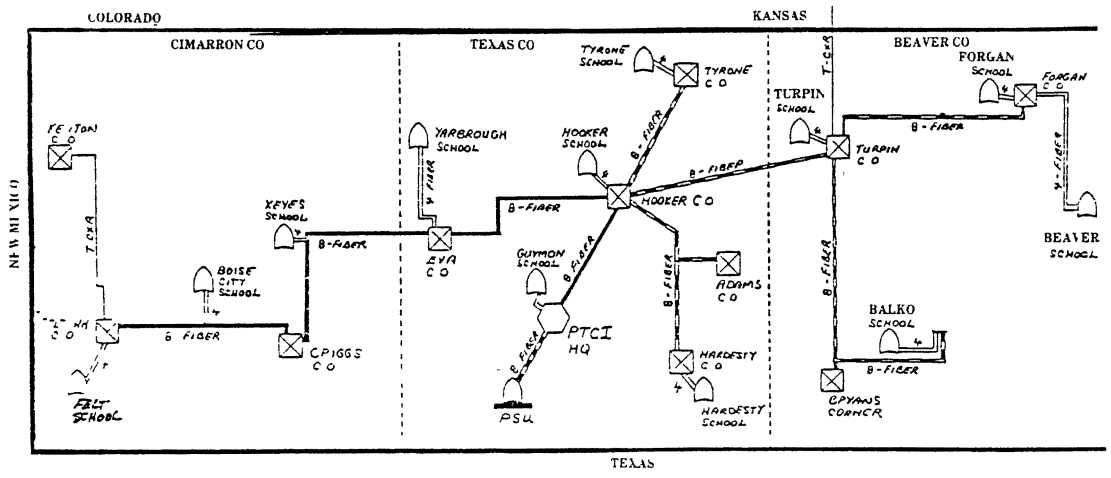
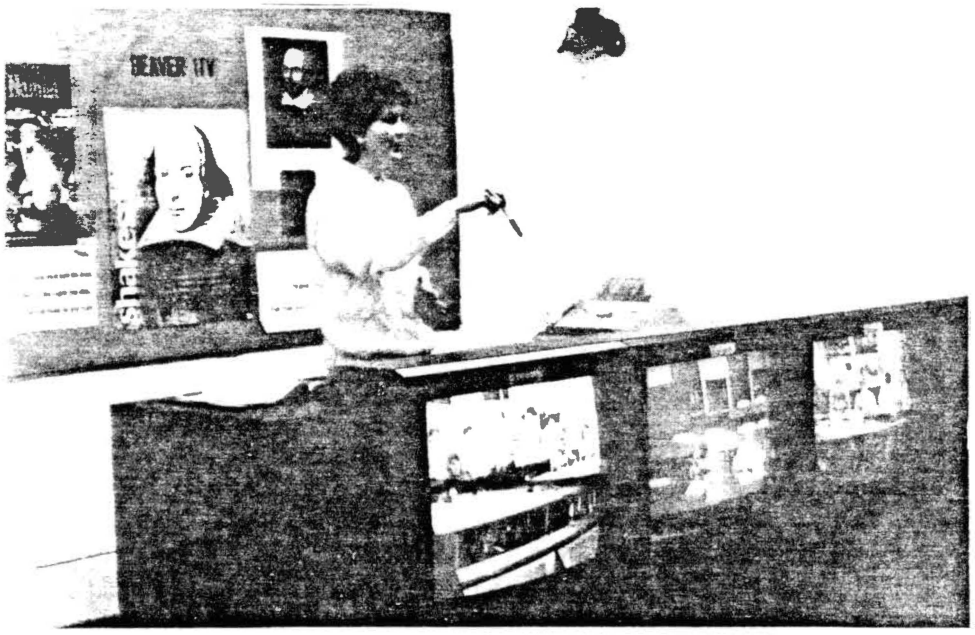


FIBER OPTIC NETWORK links the Oklahoma Panhandle forming the framework for future expansion of the concept behind the Beaver County Interactive TV Cooperative Plans are already being discussed about the future impact of the innovative four-school program

*Page 3



SHAKESPEARE comes alive for Beaver County students as advanced placement English instructor Sheryl Melton makes a point to Beaver students, and to those in the other three districts. Monitors in front of her teaching station project those classrooms so Beaver students can see the other students as well. Homework—writing and other assignments—is transmitted over the FAX machine.

Teachers stress improved preparation; more student 'time on task' with fiberoptic

The four Beaver County teachers in the interactive TV project have learned six key lessons about the project, all crucial to quality education.

First, and most important, they all agree, is that "time on task" increases dramatically for their students.

Second, they agree the project has made them more organized, better prepared teachers.

Third, anything that can be done educationally in a regular classroom is possible over TV.

Fourth, the project is bringing the students and county closer together as a community.

Fifth, absent students can make up work more easily since all sessions are taped.

Sixth, it is important to actually bring the students together once or twice a semester to assist learning with social/educational activity.

The teachers are Forgan's DeLoris Heglin, Spanish; Beaver's Sheryl Melton, advanced placement English; Turpin's Dick Robinson, art; and Balko Supt. Richard Boothby, accounting.

Each of the teachers volunteered. They received virtually no in-service training, other than a day or so of rehearsal just before classes began. They were selected because they were veteran teachers who were also excellent and enthusiastic. "We wanted to build success into the system," explained Supt. Rundle.

