McREL TECHNOLOGY INITIATIVE: THE DEVELOPMENT OF A TECHNOLOGY INTERVENTION PROGRAM

INTERIM PROGRESS REPORT

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OVERVIEW OF THE McREL TECHNOLOGY INITIATIVE

The McREL Technology Initiative was launched by Mid-continent Research for Education and Learning (McREL) in response to a concern in the Central Region[1] and across the nation: schools lack appropriate technological guidance, resources, and professional development to support them in becoming high-performing learning systems. The initiative seeks to create and test a comprehensive, research-based model of professional development that helps teachers integrate technology into their classroom instruction, and ultimately, help students achieve high, challenging standards. McREL defines technology integration as using technology, including computers, digital cameras, compact disks, handheld devices, probes, and related technologies to deliver and enhance the curriculum already in place. McREL refers to this model of professional development as the Technology Integration Program (TIP). In developing this program, McREL conducted a comprehensive review of the relevant literature on education technology, professional development, and the use of technology to support learning; and then designed an intervention based on the research, to address the educational concern stated above. The intervention was pilot-tested and subsequently modified. McREL is in the process of conducting a rigorous field test of the intervention using both intervention and comparison groups. The field test is expected to generate data about the effectiveness of the research-based TIP model.

DEFINING A DIRECTION: A LITERATURE REVIEW

A comprehensive review of the literature on education technology and professional development was conducted to (1) build a sound theoretical basis for the need and importance of McREL's technology initiative; (2) guide the design of the intervention; (3) identify critical factors that would likely impact the success of the intervention; and (4) inform the evaluation design of the field test of the intervention, including identification of potential outcomes and measures as well as typical effect sizes and length of time it takes to realize such benefits. The results of the literature review, summarized below, were reported in detail in *McREL Technology Initiative: Interim Process Report*, previously submitted to the Institute of Education Sciences (IES) in November 2003.

Technology professional development should be part of a broader initiative in schools. Skills training, although important, is only one piece of the technology puzzle. Technology integration also should focus on the curriculum a school has adopted and provide support for teachers and students in meeting curricular goals (Byrom, & Bingham, 2001; Brand, 1997). For example, although it is important for teachers to know how to use a spreadsheet, it is more important for them to learn how to use the analysis tools in the spreadsheet program to help students use the data to generate and test hypotheses.

Simply putting computers in schools does not mean effective technology integration has occurred. Teachers should see the connection between new hardware and software and their educational applications in the classroom (Granger et al., 2002). Furthermore, professional development efforts will be undermined if the computers or technology infrastructure are not able to be adequately supported

[1] For the purposes of this report, the Central Region includes the states of Colorado, Kansas, Nebraska, North Dakota, Missouri, South Dakota, and Wyoming.

(Holland, 2001). When there are problems with hardware or software, they should be corrected quickly and, if possible, without interruption to the teaching and learning process.

Technology professional development does not occur in a vacuum. Cuban (1999) reports that working conditions and the day-to-day demands that teachers face, including high-stakes testing, increased accountability, and the need to maintain order in the classroom, make it difficult for teachers to focus on implementing new technologies as well. Cuban also asserts that other barriers to technology integration include the almost continuous introduction of new software and software upgrades, the limited capability of older computers in schools to use newer software, the lack of reliable technology, and the lack of technical support to keep computers and networks running. Other factors that influence teachers' success in using technology in the classroom include their attitudes and modes of learning, their resistance or openness to change, and their levels of knowledge and previous use of technology (Fabry, & Higgs, 1997). To integrate technology effectively into classroom learning, teachers must not only learn the technology, but also move from teacher-center to student-centered instruction. This can be a difficult transition for some teachers (Honey, Culp, & Spielvogel, 1999).

Granger et al. (2002) found that "supportive relationships among teachers, a commitment to pedagogically sound implementation of new technologies, and principals who encourage teachers to engage in their own learning" (p. 2) were factors that led to innovative teaching in the classroom. It is important, therefore, to design technology professional development in ways that provide opportunities for teachers to work and reflect together.

The literature identified five critical factors in designing a technology professional development program for teachers: (1) technology training must be part of a broader initiative, (2) the focus on technology-related professional development should be on enhancing the adopted curriculum rather than on skills training, (3) adequate technical support is needed to minimize network and hardware/software problems, (4) teachers need to switch pedagogy from teacher centered to student centered, and (5) teachers should be given time to work together and reflect.

PRELIMINARY INTERVENTION DESIGN AND PILOT TEST

Using findings from the literature review as a basis, McREL staff designed a technology integration program and supporting materials, and then conducted a pilot test of the intervention. This section briefly reviews the development of the intervention, as well as key pilot-test findings that informed the field test.

