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Developing a Technology Plan Within the Small Rural School District

Patricia A. Fulkerson

Eastern Illinois University

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Date
Developing a Technology Plan

Within the Small Rural School District

(TITLE)

BY

Patricia A. Fulkerson

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
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Developing a Technology Plan Within the Small Rural School

Patricia A Fulkerson

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November 1995
ABSTRACT

Technology in education is currently a topic of much interest and study due to the fact that the future demands a work force capable of functioning in the Information Age. This study was designed to help small rural school districts formulate a technology plan which would enable them to procure the necessary technological components and resources essential to incorporating technology into the learning environment. A survey was conducted of the superintendents in Edwards, Gallatin, Hardin, Pope, Saline, Wabash, Wayne, and White counties in Southern Illinois. This survey endeavored to determine the components of a technology plan. Major findings were sought in the areas of mission statements and objectives, types of technology to be included in a plan, staff development, and resources in developing the technology plan. At the conclusion of the study, guidelines for developing a technology plan were established as an available resource to the superintendents within the eight county region.
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Chapter I
Overview of the Problem

Introduction

The educational industry seems to be moving from the Industrial Age to the Information Age. Technology in education is currently a popular topic not only with educators, but even with the existing elected officials in the White House. Vice President Al Gore has challenged communications industry leaders to connect every classroom to the National Information Infrastructure, the so-called information superhighway, by the year 2000 (Cohen, 1994). This technology revolution began in the 1970s and the use of computers for drill and practice remained at a basic level as late as 1987 (Chopra, 1994). Because of the widespread and growing interest in the use of such technology in both the home and the workplace, equipment is no longer likely to end up in closets or even to sit idle most of the time. Schools are already seeing the influence of television and video technology on education in the decline of the print culture and the rise of a visual culture, in shorter attention spans, and a loss of innocence among children (Collins, 1991). With the emergence of personal computers as learning and thinking tools, teachers realize that the computer could be a vehicle for restructuring curriculum and classroom practice (Kearsley, 1988). As technology becomes more common place in the classroom, schools will need a plan for the purchase and utilization of this technology.
Statement of the Problem

O’Neil (1993) noted schools are about ten years behind the technology used in the workplace and other areas. One in six homes now have a computer connected to a modem (Cohen, 1994). If the first grade children within our school systems are to be prepared to enter a profession twelve years into the future, it is time the schools caught up with the technology that is currently being utilized at home and in the workplace.

Preparing our children for careers in the twenty-first century is a costly venture, even without allowances for purchase of those things which allow school districts to take advantage of technological advances. School districts will need a comprehensive plan to coordinate their efforts in technology education and to procure the necessary funding for that technology. The organization and direction provided by a well defined technology plan would prove quite important in coordinating the technology education efforts of the small rural district. Further, recent grants for technology provided by the Illinois State Board of Education (ISBE) have given preference to districts which have a technology plan in place (Illinois State Board of Education, 1995).

The purpose of this study was to formulate guidelines for the development of a technology plan within the small rural school setting. Within the school districts which represent the Regional Office of Education comprised of Edwards, Gallatin, Hardin, Pope, Saline, Wabash, Wayne, and White counties in Southern Illinois, there was a need to develop technology plans
which would help those districts utilize existing resources to their fullest and allow those school districts to access money for grants. It was expected that the results of this study would provide a model which would include the necessary components for developing a technology plan that would enable school districts within Southern Illinois to compete for monies that are available through grants which would be offered by the state of Illinois or the federal government and that school districts would be better able to plan more wisely the utilization of existing money within their current budgets.

Small rural school districts must carefully plan expenditures on technology related to a quality education for the children for which they are responsible. The purpose of this study was to provide those small rural districts with the necessary guidelines for the development of a technology plan. Specifically, the following objectives were addressed:

1. To establish the components which should be addressed in a technology plan. This item was determined through the survey distributed to the Superintendents within the sample population and through the literature review.

2. To guide staff development efforts through a determination of the knowledge and training in existence at the time of the survey.

3. To identify resources for utilization in developing a technology plan. This was done by asking for a copy of existing technology plans and developing a list of those plans for review.
Limitations of the Study

Assumptions

Similar budgetary concerns and similar knowledge in technology education are two basic assumptions which are limitations of this study. The first assumption, that budgetary concerns within all districts would be similar, does not consider that spending priorities such as salary schedules or other obligations might affect the percentage of the budget a school district might allocate for technology education. The second assumption concerning the knowledge base of various superintendents and Boards of Education might also affect the direction of technology planning within a particular district.

Delimitations

The sample population for this field study is quite unique in character because it exists within a concentrated area in Illinois. The sample is representative of only the eight county area which comprises one regional office of education. However, the sample included in this study represents schools of similar culture, financial resource, and size to allow for similar interests and problems in technology education. If the study had extended to other regions, more resources might have been explored.