The teachers agree the students' education is the driving force behind the project--which has been far more successful than they anticipated.

They also admit they are still learning, and there are problems to be worked out, but they're excited about what it has meant to their students.

Interviewing each of the teachers is the quickest way to understand the impact of the Beaver County ITV.

SHERYL MELTON--ENGLISH--Beaver, ADA 450 students.

She's taught 17 years, including six in junior high. Currently she teachers two sections of advanced placement English (one televised), two of senior English, one of junior English, and the school yearbook.

"It's really not different from the regular classroom. There are just more students.

"The worst part for me was not being able to move as much. I'm a walker.

"It did help me be more organized. I'm afraid of having 10 minutes at the end of the period, so I always have something in reserve.

*Turn to page 4

*Page 4

Teachers stress improved preparation

*From page 3

"I've been observed more this year than ever before. We had five superintendents in here recently. If that had been last year, I would've gone off the wall. But this year, after we got started, we're more relaxed and use to it.

"What you realize is that the kids are the priority--even when we're watched. I'm not here to perform and it's not entertainment. It's only a learning tool. The students have realized it too.

"The first day was smooth. The second was horrible. . .we had audio feedback problems. But the students were patient and understanding.

"You can do anything here that you can in a normal classroom. The sound and vision is excellent. We've had debates, discussions. I give oral vocabulary quizzes. This is a composition class and they do a lot of writing.

"It's also nice the students can see TV being used for educational purposes.

"I've found it's important to have all the students together. We had a pizza party in Beaver and 29 of 31 made it. We're also having a joint field trip to the college library at Alva, 110 miles away.

"Oh yes, the inter-school rivalry is still there, but the students get to know each other, both over the system and in the parties. For instance one of the boys from Turpin was injured in a football game. It wasn't a kid from Turpin, it was Shane.

"In class the next week they wanted to know how he was. 'We're pulling for you, Shane,' one of them said. This is making the county more of a community.

"It's also important to give camera time to the students so they can see the other boys and girls.

"My advice to others is not to let the technology intimidate you. There are just three buttons. I'm not a technical whiz, but we do fine."

DELORIS HEGLIN--SPANISH--Forgan, ADA 180 students.

She has taught nine years and currently teaches Spanish, English and home ec at Forgan.

"I was afraid the ITV wouldn't work because of the need for precise feedback on pronunciation in teaching Spanish. But the sound is so excellent there is no problem at all.

"We've gone over our ABCs, using my usual teaching methods, and everything is well heard and understood at all four sites.

"It's worked so well that we're within four days of where we usually are at this time of the semester.

"There are specific advantages in teaching a foreign language. To learn a language, you have to stay up with the class. If you miss much you'll be in trouble. Now though, every session is taped, and if anyone misses, they can come in and view the tape.

"The first day, we were all nervous, but it wasn't as bad as I thought. Now I just don't have time to worry about it.

*Turn to page 5

PRECISE PRONUNCIATION of the Spanish language is possible because of the highly sensitive sound system used in all four schools (note the microphone hanging above students at Forgan). Instructor Deloris Heglin at Forgan also tapes each lesson so absent students don't fall behind. The four monitors in front of her teaching station project the other classrooms to Forgan students, while she watches those other students on the monitors at the back of the room. Note the overhead camera above her station that can propject student assignments and other visual aids. FAX machine is at lower left.

*Page 5

Teachers

*From page 4

"In addition, the students have opened up once they've become familiar and comfortable with the video.

"We are so prepared. The time on task is excellent. You have lesson plans and always have something in reserve, rather than just 'winging it.'"

"We have fewer discipline problems too. Students and their parents have to sign contracts to agree on behavior to stay in the classes. It makes them more responsible. In addition, everything in class is one tape, so there are few arguments about what has actually happened."

DICK ROBINSON--ART--Turpin, ADA 440 students

Robinson has taught for 20 years and teaches art at Turpin.

"This has been refreshing to education, especially to me. No longer is it the same old stuff. It has changed my whole perspective. Maybe I was tired, but now I'm much more positive about it--well not quite like a freshman teacher, but this is exciting again.

"I knew it would work on the first day, when I saw the kids eyeing each other, flirting with the new boys and girls they could see on the television--communicating in words and actions in a normal manner, just like in a regular classroom. The students adapted to it probably more quickly than we did as adults.

"Oh, they know it's new and that has an effect. They realize they're sort of pioneers, but they're getting used to all the attention.

"Even the faculty was a little giddy and skeptical at first, but we've begun to see the results and we're more relaxed.

"It did change my image of myself. When I saw myself on the television, I knew I had to change. I always wear a coat and tie now.

"I'm better prepared too. You don't want to have any wasted time.

"It's working well enough that I can come out from behind the counter and work with the students. Even when I'm off camera I can hear what the students at the other schools are saying so discipline isn't a problem.

"I think it has improved communication with the other schools. It offers what they could not have had.

"It's important to get the entire class together at least once each nine weeks. You need to see them and they need to see you. We've had a pizza party and a wildlife artist speaker and we communicate better after those events.

"It's also important to treat all your classes the same, the ITV and regular classes, and each school district."