PRELIMINARY INTERVENTION DESIGN AND MATERIALS DEVELOPMENT

McREL's technology integration program was designed to focus on the roles of classroom teachers and school leadership teams in the technology integration process by increasing teachers' level of comfort with the use of technology and providing professional development on integrating technology into the curriculum. Many experienced teachers in today's classrooms are "digital immigrants" (Prensky, 2002) who are trying to learn a new language. These "digital immigrants" see technology as a tool they need to learn and become comfortable in using. A study conducted by Apple Computer Corporation (1996) reported that

> as teachers became comfortable with the technology, they reported they were enjoying their work more and feeling more successful with their students. Over time, they also reported that they interacted differently with their students — more as guides or mentors and less like lecturers. (p. 11)

McREL's technology integration program consisted of a number of components including an assessment of site needs; planning sessions with school leaders; professional development workshops; and teacher mentoring by McREL staff members. Surveys, training modules, and protocols were developed for use during the pilot test of the intervention. These tools were used to collect, distill, and, later, to deliver information to the sites and to ensure that McREL consultants used the same methods and tools at each site.

The intervention was intended to build teachers' skills using software and hardware found in a typical school rather than using a set of newly released software programs. The primary software used included an office suite (Microsoft Office or Appleworks), Inspiration, a multimedia program (iMovie or MovieMaker), and Internet access. McREL's role in the intervention was to provide direct instruction to selected classroom teachers to show them how technology could be woven into their existing curricula and then guide those teachers as they began to mentor other teachers in their schools, thus increasing capacity within the school for technology integration.

Three additional tools were developed to assess the level of technology use and availability in potential pilot-test sites: the Teacher Technology Survey, the Administrator Technology Profile, and the Technology and Learning Audit. Each survey was developed and validated during the pilot test.

The Teacher Technology Survey was designed based on constructs from *Technology in American Schools: Seven Dimensions for Gauging Progress* (Lemke & Coughlin, 1998) and from the Apple Classrooms of Tomorrow Project (ACOT) to determine (1) the extent to which teachers are comfortable using technology; (2) the extent to which technology supports classroom practices; (3) the degree to which technology has changed the classroom learning environment; (4) teachers' attitudes toward technology; (5) teachers' comfort level in students' use of technology; and (6) the extent to which students can perform technology-related tasks. An additional item from the survey asks teachers to categorize themselves according to their level and type of technology use.

The Administrator Technology Profile was used to determine administrators' level of technology use and their willingness to support technology integration in classrooms. This profile asked administrators to respond using both Likert and open-ended responses.

McREL's comprehensive Technology and Learning Audit was developed to assess the status of a school's technology infrastructure. This audit process used surveys, document reviews, and on-site observations to present a comprehensive description of a school's infrastructure, technology support, hardware and software, professional development, and readiness to integrate technology into instruction.

To guide teachers and school leaders in using technology appropriately, McREL developed 14 half-day training sessions. The modules (for descriptions, see Appendix A) were drafted, tested, and finalized during the pilot test of the intervention. These training modules were designed to provide participants with technology skills training, technology integration skills and resources, and guidance about lesson and unit design. Each module is accompanied by a facilitator's guide that provides information on planning

the training, along with required participant handouts, a script for the training, and a participant evaluation form.

Implementation protocols were developed to guide the consistent delivery of the intervention across sites. Specific protocols include details on how to conduct a kick-off meeting, the steps and process in conducting a debriefing meeting following presentation of teacher-created projects, and guidelines for conducting a school/district showcase of teacher-created projects for other teachers, administrators, school board members, and community members.

The responsibilities for McREL and site staff for each meeting, debriefing session, and showcase event are spelled out in detail in these protocols. Protocols include objectives for each activity, a list of needed materials, evaluation tools, and timelines.

PILOT-TESTING THE INTERVENTION

A pilot test of the intervention was conducted between fall of 1999 and spring of 2002 in 10 schools, representing six school districts from five states. The pilot test examined the relative success of different types of professional development, including whole staff training, cadre training, and one-on-one mentoring in technology integration. The results of the pilot test were reported in detail in *McREL Technology Initiative: Interim Process Report*, previously submitted to the Institute of Education Sciences (IES) in November 2003. This report identified the following implications:

- **Planning and goal setting.** It is critical for school leaders to develop clear and tangible goals and to develop a plan of activities to reach those goals. These plans must be routinely reviewed with appropriate site personnel to ensure that all parties are working collaboratively to address site technology goals.

- **Written agreement.** A written agreement is essential to the successful implementation of the intervention. This agreement serves as the primary reference point for determining how all activities and projects will be conducted at each site; it also specifies how problems that arise will be resolved. The agreement should include a timeline, descriptions of roles and responsibilities, as well as primary and backup contact information for McREL staff members and for school leadership teams.

- **Teacher projects.** Teacher-created projects or technology-infused units are a key component of the intervention. These projects are opportunities for teachers to translate the general technology knowledge they gain from training sessions and from intensive mentoring from McREL staff into standards-based learning activities. The more connected projects are to teachers' technology competency levels and class needs, the more motivated teachers are to continue to seek ways to integrate technology into their instruction and the more meaningful the projects are to them. A project-based approach is helpful even to beginners.

- **Showcase results.** Showcasing projects in an open forum helps develop interest among teachers not initially involved in the intervention; promotes peer learning when the showcases are interactive; facilitates personal contact among mentors, other

teachers in the school or district, and administrators; and gives teachers opportunities to learn about other approaches that might address their specific instructional needs. Showcases also can be valuable reflection experiences for project presenters.

- **Involve the public.** Showcases also offer a public forum for displaying teacher integration projects, increasing accountability and personal investment from those teachers. Showcases that are open to the community can serve a positive public relations role for school board members, parents, community members, and other stakeholders.

