

LAWRENCE UNIFIED SCHOOL DISTRICT #497



Technology Plan 2009/10

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LAWRENCE UNIFIED SCHOOL DISTRICT #497

Technology Plan - 2008

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Committee Membership

Lawrence – District Technology Committee

Tammy Becker	Elementary Principal - Hillcrest Elementary
Paige Buckingham	Assistive Technology Facilitator
Leslie Campbell	Library & Media Specialist - Prairie Park Elementary
Ann Bruemmer	Division Director, - Curriculum
Paul Dawson	Assistant Director, Information Technology Services
Frank Harwood	Division Director, Information Technology Services
Chantel Nicolay	Information Resource Specialist
Gary Lewis	Principal, Lawrence Virtual School
Patrick Kelly	Specialist - Curriculum Support
Angelique Kobler	Division Director - Instruction
Kathy Mehl	Lawrence Virtual School
Paige Robinson	Library and Media Specialist-Broken Arrow Elementary School
Diane Toplikar	Library & Media Specialist - Free State High School
Kathleen Wagner	Math Teacher, West Jr. High

Subcommittee Members

Karen Vespestad	Lisa Melton
Michelle Andersen	Teresa Grieb
Julie Boyle	Kathleen Gates

Lawrence School District Mission Statement

The mission of the Lawrence Public Schools is to enable all students to acquire developmentally appropriate skills and knowledge necessary to become informed decision makers and effective communicators who assume responsible roles in society. This will be accomplished by teaching all students challenging curricula in stimulating and flexible environments enriched through parental involvement and the resources of a community dedicated to the conviction that all children can learn.

Technology has been part of the Lawrence Public Schools for many years. The 1992 District Technology Committee, consisting of representatives throughout the community, developed the first plan for bringing technology into the classrooms. It was the first attempt to develop a comprehensive plan to connect all buildings and provide the necessary hardware, software, and training. Lack of funding limited what would be able to be done over the next five years, limiting the scope to providing automated libraries and minimal labs within each building and deferring the district network for future funding.

In 1996, with funding becoming available on a limited basis, a revised plan was submitted to the Board of Education (BOE) for consideration. Though no specific Board approval was received at that time, the District moved towards implementation of the plan with existing funding and Board approval on a project-by-project basis. Since then the goals have been to develop a district-wide network connecting all buildings, provide for technology as stipulated by the curriculum, and provide a computer on every teacher's desk. Though the specifics of these goals may have changed at times (primarily in the area of networking), most of these goals will have been accomplished by the beginning of the 2001 school year.

From the very beginning, the vision for technology has been to integrate it into the adopted curriculum, rather than to teach it as a separate subject. The decision to use technology needs to be driven by the learning and teaching needs of the student; only then will technology be integrated into the daily lives of students and teachers (Cohen, 1988, Cuban, 1986). Lawrence has a strong belief that technology enhances, but does NOT replace the teacher's role in instruction. The teacher's professional judgment and instructional skills are the key ingredients for successful learning and teaching. This was further emphasized with the revision of the District's vision statements as developed by the Futures Conference (1999), which stated that:

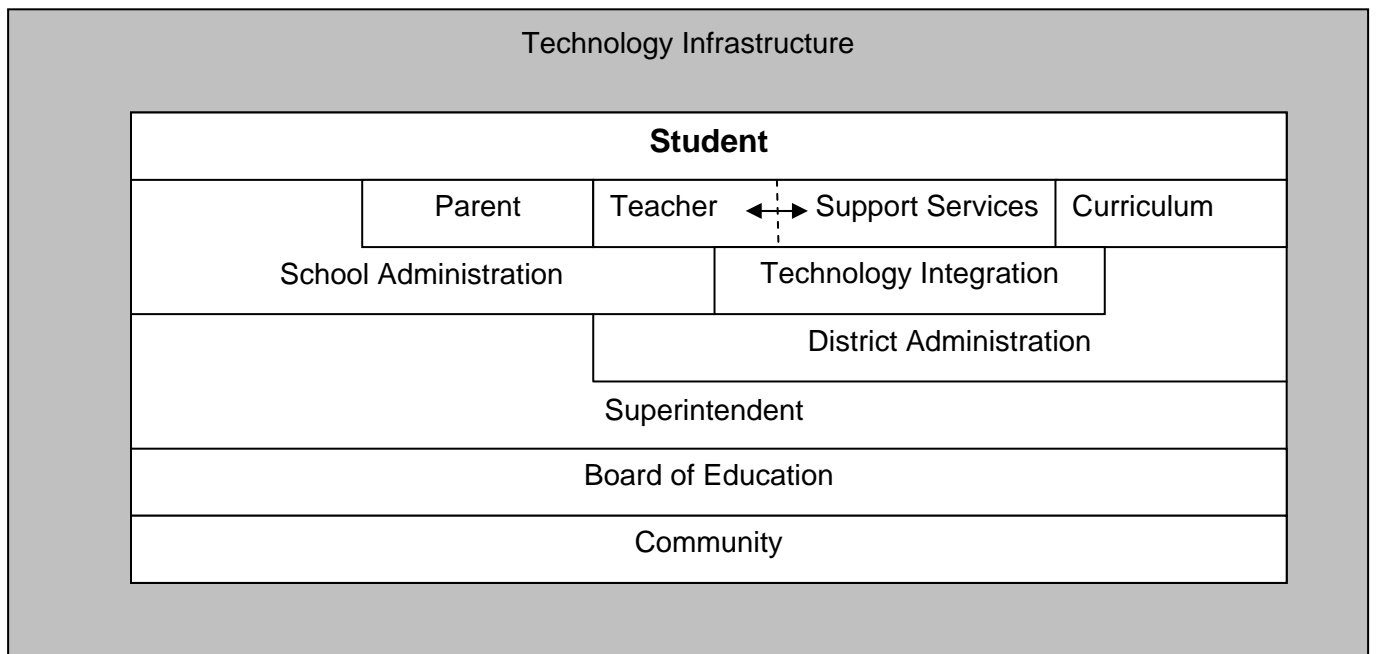
Lawrence Public Schools will expand and integrate the use of technology into all phases of the educational process.

To succeed in today's economy and workforce, students need to develop higher-level thinking skills and increased knowledge of science, math, and communications. In order to equip students with the skills necessary for a world-class work force, it is essential to integrate technology into all aspects of the curriculum. Preparing students for employment requires development of critical thinking and problem solving skills. Technology is a powerful tool that, when properly implemented, can lead to improved student learning. It lends itself well to learning and instruction (Massachusetts Software Council, 1994).

It is the responsibility of USD #497 to provide students with the opportunity to explore, investigate, analyze, evaluate, design, and create information using adequate and appropriate technology. Students must be equipped with the best skills, attitudes, and tools to function in a competitive economy. To move the District forward in this endeavor, the District proposed and the voters

approved an \$8.9 million technology bond in April of 2005. This bond fund increased student access to computers, put presentation systems in classrooms, and addressed needed infrastructure improvements.

At the classroom level, technologies must be available to make learning meaningful and exciting, to enhance interaction, and to tie learning to the real world beyond the school walls. Technology should make teaching more productive. Networking systems enhance information access by tying all available resources together. Teachers need access to resources that will help with new teaching strategies. An environment will be created in which the real world will enter the school campuses. Technology should link educational data and district management data to promote efficient and productive decisions. Technology facilitates the linkage among school, home, and community. The following diagram illustrates our view of this linkage.



A key consideration in the 2005 Plan was sustainability. The infusion of money from the Bond covered a number of one-time purchases, but additional classroom computers and presentation systems will eventually wear out and need to be replaced. For this reason, we increased our equipment at a pace that matched the anticipated life expectancy of that equipment. That way, we could smooth budgeting and avoid wild cost swings. The challenge of the 2008/09 plan is in trying to adjust to decreasing budgets while preserving the gains made in the last four years.

Beliefs and Goals for Technology

Over the past 20 years, a variety of committees and groups have met to look at the overall goals and direction for the use of technology. A 40-member committee met in 1992 and established the first set of belief statements in regards to technology. These beliefs were then expanded by the 1996 Technology committee into the goals and objectives.

Beliefs Concerning the use of Instructional Technology

(From the Lawrence Technology Plan - May, 1992)

1. All students must be empowered with the knowledge, skills, and attitudes required to succeed in a changing information-based society.
2. An ongoing commitment to training, equipment maintenance, and technology upgrading must be made to keep abreast of the changes that information technologies will bring to society and the workplace.
3. All students must have equal access to technology, and all staff must have equal access to technology.
4. All teachers must be actively involved in using technology to support and improve instruction.
5. The use of instructional technology must be integrated within the curriculum.
6. The capabilities of information technology must be used to improve communications, organization, and management in schools.

Growing out of the belief statements a number of goals and objectives were developed.

Goals

The Lawrence School District will:

- Integrate technology into the district curriculum.
- Provide the necessary professional development to make effective use of technology.
- Develop an ongoing plan for the implementation and use of technology.
- Establish the Lawrence school district supported standards for hardware and software.

Objectives

- To provide students and teachers with relevant technology tools and appropriate training.
- To help all students develop the necessary skills using relevant technology for life-long learning.
- To expand technology use and opportunity while making good use of the currently installed technology tools.
- To provide the necessary technological hardware, software, and training to all students and staff on an equitable bases.
- To provide educational opportunities that transcends the classroom and expands it to the world through the use of telecommunications.

Curriculum Integration

Technology planning and integration must be included in curriculum planning and implementation. This planning process must guide the direction of technology acquisition and implementation. Means (1994) indicates that there are four major functions of technology used for learning:

1. Technology used as a **tutor** – where the technology does the direct teaching. It mirrors workbooks in that it provides information, demonstrations, asks questions, and provides practice.
2. Technology **used to explore** learning environments through discovery where students direct their learning.
3. Technology **“applied as tools”** allowing students to experience the same tools that are found in the workplace or home. Unlike tutoring types of tools, these tools allow for student productions. They include word processing, spreadsheet software, video cameras, and video editing equipment.
4. Technology with which to **communicate**. This allows for the sending and receiving of messages and collaboration among the educational community.

As the Lawrence Public Schools continue their challenge of integrating technology into the curriculum, time needs to be allocated to the curriculum departments at the district and building levels to identify the relevant components of technology that impact student learning. Over the coming years there will be on-going reviews of building and departmental needs for technology in order to meet curricular expectations.

Technology must not be perceived as an isolated component of the curriculum, but as an integral part of every facet of school life. This use of technology will facilitate more effective instructional delivery, fostering interdisciplinary integration. The Educational Programming Team will have the responsibility of designing a process for curriculum integration to implement the components of the District's technology plan. This plan will attempt to:

- Integrate technology proficiencies into district curriculum.
- Provide the necessary professional development to make effective use of technology in supporting the curriculum.
- Develop an ongoing process for the integration and use of technology in the curriculum.

The following goals and objectives were considered during the development of the curriculum component of the district technology plan

Goals

- The technology supports student performance of an authentic task. *
- The technology use is integrated into activities that are a core part of the classroom curriculum. *
- Technology is treated as a tool to help accomplish a complex task rather than a subject of study for its own sake*

* US Department of Technology Education Reform, and Goals 2000

Objectives

- To provide students and teachers with relevant technology tools and appropriate training.
- To help all students develop the necessary proficiencies using relevant technology for life-long learning.
- To provide educational opportunities for the application of technology proficiencies that transcends the classroom.

The following plan has been developed to achieve these district goals and objectives:

The Lawrence Public School's technology plan identifies a process for integrating technology into the District's curriculum and learning experiences for each student. It includes a framework for development of a K-12 scope and sequence based on the identified exit technology proficiencies. Educators will embed these proficiencies into the on-going instructional planning and assessment. Evaluation of student attainment of exit technology proficiencies will be addressed as part of the classroom's daily instruction and assessment.

Process

The Curriculum Technology Committee has identified the following process for technology integration into the curriculum:

- A. Identify Competencies in Technology. Use national Educational Technology Standards for Students (NETS-S) standards to help develop proficiency chart (See Appendix A)
- B. Develop and administer a survey identifying proficiencies currently being addressed in required courses at the secondary level
- C. Identify proficiencies not being addressed
- D. Review and update existing K-8 grade scope and sequence information (now part of the Library Media and Technology Standards 2007)
- E. Review and update departmental scope and sequence information (art, media, journalism, business, etc.)
- F. Complete the technology integration component of the curriculum guide recommending the use of activities to assess the attainment of proficiencies at benchmark levels

ASSISTIVE TECHNOLOGY

Assistive Technology defines the possibilities for students with a wide range of disabilities both cognitive and/or physical to better integrate into the school, home, or community. Assistive Technology enables these students with special needs to become more independent, self-confident, and productive while accessing the general education curriculum.

Assistive Technology encompasses a wide range of devices from “low tech” (e.g. pencil grips, splints, paper stabilizers) to “high tech” (e.g. computers, voice synthesizers, augmentative devices, etc.). These devices include the entire range of supportive tools and equipment from adapted spoons to computer systems for environmental control. The Department of Special Services works closely with the Technology Department to ensure the successful implementation of assistive technology within the Lawrence School District. Students with disabilities have a legal right to Assistive Technology through the regulations of the Individual with Disabilities Education Act (IDEA) and their Individual Education Plans (IEPs). Student needs are assessed through an evaluation and this is used to determine what Assistive Technology will be used by the student. Staff and students are trained how to use needed Assistive Technology devices and or equipment. The efficient use of technology can lessen the limitations of a disability and provide students with disabilities with a “level playing field” in every area of their life.

Model Educational Configuration

Overview

Effective teachers model and apply the National Educational Technology Standards for Students (NETS•S) as they design, implement, and assess learning experiences to engage students and improve learning; enrich professional practice; and provide positive models for students, colleagues, and the community. All teachers should meet the ISTE National Educational Technology Standards (NETS•T) and Performance Indicators (Appendix B). As has been indicated, technology needs to merge into the curriculum, allowing it to enhance what is happening in the classroom. Therefore, as technology changes and there is greater technology integration into the curriculum, the way a classroom will be designed and furnished also will change. The key element that will help drive what happens in the classroom is the curriculum itself. As the District gains a better perspective as to the skills needed, both by students and teachers, the hardware and software will be impacted. With any infusion of technology there are two critical elements that need to be addressed for successful implementation: support and training. Support that the technology will work the way it needs to when teachers and students are using it and training to prepare teachers to make the best use of the tools being provided.