RICHARD BOOTHBY--ACCOUNTING--Balko, ADA 168 students

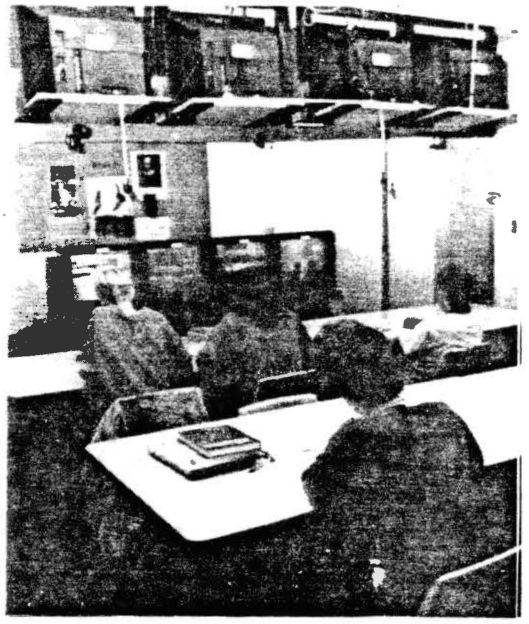
Boothby, as superintendent, sees the project from two perspectives.

"It's improved and broadened my world and my students' worlds. We meet more people and learn from folks all over the panhandle.

"It's increased the variety of classes a student can take at a small school.

"As a teacher, I'm better prepared. I can't afford to waste the air time of three schools.

"Time on task has improved greatly. It's just like a regular classroom really."



BOOKKEEPING taught by Richard Boothby at Balko, seen in video monitor at far right, is received in this Beaver classroom as well as at Turpin and Forgan. A teacher aide monitors the classes, but discipline is not a problem. Students watch not only the instructor, but students in the other three school districts as well, quickly learning student names and developing friendships over the miles.

Interactive TV

*From page 1

All those involved in the Beaver network stress that students are the prime beneficiaries.

The motivation behind the system is familiar to rural school personnel. The current educational focus in Oklahoma on increased high school graduation requirements, higher college entrance standards, courses for gifted students, other special courses and staff development--amid the worst Oklahoma economy in 50 years--have been particularly critical for rural schools.

"Last year at this time, because of funding problems, Beaver County schools were having difficulty in offering our students an expanded curriculum," said Supt. Richard Boothby, Balko.

Turpin Supt. Gerald Danley said new technology is necessary because of the unique challenges to rural schools to provide quality, relevant instruction in spite of smaller size, lower state funding levels, state mandates, limited staff and geographic isolation.

A five year plan for the systems begins in high school. Expansion into community ed, elementary and in-service training will follow. Eventually there will be links with distant vocational-technical schools and colleges.

*Page 6

Inside the fiberoptic classroom

What are the television classroom like?

While they differ somewhat at each of the four schools, they have common elements, and cost the schools from $2,000 to $5,000 to remodel, usually using summer help, superintendents say

Each classroom has

1 Two sets of four TVs monitors

2 A dais and control center—including FAX machine—for the teacher

3 Three cameras

4 Microphones over the students and teacher areas

5 Ample lighting

6 One-way observation areas/rooms for visitors

7 Standard classroom tables for students

1. The television sets—four are in front of the teacher's console and face the students They are labeled for each of the school districts The local one may show the students or the teacher, depending on the teacher's desires

Four others are attached to the ceiling and face the teacher, again labeled by school district

2. A raised dais and control center include buttons to operate the cameras, and FAX machine for sending and receiving assignments

3. One camera faces the teacher; another films the students A third is over the teacher's console, and can be used to picture pages of a book, charts, drawings, like an overhead projector

4. Two microphones are over the student area and one by the teacher They are so sensitive that a student whispering at the back of the room can be heard in the other classrooms

5. All of the classrooms have lowered ceilings and plenty of light

6. At the back of each of the classrooms are either dividers with observation windows or small attached rooms with observation windows for visitors, so that the regular class work won't be disturbed

7. Instead of desks, students sit at tables, facing the teacher and four screens If the class is taught from another district, a classroom monitor is present, but students pay attention to the teacher on the TV

Cooperation key to success of network

*From page 2

Turpin art teacher Dick Robinson has conducted workshops in art for elementary school teachers, expanding programs in all districts The superintendents expect to see this area of training, and in-service training, grow

"What it can accomplish is only limited by the human mind If you can do it in a regular classroom, you can do it here if you're creative enough," said Rundle

"We don't need a longer school year until we use the time we now have more efficiently," he said "What would happen in every classroom if we filled all the time with teaching?"

He and the others feel the technology will help make that possible, in view of the results so far

Some problems still exist, such as when students are late, or substitute teachers are needed, but both teachers and superintendents say most of the minor problems have been worked out fairly smoothly

Expansion is already being discussed, to include many more school districts to the west, plus Panhandle State University in Goodwell

But the administrators see some limitations

Danley said he saw a limit to the number of schools that could plug into one system

"We might have some 'picking and choosing' of classes, and some flexible scheduling, but there is a limit to how many students could be in one class Four TV schreens in a class is fine, but more than that might not work," he said He added that there might be several "clusters" of schools like their own successfully working in the overall system however

Bouse said there would also be a limit to the number of papers that could be graded, and a number of students allowed in a class by the state department of education

Rundle said a large network would have to solve even more questions of "territoriality" in calendars and scheduling In addition, for the classes to be truly interactive, a size limit is needed Large lecture classes might be something else, he said

The administrators see interactive TV as an answer to consolidation threats against rural schools, not as a step in that direction

"This is an answer to consolidation," said Boothby "If we can't provide essential education to the children, then we need to consolidate But this allows us to offer a strong varied curriculum in spite of budget cuts and smaller enrollments "