- **Site readiness.** The success of the intervention rests in part on each site's understanding and self-analysis of existing programs, staffing, available tools, and technology integration goals.

- **Feedback to administrators.** School principals and district leaders need to be active supporters of the program and should be continually apprised of new classroom practices and new skills teachers have acquired.

- **Teacher development and support.** The selection and recruitment of teachers as mentors, as well as ongoing support for teachers involved in the project, are critical factors in building a long-term, sustainable, internal mentoring program.

- **Sustainability.** Incentives for mentors, as well as mentees, encourage the behaviors necessary for sustaining the mentoring program. The entire school or district must see the program as a catalyst for moving from a traditional professional development model of one-time workshops with little follow-up to one that provides immediate classroom impact and gives teachers the skills and competencies needed to effectively mentor colleagues. Professional development that includes job-embedded release time demonstrates administrative support for the program.

- **Personal intervention/high touch.** McREL's high-visibility presence at sites beginning to implement the intervention is a critical focal point for motivating teachers to develop and refine their technology integration skills. As outside experts, McREL staff members mentor teachers and reinforce the commitments that teachers and administrators have made in the written agreements.

- **Technology and learning audit.** The comprehensive technology and learning audit process used in the beginning of the pilot test proved to be a very time intensive and expensive process. The Technology Integration Readiness Rubric (see Appendix B) was developed to streamline the process. Much of the information about a site's relative strengths, weaknesses, and issues influencing technology integration gathered through the audit is also collected during the administration of the Technology Integration Readiness Rubric. Although the comprehensive audit process can be valuable for some sites, it is optional.

- **State involvement.** State officials' interest and involvement supports and reinforces the commitment made by district and school sites implementing the intervention. It also provides opportunities to leverage state resources to support local site programs.

INTERVENTION FIELD TEST

The ongoing field test of McREL's technology integration program, which began in 2003, involves a comparative analysis of outcomes and impacts in a set of 11 intervention schools and 11 comparison schools. A logic model (see Appendix C) was developed to identify long-term, intermediate, and short-term goals, along with the activities necessary to support those goals.

INTERVENTION REDESIGN

Based on the findings from McREL's literature review and the pilot test of the intervention, a systematic two-year program for integrating technology into classrooms was formalized as McREL's Technology Integration Program (TIP). In its first year, TIP is designed to assess the current status of the site regarding technology and then to identify and train an initial group of teachers as technology mentors. McREL uses the Technology Integration Readiness Rubric (see Appendix B) to assess each site's technology infrastructure and teachers' comfort level and experience working with technology. A group of potential mentors is selected at each site based on Readiness Rubric data and feedback from the school leadership team. McREL staff members enter into a mentor-mentee relationship with these teachers to provide them with the skills and competencies they need to integrate technology effectively in their classrooms. Each mentee, with McREL guidance, designs and implements technology-infused lessons and units. McREL mentors then hold meetings with each mentee to reflect on the process of unit development and implementation. Trainings with the entire school staff are delivered by McREL consultants, based on the needs identified through the Technology Integration Readiness Rubric and conversations with each site's school leadership team.

The second year of the program is intended to increase the capacity of the school by training the first-year teacher mentees to become mentors to other teachers in the school in the technology integration process. Throughout the program, there is an emphasis on helping administrators understand the importance of their support for the technology integration process, particularly when the process means that teachers and others may need to significantly change their practices.

Program Components

Drawing on the research and knowledge gained during the two-year pilot test, TIP includes the following components: (1) assessment of a school's infrastructure, (2) ongoing peer mentoring, (3) peer observations, (4) reflective practice, (5) curriculum and technology workshops and training sessions, and (6) leadership training. Each of these components is described in the sections that follow.

Assessment of a School's Infrastructure. Prior to entering into the TIP, a site must complete the Technology Integration Readiness Rubric. This rubric, along with conversations with school administrators, helps McREL staff determine whether a school has at least a minimum level of technology infrastructure needed to support technology integration in the classroom. Criteria for this determination

include the extent to which the school is connected to the Internet, the number of computers available for students' use, the number of computers available for teachers' use, the amount of professional development time available to teachers, and the level of commitment that school leaders have to technology integration and improved classroom pedagogy. If a school does not meet the minimum readiness criteria, McREL staff design a customized program to assist the school in meeting the criteria before moving forward with TIP.

Ongoing Peer Mentoring. Using the teacher technology survey and interviews with school administrators, McREL assists the school in selecting approximately 15 percent of the teachers who will become mentees. These teachers work with McREL mentors to learn how to use technology more effectively in the classroom. The focus of the mentor-mentee relationship is to provide guidance to mentees in finding appropriate resources, software, and hardware to integrate technology into their existing curricula. McREL mentors meet one-on-one with mentees to review lessons and units and provide examples of successful technology integration. Mentors also provide the skills training needed to assist the mentees.

Peer Observations. As part of the learning process, McREL mentors observe each mentee and provide feedback on their performance. In addition, mentees schedule at least one observation of a fellow mentee during each semester. Mentees use an observation form to guide them as they visit other teachers' classrooms. The observation sheet provides prompts and classroom behaviors to look for. These observations allow mentees to gain a broader perspective of ways that technology can be integrated in classrooms throughout the school. Following the peer observations, mentees set aside time to sit together and talk about what they noticed in each other's classrooms, using the observation sheets as a starting point for the conversation.