The following are proposals for what the current models of educational technology may look like.

Elementary Schools

Overview

“Effective integration of technology is achieved when students are able to select technology tools to help them obtain information in a timely manner, analyze and synthesize the information and present it professionally. The technology should become an integral part of how the classroom functions – as accessible as all other classroom tools.”

(National Educational Technology Standards for Students, International Society for Technology in Education, p. 75)

Goals

- All students and instructional staff will have access to technology in their schools and classrooms
- All instructional staff will integrate technology effectively to help students achieve high academic standards
- All students will have technology and information literacy skills

Objectives

- All instructional staff and students will identify, locate, evaluate, and use appropriate instructional hardware and software to support instructional objectives.
- All instructional staff and students will use educational technologies for data collection, information management, problem solving, decision making, communication, and presentation within the curriculum.
- All instructional staff will plan and implement lessons and strategies that integrate technology to meet the diverse needs of learners in a variety of educational settings.
- All instructional staff and students will demonstrate knowledge of ethical and legal issues relating to the use of technology.

Proficiencies

In order to meet the goals and objectives, a set of student proficiencies has been identified which describe a level of competency that students should have at the completion of each grade level. (See Appendix B)

Curriculum Integration Suggestions

The goal of placing technology in the classroom is to provide new ways for students to learn. Technology integration has taken place when students are able to choose and use technology tools to help themselves obtain information, analyze, synthesize, and assimilate learning and to present ideas in an acceptable manner. Technology opens up many doors at all academic levels to do meaningful work as students study a particular subject. Integrating a curriculum with technology involves using technology as a tool to enhance learning and creativity in a content area or multidisciplinary setting. The technology should become an integral part of how the classroom functions, as accessible as all other classroom tools.

In order to support the implementation of the National Technology Standards (Appendix C)

Configuration Options

Each elementary school is unique. The size, space, number of students, and staff can impact decisions as to how and what technology will be provided. It is imperative that each building has flexibility in deciding how best to use technology. Two areas to be considered are the computer labs and the classrooms.

In order to provide the tools for equitable technology integration, our basic building model includes:

- 1-2 computer labs (desktop or laptop carts) with a projection system
- 1 computer per teacher (not to be included in student/computer ratios)
- 1 interactive projection system per classroom
- Grades K-6 – Student to Computer ratio of 3:1

* Each building will need to submit a Technology Configuration Plan detailing the distribution of hardware with the building. This may be done at the year-end meetings with Information Technology Services (ITS) staff.

Resources

National Educational Technology Standards (NETS) Project, International Society for Technology in Education (ISTE).

See, especially NETS for Teachers and NETS for Students,
<http://cnets.iste.org/>

Technology in Schools Suggestions, Tools and Guidelines for Assessing Technology in Elementary and Secondary Education ***<http://nces.ed.gov/pubs2003/2003313.pdf>***

Secondary Schools

The goal of integrating technology into the curriculum has become fully realized at the secondary level. Many of the courses offered at the junior and senior highs require sophisticated equipment and programs. Some examples include business, art, journalism, vocational technologies, media, and photography. All other courses use programs and equipment to help students learn the content and skills of the curriculum. Keeping up to date with the programs and equipment is critical to preparing students for the world of work and for post-secondary education.

- The technology needs to be evaluated on an ongoing basis to determine current needs and future direction for the curriculum.
- As new classes are added, stakeholders (curriculum specialists, faculty, and administration) will be involved in assessing and approving implementation of appropriate technologies with support and advice from ITS. Each group provides input appropriate to their expertise.
- There will be a need for additional computers within specific classrooms, depending on subject area. Requests can be made by departments for consideration of additional equipment through the District Technology Recommendation / Review committee and the Teaching and Learning Department.

Goals / Vision

All teachers will have access to the tools of technology needed to deliver the district curriculum.

1. All teachers will have appropriate training to integrate the use of technology effectively in their teaching.
2. All students will have equal access to the tools of technology necessary for their success in learning.
3. Definition: Tools of Technology include but are not limited to
 - Presentation hardware and software; e.g., PowerPoint, Textbook resource materials.
 - Specialized hardware and software; e.g., Film department uses special editing equipment, the art department uses high-end printers, math department uses graphing calculators, etc...
 - Communication and management software; e.g., E-mail, grading and attendance programs, etc...

Recommendations

Hardware:

- Teachers in specialized curricular areas need to have their equipment and curricular needs reviewed on a regular basis, i.e. business, film studies, arts, to name a few.
- With the increased integration of technology, students need improved access to technology in order to complete work. This need pushes us toward 1:1 availability, though suitable devices will need to be less than \$300-400 in order to approach feasibility.

Software:

- Teachers and students need access to the most current versions of software.

Staff Development:

- Staff development is a key piece of any technology plan. Teachers need timely and appropriate staff development in order for them to use technology effectively and efficiently.
- Communication from the district technology department and the buildings is critical. Helping teachers to understand what resources are available, what policies and procedures are in place and why, and what procedures need to be followed to request hardware, software, and support is important to their success via technology.

District (ITS) support:

- The District must have the necessary staff to support the District's technology. Keeping the technology operational is critical to any integration of technology into the curriculum. Information Technology Services functions as support and service to the educational mission of students, teachers, and administrators.

Special Education

Technology access for all students needs to be a priority of buildings and the district. As technology plans are reviewed, special education needs have to be addressed. Therefore the following guidelines are provided:

1. All building technology plans will address technology needs of special education students and classrooms.
2. The District will actively support technology needs of special education students as identified by a student's IEP.
3. The District will continue to address technology needs of special education staff to allow for appropriate access to technology as they meet the needs of both students and the IEP process.

Professional Development

Overview

On-going professional development is the key to successful and cost-effective implementation of technology. Unless faculty and staff have a sound understanding of ethical and copyright issues, how to use the technology, and how to incorporate it for daily use, it will not be used to its fullest capacity. At the same time, training will help establish an expectation that technology is to be a tool that is integrated into everyday use. Training must be addressed both at the District level and the building level.

In order to enable teachers to make effective use of technology, the District needs to support on-site, just-in-time learning by tailoring programs to meet teacher needs. According to the International Society for Technology in Education (ISTE, 2008), "Effective teachers model and apply the National Educational Technology Standards for Students (NETS•S) as they design, implement, and assess learning experiences to engage students and improve learning; enrich professional practice; and provide positive models for students, colleagues, and the community. All teachers should meet the following standards and performance indicators. Teachers:

- Development of school and classroom level technology plans by and for teachers.
- Understanding of ways to integrate technology into education reform.
- Teacher-awareness of effective technology applications.
- A social network of other "technology-using" teachers.
- Availability of teacher-mentors or other peer support.
- Adequate time and increased opportunity for staff development and technical assistance.
- Awareness of and access to educationally relevant technology-based programs.
- Opportunities for educators to communicate with peers in other schools and at conferences.

Effective staff development is individualized and relevant to a particular program or project in which teachers have a special interest. In a review of studies on technology insertion, researchers ([Cradler & Cradler, 1995](#)) found that the experience of states and local districts with technology integration demonstrates that:

- Staff development must be individualized to the needs of the teacher.
- Teachers must decide on what the topic should be and when the staff development or training should occur.
- Time for teachers to plan, learn about, and implement technology applications is essential.
- Educators need an understanding of ways to integrate technology into education reform initiatives.
- Involvement of teachers in planning statewide, school, and classroom uses of technology is critical.

Guidance is essential for successful innovation of technology. Researchers ([Zhao et al., 2001](#)) (Type 2, Level A) studied 118 teachers and teacher teams who were awarded technology grants in Michigan. The findings demonstrate that human infrastructure is an essential component of the context that can greatly affect the likelihood of success for a technology innovation. According to the authors,

...one aspect of the human infrastructure did stand out even in innovations that didn't experience problems. This aspect is the presence of what we call a "translator," a person who can help the teacher understand and use technologies for his or her own classroom needs (p.27).

There is a continuing need for the school site presence of a technology coordinator who can serve as a mentor or "translator" of technology applications and instructional integration for teachers. Appropriate technology personnel are not only for the early stages of a technology initiative or technology plan. Strudler's research (Strudler, 1995) revealed the continuing need for technology coordinators to be based on:

- Rapid pace of technological change.
- Teachers' concerns that affect their adoption of technology.
- Continuing challenge of "coordinating the 'nuts and bolts' of educational computing."
(Strudler, 1995, p.18 in OTA, 1995 p. 147)

Strudler also found that the support provided by an effective coordinator serves to 'tip the scales' for teachers weighing the costs and benefits of technology use (Strudler, 1995, p. 19 in OTA, 1995, p.147).

In a study of 118 recipients of technology innovation grants researchers (Zhao et al., 2001) found that the conditions for successful implementation of innovations with technology suggest that teachers need:

- to know how to use and have access to the additional resources as well as to the application they have selected
- awareness of and access to timely technical guidance
- colleagues who will support and mentor them through the implementation of their innovative efforts.

Benefits

1. Good staff development will help teachers make better use of technology.
2. Site-based training and technical support will ensure greater use of existing technology.
3. Greater integration of technology into the classroom will occur.
4. Increase in effectiveness of technology in meeting academic outcomes.
5. Teachers and administrators will be more at ease with the increasing numbers of students who are already literate in technology.

Before making any recommendations all district staff were asked for input. The survey showed that staff learns the most from peers, friends and/or by exploring on their own. The best ways for training to be delivered to meet staff needs were an on-site person on a regular basis, training at the building level, and someone to contact when needed. Based on research and staff input and in order to meet current and future needs, there is a need to have a Technology Support Person available at each building. This person will help provide ongoing technology support. They will assist staff in integrating technology into the curriculum. The Technology Support program could be phased in over the coming years, as funding allows. As positions are filled, these individuals will be assigned to buildings by the Division Director of Information Technology Services (ITS). Depending on size and need, some buildings will share a person while others will need a full-time person.

Currently the school district has started the learning coach model and these individuals are seeking training in technology so they can share ideas and knowledge with other staff. Since this model only began in 2008-09, not much training has been offered since the needs of these individuals are currently with classroom instruction and teaching strategies. The plan is to provide technology training to these individuals (23 at current time) to help other staff and then they will provide technical support for classroom projects.

Administrative Integration

Overview

Meeting on-going District goals requires expansion in management systems, as well as an expanded and more sophisticated communication system. To meet increased reporting requirements, teachers and administrators need continued access to district data files. Administrators need to select and deploy technology designed to prepare students to live and work in the 21st century.

Philosophy

A solid communications network, responsive administrative computer applications, and an effective support system are vital elements of this technology plan. The District will continue to update hardware and software to support needs of staff and students in the area of information, curriculum, and communications. The administrative system includes activities such as financial management, student records, scheduling, data analysis, and libraries. This includes electronic needs, voice communication, and connectivity to a sound and stable wide area network. The plan conforms to state, federal, and district administrative policy regarding access to information and system security.

Administrative Components

Upgrade of local and wide area networks

An electronic data communications infrastructure is in place that supports activities of students, teachers and administrators. This infrastructure provides a multitude of interactive capabilities for both staff and students. This infrastructure has been upgraded over the past few years in order to meet the increasing needs of the District. We're currently in good shape for our network, and continually review the different elements, looking to drive down cost or hold cost steady while improving performance.

Local Area Networks (LANs)

LANs within each school and department level deliver multimedia at the user level. These LANs support communication, instructional and administrative needs in the District (i.e., IEP's, grade recording, attendance, discipline referrals, scheduling, and general communications).

Wide Area Network (WAN)

A wide area network connects all buildings to provide district-wide sharing of library materials, student information, e-mail, and other administrative information. Communication electronically is faster and more cost effective. It permits greater collaboration among staff and reduces the wait time between sharing ideas and getting feedback.

Information delivery

One instructional element of primary importance is access to internal and external sources of information. Over time we need to continue to make internal functions available remotely at any time of the day.

We continue to implement software that supports communication, instructional, and administrative needs and activities in the District. Services include:

On-Line access to accounting data

The core software for this system has been installed and will support the schools and departments in tracking financial data, allow for up-to-date budget information at the building level, and provide better planning for schools.

Electronic submission of State reports

According to State established guidelines and criteria, the District is required to comply and submit information electronically, through a connection to a statewide communications network.

Assessment, Conferencing, and Reporting

This system supports grade reporting and information used in conferencing at the school level. This includes IEP's which assists teachers, counselors, and psychologists in reporting procedures related to students with special needs. This system also includes student assessment information; e.g., state and district-wide assessments, building developed assessments, and assessments that may be considered in the future.

Attendance and Discipline

This centralized administrative system tracks individual student attendance and discipline. Teachers enter the data directly into building level networks. This data is then available to appropriate building and district personnel. While buildings will have daily reports, the District will provide aggregate and long-term trend analysis.

Health Information

Expand available health information for individual students. Currently, records are maintained on immunizations and medical needs / plans. The revised system allows for greater flexibility and transfer of more case management information. It also allows parents to access their student's vaccination records.

Student Activities

Provide a tool for information related to student activities. Additional information will be supplied by each school in conjunction with current information about the student. There will be a need for reporting tools at the school level and the district level. Increased public relations would result.

Food Service Accounting

Continue to integrate the present system with other systems to allow for greater flexibility and streamlining of the food service department. E-mail, ordering, and maintenance of current inventory of supplies and food will help increase efficiency.

Human Resources

Implement online job application in order to improve the hiring process. Better integration between HR and Finance when HR changes impact payroll.

Provide communication links that connect the district to community, regional, national, and international information services and networks. Make appropriate links available to staff, students, and parents.

Classroom telephone service

Telephones have been placed in the classrooms. This facilitates parent/teacher communication and provides quick access for emergency situations.

Parental Access

We now provide parents with access to student information (grades, attendance, etc.) via online services.

General Recommendations

1. Ongoing review of current software and hardware being used for district-wide administrative purposes to determine needed changes.
2. Provide increased parental access to student information.