"I can't tell you the technical side of things, but I can tell you what this digital fiber optic communications network has done for us It has increased the variety of classes our students can take broadened their world We have to compete to get students in college these days This means rural education can compete very well "

The schools initiated the program at the secondary level where it helped the most by enabling the small schools meet stiffer state accrediting requirements

"That's the main reason for the system to give our kids the opportunity for classes they didn't have but those next door did," said Bouse

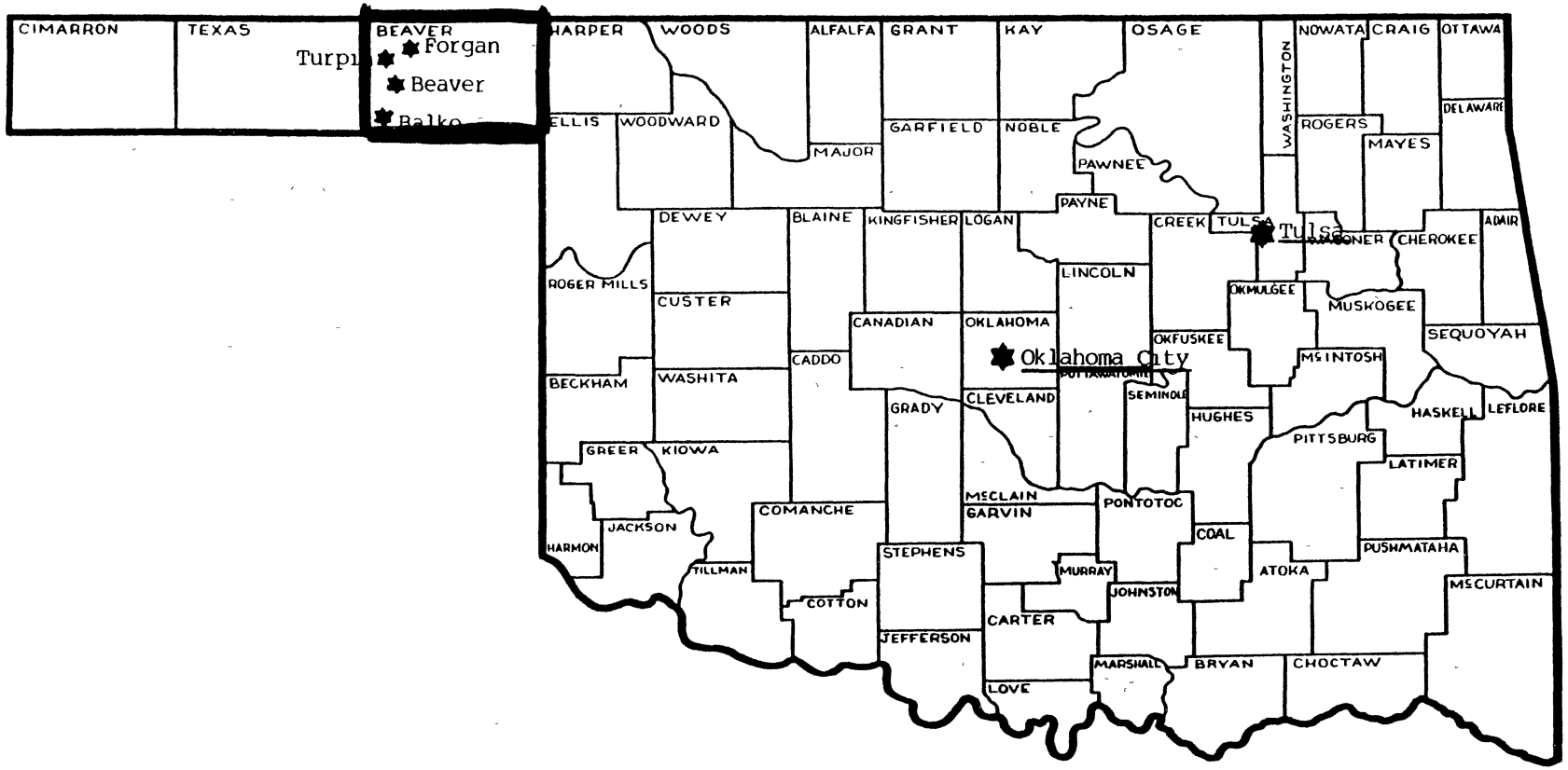
For more information write any of these schools Balko Rt 1, Box 37 Balko 73931
Beaver Box 580 Beaver 73932, Forgan Box 406 Forgan 73938, Turpin Box 187, Turpin 73950