Uniqueness of the Study

If technology is to become an integral part of the curriculum in small rural school districts within Southeastern Illinois, those districts must begin to develop technology plans which are relevant to their unique characteristics. In
the past, the research base pertaining to the development of a technology plan which would suit the needs of the small rural district has been limited. This study is designed to help the small rural school district take the first step in developing a technology plan which would ensure that its students within those districts can utilize technology to facilitate learning. An exploration of existing technology plans, appropriate components of those plans, and staff development guidelines pertaining to technology education were included in this study. Resources for the development of a technology plan germane to the small rural school district have been collected in an effort to provide a resource in formulating guidelines for the development of a technology plan.

Definition of Terms

To enable the reader to better understand the study, a listing of the operational definitions is as follows:

**Computer Lab** - A group of computers, usually 20 to 30, located in one area or room of the school building.

**Desktop Publishing** - This software allows personal computer users to arrange text and graphics in a pleasing, informative manner.

**Distance Learning** - Providing educational programs from one site to another using transmissions devices such as modems, phone lines, and satellites.

**Information Superhighway** - Refers to the national networked computer system.
**Liquid Crystal Display (LCD) panel** - A device used in conjunction with an overhead projector that can project a computer screen on a wall for group viewing.

**Individual Classroom Computer Center** - A group of 4-6 computers which may be used as free standing computers or be linked to a network.

**Multi-Media Display Center** - The use of the computer to store and present text, graphic, photographic, video and sound information.

**Network** - A group of connected computers that can share information and peripherals, such as printers.

**On-line Services** - Services, such as research information, available on the computer as a result of a telephone modem.

**RFP** - (request for proposal) A request by the state for the district to submit a plan for the allocation of grant money.

**Small rural district** - A district of less than 2000 students located within an area considered to be non-urban.

**Staff Development** - A plan for educating the district faculty and staff in technology.

**Technology** - Those tools that enable students and teachers to facilitate learning in the information age. These tools would include televisions, video equipment, multi-media units, distance learning, and computers.

**Technology plan** - A plan for the acquisition and utilization of technological devices for the education of the children within a school district.
Chapter II
Rationale, Related Literature and Research

Rationale

The Information Age is upon us; however, according to David (1991), American schools are out of step with the times. Inside and out, schools today look very much the way they did a hundred years ago: the buildings, the size and shape of classrooms, the divisions based on student age, and the traditional ways of “delivering” instruction have changed very little. Yet the world has changed remarkably. Businesses have been building electronic highways while education has been creating an electronic dirt road (Peck, 1994). If the schools of today are to educate our children for the careers of tomorrow, they must begin now to update themselves and utilize the most progressive methods to prepare children to fit into the world of technology.

This research was designed to help small rural school districts design and implement a technology plan which would allow them to purchase and utilize technology education. To support the study, a review of the literature pertaining to budgetary concerns, staff development guidelines, curriculum integration, and components of the plan was conducted.

Review of Related Literature and Research

Budgetary Concerns

Five hundred billion dollars: that is the potential price tag for building the much talked about National Information Superhighway (Sheekey, 1995).
Although the price tag for technology is considerably less for the technology education purchases which would be appropriate for a small rural school district, the cost for maintaining a competitive edge within such a district is quite formidable. These small rural districts with small district budgets must search for avenues through which they can get the necessary money to fulfill their obligations to the children within their charge. Information technology centric companies have been spending about 4% of their annual budgets on technology. That figure is expected to rise to about 7.5%. School districts should spend a minimum annual budget allocation of 5% or $300.00 per student per year (Kinnaman, 1995). Although the simple reallocation of the budgetary pie may allow some districts to set aside an acceptable portion for technology education, many school districts must be much more creative with their financing. Extensive grant writing, working closely with the administration and school board, the creation of a grant writer/development position, a bond referendum, a lease to purchase or lease to replace agreement, the governor's budget, and Illinois State Board of Education grant proposal requests are all potential resources available to those districts which cannot simply purchase what they need with existing local budget resources (Illinois State Board of Education, 1995; Muir, 1994; VanSciver, 1994; Kinnaman, 1995).
Staff Development

The importance of staff development was noted by Ross and Bailey (1994): "To the illiterate, information is not a tool, but a terror; not a servant, but a master; not something to communicate with, but something to be overwhelmed by" (p. 33). Staff development is a very important aspect of integrating technology into the curriculum of the classroom. It is the faculty of the school who will utilize and promote technology only if they internalize the concept that utilization of technology is something that can enhance the learning process in their classroom. As Dwyer (1994) suggests, our teacher development challenge, then, includes helping to build a teacher force aware of, and eager for change --- a teacher force that is fleet in mind and steady in heart and rededicated to helping all children find success in their world. Teachers must be willing to invest the time and energy required to become as familiar with technology-based resources as they are with paper, pencils, and textbooks (Dyril & Kinnaman, 1995).