Reflective Practice. Reflective practice is a critical component in the mentor-mentee relationship. At least four times during each semester, the mentor and mentee set aside an hour or more to meet and discuss the progress and trials the mentee is experiencing as he or she integrates technology into their teaching and into the learning process. Mentee projects (technology-infused lessons or units) are critiqued by the mentors, and suggestions for refinement are provided. As students in mentee classrooms begin to use technology as part of the learning process, student projects also are shared and critiqued during the reflections.

Curriculum and Technology Workshops and Training Sessions. Guided by the responses to the Teacher Technology Survey and Administrator Technology Profile, McREL mentors engage in conversations with the school leadership team to select the most appropriate technology workshops and training sessions for staff. Each school or district must select at least one training opportunity each year of the program and may schedule as many as three each year, depending on need. The workshops (for descriptions, see Appendix A) cover a range of topics from classroom implementation of technology to administrative uses of technology.

Leadership Training. Because school administrators play a critical role in the success of any reform initiative, school leaders join together online each quarterly to learn about effective leadership practices, how to recognize effective use of technology in the classroom, and how to support teachers through the change process. Online discussions are followed up by McREL mentors during site visits. McREL mentors also share data at the end of each year and guide schools administrators in interpreting those data.

Program Phases

These program components are deployed in a two-year intervention that moves through three phases: planning, implementation, and transfer.

Planning Phase. The planning phase of TIP (see Figure 1) includes the following steps:

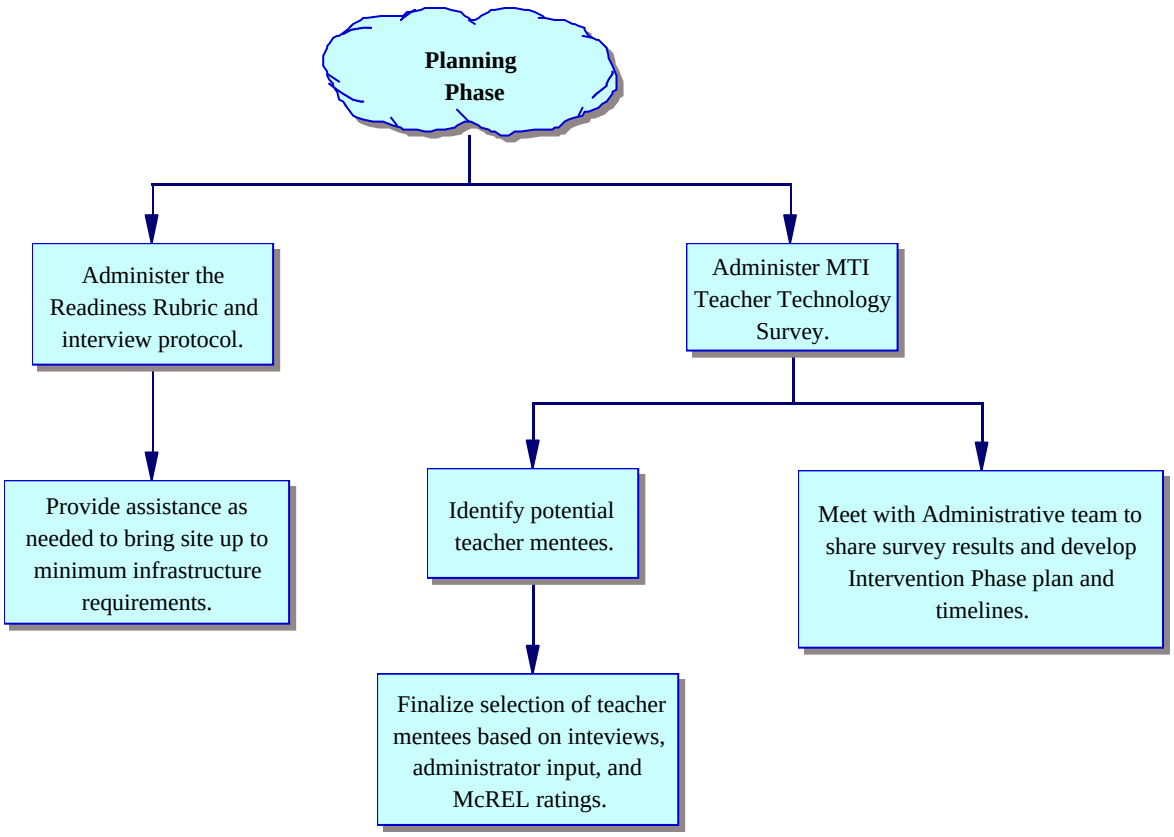

Figure 1. Technology integration program: Planning phase.

- Identify appropriately equipped and prepared schools and districts based on results of the Technology Integration Readiness Rubric and phone interviews with school or district leadership teams.
- Administer the Teacher Technology Survey to all teachers on staff to determine each teacher's levels of technology implementation and level of comfort with technology.
- Use survey results and recommendations from school or district administrators to identify potential teacher mentees. Conduct individual interviews with each candidate to determine his or her willingness to be mentored and ability to serve as a mentor in the second year. Select a viable team from the pool of candidates.
- Hold a conference with the school leadership team to share baseline survey data on overall levels of technology implementation in classrooms and offices throughout the school or district. Develop an action plan for the intervention based on technology

integration goals. Determine the timeline for technology mentorship activities. Select one to three MTI training modules to present to the entire staff based on data from the teacher survey and guidance from McREL staff members.