APPENDIX B

LOCATION MAPS OF BEAVER COUNTY, OKLAHOMA

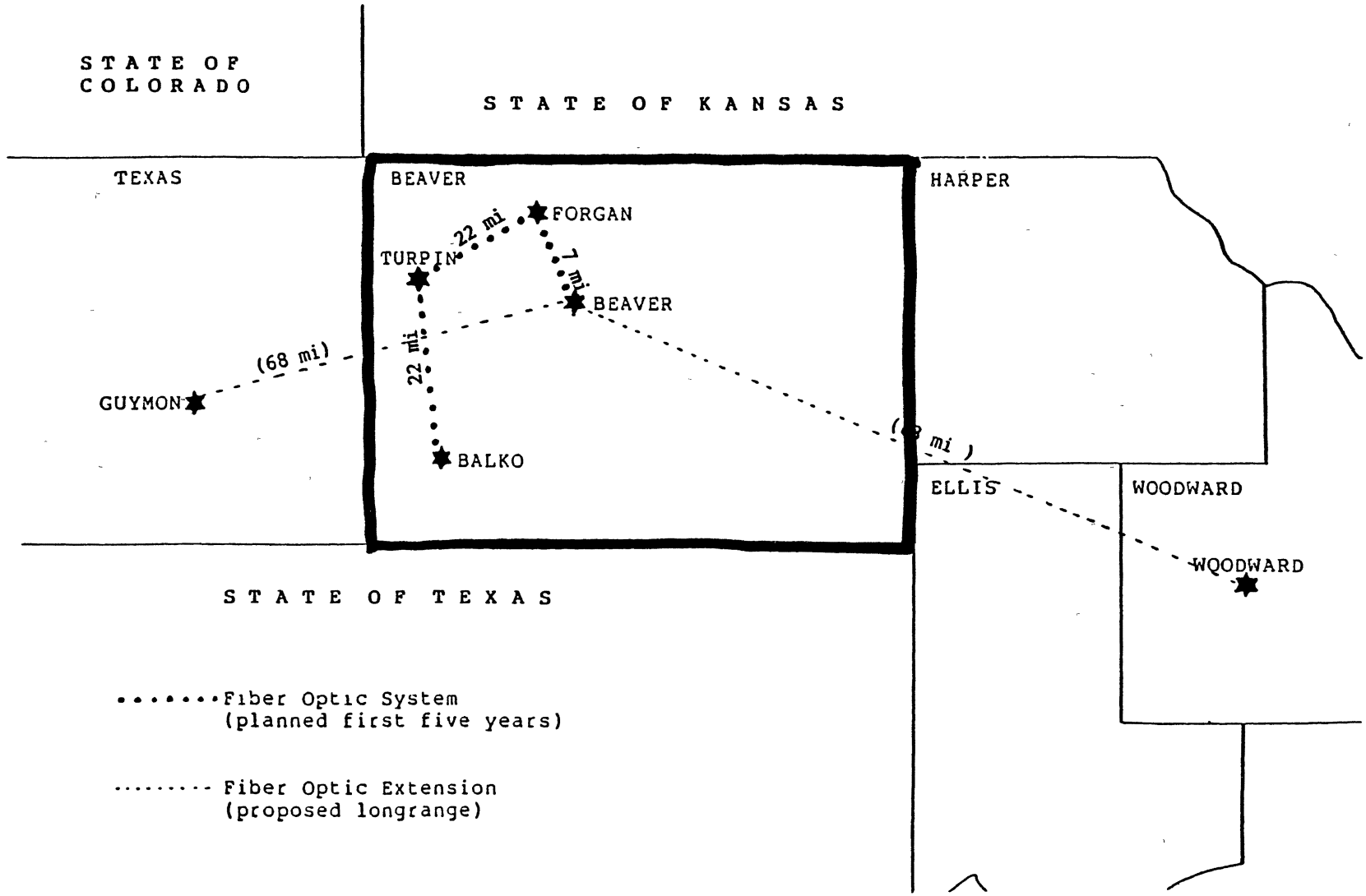
MAP OF OKLAHOMA

BEAVER COUNTY TELECOMMUNICATIONS COOPERATIVE



BEAVER COUNTY TELECOMMUNICATION COOPERATIVE

PLANNED FIBER OPTICS SYSTEM

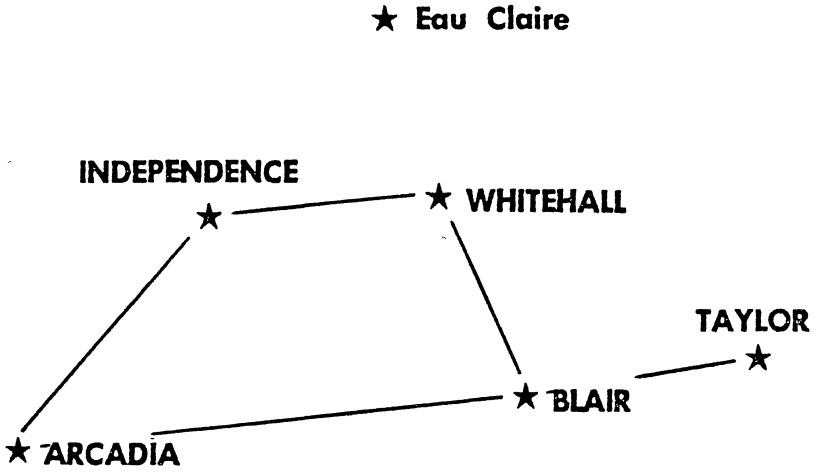


APPENDIX C

DESCRIPTION OF THE TREMPEALEAU VALLEY RURAL SCHOOL COOPERATIVE

TREMPEALEAU VALLEY COOPERATIVE SCHOOLS

A RURAL EDUCATIONAL COOPERATIVE
DESIGNED TO SERVE THE NEEDS OF
STUDENTS IN A CHANGING WORLD



C.E.S.A. # 11

COMPRISED OF THE
ARCADIA, BLAIR, INDEPENDENCE, TAYLOR
& WHITEHALL PUBLIC SCHOOL DISTRICTS
OF RURAL WISCONSIN

GERALD MIKUNDA, COORDINATOR

WHAT IS THE TREMPEALEAU VALLEY EDUCATIONAL COOPERATIVE?