Specific Recommendations

1. Consider Laptops for teachers for mobility (meeting, work at home, etc.)

Benefits

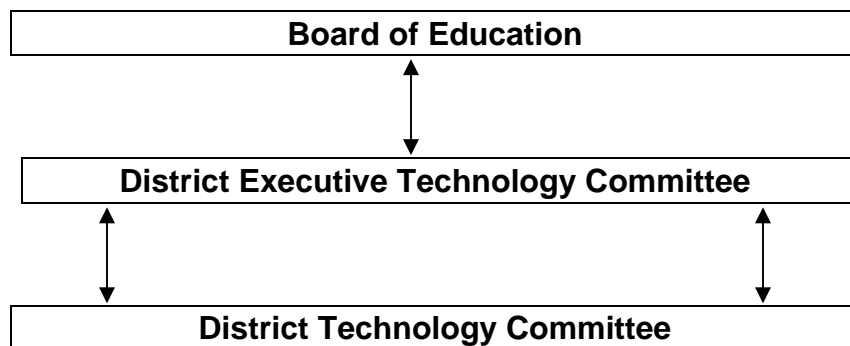
1. Current district data will become more readily available to those needing access (administrators, faculty, parents, and students).
2. District networking will establish a framework to accommodate future growth (of school district, students, and requests for information).
3. Phones will help with parent communication and in dealing with emergencies.
4. PDAs would provide administrators ready access to student information as they monitor buildings.

District Organizational Infrastructure

Overview

A district hierarchy was recommended in the past. It has evolved into what is described below, and our recommendation is to continue with this hierarchy. The structure consists of a District Technology Committee with broad representation, and the District Executive Technology Committee. These committees operate under the supervision and direction the Board of Education and the Superintendent of Schools.

District Technology Hierarchy



District Technology Committee

Decisions regarding allocating technology dollars will be made by a broad-based committee. This committee will review all requests for technology; prioritize requests based on the overall district plans and goals, as well as available resources; and, recommend implementation to the District Executive Committee.

Over the past few years there have been a number of grants and projects that incorporated technology within their proposals. All grants must be coordinated through the district Grant Director. Once these plans are developed they need to be reviewed by the District Technology Committee in order to insure that the technology being requested fits into the district plan, can be accommodated by the district, and can be supported financially and administratively.

The committee will represent a broad-based constituency, including the following representation:

1. Board Member
2. Division Director - Curriculum
3. Division Director - Instruction
4. Division Director of Special Services
5. Division Director and Assistant Director of Information Technology Services
6. Information Resources Specialist
7. Elementary Teacher
8. Secondary Teacher
9. Elementary Administrator
10. Secondary Administrator

District Executive Technology Committee

Once a prioritized list has been developed, the District Executive Committee will plan for its implementation with Board approval. This committee will consist of:

1. Executive Director of Educational Programming - Curriculum
2. Executive Director of Educational Programming – Instruction
3. Executive Director of Planning and Program Improvement
4. Director and Assistant Director of Information Technology Services
5. Information Resources Specialist

Board of Education

The Board of Education will be informed as to on-going and developing projects and will have final authority on project implementation.

Recommendations

1. Make the District Technology Committee an on-going committee, not one formed just for the purpose of creating the Technology Plan.
2. Refine process for requests for technology from district faculty and staff.
3. Use surveys to get staff input for enhancements to instructional technology implementation. (Appendix G)
4. ISTE Assessment tool to gain a technology profile and action plan for Improvement. (Appendix G)

Benefits

1. The Committee has already formed, includes representation from a broad range of stakeholders, and has established working relationships.
2. Committee members are familiar with the issues and have helped create processes for addressing those issues. By having continuity, there is also a feedback loop so that the committee members can see the results of the processes established and contribute to their refinement.

District Technology Infrastructure

Overview

District Technology Infrastructure deals with building and district level connectivity. To make effective use of the technology in place and to expand its use, the District has improved connectivity between buildings will continues to develop the wiring infrastructure within buildings.

Building Local Area Network (LAN)

Each building within the district currently has a data network infrastructure in place. This building level network consists of Cat-5 cables in each room. In a number of buildings the various wiring closets are connected by fiber. Over the years some of these networks have been modified and increased as needs were identified. LAN switches were replaced in the elementaries, and the secondaries as a result of the 2005 Bond.

We are now down to the last few buildings that need to be renovated and upgraded. Key issues to address include:

1. Increasing the number of line drops per classroom in order to get higher bandwidth to individual computers.
 - Increase to (on average) six drops per room, plus two in the ceiling of each classroom to allow for wireless access points and networked LCD projectors
 - Increase LAN bandwidth to (at least) 100MB in all buildings and 1GB in specialized locations (media, etc.).
2. Preparing for technology convergence, where our network carries more than just computer traffic.
 - Use Cat-5e or Cat-6 cables to accommodate Voice over IP (VoIP) telephony and power over Ethernet
 - Use switches with Quality of Service (QoS) support so that voice traffic can be given a higher priority than computer traffic.

District Wide-Area Network (WAN)

As buildings developed their infrastructure, the District worked on establishing the connection between buildings, the wide-area network (WAN). Starting in 1999, discussion was held to develop a fiber network between the buildings. A five-year contract was initiated by the District and Sunflower Broadband to provide fiber to each building. By the fall of 2001, all buildings were connected by fiber. This new backbone gave the District expanded bandwidth and capabilities, and further enhancements are underway, as described below.

Information Technology Services Server and WAN Goals

Where We Are Now

We have contracted with Sunflower Broadband to implement Coarse Wave-Division Multiplexing (CWDM). This is a method whereby multiple colors (frequencies) of light are sent along the same fiber and peeled off one at a time as each building is reached. Thus, while we continue to have a physical ring, it's arranged as a logical star, with each building essentially direct-connected to the server cluster at ESDC. This has improved bandwidth to schools (particularly to those far away in the ring) and reliability, as a building outage will no longer affect schools beyond it in the ring.

The network is driven by a cluster of physical and virtual servers at ESDC. These servers have modulated power that comes in through an Uninterruptible Power Supply (UPS), protecting us from transient power fluctuations and brief (< 30 minute) outages. This is augmented with an onsite power generator to protect against longer outages.

The server cluster is connected to a Storage Area Network (SAN). A SAN is a special network made up of redundant hard drives that have a high-speed connection to the servers. It is separate from the normal network that user's computers connect to. The SAN stores all of the data that would normally be stored on each individual server. This way when a server in the cluster fails, its data is still accessible to the other servers so that they can continue to provide the data to users via the cluster.

Where We Would Like To Be

We replaced our old SAN with a model having roughly 20 times the storage capacity. Nevertheless, the increased use of technology in instruction and the demands of storing larger data files, such as digital video (both course and security-related) keeps our SAN at dangerously low levels of free space. We continue to try to address that via a combination of system monitoring and drive replacement.

While we have "hardened" our infrastructure at ESDC, there is still some exposure in the event of a disaster (e.g. fire) and would like to improve our ability to recover from same. Our greatest exposure would be loss of data. Servers are utility devices and can be replaced fairly quickly. Data, on the other hand, is a unique product that may have required "person-years" of time to construct and cannot be easily re-constructed. To that end, we continue to work toward mirroring the ESDC SAN offsite.

Technology Support Services

As networks are re-designed and upgraded, the support structure to maintain and run them needs to be examined to insure that adequate personnel are trained and available to maintain the system. It is the goal of the District to provide the necessary technical support by district personnel, but if necessary, outside consulting and outsourcing will be considered.

As we enhance our local-area, wide-area, and wireless networks, the issue of security and access will need to be continually examined. Access will be provided based on an individual's need for specific information (i.e. instructional materials, student information, grades, etc.). Measures have been taken in order to secure sensitive data and will need to be continually re-evaluated as needs change or new threats emerge.

Recommendations

1. Complete upgrading the building level infrastructure.
2. Develop and implement a redundant SAN for disaster recovery
3. Increase storage capacity to accommodate current and future needs. Continue to request that staff delete or archive information regularly.
4. Continue to provide necessary equipment, software, and training to allow district-wide network services and telecommunications capabilities.

Benefits

1. A high-quality, well-managed network allows for cost-effective utilization of equipment across the District.
2. A redundant site will allow for quick recovery from major disasters.
3. A sound and stable system allows for expanded services that can be provided over the network (VoIP, teleconferencing, long-distance learning, etc.)

Current District Equipment Inventory

Though computer equipment (i.e. computers, printers, peripherals, etc.) is inventoried as it arrives at the District office, an annual building inventory check is done to verify current equipment. As the inventory is taken, machines also are checked for set-up and usability factors. The latest inventory was taken in Spring of 2008. To plan computer distribution, student estimates from Spring of 2009 also were used.

The following tables give the current computers per building, identifying staff computers, projected student population for the fall of 2005, student computers and current student to computer ratio. Our goal is to get to a 3:1 average student to computer ratio by the 2007-8 school year.

School	Staff	Students	Student	Laptops	Current
Elementary	PC's	2009/10 (Est)	PC's		Student/Computer Ratio
Broken Arrow	31	285	30	56	3.31:1
Cordley	33	274	7	67	3.70:1
Deerfield	44	513	77	87	3.13:1
Hillcrest	45	349	57	84	2.48:1
Kennedy	43	348	13	92	3.31:1
Langston Hughes	40	565	41	84	4.52:1
New York	29	136	37	15	2.62:1
Pinckney	32	250	31	51	3.05:1
Prairie Park	26	433	65	63	3.38:1
Quail Run	44	479	36	90	3.80:1
Schwegler	43	391	23	93	3.37:1
Sunflower	46	479	45	108	3.13:1
Sunset Hill	35	315	31	60	3.46:1
Wakarusa Valley	26	218	37	23	3.63:1
Woodlawn	31	234	56	24	2.93:1
East Heights	30		2		
Elementary Total	578	5269	588	987	3.25:1
Secondary					
Central Junior High	63	427	100	54	2.77:1
South Junior High	73	511	142	84	2.26:1
Southwest Junior High	116	719	152	86	3.02:1
West Junior High	75	542	146	93	2.27:1
Free State HS	138	1037	285	185	2.21:1
Lawrence High School	133	1222	194	277	2.59:1
Secondary Total	598	4458	1019	779	2.52:1
Building Totals	1,176	9727	1,607	1,766	2.92:1

District Equipment Standards - Hardware & Software

Overview

With the rapid change of technology, the District must constantly evaluate what the market is offering. Both functionality and affordability must guide district purchases of equipment. Following are the current expected hardware and software standards.

Hardware

The District annually evaluates hardware in light of hardware/software trends and curricular needs anticipated over the life of the device. From that, appropriate desktop and laptop machines are purchased in bulk.

Non-Standard Configuration

In those situations that specialized machines are required, the building principal or supervisor will need to submit a request to the Information Technology Services for consideration. Included in the request should be the following:

- type of equipment being requested (other than the standard configuration)
- be as specific as possible.
- purpose for which this equipment is being requested.
- justification for why the standard equipment is inadequate to meet the stated purposes.

Software

Due to the wide range of available software packages on the market, the District has established some standard software that is placed on each new computer being installed. These programs will allow individuals to accomplish the daily necessary tasks of their jobs. The programs included are:

Microsoft Office Pro (e.g. Word, Excel, PowerPoint, Access, Publisher)

Also, the Curriculum Department, with the help of the Curriculum Coordinators, will take under advisement the establishment of software standards for curricular use. As textbooks are being adopted, software will be considered. As teachers become familiar with new software packages, the Curriculum Department will evaluate and make recommendations for purchase of software for district use. Currently the software packages being used district-wide include:

Elementary	Secondary
<ul style="list-style-type: none">• Microsoft Office• Type to Learn• Making the Grade• Inspiration• Kidspiration• Curricular Software as proposed by the Curriculum Department	<ul style="list-style-type: none">• Microsoft Office• Inspiration• Ainsworth• Adobe - InDesign• Making the Grade• Adobe - Photoshop (Art)• Curricular Software as proposed by the Curriculum Department

Note that our goal is to reduce the number of software packages supported. In part this transition is facilitated by the tremendous availability of resources and information available on the internet.

However, the transition is also necessary in order to reduce the cost and complexity of supporting an overly-large number of software packages.

Building Purchase

Buildings may deem it necessary to purchase software that their building is using as part of the curriculum. This software may be specialized or be previewed with the intent of seeking district –wide adoption. Before software is purchased, the Information Technology Services should be consulted to verify that the software can be supported by the hardware it will be running on, either at the network or the desktop level. It also must be reviewed by the Curriculum Department to ensure that it fits District expectations.

It is imperative that building software purchases comply with district standards and copyright laws.

Software Agreement

The District will maintain adequate licenses for the software being used by the District. Teachers and staff are not to install software unless a legal right to that software has been established. Buildings purchasing software must have an equivalent number of licenses as are being installed.

Individuals are requested not to bring software from home to be used at the building level.

District personnel will not install any software suspected of being out of copyright compliance. All personnel are expected to comply with district established guidelines (see below).

Copyright Policies

It is the intent of the Lawrence Public Schools to adhere to the provision of the United State Copyright Law (Title 17, United States Code, Sect. (101 Et Seg). The established guidelines are published by the District in the Administrative Regulations & Guidelines for Copyright Compliance and are available from the Library-Media department at the Educational Support and Distribution Center.

With the advent of the Internet and the ease of accessing tremendous amounts of information, copyright has become even more important. It is imperative that all users of the Internet continue to comply with copyright laws.

Maintenance / Upgrades / Support

Overview

With technology constantly changing and allowing for different and more powerful applications, there is a need to plan for upgrading and replacing equipment. Due to the high cost of replacing equipment it becomes imperative that strong consideration be given to adequately address this area.

Maintenance

Maintenance of equipment has been and is a crucial component of effective use of technology. If the technology is not working properly it will not be used. The efficient repair and replacement of broken equipment is vital to the successful use of technology.

There are two basic options for the District to repair and maintain equipment. The most cost-effective option is to use internal personnel to maintain and repair equipment. Currently, the District has a department staffed with knowledgeable technicians to respond to the needs of the District. With the increasing needs of the District this service will need to be expanded as needed. Where specialized skills are required or needs are not on-going, an alternative option is to “outsource” equipment to be repaired by a vendor.