Implementation Phase. The implementation phase (see Figure 2) addresses issues identified in the literature and through the pilot test as critical to success:

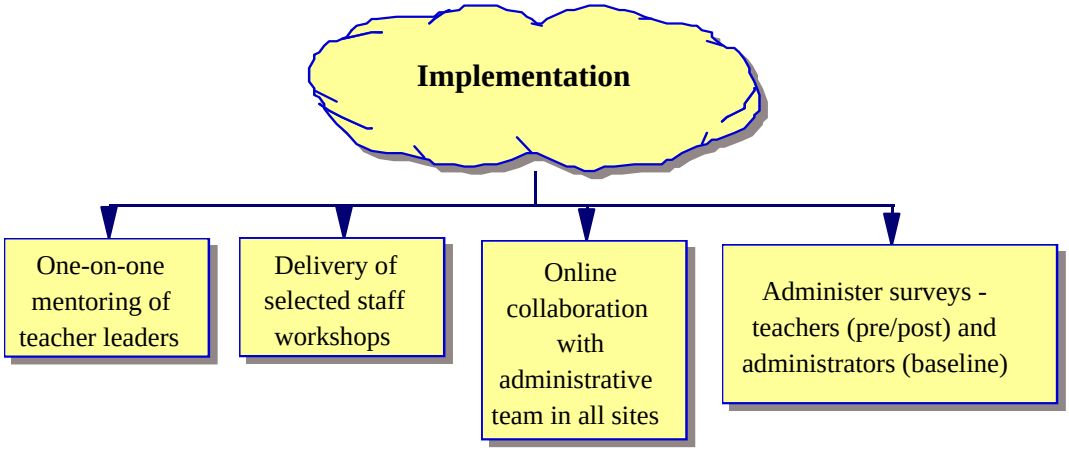

Figure 2. Technology integration program: Implementation phase.

- Hold a kickoff meeting to ensure that the school leadership team and all teacher mentees understand the nature and scope of their involvement for the following two years. Define teacher-created technology project criteria and provide skills training on selected software.

- Schedule one-on-one mentoring by McREL staff with each teacher mentee throughout the school year. These sessions will help teacher mentees

  - set goals for technology implementation within existing curricula;

  - identify the state and district standards addressed in the technology integration project and discuss how the project will meet the International Society of Technology Education (ISTE) technology integration criteria; and

  - provide technology resources, examples, and hands-on software training for individual teachers to integrate technology into their lessons and curriculum units.

- Set a structure so that teacher mentees can observe each other using technology with students and reflect on those observations.

- Archive all teacher and student work at each school, and select one or two samples of best student work.

- Provide online conferences for all administrators to discuss leadership and the change process. These conversations are based on McREL's Balanced Leadership Framework™ (see Waters, Marzano, & McNulty, 2003).

- Present the McREL training modules that the school leadership team and McREL staff members have identified as useful based on survey data. Assist leadership teams with follow-up activities as the staff uses what they learned during the workshops.

- Facilitate a mid-year debriefing meeting for teacher mentees to share, discuss, and reflect on the successes and challenges related to the projects they created and delivered in the classroom during the first half of the year.

- Facilitate a final showcase of all mentee-created projects for each site to celebrate success and to model for new mentees entering the project the following year.

- Re-administer the Teacher Technology Survey to all teachers to gather data on progress to date and provide guidance for the transfer phase plan.

- Ask all school and/or district administers to take the Administrator Technology Survey to determine their baseline levels of support and leadership for technology integration in their school or district.

- Meet with the school leadership team to review data from the intervention phase and to design an action plan for the transfer phase. The action plan should include goals, a timeline for transfer phase activities, and a description of training modules to be presented to the staff.

Transfer Phase. The transfer phase of the TIP (see Figure 3) moves the role of mentor from McREL staff to teachers who were mentees during the first year. This phase involves the following activities:

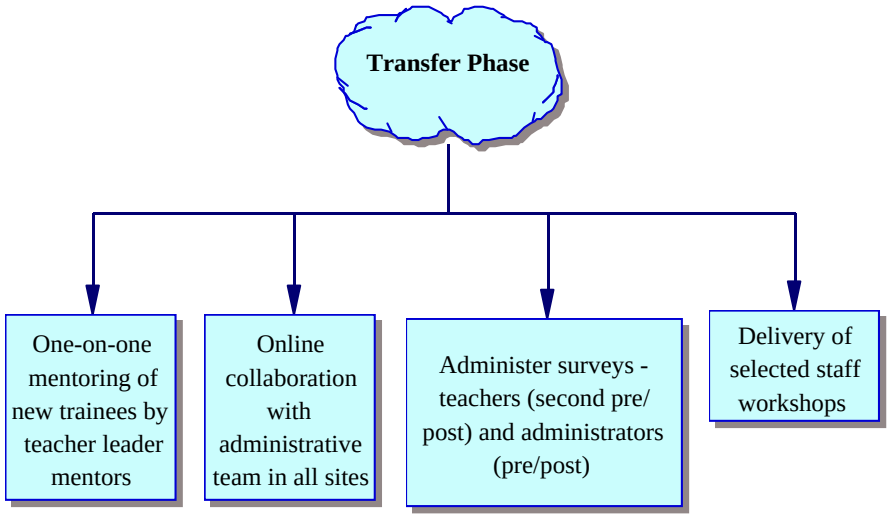

Figure 3. Technology integration program: Transfer phase.