The cooperative is an organization of independent districts seeking better and more efficient methods of providing educational opportunities for all youth of the areas they serve. Through the organization many locally indentified student needs can better be met and more efficient methods provided to fulfill the mandates of state and federal legislation.

WHO ARE THE MEMBERS OF THE COOPERATIVE?

The membership is comprised of the five rural school districts of Arcadia, Blair, Independence, Taylor, and Whitehall, which are located predominately within Trempealeau County with portions lying in Buffalo and Jackson County. The county areas are located in the center of the western border of the state which is a hilly region with an economy based on diversified farming, meat processing, lumbering, and light manufacturing. Statistically, the five schools have a total enrollment of 1,375, K- 8; 1,316, 9-12; for a combined student enrollment of 2,691, ranging in school size from 300 to 975 students.

PURPOSE OF THE COOPERATIVE

The cooperative has as its purpose the following goals: (1) to offer wide spectrum educational program to students of the participating schools, (2) to broaden the social enrichment opportunities for the student, yet allow each school to retain its individuality, (3) to avoid duplication of course and program offerings by the participating schools, (4) to avoid costly facility duplication, (5) to better utilize the skills of specialized instructors and continue a maintenance of effort in meeting the Wisconsin Department of Public Instruction standards.

VOCATIONAL EDUCATION

The vocational program for the cooperating schools was developed to provide basic saleable skills for those students who will be entering the world of work directly upon high school graduation. The program has also helped to reduce the dropout rate of the schools and provide a practical application for knowledge and functions students are learning in their general education. The cooperative offers training in five vocational discipline areas with fifteen special courses available within the cooperative system.

GIFTED AND TALENTED

A recent effort by the cooperative is the development of a program to encourage youth of the area to develop specialized talents many of them possess in the areas of the fine arts, athletics, and academic abilities. This effort is being carried out by various instructors within the cooperative through integrated enrichment programs.

TRANSPORTATION

In order to conserve on student transportation costs, the cooperative schools have developed a coordinated transportation pool for the purposes of avoiding duplication of effort for interschool transportation to cooperative courses and many extra curricular programs. This program works due to the fact that the schools generally participate in the same competitive events.

SPECIAL NEEDS

In recognition of the need to assist students with special learning needs flow into the mainstream of the educational atmosphere both at the local and interschool level, the cooperative has developed a system of providing special services for students. The program is not only coordinated with the five schools but with the broader based service unit of CESA #11.

SPECIAL EDUCATION

In 1966, the five schools realized a need to provide education and training for students requiring special programs. Like the other educational offerings of the cooperative, each individual school accepted the responsibility for helping special students achieve, but did not have sufficient numbers or funds to provide a program on an individual basis. Currently, the cooperative provides special education in seven areas of instruction for T.M.R., E.M.R., and E.D.S. students.

COOPERATIVE BUYING

Through a coordinated effort, the five schools have banned together in order to take advantage of large quantity bid buying of educational supplies, custodial materials, food stuffs, and athletic equipment. Some of the five school bidding is combined with the CESA #11 area schools to establish a twenty five school district purchasing base. However, the five school unit lends itself to a more compact, efficient unit due to the large unit delivery units and geographic proximity of the districts.

HIGHER ACADEMIC

The program pertaining to higher academic education is involved with courses in advanced math, science, and foreign language. The need to provide the courses cooperatively was recognized as student enrollments at the individual schools lowered in numbers. Through a cooperative effort, students needing advanced courses as a prerequisite for higher academic education or because of personal interest, have access to these courses located possibly in only one of the cooperating schools.

EDUCATIONAL TV / A TWO WAY COMMUNICATION

The cooperative schools are members of the Western Wisconsin Communications Cooperative which has as its mission the responsibility of providing cable TV service to rural as well as urban subscribers. The effect on the schools will be the capability to receive as well as broadcast through a interconnecting system within the schools. This system will be capable of providing fire, police, medical, and educational services through a 40 channel capability.

APPENDIX D

COMPARISON OF ALTERNATIVE TECHNOLOGIES

COMPARISON OF ALTERNATIVE TECHNOLOGIES

The Beaver County Telecommunications Cooperative was developed out of the need to expand educational programming and curriculum to students in the sparsely populated panhandle area of Oklahoma without a large ongoing expense to the districts. The four Beaver County school districts have been working for over two years on the development of a telecommunications system which would help them achieve their stated goals.

The idea of developing an interactive television system for use by all four of these participating high schools was decided upon as the logical solution to the problems of decreased school funding due to the Oklahoma economy and increased demand for curriculum and educational programs mandated by the Oklahoma State Department of Education. Though instructional interactive television is still new to the state of Oklahoma, the four schools involved in this Cooperative believe that this is the answer to many of their education problems.

This instructional system will allow these schools to inexpensively expand their course offerings without expanding their budgets. After the initial cost of construction, maintenance and operation of the system is relatively minor. Use of this system also will allow these rural schools to utilize advanced technology as a means of improving their educational offerings, which will also be instructional to students in these rural communities.

Interactive television allows a teacher in one location, with or without students present, to be simultaneously seen and heard by students in one or more remote locations. Students in each site can similarly respond to the teacher and to one another while attending the class in their own school building. Interactive television for instructional purposes typically limits classes to 18 students or fewer, which also fits for these rural school districts. Often there are only a few students in these schools who want to take a particular class. If one or two students can attend a class offered at another school without leaving their campus, that would benefit everyone.