Research suggests that teacher inservice in the utilization of technology within the classroom is most successful if a substantial amount of time is spent on training and when training is done over an extended period of time. Teachers reported that their inservice training in technology had been positive, but too short and infrequent (Hurst, 1994). The minimum amount of training necessary to give teachers the expertise and confidence to come close to exploiting the full potential of these systems (integrated instructional systems) is
an initial training session of one to two full weeks, with at least three to four days of follow-up training annually thereafter (Sherry, 1990).

The most successful staff development programs reported were those that: (1) involved teachers and principals in the planning; (2) determined core skills - i.e. desktop publishing, word processing, databases, and spreadsheets; (3) specified how to deliver training - as needed, specific, available of their grade level; (4) identified a place for learning - nonthreatening environment (no students), technology centers, school site; and (5) included an evaluation of the program - suggestion box, survey, logs, observations (Hurst, 1994).

Technology education begins with training of the teachers within the school district. When the teachers are trained, then the students will begin to learn the necessary skills to utilize technology in their educational program. A goal of the school administration should be to make the school a center of intellectual enrichment for the teachers and staff members just as it should be for the students (Maley, 1991). When people get the message that they have the power to control their own destiny, they become dedicated to achieving their goals (Chopra, 1994).

Integration with the Curriculum

Integrating technology education with the curriculum should begin with the establishment of vision, goals, and objectives. A good technology plan should begin with a statement which envisions the school where technology would be used for learning. Goals would include the integration of technology
into subject-matter teaching, interdisciplinary teaching, and schools as centers of inquiry that make use of community resources (Sheingold, 1991). Examples of appropriate goals for a technology plan might include: the development of strong basic skills, a mastery of core content, the ability to think critically and creatively, the ability to work collaboratively and cooperatively, a commitment to life-long learning, the ability to select appropriate problem solving strategies and solve problems efficiently, and an understanding of the plurality of American society (Dyril & Kinnaman, 1994). Gilberti (1994) suggested the following four goals for technology in education:

1. Evaluate the impact and influence that technology has on society, culture, and the environment
2. Interpret the interactions of society and technological systems
3. Create technological devices and/or solve problems using concepts of creativity, design, and technology
4. Participate in the improvement of society and the human condition.

Goals for the technology program could be as simple as: at the elementary level, students will acquire a basic education and develop awareness of technology; at the middle level students will explore nature and make informed educational and occupational choices; and at the high school level, students will participate in an in-depth examination of technical subject matter (Gilberti, 1994). Muir (1994) further simplifies technology goals by suggesting the
primary objective could be to learn ideas from math, science, language arts, social studies, or some other content area.

Research implies the curriculum which has successfully integrated technology will exhibit certain elements. Among these elements are a shift to small-group instruction, working with weaker students, coaching more engaged students, performance based assessment, cooperative learning, multiple levels of learning, and the integration of visual and verbal thinking (Collins, 1991). The students become the stars while the teacher is freed from having to be the lion tamer in front of the classroom who presents information all day long (Betts, 1994).

**The Plan**

Step by step planning is useful in helping a school district develop a plan unique to its own specifications. Research produced implications for a step by step procedure, specific or general, from which a district could adapt its own technology plan. Two examples of step by step technology planning follow: Lumley and Bailey (1992) offer a three step model:

1. Organize and empower a 25 member district technology planning team (including a teacher and an administrator from each building, subject, and grade level)
2. Prepare the planning team for the study (capture the vision and experience technology firsthand)
3. Develop the long-range technology plan.
Dyril and Kinnaman (1995) offer a seven step model:

1. Integrate technology into your classroom curriculum
2. Articulate your educational aims
3. Review your present curricula to determine how they do or do not meet student needs
4. Describe the gaps
5. Look for technology-based resources that can help add power to your curriculum
6. Identify constraints
7. Work actively to design and implement new structures and schedules.
Chapter III
Design of the Study

General Design of the Study

This study was designed to research and collect information which would enable small rural school districts to develop a technology plan relevant to their unique requirements. Upon the completion of a review of related literature, further research in the form of a survey was undertaken (see Appendix A). In order to determine the necessary components of a technology plan, the survey was sent to the 20 superintendents within the newly formed Regional Office of Education #20. This region was selected because it encompasses many small rural districts with limited fiscal resources. The research from this study provided both qualitative and quantitative results and those results are reported in Chapter IV in both narrative and chart form.

Sample and Population

The population surveyed for this study was 20 superintendents within the Regional Office of Education #20. This region, newly formed in 1995, includes Edwards, Gallatin, Hardin, Pope, Saline, Wabash, Wayne, and White counties. Located in rural Southeastern Illinois, this Regional Office of Education is in an area with very little industrial development and a high rate of unemployment. A large percentage of the students in this area come from low income families; therefore, these school districts have a low tax base. The superintendents within this area were chosen because of similarities in
resources and the fact that they would have similar concerns in acquiring the necessary technology to support a curriculum of high quality. The districts included in this study range in size from less than 500 students up to 2000 students.