- Conduct mentor training to prepare current mentees to serve as mentors during the next school year. Ensure that the training provides research and guidance for effective mentorship, adult learning, and professional development, as well as guidance in developing materials that mentors will use with their mentees in Year 2.

- Support teacher mentors as they conduct a kickoff meeting for new mentees. The kickoff session should outline responsibilities and timelines, provide examples of successful technology projects and the criteria for those projects, and provide skills training on selected software.

- Ask mentors to schedule one-on-one mentoring sessions with each mentee throughout the school year. These sessions will help mentees

    - set goals for technology implementation within existing curriculum;

    - identify the standards met with the technology integration project and discuss how the project will meet the established technology integration criteria; and

    - allow mentors to provide technology resources, examples, and hands-on software training for teachers to integrate technology into their lessons and curriculum units.

- McREL staff will confer with teacher mentors and support them as they provide additional technology integration resources and lesson plan ideas.

- Establish a structure so that teacher mentors and mentees can observe each other using technology with students and reflect on those observations.

- Ask mentors to assist their mentees in archiving all teacher and student work at the site, and ask mentees to select one or two samples of best student work for evaluation.

- Provide online conferences for administrators to engage together in book studies and to discuss their leadership responsibilities during the change process.

- Present the identified training modules and assist leadership teams with follow-up activities as teachers apply the knowledge and skills they gained from their participation in the workshops.

- Facilitate a mid-year debriefing meeting for mentees to share, discuss, and reflect on the successes and challenges related to the projects they created and delivered in the classroom during the first half of the year. Include teacher mentors in the debriefing.

- Facilitate a final showcase of all mentor- and mentee-created projects at each site to celebrate success and to model for new mentees entering the project the following year.

- Re-administer the Teacher Technology Survey to all teachers to gather data on progress to date and provide guidance for the exit plan.

- Re-administer the Administrator Technology Profile to all administrators involved in the project to determine their pre/post levels for support and leadership in technology integration within their school or district.

- Develop an exit strategy in collaboration with the school leadership team and teacher mentors to continue building internal capacity over time.

FIELD-TEST QUESTIONS AND DESIGN

The evaluation questions for the Technology Integration Program (TIP) are as follows:

1. What impact has the initiative had on teachers' knowledge, attitudes, and beliefs regarding the role and use of technology in their instruction?

2. How did the project affect participants' use of technology?

3. What impact has the initiative had on teachers' capacity to integrate technology into their instruction?

4. How have classrooms been affected by TIP? What was the impact of the project on teaching and learning?

5. What impact has TIP had on students?

As part of the field-test design, in 2003 comparison sites were identified to match the intervention sites. The sites, including five elementary schools, four middle schools, and two high schools, were matched on several school/district characteristics included in the NCES Common Core of Data. Matching characteristics included (1) locale; (2) grade level; (3) size of school/district; (4) percentage of students eligible for free or reduced-price lunch; (5) percentage of minority students; and (6) student achievement scores. A list was generated of potential sites, which subsequently were contacted. More detailed information from the potential comparison sites was collected from interviews about technology hardware, software, infrastructure, and involvement in technology-related projects/programs. Fourteen sites expressed an interested in serving as comparison sites and were found to be good matches based on responses to interview questions; 11 of these sites were selected as field-test sites.

The names and locations of the intervention and comparison schools, matched by school level, are shown in Table 1. As this table shows, there are five intervention elementary schools and seven comparison elementary schools; four intervention middle schools and two comparison middle schools; and two intervention high schools and two comparison high schools.

Table 1. Field-Test Schools and Comparison Schools Matched by School Level

Field-test Schools	Comparison Schools
Elementary Schools	
South Elementary, Lander, WY Park Elementary, USD 405, Lyons, KS Central Elementary, USD 405, Lyons, KS Flandreau Elementary, Flandreau School Dist, Flandreau, SD Beresford Elementary, Beresford, SD	Beloit Elementary, Beloit School Dist., Beloit, KS Osmond Elementary, Afton, WY Overland Elementary, Rock Springs, WY Dakota Valley Elementary, Dakota Valley School Dist., North Sioux City, SD Jefferson Elementary, Jefferson School Dist., Elk Point, SD Parkston Elementary, Parkston School Dist., Parkston, SD Buchanan Elementary, Pierre, SD
Middle Schools	
Wheatridge Middle School, Gardner, KS Monett Middle School, Monett, MO Lyons Middle School, USD 405, Lyons, KS Flandreau Middle School, Flandreau School Dist., Flandreau, SD	Dakota Valley Middle School, Dakota Valley School Dist., North Sioux City, SD Jefferson Middle School, Jefferson School Dist., Elk Point, SD
High Schools	
Flandreau High School, Flandreau School Dist., Flandreau, SD Lyons High School, USD 405, Lyons, KS	Dakota Valley High School, Dakota Valley School Dist., North Sioux City, SD Jefferson High School, Jefferson School Dist., Elk Point, SD

The field test of TIP has been designed to assess two key aspects of technology integration identified in the literature review: the organization and the user. Organizational characteristics include school culture, leadership, leadership support for technology, incentives for using technology, professional collegiality, and educational context. User characteristics include teachers' knowledge and attitudes; teachers' comfort level and capacity to use technology; students' learning opportunities that incorporate the use of technology; classroom environments that are student centered; and students' comfort level and capacity to use technology as a tool in their own learning.