In the Interactive classroom there is a teacher station with an overhead camera which the teacher uses to display visual material. There are also cameras mounted around the classroom, allowing students in remote sites to see the teacher, the host/teacher site classroom and the blackboard. There are two or more monitors on which the teacher is able to see the remote site, as well. Most interactive classrooms

have a switchboard at the teaching station which allows the teacher to tune in on the remote sites. All of the interactive classrooms should be similarly equipped to allow that instruction can be provided from any of the interactive classrooms.

Students in remote locations see the teacher and their classmates on two or more monitors in the front of their own classroom. The teacher is able to see his/her remote site students through a camera which is focused on them and which they are able to move on request. Microphones in each location allow voice communication. Typically, the remote sites do not have an adult physically present for supervision, nor do they require camera operators. Materials are either transmitted using a facsimile machine or through the mail.

This system fits the needs of the four school districts in Beaver County. It will provide improved educational programming as previously described in the high schools. It will also provide increased community education classes which are not currently available in this part of Oklahoma.

In exploring the feasibility of developing an Interactive television system for Beaver County, the participating school districts explored the use of a microwave system or a fiber optics system. The schools chose a fiber optics system for three principal reasons:

1) weather conditions
2) no FCC regulations and licenses
3) potential for school-industry partnerships.

The applicant school district and the other three participating districts are all located in Beaver County Oklahoma, in the panhandle area of the state. This area is 290 miles northwest of Oklahoma City, the largest metropolitan area of the state. Beaver County is in the small strip of Oklahoma land that is due north of the Texas panhandle and due south of western Kansas. The terrain of the area is rolling prairie. This western land is subject to severe weather conditions. The average low temperature in January is 18 degrees Fahrenheit, and the average high in July is 98 degrees Fahrenheit. Average snowfall is over one foot per year, and the average wind speed is 12.54 miles per hour. This area is subject to numerous tornados, and the wind is the major foe in this part of the state. Winds in excess of 100 miles per hour are ordinary during the year.

A microwave system for this interactive television system was ruled out primarily because of the serious and violent weather conditions experienced in this part of the state. Project proposers believe that the initial expense of the fiber optics system is competitive with construction

costs plus the expected maintenance to microwave towers due to the expected damage from the severe weather. One of the disadvantages to the microwave system is that it is affected by terrain and weather. The construction and maintenance of microwave towers is very expensive.

The Beaver County Telecommunications Cooperative plans to provide instructional interactive television for students in the high schools, eventually students in all grades, and to community residents. There is also a long-range possibility of using the fiber optics system as an economic development tool. Because its primary mission is educational, it has no interest in applying for a Federal Communications Corporation license, unless instructed to do so during the course of this project.

Development of a fiber optics system for the Cooperative did not require a FCC application and license, and this was also an advantage and incentive to choosing the fiber optics system.

Additionally as previously stated, the state of Oklahoma is experiencing a seriously depressed economy. All sectors of the state are becoming aware of economic development needs and opportunities for short and long-range growth. One feature of the fiber optics system for the Cooperative is that once the fiber cable is in place, there is the potential for negotiation with utilities to share the system. This is an added incentive for these rural Oklahoma schools to develop a fiber optics system. This could allow for a school industry partnership which would be beneficial to the schools and the communities in this part of the state.

Other businesses could also benefit from this fiber optics system. Workers of local companies would be involved in shared training programs and inservice sessions offered through the Cooperative. Likewise, unemployed and underemployed persons in Beaver County could benefit from the community training and educational programs to be broadcast on this system. Multiple businesses in the communities in Beaver County could share training sessions and related programs as needed. All of these activities and tools which can generate these activities are desperately needed in western Oklahoma in Beaver County.

Secondary consideration for the choice of fiber optics over microwave include several other issues. New technologies such as fiber optics have great potential for improving signal quality. In a remote area such as Beaver County, this is an advantage. The Oklahoma Educational Television Authority signal received at Balko in Beaver County is not a clear signal. Fiber optics will provide greater signal quality.

Fiber optics is also the newest technology and will provide a greater range of technological options than will microwave.

Administrators and Board members from these four school districts have studied the interactive classroom method of instruction thoroughly enough, that they financed a trip to Trempealeau Valley, in rural Wisconsin, to observe a similar system in progress in the spring of 1985. They have studied the pros and cons of the system and have sound expectations about its results in Beaver County.

The administrators and Board members of the respective school districts have demonstrated their commitment to telecommunications by participating in the only educational telecommunications programs currently available to their schools - German by satellite from Oklahoma State University and OETA programming. These school administrators have fostered a spirit of cooperation and coordination that a system such as the one proposed here cannot be accomplished without precise cooperation and coordination. Administrators from all four participating school districts have hired Tele-Systems Associates,Inc., from Hastings, Minnesota to work with them in determining the feasibility of a telecommunications system as the one proposed here. Also, these school leaders have spent a considerable amount of time visiting similar cooperatives and have thoroughly investigated the feasibility of their commitment.