Data Collection and Instrumentation

Prior to sending the final survey instrument to the superintendents within the Regional Office of Education #20, the survey was piloted in an Eastern Illinois University graduate class of 23 aspiring administrators. As a result of this pilot study, three observations were made concerning the survey. The first observation concerned the amount of time it would require of the superintendents to complete the survey. The survey could be completed in five to six minutes, a reasonable amount of time for a busy superintendent to devote to this task. The second observation concerned question number five. The word facilitate was changed from handle and technology committee was added to the choices in that question. The last question, question number eight, was changed to include a space for the name and address of the respondent if the respondent wanted to request the results of the survey.

The survey gathered general information from the districts as well as specific information concerning technology plans. The components addressed in the study were types of technology, mission statements and objectives, and staff development. The surveys, a cover letter, and self-addressed envelope were mailed to the superintendents.
Data Analysis

Descriptive statistics were used to analyze the information from the survey. Percentages are presented through a series of tables found in the next chapter (also see Appendix B). Data were analyzed in the following manner:

1. Components of a plan - a suggested inventory of components was outlined from the survey, the sample plans, and the literature review.

2. Staff development - the components of a staff development plan were compiled from the information gathered from the literature review and from the information gleaned from the survey.

3. Resources - a listing of resources, both personal and literature-based was composed from the information gathered.
Chapter IV

Results

Description of the Respondents

Of the 20 educators who received surveys, 17 responded to the survey for a response rate of 85%. Fifteen (88%) of the respondents were superintendents with one (6%) respondent classified as a teacher and another (6%) as a technology coordinator. The districts included in this study ranged in size from less than 500 students up to 2000 students. Seven (41%) of the respondents were from districts of less than 500 students, five (29%) from districts of 500 to 1000 students, two (12%) from districts of 1000 to 1500 students, and three (18%) from districts of 1500 to 2000 students. Tables 1 and 2 represent respondent characteristics.

Table 1

Position of Respondents

<table>
<thead>
<tr>
<th>Position</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superintendent</td>
<td>15</td>
<td>88%</td>
</tr>
<tr>
<td>Teacher</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td>Technology Coordinator</td>
<td>1</td>
<td>6%</td>
</tr>
</tbody>
</table>
Table 2

**Student Enrollment**

<table>
<thead>
<tr>
<th>Enrollment</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between 0-500</td>
<td>7</td>
<td>41%</td>
</tr>
<tr>
<td>Between 500-1000</td>
<td>2</td>
<td>12%</td>
</tr>
<tr>
<td>Between 1000-1500</td>
<td>5</td>
<td>29%</td>
</tr>
<tr>
<td>Between 1500-2000</td>
<td>3</td>
<td>18%</td>
</tr>
</tbody>
</table>

**Technology Plans**

Questions number three and number four sought to determine the number of technology plans already in existence within the eight county area and which of those plans would be available to other area superintendents as a resource. Question number three asked superintendents to respond to the question: Does your district have a technology plan? Question number four asked superintendents to respond to the question: Would you be willing to share a sample of your technology plan? Six districts (35%) answered “yes” to question number three. However, one respondent indicated that the district’s plan was only short term, and two of the six respondents indicated their district plans were incomplete. Only three of the six school districts indicated their plans were long term and complete. All six positive respondents indicated in question number four that they were willing to share their technology plans. Because only long term and complete technology plans were considered suitable resources to other area superintendents, there were three plans which
could actually be shared. These plans and the school district to which they belong are listed in Appendix C. Table 3 presents results to question number three and number four.

Table 3

Technology Plan Resources

<table>
<thead>
<tr>
<th>Existing Technology Plans</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>District plans</td>
<td>6</td>
<td>35%</td>
</tr>
<tr>
<td>Resource plans</td>
<td>6</td>
<td>35%</td>
</tr>
</tbody>
</table>

Question number five asked: Who should facilitate the development of a technology plan? Respondents were given six choices; technology coordinator, building principal, technology committee, superintendent, teacher, and other. The most common answers were technology coordinator and superintendent with each being selected by eight (47%) of the respondents. The next most common answer was building principal and technology committee with seven (41%) of the respondents making that choice. Five (27%) of the respondents chose teacher and one (6%) chose other. Many respondents selected more than one choice which suggests the respondents feel the responsibility for developing a technology plan should be shared by more than one person. As the written response to other stated, the development of a technology plan should be a team approach. Table 4 represents response rates.
Table 4

**Technology Plan Facilitator**

<table>
<thead>
<tr>
<th>Position</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology coordinator</td>
<td>8</td>
<td>47%</td>
</tr>
<tr>
<td>Superintendent</td>
<td>8</td>
<td>47%</td>
</tr>
<tr>
<td>Building Principal</td>
<td>7</td>
<td>41%</td>
</tr>
<tr>
<td>Technology Committee</td>
<td>7</td>
<td>41%</td>
</tr>
<tr>
<td>Teacher</td>
<td>5</td>
<td>27%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>6%</td>
</tr>
</tbody>
</table>