Upgrades

In order to maximize equipment availability, a maintenance schedule has been developed for upgrading and modifying existing technology in order to meet future needs. Desktop systems will be replaced on a four-year cycle. Laptops, which tend to have a shorter life-span, will be replaced on a three-year cycle.

Recommendations

1. Investigate the efficacy of a “help desk” to respond as a first point of contact for technical difficulties.
2. Implement a schedule for systematically updating and upgrading systems and software.
3. Certify technicians to do warranty work on new systems.

Benefits

1. An adequate support system (including a help desk) can remedy most computer problems (for software and hardware). This will provide for more efficient and effective use of the technical staff.

Donations / Disposal of Equipment

Introduction

We are fortunate to have a very supportive community. On occasion, community members will offer to donate used or new equipment. Where this equipment facilitates teaching and learning, and doesn't cause support or equity issues, we are most appreciative. In general, things that meet this criteria include DVD/VCR players, LCD projector screens, InterWrite tablets and similar devices, things which a building might purchase on its own if it had the funds to do so.

Donations of Equipment

Every donation carries an associated cost, and we need to be certain that these costs represent a wise investment of technology dollars.

In the consumer market, manufacturers replace PC models very frequently in order to offer the latest and greatest equipment and compete in the marketplace. Typically, the lifespan of a given model is 6-9 months, and the parts used for constructing that model are subject to variation. Conversely, in the institutional market, models have a 12-18 month lifespan, and parts are more stable. Institutions need this stability in order to ensure that equipment functions properly within a networked environment. For example, each different type of desktop and laptop computer must be set up and an "image" developed. This entails installing all of the necessary software applications, setting defaults, and ensuring that everything works as intended – a fairly lengthy process. Once set, this "image" is copied onto every machine of the same type in the district. As we have hundreds of each type of machine and the copy process is much faster than manually installing all of the needed applications, we save time and achieve uniformity, which is a key element in problem-solving when hardware/software problems arise.

Historically, one way to deal with the problems of creating non-standard networked machines has been to use them in a non-networked manner. Unfortunately, this too creates problems:

- How to factor in these non-standard devices when trying to ensure equity across buildings?
- Who to service when hardware or software problems arise?
- What to do (replace/ignore) when instructional programs have been built around these devices and then the device ultimately wears out?

In the past, we have described our PC donation criteria. This has effectively created a series of hurdles against which nobody is likely to pass. In truth, because of the different nature of consumer vs. institutional machines, the environments in which they operate, and support and equity issues, we can not make cost-effective use of donated PC's (new or used).

Disposal of Equipment

Our goal is to work with community support organization(s) to set up a donation processing center as a clearinghouse for donated computers and those cycled out from the District. If a donated computer is adequate or could be cost-effectively refurbished, it could be re-distributed to the community, based on a needs assessment. Otherwise, it would be the responsibility of the clearinghouse to dispose of the equipment in a legal and socially acceptable manner. This approach saves the District money in various ways:

1. It minimizes or eliminates the cost of equipment disposal.
2. With appropriate district-based software in place, it facilitates electronic communication with parents (e.g. grade reports, etc.), thereby reducing paper and postage costs.

Internet Acceptable Use Guidelines

Introduction

As the District anticipated the introduction of Internet into each building, a committee was established to address issues that may arise due to this new technology. Though at the time that this committee was formed only a few schools had purchased dial-up accounts from local Internet providers, it was felt that the discussion of appropriate use of the Internet be addressed.

The Committee met and drafted a report to the Board establishing guidelines for Internet use. This report was submitted to the Board in February of 1996. Since that time, the District has established a wide-area network currently encompassing 26 building sites. As buildings are connected they also receive access to the Internet.

In January, 2008, the Internet committee was re-established to review the guidelines and make necessary changes. The committee also established procedures and expectations for the use of the Internet at each building. Teachers agree to adhere to the Acceptable Use Guidelines at the beginning of each school year electronically. Students are given the Acceptable Use Guidelines in their enrollment packets and send them in before the beginning of each school year. Teachers using the Internet with students will spend time reviewing the guidelines with their students in order to make sure that they understand the expectations established by the school district.

During the 2008-2009 school year, the Board reviewed and revised the Acceptable Use Guidelines and Board Policy on Computer Use. The Board policies relevant to this issues and related district regulations can be found in Appendices E and F.

Funding

Overview

Funding is a critical component to success of any plan. Technology is a costly investment and careful consideration should be given to its implementation. This plan provides an outline of its purpose and function within the Lawrence Public School District. Its implementation requires the establishment of allocations within the budget for support and staff training, software, hardware and maintenance.

Funding

The District had identified a funding plan that addressed sustainability. By its very nature, implementation, training, and maintenance related to technology are ongoing needs. However, the recent and sudden collapse of the nation's economy, concomitant decrease in state tax revenue, and consequent reduction in school funding will likely force significant (though yet unknown) changes from the following pre-collapse estimates.

Recommendations

Capital Outlay	2008/9	2009/10	2010/11
Line Drops (remaining 4 buildings)		\$250,000	\$250,000
LAN Switches & Optics	\$51,864		
UPS Battery Replacement	\$6,000	\$19,000	\$19,000
Mirror SAN at Free State	\$255,773		
Projectors & Screens		\$231,000	\$231,000
Bulb Replacement	\$18,000	\$36,000	\$36,000
Desktop Refresh		\$722,500	\$722,500
Laptop Refresh	\$200,000	\$709,000	\$709,000
Laptop Batteries	\$26,000	\$65,000	\$65,000
Server Refresh		\$100,000	\$100,000
Total	\$583,637	\$2,282,500	\$2,282,500

General Fund Expenses	2008/9	2009/10	2010/11
Additional Software Node Licenses	\$5,000		
Student Mgmt Software Maintenance	\$84,000	\$88,200	\$92,610
HR/Finance Software Maintenance	\$37,044	\$38,896	\$40,841
Student ID Mgmt Software Maintenance	\$7,838	\$8,230	\$8,641
Staff ID Mgmt Software		\$75,000	\$78,750
Library Management Software Maintenance	\$17,508	\$18,384	\$19,303
General Fund Total	\$151,390	\$228,710	\$240,146

Benefits

1. Purchasing items at a pace to match their longevity smoothes out replacement funding requirements.
2. Regular equipment replacement helps reduce maintenance costs and help avoid the negative consequences of failed technology on teaching and learning.

Proposed Technology Implementation Phases

Overview

Over the years, technology has taken on an integral role in providing both administrative and instructional support within the school district. As we move forward, the demand and need for technology increases, and the applications become more intensive. Therefore, Information Technology Services (ITS) has been evaluating the current state of technology in USD#497 and attempting to project future needs.

The ultimate purpose of technology in our district is to help enable the transformation of teaching and learning. With the demands of No Child Left Behind, on-line assessments, data analysis, and greater achievement accountability, technology is being viewed as a necessary tool to help meet the needs of administration, staff, and students. The ITS department continues to receive requests for additional technology to be installed to meet these legitimate needs.

In our examination of our current status, we found that, though we have the start of a good overall system, we are lagging behind neighboring school districts. Due to limitations of technical support, the District has put a moratorium on additional equipment as our building technician to computer ratio is currently 1 to 500+ devices. We have developed some efficiency with network management software and protocols, but these have reached their limits and need to be reviewed in order to continue to gain additional efficiencies.

Technology Integration Stages

(from TeacherVision “Classroom of Tomorrow” project)

Entry	Although educators, students and the community are aware that technology creates new possibilities for learning and teaching, the system is slow to change. Access to computers is frequently an issue at the entry stage. It is often a time when teachers slightly modify classroom activities to include technology. For example, instead of having students conduct research with print resources, teachers will bring students to a computer lab. However, the nature of the activity stays the same. This can be a frustrating stage for many teachers. Collaborating with other teachers to exchange learning activities and ideas can help entry-stage teachers move ahead to the next stage.
Adaptation	At this stage, technology becomes thoroughly integrated into teaching patterns. Teachers at this stage are often excited about using technology to prepare and present information. Teachers become more comfortable with having students pursue individual interests, but they still design and direct the activities. These teachers need to see effective models and lessons for integrating technology to help them envision a more student-centered learning environment. Collaboration and mentoring are critical at this stage.
Transformation	At this stage, technology widely changes and expands the learning environment. Transformation-stage teachers use technology seamlessly in the classroom. Project-based learning activities are common, and students are self-directed. Students have many opportunities to design their own learning pathways, and teachers utilize new forms of assessment. There is an emphasis on higher-order thinking. These teachers continue to innovate and expand on technology use as new tools become available. Teachers at this stage should continue to collaborate with other teachers and mentor others.

Best Practices from National Curriculum Standards / Reports

Want Less of This	And More of This
Whole class teacher-directed	Differentiated, student-led learning
Classroom time devoted to seat work, workbooks, worksheets, etc.	Experimental, inductive hands-on learning
Emphasis on covering large amounts of content	Deep, integrated study of smaller number of significant topics
Students receiving and absorbing information by sitting, listening, and note taking	Teachers listening, questioning, clarifying
Use of and reliance on standardized tests	Reliance on teachers' descriptive evaluation of student growth including anecdotal observation
Rote memorization of facts and details	Emphasis on higher-order thinking of key concepts
Tracking students in ability groups	Heterogeneously grouped classrooms where individual needs are met through varied instruction
Stress on competition and grading	Cooperative collaborative and independent activity

Evaluation of Plan Components

Rationale

Since technology is not perceived as an isolated component of the curriculum and requires changes in management and communication systems, the program evaluation component effectively provides formative information for ongoing technology integration as well as information about the products of the technology plan.

Components

The goals of the evaluation are:

- To determine how technology has facilitated cross-curricular changes in instructional delivery that assists the teacher in planning and developing units that focus on student involvement.
- To determine how technology has facilitated changes in management systems and district communication systems.

Outcomes

Increased techniques / applications have been utilized by staff as technology has been integrated into the curriculum.

Administrative support structures have been put in place to enhance administrative integration.

Through staff training, the number of equipment repairs has been reduced.

All staff have a basic understanding of software common to the district.

Paperwork has been reduced as communication electronically increases.

Tools for determining success in accomplishing these outcomes include:

Maintain logs / summary of staff development training.

Maintain records of computer repairs, including reason for breakdown and time before equipment is back on line.

Establish a baseline of staff technology understanding and training needs and monitor progress.

Survey staff periodically to determine current status of technology knowledge and degree of inclusion of technology in instructional delivery.

Survey staff periodically to determine the degree and ease of communication.

Maintain records of changes implemented in administrative systems, such as scheduling, attendance, etc. and document user input about the system's effectiveness.

Document how technology is used to impact student achievement through the continuous improvement process.

Determine if administration / buildings have provided the necessary support structure.

Evaluation will be done at a variety of levels, as indicated by the outcomes established above. To facilitate the collection of data for an annual evaluation a variety of tools will be used or developed. Among these are Career and Technical Education Needs Assessment, ISTE Assessment,(Appendix G) and district developed surveys.

LAWRENCE UNIFIED SCHOOL DISTRICT #497



Technology Plan 2009/10

Appendices

APPENDIX A – ISTE STANDARDS FOR STUDENTS

International Society for Technology in Education
From <http://www.iste.org/AM/Template.cfm?Section=NETS>

The **ISTE** National Educational Technology Standards (NETSoS) and Performance Indicators for Students

1. Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students:

- a. apply existing knowledge to generate new ideas, products, or processes.
- b. create original works as a means of personal or group expression.
- c. use models and simulations to explore complex systems and issues.
- d. identify trends and forecast possibilities.

2. Communication and Collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students:

- a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
- b. communicate information and ideas effectively to multiple audiences using a variety of media and formats.
- c. develop cultural understanding and global awareness by engaging with learners of other cultures.
- d. contribute to project teams to produce original works or solve problems.

3. Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information. Students:

- a. plan strategies to guide inquiry.
- b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
- c. evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
- d. process data and report results.

4. Critical Thinking, Problem Solving, and Decision Making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students:

- a. identify and define authentic problems and significant questions for investigation.
- b. plan and manage activities to develop a solution or complete a project.
- c. collect and analyze data to identify solutions and/or make informed decisions.
- d. use multiple processes and diverse perspectives to explore alternative solutions.

5. Digital Citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students:

- a. advocate and practice safe, legal, and responsible use of information and technology.
- b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.
- c. demonstrate personal responsibility for lifelong learning.
- d. exhibit leadership for digital citizenship.

6. Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations. Students:

- a. understand and use technology systems.

- b. select and use applications effectively and productively.
- c. troubleshoot systems and applications.
- d. transfer current knowledge to learning of new technologies.

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APPENDIX B – ISTE STANDARDS FOR TEACHERS

The ISTE National Educational Technology Standards (NETSoT) and Performance Indicators for Teachers

Effective teachers model and apply the National Educational Technology Standards for Students (NETS•S) as they design, implement, and assess learning experiences to engage students and improve learning; enrich professional practice; and provide positive models for students, colleagues, and the community. All teachers should meet the following standards and performance indicators.

Teachers:

1. Facilitate and Inspire Student Learning and Creativity

Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments. Teachers:

- a. promote, support, and model creative and innovative thinking and inventiveness
- b. engage students in exploring real-world issues and solving authentic problems using digital tools and resources
- c. promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes
- d. model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments

2. Design and Develop Digital-Age Learning Experiences and Assessments

Teachers design, develop, and evaluate authentic learning experiences and assessments incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS•S. Teachers:

- a. design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity
- b. develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress
- c. customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources
- d. provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching

3. Model Digital-Age Work and Learning

Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society. Teachers:

- a. demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations
- b. collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation
- c. communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital-age media and formats
- d. model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning

4. Promote and Model Digital Citizenship and Responsibility

Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices. Teachers:

- a.** advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources
- b.** address the diverse needs of all learners by using learner-centered strategies and providing equitable access to appropriate digital tools and resources
- c.** promote and model digital etiquette and responsible social interactions related to the use of technology and information
- d.** develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital-age communication and collaboration tools

5. Engage in Professional Growth and Leadership

Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources. Teachers:

- a.** participate in local and global learning communities to explore creative applications of technology to improve student learning
- b.** exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others
- c.** evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning
- d.** contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community

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APPENDIX C – NATIONAL TECHNOLOGY STANDARDS

NT.K-12.1 BASIC OPERATIONS AND CONCEPTS

- Students demonstrate a sound understanding of the nature and operation of technology systems.
- Students are proficient in the use of technology.