Project proposers believe that the Interactive television system represents a workable alternative method of instructional delivery for school districts such as the ones in Beaver County, Oklahoma. Project proposers also believe a fiber optics system is the optimal system for their needs. This system will allow the school districts to work cooperatively to provide a wider range of courses and programs to students. It may ultimately allow districts such as the Beaver County districts greater parity with larger school districts. It has potential to provide even greater improvements in services to elementary/secondary and adult and community education in rural, isolated western Oklahoma. These administrators know that this system is still in its infancy, but they desperately want an opportunity to make it work in western Oklahoma.

Attached here is a position description for the Director of the Beaver County Telecommunications Cooperative and a diagram of the layout of an interactive classroom. The position of Director will be the only staff position required by the Cooperative.

The layout of the interactive classroom will work well for all four of these participating schools.

APPENDIX E

EQUIPMENT AND INSTALLATION COSTS - BEAVER COUNTY ITV COOPERATIVE

ITEM	QTY.	DESCRIPTION	UNIT PRICE	PRICE
		Balko		
1	1	T1301 Transmitter	10,000	10,000
2	1	R1301 Receiver	6,000	6,000
3	1	800 Modulator Consists of: 1) IP105 Input Processor 1) FM906 FM Modulator 1) AM906 Audio Modulator 1) MF100 Modulator Mainframe	3,500	3,500
4	1	800 Demodulator Consists of: 1) OP105 Output Processor 1) DM905 FM Demodulator 1) AD906 Audio Demodulator 1) MF102 Demodulator Mainframe	3,500	3,500
5	1	Dual 800 Demodultor Consists of: 2) IP105 Input Processor 2) FM906 FM Modulator 2) AM906 Audio Modulator 1) MF100 Modulator Mainframe	5,900	5,900
6	1	2-way Splitter/Combiner	45	45
7	4	RF Cable Assemblies	10	40
8	6	Panel Spaces	10	60
			Sub Total	$29,045
		Turpin		
8	2	RP1301 Transceiver	17,050	34,100
9	1	800 Modulator (copy items)	3,500	3,500
10	1	800 Demodulator (copy items)	3,500	3,500
11	1	Dual 800 Demodulator (copy items)	5,900	5,900
12	1	2-way Combiner/Splitter	45	45
13	5	RF Cable Assemblies	10	50
14	6	Panel Spacers	10	60
				$47,155
		Forgan		
15	2	RP1301 Transceiver	17,050	34,100
16	1	800 Modulator (copy items)	3,500	3,500
17	1	800 Demodulator (copy items)	3,500	3,500
18	1	Dual 800 Demodulator (copy items)	5,900	5,900
19	1	2-way Combiner/Splitter	45	45
20	5	RF Cable Assemblies	10	50
21	6	Panel Spacers	10	60
				$47,155

ITEM	QTY	DESCRIPTION	UNIT PRICE	PRICE
		Beaver		
22	1	T1301 Transmitter	10,000	10,000
23	1	R1301 Receiver	6,000	6,000
24	1	800 Modulator Consists of: 1) IP105 Input Processor 1) FM906 FM Modulator 1) AM906 Audio Modulator 1) MF100 Modulator Main Frame	3,500	3,500
25	1	800 Demodulator Consists of: 1) OP105 Output Processor 1) DM905 FM Demodulator 1) AD906 Audio Demodulator 1) MF102 DeModulator Mainframe	3,500	3,500
26	1	Dual 800 Demodulator Consist of: 2) IP105 Input Processor 2) FM906 FM Modulator 2) MF100 Modulator Mainframe	5,900	5,900
27	1	2-way Splitter Combiner	45	45
28	4	RF Cable Assemblies	10	40
29	6	Panel Spacers	10	60
		Sub Total		$29,045

Balko	$29,045
Turpin	47,155
Forgan	47,155
Beaver	29,045
Equipment Total	$152,400
Labor	10,400
Test Equipment (Optical Pwr Meter)	1,400
Spares (Mod & Demod)	7,000
Grand Total	$171,200

VITA

Jerry Joe Miller

Candidate for the Degree of

Doctor of Education

Thesis: ADMINISTRATIVE PERSPECTIVES ON RURAL SCHOOL DISTRICT COOPERATION: INTERACTIVE TELEVISION IN BEAVER COUNTY, OKLAHOMA

Major Field: Educational Administration

Biographical:

Personal Data: Born in Headrick, Oklahoma, September 1, 1938, the son of Hester Hundley and Pauline Edith Edwards Miller. Married to Mary Margaret Gilmore on August 21, 1956.

Education: Graduated from Stillwater High School, Stillwater, Oklahoma, in May, 1956; received Bachelor of Science degree in Social Studies from the Oklahoma Panhandle State University in June, 1962; received Master of Education degree from Central State University in August, 1974; completed requirements for the Doctor of Education degree at Oklahoma State University in July, 1990.

Professional Experience: Classroom teacher, Hardesty Public Schools, Hardesty, Oklahoma from August, 1962 to June, 1963; classroom teacher and coach, Carl Albert High School, Midwest City, Oklahoma, August, 1965 to June, 1967; classroom teacher, Crutcho Public Schools, Midwest City, Oklahoma, August 1973 to June, 1974; Principal, Crooked Oak Public Schools, Oklahoma City, Oklahoma, July, 1974 to June, 1980; Principal, Bethany Public Schools, Bethany, Oklahoma, July, 1980 to June, 1981; Superintendent of Schools, Fort Towson, Oklahoma, July, 1981 to June, 1986; Superintendent of Schools, Ninnekah, Oklahoma, July 1986 to June, 1988; Presently Superintendent of Schools, Schulter, Oklahoma.