Appropriate components of a technology plan were the topic of question number six. Respondents were given a list of possible components and asked to check each of eight components they felt should be part of a technology plan. Respondents were also given the opportunity to add any additional components they felt had been omitted. Of the eight choices allowed the respondents, 17 (100%) of the respondents chose goals/objectives and existing technology. Fifteen (88%) chose mission/vision statement, desired technology, staff development, needs assessment, and time line. Fourteen (82%) chose budget and one (6%) chose other. Table 5 represents the responses to question number 6.
Table 5

Technology Plan Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals/Objectives</td>
<td>17</td>
<td>100%</td>
</tr>
<tr>
<td>Existing Technology</td>
<td>17</td>
<td>100%</td>
</tr>
<tr>
<td>Mission/Vision Statement</td>
<td>15</td>
<td>88%</td>
</tr>
<tr>
<td>Desired Technology</td>
<td>15</td>
<td>88%</td>
</tr>
<tr>
<td>Staff Development</td>
<td>15</td>
<td>88%</td>
</tr>
<tr>
<td>Needs Assessment</td>
<td>15</td>
<td>88%</td>
</tr>
<tr>
<td>Time Line</td>
<td>15</td>
<td>88%</td>
</tr>
<tr>
<td>Budget</td>
<td>14</td>
<td>82%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>6%</td>
</tr>
</tbody>
</table>

Types of Technology

To complete the survey, respondents were asked to rate various instructional, teacher, and administrative tools as "highly necessary," "somewhat necessary," "not needed," or "don’t know this technology or application." This section of the survey was designed to determine the types of technology which should be addressed in a technology plan. Response rates of 50% or more were considered meaningful and are noted in the following narratives of Tables 6, 7, and 8.
In the survey section with the heading, Instructional Tools, there were three types of tools: computer lab (88%), instructional software (82%), and audio visual (59%) which received a 50% or above response as being highly necessary as part of a technology plan. Tools designated as somewhat necessary were computer projection/LCD display devices (71%), individual classroom computer center (65%), and distance learning (59%). Multi-media instruction and on-line research/databases/services were noted as not important (0% to 18%) or don't know this technology or application (0% to 6%). When percentages of highly necessary and somewhat necessary are combined, all types of instructional tools have a response rate of 82% or above. See Table 6 for a comprehensive ranking of instructional tools.

No teacher tool received more than a 41% response rate as "highly necessary" in a technology plan. All teacher tools [class record keeping (65%), student information (59%), student discipline management system (65%), teacher tools (word processing, spread sheet, etc.) (59%), and networked teacher workstation (59%)] received "somewhat necessary" designations of 59% and above. Response rates for "not necessary" ranged from 0% to 18% and there were no "not known" responses. Combined totals of "highly necessary" and "somewhat necessary" would cause all totals to rise to at least 64%. For a comprehensive ranking of "highly necessary" and "somewhat necessary" responses concerning teacher tools see Table 7.
All five administrative tools received response rates of above 50% in the "highly necessary" category. Computerized budgeting received a 71% response rate, computerized student information received a 65% response rate, computerized centralized student information a 59% response rate, computerized special education IEP information a 53% response rate, and computerized personnel/benefits information a 47% response rate in the highly necessary category. When the response rates for both "highly necessary" and "somewhat necessary" are combined, the response rate rises to 83%.

Information on administrative tools is presented in detail in Table 8.

Table 6

<table>
<thead>
<tr>
<th>Type of Technology</th>
<th>Highly Necessary</th>
<th>Somewhat Necessary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Lab</td>
<td>88%</td>
<td>12%</td>
</tr>
<tr>
<td>Instructional Software</td>
<td>82%</td>
<td>12%</td>
</tr>
<tr>
<td>Audio Visual</td>
<td>59%</td>
<td>35%</td>
</tr>
<tr>
<td>Multi-media Instruction</td>
<td>41%</td>
<td>47%</td>
</tr>
<tr>
<td>On-line Research/Databases/Services</td>
<td>35%</td>
<td>47%</td>
</tr>
<tr>
<td>Individual Classroom Computer Center</td>
<td>29%</td>
<td>65%</td>
</tr>
<tr>
<td>Distance Learning</td>
<td>24%</td>
<td>59%</td>
</tr>
<tr>
<td>Computer Projection/LCD Display Devices</td>
<td>18%</td>
<td>71%</td>
</tr>
</tbody>
</table>
Table 7

Ranking by Percentage of Teacher Tools

<table>
<thead>
<tr>
<th>Type of Technology</th>
<th>Highly Necessary</th>
<th>Somewhat Necessary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Tools (wd. process. sprd. sht., etc.)</td>
<td>41%</td>
<td>59%</td>
</tr>
<tr>
<td>Student Information</td>
<td>35%</td>
<td>59%</td>
</tr>
<tr>
<td>Class Record Keeping</td>
<td>29%</td>
<td>65%</td>
</tr>
<tr>
<td>Student Discipline Management System</td>
<td>18%</td>
<td>65%</td>
</tr>
<tr>
<td>Networked Teacher Workstation</td>
<td>5%</td>
<td>59%</td>
</tr>
</tbody>
</table>