NT.K-12.2 SOCIAL, ETHICAL AND HUMAN ISSUES

- Students understand the ethical, cultural, and societal issues related to technology.
- Students practice responsible use of technology systems, information, and software.
- Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.

NT.K-12.3 TECHNOLOGY PRODUCTIVITY TOOLS

- Students use technology tools to enhance learning, increase productivity, and promote creativity.
- Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.

NT.K-12.4 TECHNOLOGY COMMUNICATION TOOLS

- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.
- Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

NT.K-12.5 TECHNOLOGY RESEARCH TOOLS

- Students use technology to locate, evaluate, and collect information from a variety of sources.
- Students use technology tools to process data and report results.
- Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.

NT.K-12.6 TECHNOLOGY PROBLEM- SOLVING AND DECISION-MAKING TOOLS

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

Appendix D - Technology Integration

Kindergarten

Technology	Curr. Area	Description
Internet - School Bookmarks	early reading, math early reading, math animal homes	http://www.wacona.com/kindergartengames/kindergartengames.html http://www.familyeducation.com/topic/front/0,1156,63-24107,00.html http://games.funschool.com/game.php?q=1003&s=1
	seasons	http://games.funschool.com/game.php?q=1022&category=0&level=2
Internet Digital camera, clip art	animals 2 by 2	Take a virtual tour of a zoo
Digital camera, clip art	seasons	Take digital pictures, clip art, or find pictures of the changing seasons. Have students script or write a story using the pictures they took.
Digital camera, clip art	animals 2 by2	Take digital pictures, clip art, or find pictures of the animals. Have students sort or play a memory game using the pictures they took.

First Grade

Technology	Curr. Area	Description
Internet - School Bookmarks	reading, math reading, math	http://pbskids.org/lions/games/index.html http://www.starfall.com/
Internet Internet	solids/liquids oceans	Have students research kid-friendly sites on the cooking. Decide whether the ingredients are liquids or solids. Take a virtual tour of an aquarium
Digital camera, clip art	plants	Have students take digital pictures of the parts of a plant – label them and/or write a description of the different parts.
Digital camera, clip art	plants	Have students take digital pictures of many different plants - label the parts and note the differences and similarities.
Digital camera, clip art	community helpers	Have students take digital pictures of school employees, community helpers, or students dressed as community helpers. Students can write a description about each occupation.
Digital camera, clip art	solids/liquids	Have students take digital pictures or use clip art of various solids/liquids. Have students sort or play a memory game using the pictures.
tape recorder, computer computer	sound sound	Have students record sounds or voices at various distances to compare the quality.
	language arts, social studies,	Using "Read, Write, Gold" listen to the different voices. Using teacher-created templates, students can research and record information about American symbols, holidays, or other curriculum-related topic.
Kidspiration	science	

Second Grade

- Science units – weather/climate, balance/motion, life cycle of butterflies, reptiles/amphibians.
- S.S. units – rules, American and Kansas symbols, community helpers, goods/services, maps, environment, famous Americans, early settlements.

Technology	Curr. Area	Description
Internet - School Bookmarks	butterflies butterflies keyboarding map coordinates	http://www.billybear4kids.com/butterfly/flutter-fun.html http://www.enchantedlearning.com/subjects/butterfly/ http://games.funschool.com/game.php?g=1175&category=0&level=3 http://games.funschool.com/game.php?g=1048&category=0&level=3
Powerpoint	butterflies	Have students create questions and answers about butterflies. Use digital pictures and graphics to help illustrate. In small groups, have students research the characteristics of each reptile and amphibian group. Allow each group to create 2-3 Powerpoint slides about the group. Merge the slides together into a complete reptile and amphibian slide show. (This is an excellent project to collaborate with the Library Media Specialist.)
Powerpoint	reptile/amphibian	In three small groups, have students research the characteristics of community helpers, goods, and services. Allow each group to create 3-4 PowerPoint slides about the group. Merge the slides together into a complete slide show. (This is an excellent project to collaborate with the Library Media Specialist.)
Powerpoint Digital camera, clip art	community workers, goods, services butterflies	Have students take digital pictures of a butterfly in the various stages of development. Have students write a description of the stages.
Kidspiration	language arts, social studies, science	Using teacher-created templates, students can research and record information about American symbols, Kansas symbols, famous Americans, or other curriculum-related topic.

Third Grade

Science units – rocks and minerals, solar system, simple machines, rainforest.

S.S. units – local government, basic economics concepts, geography, and Lawrence history.

Technology	Curr. Area	Description
Internet - School Bookmarks	bibliography Kansas geography Lawrence history Kids' voting Project Vote Smart Rainforest Rainforest	http://www.easybib.com/ http://www.kansasphototour.com/ http://www.ci.lawrence.ks.us/local_history/index.shtml#watkins http://www.kidsvotingusa.org/ http://www.vote-smart.org/ http://www.eduweb.com/amazon.html http://trackstar.4teachers.org/trackstar/ts/viewTrack.do?number=1

		1803&nocache=1980698983
	Space/NASA	http://education.nasa.gov/home/index.html http://trackstar.4teachers.org/trackstar/ts/viewTrack.do?number=135433
	Planets	
	Solar System	http://starchild.gsfc.nasa.gov/docs/StarChild/
	Rocks/Minerals	http://volcano.und.nodak.edu/vwdocs/vwlessons/lessons/Slideshow/Slideindex.html
	Rocks/Minerals	http://www.kidskonnct.com/RocksMinerals/RocksMineralsHome.html
	Simple Machines	http://edheads.org/activities/simple-machines/
	Simple Machines	http://edtech.kennesaw.edu/web/simmach.html
	Martin Luther King, Jr.	
Publisher	Rainforest Lawrence	Create a brochure on a specific rainforest animal
PowerPoint	history	Create a PowerPoint photo album of famous people of Lawrence.
PowerPoint, digital camera, clip art	Lawrence history Language	Using the digital camera students can visit historical places in Lawrence and then create power point presentation
Inspiration	Arts	create a story map/web about a particular story Using teacher-created templates, students can research and record information about authors, geography, Lawrence history, government, or other curriculum-related topic.
Inspiration	Language Arts	
Publisher	Arts	create a newsletter about classroom events

Fourth Grade

Science units – electricity, circuitry, ecosystem – prairie, wetlands, tundra, biomes, ecosystems.
S.S. units – geography, regions, civics, basic principles of government, 3 branches of government, citizenship, voting, Kansas early history and geography

Technology	Curr. Area	Description
Internet - School Bookmarks	bibliography electricity/circuits electricity/circuits biomes/prairie ecosystem Kansas geography Lawrence history state research state research Kids' voting Project Vote Smart	http://www.easybib.com/ http://www.cleco.com/site.php http://www.alfy.com/Scripts/go.asp?url=http://www.bbc.co.uk/education/revisewise/science/physical/11_act.shtm http://www.bellmuseum.org/ http://www.thinkquest.org/library/site_sum.html?tname=J003192F&url=J003192F/tableof.htm http://www.kansasphototour.com/ http://www.ci.lawrence.ks.us/local_history/index.shtml#watkins http://www.50states.com/ http://www.netstate.com/states/ http://www.kidsvotingusa.org/ http://www.vote-smart.org/

Internet	states	Plan a virtual trip using websites and Mapquest
PowerPoint	circuits	Have students create a presentation to explain circuits. Use digital pictures and graphics to help illustrate.
PowerPoint	biomes	Compare and contrast different biomes using PPT.
PowerPoint, digital camera	biomes	Visit the Baker Wetlands. Take digital pictures to make a presentation or poster about the wetlands.
PowerPoint	historical timeline	Create a timeline of historical events using PPT or Word. Use digital pictures and graphics to help illustrate.
PowerPoint, digital camera, clip art	Lawrence history	Using the digital camera students can visit historical places in Lawrence and then create power point presentation
PowerPoint, digital camera, clip art	Lawrence history state research and presentation	Use historical information to create data base of important sites in Lawrence to visit
PowerPoint, Publisher	language arts, social studies, science	Research, design, and publish a state brochure. Using teacher-created templates, students can research and record information about geography, Kansas history, government, or other curriculum-related topic.
Inspiration	electricity/circuits	
Inspiration	s	Make a flow chart of how a circuit works.

Fifth Grade

Technology	Curr. Area	Description
Digital camera	all	document class activities for parent night. allow students to assemble in Power Point
Digital camera	all	create picture flash cards or cue card for ELL students
Digital camera	language arts	create a picture book about your class for new students
Digital camera	science	document stages of an experiment
Inspiration	all	webs for organizing research. can create blanks for notetaking or organize notes after research
Inspiration	all	outline two sides to a debate
Inspiration	all	create a visual time line
Inspiration	language arts	story webbing - works especially well for choose-your-own adventure
Inspiration	social studies	create maps with pictures
Internet	all	Use "Puzzlemaker" (http://www.puzzlemaker.com) to create review or extension puzzles (can quiz each other)
Internet	all	support learning with additional reading and up-to-date content from webpages, SIRS Discover and/or WorldBook Online; ex: research Civil War, famous Americans, etc. "Trackstar" or "Webquests" provide good starting places. http://trackstar.hprtec.org/
Internet	all	http://webquest.org/
Internet	all	teachers can arrange guest speakers. http://www.ku.edu/%7Espeakers/topics.htm (KU Speakers)

Technology	Curr. Area	Description
Internet	language arts	publish writing or book reviews. http://www.storiesfromtheweb.org/sfwhomepage.htm select and evaluate a piece of student writing, make suggestions, identify story elements, etc. Could practice 6 Traits.
Internet	language arts	http://english.unitecnology.ac.nz/writers/home.html use nonfiction text on class topic to evaluate nonfiction text structures, main idea, details, etc. SIRS Discovers and WorldBook
Internet	language arts	Online are helpful, as well as web pages research 2 sides of an issue for persuasive text and opinion/fact recognition
Internet	language arts	use on-line tool to help cite sources correctly - http://www.easybib.com/
Internet	math	"Problem of the Week" challenges - http://mathforum.org/pow/ use conversion machines for measurement and create posters that give several different measurements for common items -
Internet	math	http://www.onlineconversion.com/weight_common.htm collect data ranges (of personal interest) to use for statistical purposes - statistics from: news, sports, geography, fun facts, etc.
Internet	math	locate primary sources -
Internet	social studies	http://memory.loc.gov/ammem/amhome.html follow election process using sites such as: news, "Project Vote Smart," party and candidate websites, "Kids Voting" (http://www.vote-smart.org/)
Internet	social studies	track a bill using governmental webpages
Internet	social studies	
Power Point	all	create presentation of new learning
Power Point	all	make question and answer game over topic
Power Point	language arts	create mini-books (print out handout size and bind)
Power Point	language arts	point-of-view stories where each slide gives a different character's perspective
Power Point	language arts	compile student poetry for poetry slam
Power Point	language arts	create a slide show that accompanies a play or a song compile original story/application problems. buttons can be used to give the correct answer on a different page
Power Point	math	
Power Point	science or social studies	riddle slide shows (each slide gives a clue about a person or object and final slide gives answer)
Spreadsheets	math	create graph/spreadsheet of classroom data
Spreadsheets	math	chart daily weather or other statistic information
Spreadsheets	math	make magic square puzzles - lets formulas be used use formulas to create patterns, print and see if a friend can identify the correct function
Spreadsheets	math	
Spreadsheets	science	use formulas to figure scientific information
Staff menu	math	use "math exemplars" for problems and projects
Word processing	language arts	write a continuous story where classmates add on as time allows
Word processing	language arts	write acrostic poems - first letter can be fancier (from clip art or word art)

Technology	Curr. Area	Description
Word processing	language arts	create bookmarks with short book reviews
Word processing	language arts	make brochures about author, research, or books - uses columns
Word processing	language arts	compile a class newsletter - uses columns and publishing features
Word processing	language arts	use thesaurus feature to improve word choice
Word processing	social studies	create postcards for places you study - integrates pictures and text

Sixth Grade

Technology	Curr. Area	Description
Digital camera and or scanner, word processing, or publisher	L Arts	Produce a quarterly school newspaper to send home to families.
Digital camera/Powerpoint	All	Create a slide show that documents class field trips Assist K or 1 Book Buddies in making alphabet books. Take pictures of items that begin with each letter. Assemble in Power Point or Word
Digital Camera	L Art	Create a digital "handbook" or virtual tour for new students. Assemble in Power Point or Word
Digital Camera	All	Assemble in Power Point or Word
Inspiration	L Arts	Create story maps indicating story elements
Inspiration	L Arts	Compare/Contrast varying aspects in one or more appropriate level texts
Inspiration	L Arts`	Use a graphic organizer to compare/contrast various languages, tradition, and culture found in literature
Internet/Word Processing	L Arts	Create a Bibliography - http://www.easybib.com
Kid Pix or any Paint Program	L Arts	Use a drawing program to portray selected idioms.
Internet/Word Processing	L Arts	Write a research paper about a famous person or other topic. "Trackstar" or "Notestar" provide good web resources. http://www.hprtec.org/
Internet/Word Processing/Power Point	L Arts/Social Studies	Complete research using traditional sources and internet. Information can be presented in a power point presentation
Power Point	L Arts	Create a book report using a Power Point Template
Power Point	Science	Use power point to present information about the systems of the human body
Power Point	social studies	Use power point to present information about the achievements of the Aztec, Incan, and Mayan civilizations
Spreadsheet	Math	Use a spreadsheet to create an individual gradebook
Spreadsheet	Math	Survey a class about a topic and collect data, enter data into a spreadsheet and produce a graph to share results
Internet	Science	Use the Make a Cell lesson from Science NetLinks (Marco Polo)

Technology	Curr. Area	Description
		http://www.sciencenetlinks.com/lessons.cfm?BenchmarkID=5&DocID=88
Internet	Science	Find the gene for Whirling Disorder - http://gslc.genetics.utah.edu/units/disorders/pedigree/mapgene.cfm
Internet	social studies	locate primary sources
Internet	social studies	Lesson plans for economics (Marco Polo) - http://www.econedlink.org/
Internet	social studies	Lesson Plans for Geography (Marco Polo) - http://www.nationalgeographic.com/xpeditions/
Internet	social studies	Lesson Plans for History and Social Studies (Marco Polo) - http://edsitement.neh.gov/

APPENDIX E – BOARD POLICY ON COMPUTER

IIBG Computer Use (See JCDA)

Use of District Computers

Computer systems are for educational and professional use. All information created or accessed by staff and students may be subject to monitoring without notice by district administrators and/or school staff when appropriate. The district retains the right to impose on any student disciplinary measures that may include expulsion and to impose upon any employee disciplinary measures that may include termination for a violation of this policy.