DATA COLLECTION

These organizational and user characteristic data were collected using a combination of survey, interviews, and document reviews. The data collection schedule for the field test of TIP through fall 2005 is shown in Table 2 for intervention and comparison schools. Data from teacher and administrator surveys are collected annually.

Table 2. Data Collection Schedule

Timeline	Group	Teacher Survey	Administrator Survey	Student Survey	Interviews Site Visits	Document Analysis	Student Performance Data
Spring 2003	Intervention	X					
	Comparison						
Fall 2003	Intervention						X
	Comparison	X*					X
Spring 2004	Intervention	X	X		X		
	Comparison		X				
Fall 2004	Intervention				X		X
	Comparison	X					X
Spring 2005	Intervention	X	X	X			
	Comparison		X				
Fall 2005	Intervention				X	X	X
	Comparison	X					X

* Due to the final identification of comparison schools in fall 2003, survey data were not collected from comparison school teachers until December 2003; therefore, these schools are on a fall collection schedule.

Baseline Data Collection

The Teacher Technology Survey (Appendix D) was administered to teachers in intervention schools in spring 2003. Initial findings from the spring 2003 administration were described in *McREL Technology Initiative: Interim Process Report*, submitted to IES in November 2003. The teacher survey was administered to comparison school teachers in fall 2003. Data from the two sets of teachers were analyzed to determine if teachers from comparison and intervention schools were comparable when the program began. Findings from this analysis are described in the next section of this report.

The Administrator Technology Profile was revised prior to the field test (see Appendix E). This online survey includes items on (1) administrators' skill level in using software, (2) administrators' attitudes toward using technology, (3) extent to which schools use software, (4) planning for technology, (5) use of professional development activities by school staff, and (6) perceived impact of technology on schools. The questions are arranged by organizational characteristics and user characteristics as described earlier. Administrators use either a four- or a five-point rating scale to answer survey items. Survey items were derived from the literature review sections on the relationship between administrators and technology integration. Baseline data were collected from intervention and comparison school administrators in spring 2003. Survey findings from intervention and comparison school administrators also are compared in the next section of this report.

Interim Data Collection

Teachers in the intervention schools took the online Teacher Technology Survey for a second time during spring 2004. These data are reported in the next section of this report.

Interviews were conducted with selected administrators and teachers in intervention schoos during spring 2004 on-site visits. Interview questions were based on an informal protocol of items that addressed the five evaluation questions and the implementation of TIP in intervention schools. Given the availability of

staff in some locations, some interviews were conducted with individual teachers and some were conducted in informal focus groups. Interviews were conducted with individual administrators or with pairs of administrators. These formative data will be used primarily for planning and for further development efforts related to the intervention.

To establish whether teachers in comparison and intervention schools were at the same level as the intervention began — or if not, what the differences were — comparisons were made between the two groups based on the first administration of surveys to the two groups.

Equivalency of Teachers in Comparison and Intervention Schools

In total, data were collected from 235 teachers in comparison schools and 241 teachers in intervention schools. A two-factor multivariate analysis of variance (MANOVA) was conducted on the six subscale means using school level (elementary, middle, high school) and group (intervention teacher vs. comparison teacher) as factors. The results indicated no significant differences between the two groups of teachers when compared by school levels on the six subscales. In other words, intervention and comparison teachers were no different within the three school levels. Means for the two groups of teachers by subscale and by school level are shown in Table 3. Both intervention teachers and comparison teachers were in the mid-range (M=2.50 to 3.50, on a five-point scale) in comfort level, attitude level, and student use of technology when they began their involvement in the intervention.

Table 3. Means for Intervention Teachers and Comparison Teachers by Subscale and School Level

Subscale	Intervention Teacher Means by School Level		Comparison Teacher Means by School Level		Significance
Teacher comfort level in using technology	Elementary	3.40	Elementary	3.61	n.s.
	Middle	3.65	Middle	3.60	
	High	3.48	High	3.78	
Extent that technology supports classroom practices	Elementary	2.38	Elementary	2.54	n.s.
	Middle	2.72	Middle	2.83	
	High	2.98	High	3.36	
Degree that technology has changed the classroom learning environment	Elementary	2.85	Elementary	3.01	n.s.
	Middle	2.99	Middle	3.28	
	High	2.95	High	3.62	
Teacher comfort level in student use of technology	Elementary	3.32	Elementary	3.47	n.s.
	Middle	3.62	Middle	3.95	
	High	3.66	High	3.81	
Teacher attitudes toward technology	Elementary	3.58	Elementary	3.74	n.s.
	Middle	3.70	Middle	3.90	
	High	3.82	High	3.80	
Extent that students can do technology-related tasks	Elementary	2.05	Elementary	2.25	n.s.
	Middle	2.99	Middle	3.09	
	High	3.32	High	3.23	

*Means are based on subscale items using a five-point rating scale where 1=low and 5=high.