Table 8

Ranking by Percentage of Administrative Tools

<table>
<thead>
<tr>
<th>Type of Technology</th>
<th>Highly Necessary</th>
<th>Somewhat Necessary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computerized Budgeting</td>
<td>71%</td>
<td>29%</td>
</tr>
<tr>
<td>Computerized Student Information</td>
<td>65%</td>
<td>35%</td>
</tr>
<tr>
<td>Computerized Centralized Student Info.</td>
<td>59%</td>
<td>24%</td>
</tr>
<tr>
<td>Computerized Special Education IEP Info.</td>
<td>53%</td>
<td>47%</td>
</tr>
<tr>
<td>Computerized Personnel/Benefits Info.</td>
<td>47%</td>
<td>47%</td>
</tr>
</tbody>
</table>

Combined response rates for administrative, instructional, and teacher tools would be 83%, 82%, and 64%, respectively. The information presented in Tables 5, 6, and 7 would suggest superintendents consider administrative and instructional tools as equally important with teacher tools less important.
Chapter V
Summary, Findings, Conclusions, and Recommendations

Summary

This study was conducted to determine guidelines for the development of a technology plan within the small rural school district. Because technology has become an integral part of preparing students for careers of the future, a well-written technology plan has become necessary for small rural schools to successfully utilize their resources in developing a curriculum which incorporates technology. Specifically, the areas addressed in this study were: resources for technology plan development, who should facilitate the technology plan, components of a technology plan, and the tools which should be included in a technology plan.

Respondents to the survey included in this study were the superintendents of Edwards, Gallatin, Hardin, Pope, Saline, Wabash, Wayne, and White counties which comprised the Regional Office of Education #20. All of the aforementioned districts have a student population of between 500 and 2000. There were 18 respondents to the survey for a response rate of 85%. Two of the superintendents had other personnel fill out their surveys which caused the respondents to number 16 superintendents, one technology coordinator, and one teacher. Question #1 and question #2 addressed respondent characteristics.

Questions #3 and #4 were designed to determine whether the district
had a technology plan and if they were willing to share that plan. Question #5 attempted to discern who should facilitate the technology plan and question #6 addressed the components of the plan. Question #7 was a three part question in which the respondents selected various instructional, teacher, and administrative tools as highly necessary, somewhat necessary, and not needed.

Findings

1. There were three technology plans in existence as resources among the eight county area comprising the Regional Office of Education #20. Those districts willing to share their complete technology plans were Grayville, Eldorado, and Carrier Mills. Three other districts were willing to share their plans, but the plans were incomplete or short term only.

2. The respondents indicated a team approach for developing a technology plan. This was also the favored approach determined by the literature review.

3. All components listed in the survey were favored by the respondents. Over 80% of the respondents favored mission/vision statement, goals/objectives, budget, desired technology, staff development, needs assessment, existing technology, and a time line as plan components.

4. Administrative tools were chosen by 83% of the respondents as somewhat necessary in a technology plan. Eighty-two per cent favored instructional tools and 64% favored teacher tools. All tools received a highly necessary or a somewhat necessary response from participants in the survey.
Conclusions

Upon completion of this field study, it appeared that technology planning was in its infancy in rural Southern Illinois. Within the eight county area of Edwards, Gallatin, Hardin, Pope, Saline, Wabash, Wayne, and White counties there was some indication that school districts were beginning to develop plans, but very few had completed technology plans. Although practical examples of technology plans developed by small rural school districts are not readily available, the appendices listing participating schools with completed long term plans and the reference list provide some limited resources for technology planning.

A team approach to developing a technology plan coupled with a strong staff development program would help ensure the success of a technology plan. The strong indication by both the literature review and the results of the survey suggest that the personnel who are utilizing the technology plan must feel ownership in that plan if the plan is to succeed.

Both the philosophical components as well as the practical components of a technology plan must be addressed. A good technology plan should include guiding documents such as the mission statement, goals, and objectives. It should also include the pragmatic components such as staff development, needs assessment, a budget, and a time line.

While developing a technology plan, a school district should invest in a staff development plan which helps to familiarize all personnel with the current
technology tools. Familiarity of the respondents, superintendents, with administrative tools may be a factor in their high ranking when compared to teacher tools. In order to develop an appropriate technology plan, the participants in developing that plan should become familiar with all types of tools; administrative, instructional, and teacher tools.

Recommendations

Further study in developing technology plans appropriate to the small rural district should be undertaken. This research project suggests that many of the districts are cooperating with John Washburn of Southern Illinois University and the Regional Vocational Delivery System to develop a regional technology plan. Many of these districts also indicated that they were in the process of developing their own technology plan. In the near future there should be several plans available as resources to the small rural school district.