Installation

No software, including freeware or shareware, may be downloaded or installed on any district computer until cleared by the network administrator. The administrator shall verify the compatibility of the software with existing software and hardware, and prescribe installation and de-installation procedures. Software installed on district computers must comply with copyright laws. (See ECH) License agreements and proof of purchase (copy or original) must be filed in the district technology office.

Hardware

Neither staff nor students shall install unapproved hardware on or connect it to district computers or make changes to software settings that support district hardware.

Audits

The administration may conduct periodic audits of software installed on district equipment to verify legitimate use.

Privacy Rights

Employees and/or students shall have no expectation of privacy when using district e-mail, other official communication systems, or computer applications. Any e-mail, computer application, or information in district computers or computer systems may be subject to monitoring without notice by the administration and/or school staff when appropriate. The district retains the right to duplicate any information created by employees or students in a computer system or on any hard drive.

E-mail – Employees

E-mail messages shall be used only to conduct approved and official district business, and appropriate language must be used in all messages. Employees are expected to conduct themselves in a professional manner and to use the system according to these guidelines or other guidelines published by the administration.

E-mail – Students

E-mail messages shall be used only for approved educational purposes, and appropriate language must be used in all messages. Students are expected to use the system following guidelines approved by teachers and/or the administration.

Internet Use – Purpose

The Lawrence Public Schools provides Internet services for a limited educational purpose. The term “educational purpose” includes use of the system for classroom activities, professional or career development, and limited research.

Student and employee use of the system is governed by this policy and related district regulations.

Responsibilities

The Superintendent shall oversee the district system.

Principals shall approve building-level activities, ensure proper training in the requirements of this policy, and establish a system to ensure adequate supervision of students and maintain executed user agreements.

District staff may develop regulations including a student disciplinary code. Those regulations and agreements are to be published annually in each student and staff handbook.

Liability

The district makes no warranties, either expressed or implied, that the computer and/or network services provided through the district system will be error-free. The district will not be responsible for any interruption of service or errors experienced by loss of or damage to data. The district will not be responsible for accuracy or quality of information obtained through the system nor for any financial obligations arising through the unauthorized use of the system. Users shall indemnify and hold the district harmless from any losses sustained as the result of intentional misuse of the system by the user.

Ownership of Employee Computer Materials

All computer-generated materials or devices created as part of any assigned district responsibility or classroom activity undertaken on school time shall be the property of the district.

Amended: January 12, 2009

APPENDIX F – ACCEPTABLE USE GUIDELINES



Unified School District 497
www.usd497.org

110 McDonald Drive
Lawrence, KS 66044
Phone: (785)832-5000
Fax: (785) 832-5016

STUDENT ACCEPTABLE USE POLICY (AUP)

The Lawrence Public Schools provide access for student use of computer technology for student use of the Internet and transmission of data or other information across the network infrastructure. All users must share the responsibility for seeing that our computer facilities are used in an effective, efficient, ethical and lawful manner. It is an opportunity to have access to these extraordinary resources and therefore, all users must agree that they will comply with these guidelines in accordance with KANSAS STATUTE 21-3755 and Board Policies [IIBG](#) ; [IIBGA](#).

Expectations for All Students

Students will:

- Use technology in the manner directed by building staff and administration.
- Use technology for educational purposes only.
- Take care of any equipment and report damages, problems, or inappropriate materials immediately to a staff member.
- Comply with all copyright, trademarks, and license restrictions, including citing Internet sources as you would all other reference materials.

Students will not:

- Share passwords or provide personal information to non-approved online sources.
- Expect your e-mail, files, or directories to be private.
- Use technology to harass others according to Board Policy [JGECA](#).
- Download, store, distribute, or share any software or digital file (such as movies, music, or text) in violation of copyright laws.
- Intentionally access material through, or with, technology that would not be allowed for educational purposes in your school if presented in other media.
- Intentionally damage, disable, or hinder the performance (or attempt any of the previous) of any district technology system device, software, or network (inside or outside of the district).
- Access or attempt to access any system, file, directory, user account, or network to which you have not been granted access.
- Use technology in a manner that would hinder the learning environment for you or any other student.
- Install or attempt to install any software on a district owned technology device.

Additional Expectation for Students With Personally Assigned Computing Devices

Students will:

- Regularly save any information stored on a computing device to your assigned personal network storage directory.
- Expect any computing device to be regularly inspected for inappropriate material, which might include unlicensed software or inappropriate content and software. Any inappropriate content or unlicensed software will be removed.

Consequences for AUP Violations (Board Policy JDD)

- Suspension from use of district technology
- Suspension or expulsion from school
- The district may notify law enforcement agencies.
- Any consequence outlined in your school handbook.

USD497 Student Acceptable Use Policy Agreement

I understand and will abide by the above Acceptable Use Policy. I further understand that any violation of the regulations above is unethical and may constitute a criminal offense. Should I commit any violation, my access privileges may be revoked and school disciplinary and/or appropriate legal action taken.

I agree to the above statement.

I choose to opt out of having network access.

User's Full Name: _____

User's Signature: _____ Date: _____

PARENT OR GUARDIAN Signature: _____

APPENDIX G – RESULTS OF ASSESSMENTS

USD 497 – Career and Technical Education 2008-09 CTE/Perkins Needs Assessment Results

Implementation

To help determine the strength and challenges of the USD 497 Career and Technical Education Program, a needs assessment was implemented between March 24 and April 11, 2008. The assessment was developed by a team of teachers, business leaders, parents and administrators.

Two assessments were created. The first was for staff and the second for counselors and administration. Many of the questions were the same for both groups, however there were questions asked specifically of one group and not another. Survey responses were solicited from Career and Technical Education teachers in KSDE approved program at both the high school and junior high. A total of 39 staff members completed the survey. Junior high, high school and district administration, as well as high school and junior high counselors were invited to complete the counselor/administration survey. Twenty-five counselors and administrators completed the assessment.

Summary

A number of items were revealed as strengths for the USD 497 Career and Technical Education programs. Teachers indicated that the curriculum included activities that develop workplace skills, involved citizenship and personal skill development and integrated rigorous academic and relevant academics. Administrators, counselors and staff agreed that classrooms are equipped to provide a variety of instructional delivery systems and that the classroom is conducive to the inclusion of special populations. Almost 79 percent of teachers agreed that students have computers or access to computers in their building.

Communication, facilities and equipment, and knowledge were identified as concerns for those who completed the needs assessment. Results indicate that an effective communication plan is not in place to keep parents, advisory committee members and the community informed about Career and Technical Education programs. Administrators and counselors are concerned that parents have not been informed about career clusters/pathways and how they can assist their child in planning for future education and careers. Both groups said that a district/building program development and improvement process that included administrators, counselors, staff, students and business/industry was not in place.

While staff had a stronger concern, administrators and counselors agreed that classrooms were in need of repair and changes needed to be made. While teachers were positive that students had access to technology representative of current industry needs and demands, the result indicate a slight concern. There is similar evidence when teachers were asked if there was adequate space for student learning.

Finally, it appears that there is a defined need for professional development in understanding labor data, Perkins IV core indicators and the CaTE system.

Reading the Results

The needs assessment included both yes/no items and items on a Likert scale. The questions have been broken into categories (Classroom/Facility Needs, Staff Needs, Curriculum Needs and Miscellaneous).

Data for the yes/no questions are below. Percentage of responses are indicated and an average taken when both staff and counselors/administrators were asked the same questions. Responses were sorted from strongest concern to least in each category.

	Staff		Coun/Adm		Average		Overall Rating
	Yes	No	Yes	No	Yes	No	
Building/Facility/Resource							
The classroom is in working order with no need to make repairs or changes	23.1	76.9	34.8	43.5	28.95	60.2	4
Teachers have access to technology representative of current industry needs/demands	53.8	46.2			53.8	46.2	7
There is adequate space for student learning	61.5	38.5			61.5	38.5	11
Teachers have resources as recommended by advisory boards to explore potential careers and all aspects of industry	54.1	45.9	73.9	26.1	64	36	13
The classroom is conducive to the inclusion of special populations	74.4	25.6			74.4	25.6	16
Students have access to computers	78.9	21.1			78.9	21.1	17
Classrooms provide opportunities for a variety of instructional delivery systems	79.5	20.5			79.5	20.5	18
Staff Needs							
Staff understands the levels of performance measures identified in the Perkins IV legislation	35	65	33	66.7	34	65.85	3
Guidance counselors, administration and staff work together to develop education plans of study and assist with students future career opportunities.	20.5	79.5	47.8	34.8	34.15	57.15	5
Staff uses CaTE data in determining future needs of the program	45	55			45	55	6
Staff has strategies in place to encourage and assist non-traditional students	70	30	45.8	54.2	57.9	42.1	9
Staff has a clear understanding of the career clusters/pathways model	50	50	66.7	33.3	58.35	41.65	10
Staff works closely with advisory committee representatives	61.5	38.5			61.5	38.5	11
Staff has ample opportunities for professional development	67.5	32.5	73.9	26.1	70.7	29.3	14
Staff has strategies in place to address the needs of special population students	81.1	18.9	66.7	33.3	73.9	26.1	15

	Staff		Coun/Adm		Average		Overall Rating
	Yes	No	Yes	No	Yes	No	
Curriculum Needs							
Staff has participated in an externship for the content area	28.9	71.1			28.9	71.1	1
There is an articulation agreement with a post secondary institution	56.4	43.6			56.4	43.6	8

Are your articulation agreements reviewed annually by secondary and postsecondary representatives	31.6	15.8			31.6	15.8	19
Miscellaneous							
Do you understand the CaTE and KIDS System	30.8	69.2			30.8	69.2	2

Data for the Likert scale questions are on the following sheet. Respondents were asked if they strongly agreed, agreed, disagreed, strongly disagreed or were neutral. The response percent was then multiplied by a factor (+2 for strongly agreed, +1 for agree, 0 for neutral, -1 for disagree and -2 for strongly disagree). Items were then sorted from strongest concern to least in categories.

	Strongly Agree (+2)	Agree (+1)	Neutral (0)	Disagree (-1)	Strongly Disagree (-2)	Total	Strongly Agree (+2)	Agree (+1)	Neutral (0)	Disagree (-1)	Strongly Disagree (-2)	Total	Average	Overall Rating
Curriculum Needs														
Students are actively affiliated with a Kansas Career and Technical Student Organization	10.2	25.6	0	-38.5	-10.2	-12.9							-12.9	3
Students are offered trainings, internships and work-based opportunities in the career cluster	25.6	28.2	0	-30.8	-5.2	17.8							17.8	5
Labor market information is used to make changes/updates in the curriculum	21	47.4	0	-13.2	0	55.2							55.2	6
The program has a culture of continuous improvement and innovation	42.2	71.1	0	0	0	113.3	8.4	33.3	0	-25	-8.4	8.3	60.8	7
The curriculum prepares students for high skill, high wage or high demand occupations	35.8	41	0	-15.4	0	61.4							61.4	8
Staff is aware of the district's plan to incorporate career clusters/pathways and programs of study	46.2	53.8	0	-7.7	-5.2	87.1	8.4	62.5	0	-33.4	0	37.5	62.3	9
The curriculum provides opportunities for the non-traditional and/or special population student	15.4	69.2	0	-7.7	0	76.9							76.9	10
Student are involved in leadership skill development	36.8	60.5	0	-7.9	0	89.4							89.4	11
Rigorous and relevant academics are integrated into the curriculum	41	64.1	0	-2.6	0	102.5							102.5	12
The program curriculum involves citizenship and personal skill development	43.2	67.6	0	-2.7	0	108.1							108.1	13
The curriculum includes activities to develop workplace skills	46.2	69.2	0	-2.6	0	112.8							112.8	14
Miscellaneous														
Parents have been informed about career clusters/pathways and how they can assist in planning							8.4	16.7	0	-41.7	-25	-41.6	-41.6	1
An effective communication program is in place to keep students, parents advisory committee members	5.2	41	0	-56.4	-10.2	-20.4	8.2	16.7	0	-20.8	-16.6	-12.5	-16.45	2
A program development/improvement process is in place that includes administrators, counselors,	5.2	61.5	0	-12.8	-5.2	48.7	8.4	20.8	0	-33.3	-16.6	-20.7	14	4



Assessment Results

Print your results using the print button at the top of the page. Your district profile cannot be retrieved after leaving this session. Be sure to print your profile before closing this window.

If there is an area from the TSI rubric for which you were particularly interested in obtaining recommendations but does not appear on your results above? Because you've obtained a profile of your district or school you are eligible to view all possible recommendations. [Click here to view all possible recommendations](#) — this links to a page that is restricted only to those who have completed the profile.

Technology Profile and Action Plan for Improvement

Prepared on 3/3/2009 for:
Karl Hague
Lawrence Public Schools

Overall Result Summary

According to the Technology Support Index (TSI) your system is considered "Satisfactorily Efficient" requiring limited improvements. The "Satisfactory Efficiency" level of development refers to a system that is doing a very good job of support in many areas. Improvements in a number of areas will enhance the organizational capacity to effectively implement technology.

Following is your technology profile and action plan for improvement, by domain:

District Profile

1 Equipment Standards

	Low Efficiency	Moderate Efficiency	Satisfactory Efficiency	High Efficiency	Impact
Cycling of Equipment	No, we do not have a replacement cycle.	Yes, we replace computers every 5-7 years.	Yes, we replace computers every 4-5 years.	Yes, we replace computers every 3 years.	Significant - Requires a strategic organizational and financial commitment
Brand Selection	The brand purchased is up to the individual school.	There is a brand recommendation list, but I am able to easily purchase non-standard equipment AND the brand changes frequently.	There is a brand recommendation list with 1-2 brands, but I am able to easily purchase equipment that is not on the list.	We have 1-2 specific brands that we purchase over a multi-year period. All purchases are made from that brand.	Neutral - Savings can be gained with multiple year contracts.
Model Selection	We can select any model within a brand or manufacturer.	A model line is defined, but many choices are provided in that line.	There are 3-5 models that we can select from for purchase.	Specific models from a brand are defined and are limited one or two models with few variations.	Neutral
Platform	Two or more platforms are supported in the district, and in any given school individuals are given platform choice and multiple platforms are found.	Two or more platforms are supported in the district, but platform decisions are made at the school level and most equipment at any given school is one platform.	Two platforms are supported in the district, but one platform is predominantly used with a second platform limited to specific program areas or instructional applications.	Only one platform is allowed regardless of application or impact.	Neutral - Savings can be gained with a single platform
Standard Operating System (OS)	Four or more with all operating systems supported.	Three, with older equipment either migrated or not supported.	Two, with most equipment migrated to the most recent OS.	One, with all equipment migrated to the standard OS.	Moderate - Keeping a consistent OS with new purchases has no cost implications. Migrating existing

machines to a current operating system can have moderate costs to purchase the new OS and upgrading hardware to run it.

Application Software Standard	A supported software list has not been adopted, and users can install any software.	Users are able to install titles that are not on the district list, and will receive limited support.	Users are able to install titles that are not on the district list, but will not receive any support.	<i>A software application list has been adopted and only those software titles on the list are permitted on school computers.</i>	Neutral
Donated Equipment	We accept any donated equipment.	Equipment is accepted if it meets minimum performance requirements. Brands and age are variable.	Equipment is accepted if it meets specific performance requirements, is less than three years old, and matches the brand(s) of the district.	<i>Equipment is accepted if it meets specific brand, model, and performance requirements and is less than two years old. Cash donations are encouraged instead of equipment.</i>	Neutral
Granted Equipment	All granted equipment is accepted.	Grant equipment is accepted regardless of brand and specification, but the district is consulted about standards.	The technology department approves grants involving technology equipment before they are submitted, and standardization is encouraged but is not consistently enforced.	<i>All equipment from grants must meet district brand and performance specifications or it is not allowed.</i>	Neutral
Peripheral Standards	No peripheral standards are set.	Peripherals are standardized by brand, but models within the brand are not and the list changes frequently.	Peripherals are standardized by brand, but many models are allowed and are typically consumer rated.	<i>All equipment is standardized on a small number of brands and models with equipment that is rated for industrial/school use.</i>	Minimal - Industrial versions of peripherals are more costly, but are typically balanced with longevity and reduced support costs.
Surplus Practice	Surplus equipment is used until it is no longer functional and is supported.	Surplus equipment is supported by district personnel, but as a low priority.	Surplus equipment is no longer supported by district personnel, but can be used by schools.	<i>Surplus equipment is taken out of service when it reaches the replacement age, even if it still works.</i>	Neutral
Break/Fix Agreements (Warranties)	<i>No additional warranties are pursued beyond the standard warranty (1 year).</i>	Extended warranties are purchased for computers only but don't cover the life of the equipment and doesn't include peripherals (3 years, computers only).	Extended warranties are purchased in addition to the standard warranty on computers and peripherals but don't cover the life of the equipment (3 years, all equipment).	Warranties are purchased to cover the life of the equipment (5 or more years).	Moderate to High - Warranties beyond 3 years can be expensive
Security Procedures	Security guidelines are loosely defined or do not exist resulting in substantial vulnerabilities.	<i>Fairly secure guidelines are in place but are not closely followed.</i>	Fairly secure guidelines are in place and followed, but more stringent guidelines would provide a more secure environment (e.g. password rotations, etc.).	Very secure guidelines and practices are in place and are consistently practiced including limited administrative access to machines, password rotations, and "strong" passwords (letters and numbers).	Neutral - Most organizations have security tools at their disposal, but often under utilize them.
Security Hardware and Software	No firewall or software security standards are in place.	A firewall is in place but ports are commonly opened. Software security standards are limited to promises by the	A firewall is in place with some opening of ports. Software security audits are in place for major systems with periodic	<i>A firewall is in place and opening of ports is very limited. Software security standards are in place for all software along with periodic</i>	Minimal to Moderate

vendor with limited security audits. *security audits.*
 auditing activity.

Domain Result Summary: According to the TSI your Equipment Standards (Domain 1) is considered "Highly Efficient" requiring few improvements. The "High Efficiency" level of development refers to a system that is doing an outstanding job of support in most areas. Improvement in a number of areas will further refine a very good system of support.

Recommendation: Most technology companies offer standard equipment warranties of 1-3 years. Equipment warranties save district support costs both in time and real dollars. In some cases a good warranty program can actually generate revenue for the district if they are a self-supporting warranty organization and receive warranty reimbursements. A good warranty program ensures access to equipment, specific expertise and timely service. At the time of purchase most companies will provide and extended warranty option. It is recommended that a district consider purchasing agreements that include a warranty matching the expected service life of the equipment.

Cost: Moderate to High

Recommendation: The support costs for technology equipment rise exponentially when it is left in service beyond its normal expected life. Most school districts continue investing in older technology equipment even at extraordinary cost and limited capability because a systematic replacement cycle has not been adopted. An adopted cycle (3-5 years), either through equipment leasing or by purchase and replace is recommended for your school district.

Cost: Significant

Resources: School districts committed to the use of technology are adopting replacement cycles to avoid obsolescence. Lake Washington School District (www.lkwash.wednet.edu) adopted a 5-year cycle and 4:1 student to computer ratio for their entire district. Tucson Unified School District (www.tusd.k12.az.us) adopted a replacement cycle through a leasing program called Eduflex replacing all equipment every 3 years (www.compaq.com/education/k12/success/tucsonunified.html). Most manufacturers (e.g., www.compaq.com, www.apple.com) offer leasing programs.

Recommendation: In today's computing environment security has risen to mission critical status. Schools are vulnerable to security attacks both inside the school and from outside the school. Often security breaches are destructive in nature consuming enormous technical resources. Unfortunately the greatest security risk in schools today is human error usually created by careless use of passwords. Passwords are often shared, easily stolen, and are rarely changed often enough to avoid security vulnerabilities. Today a number of network tools can help enforce effective security procedures including limiting administrative access, "strong passwords" (use of numbers and letters), and rotating passwords. It is recommended that a district consider putting into place strong security procedures to avoid time consuming and possibly catastrophic events.

Cost: Neutral

Resources: <http://securedistrict.cosn.org/>

Recommendation: Every software application introduces a new set of variables for support personnel. In addition to application functionality, each software application interacts with the operating system and all of the features of the district's technology solution. Each application that is used should be tested before it is introduced for full deployment. A list of tested applications and the known issues should be made available to users. To completely contain technical issues, installation of applications that are not on the list should not be permitted.

Cost: Neutral

Recommendation: Corporate partners and well-intentioned citizens want to help under funded schools by donating used technology. Unfortunately in many cases the used technology actually costs the school district significantly due to upgrades required and non-standard equipment that requires support. Further, many educational software applications, including those for lower grades, actually require more technical capability than many business applications. It is recommended that strong donation guidelines be in place requiring that all donations meet district brand, model, and specification guidelines and are less than 2 years old.

Cost: Neutral

Resources: www.siaa.net/divisions/education/donatecomp.asp

2 Staffing and Processes

	Low Efficiency	Moderate Efficiency	Satisfactory Efficiency	High Efficiency	Impact
Organizational	The technology	The reporting	The technical support	<i>All of the technology</i>	Neutral

Structure	support comes from multiple points within the organization, and reporting is not functionally logical. Cross-functional collaboration is difficult or non-existent.	structures are difficult to identify, and direction comes from multiple points in the organization. Cross-functional collaboration exists.	functions and instructional technology functions report differently, but each unit is cohesively organized and there is effective communication between units.	<i>functions report through the same unit in the organization, providing for a logical chain of command and communication structures.</i>	
Contracted Primary Support	<i>No, outside support is not used as the primary support strategy in the district.</i>	Yes, all support is contracted out, but the performance specification is written to personnel minimums, not a performance contract.	Yes, all support is contracted out and written to a performance specification requiring no more than a 5 day turn around on technical issues.	Yes, all support is contracted out and written to a performance specification requiring no more than a 72-hour turn around on technical issues.	High
Contracted Supplemental Support	No, contracted support is not used.	<i>Yes, contracted support is used for emergencies but is not built in as a planned strategic support strategy.</i>	Yes, contracted support is used as a part of the overall strategy but has not been closely evaluated to determine the most strategic places to use this support.	Yes, contracted support is used strategically as a part of the overall strategy for complex problems or in areas where savings/efficiencies can be easily realized.	Moderate
Staffing to Computer Ratio	<i>Our computer to technician ratio is over 250:1.</i>	Our computer to technician ratio is between 150:1 and 250:1.	Our computer to technician ratio is between 75:1 and 150:1.	Our computer to technician ratio is less than 75:1.	High
Formula-Driven Technology Staffing	Staffing formulas are not used or considered.	<i>Formulas for staffing are considered but are limited in scope and are not used to drive staffing.</i>	Comprehensive formulas have been developed considering multiple dimensions of the environment but are only used as a guide and do not drive staffing.	Comprehensive formulas have been developed and drive staffing as a normal part of operations. Formulas include multiple dimensions of the environment.	Moderate to High - Depending upon the nature of the formula, over time additional staffing is typically generated unless the desired computer penetration has been accomplished.
Certification of Technical Staff	Certification is not a priority in the organization and concerns are raised about time away from the job to pursue certification.	<i>Technical staff is encouraged to become certified, but no support is provided toward certification.</i>	Some technical staff is certified in appropriate areas, others are involved in district supported programs toward certification.	Most technical staff is certified in appropriate areas (e.g., Cisco, MCSE, etc.). New certification is encouraged and supported.	Minimal to Moderate
Differentiated Job Descriptions	Technical support employees do it all; redundancies and inefficiencies are created as a result.	Technical support employees do it all, but redundancies are not created due to small size and/or staffing levels.	<i>Some differentiation in jobs has occurred, although assignments are not provided based upon skill-set competencies.</i>	Job descriptions are fully differentiated creating specialization and efficiencies, and a clear avenue for support.	Neutral
Technician Retention	Technical staff turnover is very high; employee satisfaction is low.	Technical staff turnover is high due to other employment opportunities; employee satisfaction is fair.	<i>Technical staff turnover is moderate (excluding retirement); employee satisfaction is high.</i>	Technical staff turnover is very low (excluding retirement); employee satisfaction is very high.	Minimal
Competitive Compensation	Technical positions are poorly competitive,	<i>Technical positions are moderately</i>	Technical positions are competitive, offering	Technical positions are very competitive; offering compensation in	Moderate to High

	offering compensation in the bottom 50% of equivalent positions in the area.	competitive, offering compensation in the 50th to 75th percentile of equivalent organizations in the area.	compensation in the 75th to 90th percentile of equivalent organizations in the area and offer competitive non-compensation benefits.	the 90th percentile of equivalent organizations in the area and, in some cases, compete with private businesses for talent.	
Escalation Process for Technical Issues	No escalation process is in place, and the path for resolution is unclear.	A clear path for resolution is in place, but no escalation process is recognized.	An escalation process is in place with two steps of escalation, and significant crossover between levels.	A well-defined escalation process is in place, with three or more steps of escalation, and a clear path for resolution.	Minimal
HelpDesk	No HelpDesk support is provided.	A HelpDesk is provided for staff but is not fully staffed. The HelpDesk is used for emergencies only and is not used as first line of defense.	A central HelpDesk is in place, but the organizational culture has not adopted the HelpDesk systemically.	A central HelpDesk is in place with trained HelpDesk staff, and a culture of using the HelpDesk as the first line of defense is pervasive.	Minimal to Moderate
Use of Online Knowledgebase for Technical Help	Staff seeks no online help due to both availability of resources and district culture.	Some staff seeks online help, but the behavior is not pervasive and resources are limited.	Many staff seek online help, but not as a first line of defense.	Most staff seeks help from an online knowledgebase as their first line of defense for most issues.	Minimal to Moderate
Software Support Protocols and Standards	No list of supported software is provided for users.	A list of supported software is provided, but no differentiated processes are provided for limited support products.	A list of supported software is provided with differentiated processes, however users and staff do not follow them closely.	A list of supported software is provided, with clear differentiated processes for each set of software that are consistently used.	Neutral
New Equipment Deployment	The local school staff is responsible for the deployment of new equipment.	The regular technical staff manages all aspects of new equipment deployment resulting in a reduction in regular service.	Additional help (internal or by contract) is utilized for imaging and tagging of new equipment, but setup is the responsibility of the regular technical staff creating some delays in regular technical service.	Additional help (internal or by contract) is utilized for all aspects of new deployment resulting in no disruption to regular technical support services and the instructional program.	Moderate
Documented Procedures	Little or no documentation exists for technical tasks, requiring users and technical staff to invent their own solutions.	Some documentation exists for technical tasks but is not widely shared or used. Most documentation is limited to few technical staff only.	Documentation exists for technical tasks but is poorly written and is not systematically updated as procedures are developed.	Documentation exists for most technical tasks and is used by most user groups. Well-written documentation production is a normal part of operations.	Minimal to Moderate
Support by Teachers	Teachers and librarians provide all of the technical assistance in the building.	Teachers and librarians provide much of the technical assistance in the building with release time or stipend.	Teachers and librarians serve as the contact point, and perform some of the technical work in conjunction with technical staff.	Teachers and librarians are used as the contact point in the building but do not perform technical support work.	Neutral
Student Support	Students provide support for school in an ad-hoc manner due to	Students are used extensively, in an official capacity, and supplant district	No student support is provided.	A curricular program is designed to train students in technical support. They support	Neutral

limited district support.

support.

district technology, but in a peripheral way as part of their instructional program only.