Adaptations of technology plans from large school district technology plans could prove useful to the small rural district. Research which would extend to other areas and to larger districts might provide more resources to the small rural district in technology planning.

Staff development is a vital component in any successful technology plan. If children are to be exposed to technology education in a meaningful way, they must have teachers who are familiar with and comfortable with the technology they will be utilizing. A study of staff development plans in technology education could prove very interesting.
Future research in the area of technology education should include evaluation as a part of the study. Item number six on the survey included in this study asked superintendents to select the appropriate components of a technology plan. Evaluation should be added to that survey as a choice for components to be included in a technology plan. Evaluating the effectiveness of instruction or evaluating administrator use of technology might prove interesting as a topic for further study. The rapid change and development characteristic of technology education make evaluation a necessary part of any technology plan.
REFERENCES


Appendices
Appendix A

Cover Letter to Participants
Survey Instrument
Cover Letter to Participants

July 15, 1995

Dear Superintendent:

As you are probably aware, a well-defined technology plan has become an increasingly important part of acquiring funding and maintaining an up to date technology curriculum. Because of limited local funding, this is particularly important to the many small districts of this area.

As part of my duties as Director of Instruction for the Carmi-White County School District, I will be writing a three to five year District Technology Plan. In order to facilitate the development of a realistic plan, I will need the help of area superintendents.

The attached survey instrument is part of a research project designed to help compile data and provide the necessary information to develop a technology plan. Please help me by:

1. Completing the attached survey.


Thank you for your help and consideration. If you would be interested in the results of the survey, please indicate your desire for those results in the space provided on the survey.

Sincerely,

Patricia A. Fulkerson,
Director of Instruction
Carmi-White County School
Survey Instrument

Please check the best response to the following questions.

1. Position of Survey Respondent
   _____Superintendent  _____Teacher
   _____Principal  _____Technology Coordinator
   _____Other

2. Size of District
   _____0 - 500  _____500 - 1000
   _____1000 - 1500  _____1500 - 2000

3. Does your district have a technology plan?
   _____Yes  _____No

4. Would you be willing to share a sample of your technology plan?
   _____Yes  _____No

5. Who should facilitate the development of a technology plan?
   _____Technology Coordinator  _____Superintendent
   _____Building Principal  _____Teacher
   _____Technology Committee  Other

6. Check each component you feel should be part of a technology plan.
   _____Mission/Vision Statement  _____Staff Development
   _____Goals/Objectives  _____Needs Assessment
   _____Budget  _____Existing Technology
   _____Desired Technology  _____Time Line
   _____Other
7. To determine the types of technology to be included in a technology plan, circle the appropriate letter below:

A. Highly Necessary   B. Somewhat Necessary
C. Not Needed   D. Don't Know This Technology or Application

**Instructional Tools**

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- Audio Visual (VCR, tape decks, etc.)
- Computer Lab
- Computer Projection/LCD Display Devices
- Distance Learning
- Individual Classroom Computer Center
- Instructional Software
- Student Software
- Multi-media Instruction
- On-Line Research/Databases/Services

**Teacher Tools**

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<td>A</td>
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<td>D</td>
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</table>

- Class Recordkeeping
- Student Information
- Student Discipline Management System
- Teacher Tools (wd. process., spreadsh., etc.)
- Networked Teacher Workstation

**Administrative Tools**

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<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
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</table>

- Computerized Student Information
- Computerized Personnel/Benefits Information
- Computerized Centralized Student Info.
- Computerized Budgeting
- Computerized Special Education IEP Info.

8. If you would like a copy of these survey results, please place name and address here.
Appendix B

Results of Survey by Percentage of Response to Each Question
Survey Instrument

Please check the best response to the following questions.

1. Position of Survey Respondent
   - 88% Superintendent
   - 6% Teacher
   - 0% Principal
   - 6% Technology Coordinator
   - 0% Other

2. Size of District
   - 41% 0 - 500
   - 29% 500 - 1000
   - 12% 1000 - 1500
   - 18% 1500 - 2000

3. Does your district have a technology plan?
   - 35% Yes
   - 59% No

4. Would you be willing to share a sample of your technology plan?
   - 53% Yes
   - ____ No

5. Who should facilitate the development of a technology plan?
   - 47% Technology Coordinator
   - 47% Superintendent
   - 41% Building Principal
   - 29% Teacher
   - 41% Technology Committee
   - Other

6. Check each component you feel should be part of a technology plan.
   - 88% Mission/Vision Statement
   - 88% Staff Development
   - 100% Goals/Objectives
   - 88% Needs Assessment
   - 82% Budget
   - 100% Existing Technology
   - 88% Desired Technology
   - 88% Time Line
   - 6% Other
7. To determine the types of technology to be included in a technology plan, circle the appropriate letter below:

A. Highly Necessary  B. Somewhat Necessary  
C. Not Needed  D. Don't Know This Technology or Application

### Instructional Tools

<table>
<thead>
<tr>
<th>Category</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio Visual (VCR, tape decks, etc.)</td>
<td>59%</td>
<td>35%</td>
<td>6%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Computer Lab</td>
<td>88%</td>
<td>12%</td>
<td>0%</td>
<td>0%</td>
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</tr>
<tr>
<td>Computer Projection/LCD Display Devices</td>
<td>18%</td>
<td>87%</td>
<td>0%</td>
<td>0%</td>
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<tr>
<td>Distance Learning</td>
<td>24%</td>
<td>59%</td>
<td>12%</td>
<td>6%</td>
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</tr>
<tr>
<td>Individual Classroom Computer Center</td>
<td>29%</td>
<td>6%</td>
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<td>Instructional Software</td>
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<td>Multi-media Instruction</td>
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<td>6%</td>
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<td>On-Line Research/Databases/Services</td>
<td>35%</td>
<td>47%</td>
<td>18%</td>
<td>6%</td>
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</tbody>
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### Teacher Tools

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<th>C</th>
<th>D</th>
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<tbody>
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<td>Class Recordkeeping</td>
<td>29%</td>
<td>6%</td>
<td>0%</td>
<td>0%</td>
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</tr>
<tr>
<td>Student Information</td>
<td>35%</td>
<td>59%</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Student Discipline Management System</td>
<td>18%</td>
<td>65%</td>
<td>18%</td>
<td>6%</td>
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</tr>
<tr>
<td>Teacher Tools (wd. process., spreadsht., etc.)</td>
<td>41%</td>
<td>59%</td>
<td>12%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Networked Teacher Workstation</td>
<td>29%</td>
<td>6%</td>
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</table>

### Administrative Tools

<table>
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<tr>
<th>Category</th>
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<tbody>
<tr>
<td>Computerized Student Information</td>
<td>65%</td>
<td>35%</td>
<td>0%</td>
<td>0%</td>
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</tr>
<tr>
<td>Computerized Personnel/Benefits Information</td>
<td>47%</td>
<td>47%</td>
<td>0%</td>
<td>0%</td>
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</tr>
<tr>
<td>Computerized Centralized Student Info.</td>
<td>59%</td>
<td>24%</td>
<td>18%</td>
<td>6%</td>
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<tr>
<td>Computerized Budgeting</td>
<td>71%</td>
<td>29%</td>
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<td>0%</td>
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<tr>
<td>Computerized Special Education IEP Info.</td>
<td>53%</td>
<td>47%</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

8. If you would like a copy of these survey results, please place name and address here.
Appendix C

Selected School Districts
Selected School Districts

Andy Hopson, Supt.
Gallatin County C.U. #7
Route 1, Box 159
Junction, IL 62954

Bill Cross, Supt.
Galatia C.U. #1
Route 2, Box 168
Galatia, IL 62935

Gary Siebert, Supt.*
Eldorado C.U. #4
1040 Washington Street
Eldorado, IL 62930

Dr. O.J. Thompson, Supt.
Hardin County C.U. #1
Administration Center
Elizabethtown, IL 62931

Terry Pearcy, Supt.
Pope County C. U. #1
Route 2, Box 22
Golconda, IL 62938

John M. Hill, Supt.
Harrisburg C. U. #3
40 S. Main Street
Harrisburg, IL 62946

Mike Harris, Supt.
Merriam Comm. Cons. #19
R. R. #2
Fairfield, IL 62837

Hank Hanneken, Supt.
Fairfield Public School Dist. #112
806 N. First Street
Fairfield, IL 62837

Dr. Clifford E. Jones, Supt.
Edwards County C.U. #1 Street
106 West Main Street
Albion, IL 62806

Dennis Kimmel, Supt.
Allendale C.U. #17
101 N. 3rd Street, Box 130
Allendale, IL 62410

Sandra Ward, Supt.
Wabash C.U. #348
218 W. 13th Street
Mt. Carmel, IL 62863

Ernest Felty, Supt.*
Carrier Mills C.U. #2
Administration Center
Carrier Mills, IL 62917

Anita Pond, Supt.
Geff C. U. #14
Lafayette Street
Geff, IL 62842

Kathy Hanneken, Supt.
Jasper Comm. Cons. #17
R. R. #3
Fairfield, IL 62837

David Beehn, Supt.
Wayne City C.U. #100
Wayne City, IL 62895

Joyce Carson, Supt.
North Wayne Comm. Dist. #200
Box 235
Cisne, IL 62823
Dr. Donald Warkins, Supt.
Fairfield Comm. H.S. #225
300 West King Street
Fairfield, IL 62837

James D. Price, Supt.
Norris City-Omaha-Enfield #3
408 S. East Street, R.R. #1, Box 3
Norris City, IL 62869

Robert Bankston, Supt.*
Grayville C.U. #1
728 West North Street
Grayville, IL 62844

Dr. Frank Barbre, Supt.
Carmi-White Co. C.U. #5
301 West Main Street
Carmi, IL 62821

*Districts with a long term technology plan which they are willing to share.