Domain Result Summary: According to the TSI your Staffing and Processes (Domain 2) is considered "Moderately Efficient" requiring attention and improvement. The "Moderate Efficiency" level of development refers to a system that has some areas of excellence, but typically isolated and limited in implementation. While there is some good support in place, improvement will be required to overcome technology challenges

Recommendation: School districts are finding that under certain circumstances completely outsourcing a function of the organization is not only desirable but preferred. By doing this, it allows the school district to concentrate on its core competency, educating children. Technical support if managed appropriately can be effectively outsourced providing an efficient and effective technology support strategy.

Cost: High

Recommendation: Certainly the most challenging (and costly) issue related to technology support in schools is staffing. Most private industries staff technical support with a technician for every 50 to 100 computers. School districts, on the other hand, will commonly see ratios of 250:1 or greater. It is recommended that technology staffing is prioritized to ensure that downtime is minimized and that staff and students can readily depend upon the district's technology.

Cost: High

Recommendation: The most efficient and effective support practice used in industry is a HelpDesk for the first line of defense. The HelpDesk centralizes the intellectual capital of the organization and allows for efficient deployment of technical resources. Even in small school districts, the helpdesk is an essential component of an effective support system. The development and effective use of a technology HelpDesk is strongly recommended.

Cost: Minimal to Moderate

Recommendation: Many school districts fund staffing based upon a political process rather than one that is committed to a staffing formula generated by the conditions in the district. For example, a new program may generate an additional 500 computers but rarely will the new equipment generate an equivalent number of staff. Existing staff is expected to support the new equipment with existing resources. Even if the formula is less than ideal, a formula based system of staffing creates a basis and rationale for technology staffing. Considerations for the staffing formula include computer and peripheral number, buildings, network connections, number of applications supported, number of operating systems, etc. A formula driven staffing formula is highly recommended.

Cost: Moderate to High

Resources: <http://techguide.merit.edu/>

Recommendation: The most effective support organizations are those that can match the identified problem with appropriate expertise as quickly as possible. Efficiency is will make or break a support strategy. Further, to contain costs routine tasks should be handled by employees with less expertise (and salary) while high-level employees should be focused on only the most complex problems to resolve. Appropriate matching of issues to employees is most effectively handled through an escalation process with multiple levels of support. All tasks start at the lowest level of expertise for identification and are escalated up the organization according to complexity and urgency. Districts of all sizes should have an escalation process in place.

Cost: Minimal

3 Professional Development

	Low Efficiency	Moderate Efficiency	Satisfactory Efficiency	High Efficiency	Impact
Comprehensive Staff Development Programs	There is no formal staff development program in place. Training is provided infrequently, and the organization depends upon individuals' own motivation to build	<i>A staff development program is in place but is limited, voluntary, and uses a single dimension in its delivery.</i>	A staff development program is in place but is not comprehensive in nature in that it does not impact all staff and does not offer the depth required to	A comprehensive staff development program is in place that impacts ALL staff. The program is progressive in nature, and balances incentive,	High

	expertise.		change the organization.	accountability, and diverse learning opportunities.	
Online Training Opportunities	<i>Online training opportunities do not exist.</i>	Online training opportunities exist but are limited in scope and are available to a limited number of employees.	Online training opportunities are available for staff onsite and remotely but are limited in their offerings.	Online training opportunities are provided for staff both onsite and remotely, and represent a diversity of skill sets.	Minimal to Moderate
Just-in-time Training	No just-in-time training process or delivery system has been put into place.	<i>Just-in-time training is used, but the process and delivery system has not been refined so it can be used realistically within the organization.</i>	A process and delivery for just-in-time training is in place, but has not been adopted by the organization as a mechanism for solving issues.	A process and delivery system has been established for just-in-time training organization-wide and is used consistently.	Moderate
Expectations for All Staff	Expectations of staff are not clearly defined and are not part of the organizational culture.	<i>Expectations of staff are articulated but are limited in scope.</i>	Expectations of staff are articulated and are broad in scope, but have not been adopted as part of the organizational culture.	Expectations for all staff are clearly articulated. Performance expectations are built into work functions and are part of the organizational culture.	Neutral
Troubleshooting as Part of Professional Development	<i>No form of troubleshooting is integrated into the professional development program.</i>	Troubleshooting is built into the professional development program but is limited in scope and provided inconsistently. Roles and responsibilities are not clearly defined.	Troubleshooting is built into the professional development program and is used as a major strategy for technical support. Technical versus end-user roles and responsibilities are not clearly defined.	Basic troubleshooting is built into the professional development program and is used as a first line of defense in conjunction with technical support.	Minimal to Moderate
Training for Technical Staff	<i>Technical staff is only given training to take care of the immediate issues in the district. Advanced training is not encouraged.</i>	Technical staff receives consistent training around emergent issues. Advanced training is not district sponsored but is encouraged.	Technical staff receives consistent training around emergent issues, and have limited district-sponsored opportunities for advanced training.	Technical staff receives ample training as a normal part of their employment, and includes training toward certification.	Minimal to Moderate

Domain Result Summary: According to the TSI your Professional Development (Domain 3) is considered "Low Efficient" requiring significant attention and improvement. The "Low Efficiency" level of development refers to a system that is at the beginning on a developmental continuum. Without improvements in this area, you will likely experience considerable challenges as you implement technology.

Recommendation: Empowering the school employee to use technology effectively is a very effective strategy to address technical support issues. The staff member should not be expected to solve difficult technical problems. However, if simple problems can be solved or merely identified by the end-user, technical staff can concentrate on more complex tasks. It is recommended that an effective training program for ALL staff is put into place. This program should include appropriate incentives, accountability, and a diverse set of learning resources.

Cost: High

Recommendation: Organizations that use technology effectively can balance self-help provided by the end user with the additional technical support provided by the district. It is recommended that very basic troubleshooting skills are built into the professional

development program decreasing the number of low-level technical support calls.

Cost: Minimal to Moderate

Recommendation: Technology changes rapidly and the complexities of a highly technical environment are challenging. To stay abreast of current solutions it is recommended that technical staff training is provided as a normal part of working in the school district. Training activities should be part of the work schedule, and should lead toward certification.

Cost: Minimal to Moderate

4 Enterprise Management

	Low Efficiency	Moderate Efficiency	Satisfactory Efficiency	High Efficiency	Impact
Trouble Ticketing System	No trouble ticketing system exists.	A simple ticketing system is in place but is not electronic and/or is simple in its implementation not allowing for universal tracking of issues and establishing trends.	<i>A trouble ticketing system is in place and is used extensively for responding to technical issues. Analysis of issues, response time, and possible trends is not done.</i>	All technical issues are recorded and delegated to appropriate resources through an electronic ticketing system. All technical issues are tracked and evaluated through this system.	Minimal to Moderate
Virus Protection	No virus software is used.	Virus software is used, but it is client-based and therefore often out of date.	Server-based virus software is used, but the parameters for its use are loosely defined and updates are not consistent.	<i>Server-based virus software is available, used, and automatically updated.</i>	Minimal to Moderate
Network Infrastructure and Bandwidth	Network access is limited and is not available in every location.	Network access is available to all locations but does not impact all computers and is limited in bandwidth.	Network access is available to all locations, but segments of the network are limited in bandwidth.	<i>Robust broadband network access is available to all locations allowing for unlimited network control and tool use.</i>	High to Significant
Desktop and Software Standardization Tools (Profiles)	No desktop standardization tools or practice are used.	Desktop standardization tools are in place but are mostly ignored once the equipment is deployed.	Desktop standardization tools are in place, but user changes are not automatically accommodated.	<i>Desktop standardization tools are used to provide a common desktop for all users and access to common software. Changes to the desktop are automatically corrected.</i>	Minimal
Network Sniffing Tools	No network sniffing tools are used.	Network sniffing tools are used for problem diagnosis only.	<i>Network sniffing tools are used for problem diagnosis and limited preventative maintenance.</i>	Network sniffing tools are used to both diagnose problems and establish performance matrices for preventative	Minimal to Moderate

Online Knowledgebase	No online knowledgebase is present.	An online knowledgebase is in place, but it is limited in scope and is not readily used in the organization.	An online knowledgebase is in place and is consulted by users. It is not designed to easily expand and users do not use it as a first line of defense.	maintenance. These tools systematically monitor the network. An online knowledgebase is in place and is expansive in its detail. It is used readily, and automatically grows based upon the trend data generated in other tracking systems.	Minimal to Moderate
Integrated and Systemic Electronic Communication	Electronic communication is limited and has little use for providing technical support.	Electronic communication is available to many staff but is not integrated into the daily work of employees.	Electronic communication is available to everyone in the organization but is not readily used for technical support.	Electronic communication is available to everyone in the organization and is integrated into daily work, so it can be used for technical support.	Minimal to Moderate
Remote Computer Management	No remote management is available	Remote management is available for servers only.	Remote management is available for all computers but is not used extensively.	Remote management is available for all computers and is used as a primary strategy of support.	Moderate to High
Imaging Software	Imaging systems are not used.	Imaging software is used in the most primitive sense, only providing recovery services for those with the software provided by the vendor.	An image is used for delivery of the machine but is not used to clone all of the software on the machine. Imaging is used as a troubleshooting strategy.	Imaging software is used for delivery of new machines and as a troubleshooting strategy. Software installed through the imaging process is comprehensive.	Minimal
Metering and Application Push Technology	Metering and Push technology is not used as a support strategy.	Metering and Push technology is used for metering but is not used for installation and updates, and its use is limited in scope.	Metering and Push technology is used for metering and some software updates, but major software installations are handled on the individual computer.	Metering and Push technology is used for all software distribution, technical updates, and for metering of software on district computers.	Moderate
Server Farms and Centralized Services	Every site has its own server and in some cases, multiple servers. Backup and server management occurs locally.	Each site has only one server with some services (e.g., e-mail, Student information, etc.) provided centrally.	Many servers are consolidated into a few locations and most services are provided centrally.	All servers and services are centralized requiring minimal server management outside of one location.	Moderate to High

Application Service Providers (ASPs)	No ASP services are used.	One or two ASP services are used, but it does not impact support due to the peripheral nature of the product.	A number of district or commercial ASP services are used but is limited to one category of software (e.g., productivity, research, libraries, content, etc.).	A district OR commercial ASP model is used for most major software applications after a thorough cost/benefit and risk analysis.	Moderate to High
Thin-client Computing	Thin-client computing is not used.	Thin-client is used but is limited to a small number of users for specific applications.	Thin-client is used for most users of administrative systems and some productivity software. (Not instructional applications)	All administrative and productivity software for staff is delivered through a thin-client model. (Not instructional applications)	Moderate to High
Vendor-specific Management	Vendor tools are not installed or considered when purchasing hardware.	Vendor tools are available and have been purchased, but they are mostly unused.	Vendor tools are used in a limited way for diagnosis and prevention.	Vendor tools are used extensively for diagnosis of issues, to streamline processes, and for preventive measures.	Minimal
Quality Assurance (QA) and Customer Follow-up	Surveys are done generally as part of other departmental survey work within the organization or not at all.	Quality assurance surveys are conducted, but they are not automated and are only done annually.	Surveys are done specific to technical support; however, they are done only periodically and the data is used sporadically.	Quality assurance is measured by a random and automatic system that tracks customer satisfaction and closed tickets. Data is collected throughout the year. Questions asked are specific to technical support and the data is used to make adjustments.	Minimal
Student/Fiscal/HR/Assessment Systems	Student, Fiscal, HR and/or Assessment systems are not in place.	Student, Fiscal, HR and/or Assessment systems are partially in place, and are not reliable or intuitive.	Student, Fiscal, HR and/or Assessment systems are in place and reliable, but do not integrate well with other systems and are not intuitive.	Student, Fiscal, HR and/or Assessment systems are in place, reliable, intuitive, and integrate nicely with other productivity tools.	Moderate to High

Domain Result Summary: According to the TSI your Enterprise Management (Domain 4) is considered "Satisfactorily Efficient" requiring limited improvements. The "Satisfactory Efficiency" level of development refers to a system that is doing a very good job of support in many areas. Improvements in a number of areas will enhance the organizational capacity to effectively implement technology.

Recommendation: A thin-client is a computer that does not serve as a full-functioning stand alone PC. The Operating system and applications actually run on a remote server and are all centrally controlled and managed. As a result, the hardware requirements for the end-user are typically substantially less. In addition a thin-client strategy allows a small staff to ensure that users experience a consistent environment and that critical updates and software upgrades can be easily and quickly deployed. While the hardware

requirements are very low for the client, they are very high for the server. Costs for hardware and software are marginally lower or neutral but support costs can be dramatically decreased. It is recommended that a thin-client computing environment should be considered for administrative applications that have little or no multi-media requirements and where end-user hardware requirements may be challenging.

Cost: Moderate to High

Resources: www.citrix.com, www.microsoft.com (Terminal Services)

Recommendation: An application service provider serves a large population of users with one very large central processing resource. The ASP takes advantage of the economies of scale to provide application services at a reduced cost. With this scenario, many of the technical support issues are shifted to the ASP including backup and server performance. When appropriate infrastructure is in place, it is recommended that core applications are hosted by an Application Service Provider.

Cost: Moderate to High

Recommendation: Many vendors provide their own management tools to reduce downtime and increase support. This includes restore disks and management tools like HP's Insight Manager. It is highly recommended that districts take advantage of vendor provided tools for the management of computer systems.

Cost: Minimal

Recommendation: A technology support team should be concerned about the quality of service they are providing their end-users. Good quality assurance tracks downtime, quality of service, and responds to customer feedback. The most effective quality assurance is conducted randomly throughout the year and drives changes in support strategies. It is highly recommended that the district put into place a quality assurance and customer feedback system.

Cost: Minimal

Recommendation: A large percentage of technical issues that arise are often simple in nature. In most cases, with the right information and a culture that promotes minimal troubleshooting, users can help themselves for many technical problems. An easy to use and searchable knowledgebase is critical to empower users to solve the simple problems themselves. The more effective knowledgebase implementations are those that grow with the organization and are populated by staff that are solving problems. To more effectively use staff time and resources, the purchase and use of an online knowledgebase is strongly recommended.

Cost: Minimal to Moderate

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