Although there were no differences in the six subscales when teachers were compared by school level, as Table 4 shows significant differences were found between comparison teachers and intervention teachers on two of the subscales (extent to which technology supports classroom practices and the degree to which technology has changed the classroom learning environment) when all three school levels were combined. Comparison teachers had slightly higher means on each of these subscales. These differences will be statistically controlled by using this first survey as a covariate in subsequent analyses.

Finally, an item on the Teacher Technology Survey asked teachers to place themselves in one of five technology user categories. User type categories ranged from an "entry level" user (level =1), who is just starting to use technology, to a "transformation" user (level 5), who creates new ways to use technology tools for real-word applications. No significant difference was found between the intervention teacher mean (M=2.19) and the comparison teacher mean (M= 2.22) on technology user type. Level 2, which the two group means are closest to, is defined as teachers who have some comfort level with technology and are taking initial steps to use it in their curriculum.

Table 4. Means for Intervention Teachers and Comparison Teachers by Subscale with School Level Combined

Subscale	Means Across School Level		Significance
	Intervention Teacher	Comparison Teacher	
Teacher comfort level in using technology	3.52	3.63	n.s.
Extent that technology supports classroom practices	2.64	2.67	.045
Degree that technology has changed the classroom learning environment	2.93	3.11	.002
Teacher comfort level in student use of technology	3.50	3.57	n.s.
Teacher attitudes toward technology	3.68	3.77	n.s.
Extent that students can do technology-related tasks	2.70	2.46	n.s.

*Means are based on subscale items using a five-point rating scale where 1=low and 5=high.

Equivalency of Administrators in Comparison and Intervention Schools

Responses of school administrators were compared in intervention and comparison schools on a survey of perceptions of technology in education. Each set of items was analyzed using MANOVA with intervention versus comparison administrator as the factor.

User Characteristics. The first set of items asked administrators to indicate their skill level in using different software packages such as word processing, e-mail, desktop publishing, and spreadsheets. The comparison and intervention school administrators were equivalent in their skill level in using software.

A second set of items asked administrators about their attitudes toward technology in general. This set of items is particularly important since the literature review indicated that administrator support and positive

attitudes lead to increases in positive teacher attitudes and beliefs (Pisapia, Coukos, & Knutson, 2000). Questions included perceptions about the relationship between technology and student performance, and administrator support for staff in using technology. There were no significant differences in this area with the exception of prioritization of the integration of technology; means for intervention administrators were significantly higher, as shown in Table 5. Again, these survey responses will serve as a covariate on future analyses, increasing the ability to detect differences and adjust for initial differences.

Finally, the same single survey item on user type asked administrators to rate their use of technology on a five-category scale that ranged from "an administrator who is just starting to use technology for learning" to "an educator who supports the creation of new ways to use technology for real-world application." A t-test indicated no significant difference between the intervention school administrators (M=3.92) and the comparison school administrators (M=3.70). Administrators in both groups were closest to "educators who are comfortable with technology and able to support its integration throughout all learning activities."

Table 5. Administrators' Attitudes toward Technology*

Activity	Administrator Means		Significance
	Intervention (n=13)	Comparison (n=9)	
a. The district encourages the use of technology in your school.	3.69	3.78	n.s.
b. I encourage staff to use technology.	3.92	3.78	n.s.
c. The community is supportive of using technology in our school.	3.46	3.44	n.s.
d. Teachers in my school are in favor of using technology in their classrooms.	3.31	3.22	n.s.
e. I know how technology can be integrated into the classroom to improve student achievement.	3.23	3.22	n.s.
f. Teachers in my school know how technology can be integrated into their classrooms to improve student achievement.	2.77	3.22	n.s.
g. I believe that the use of computers in education reduces the personal interaction between teachers and students.	1.62	2.00	n.s.
h. Integration of technology into classrooms is a high priority for me.	3.77	3.11	.007
i. Students have less interpersonal contact with others when working with computers.	1.69	2.11	n.s.
j. Technology has been helpful in meeting district and state standards.	3.23	3.22	n.s.
k. Technology makes teaching more effective.	3.46	3.11	n.s.

Activity	Administrator Means		Significance
	Intervention (n=13)	Comparison (n=9)	
l. I feel that computers are useful as instructional aids.	3.69	3.33	n.s.
m. I believe that computers can stimulate student creativity.	3.69	3.44	n.s.
n. I use incentives to encourage faculty to participate in technology professional development.	2.85	2.56	n.s.
o. I help teachers acquire technology for their classroom projects.	3.54	3.11	n.s.

*Means are based on items using a five-point rating scale where 1=strongly disagree and 5=strongly agree.

Organizational Characteristics. To assess organizational characteristics, four areas were included on the survey. First, administrators were asked to respond to a set of 15 items about the uses of software in their schools. The uses of software included, for example, generating spreadsheets, recording finances, tracking student demographics, and tracking IEPs. The results of the statistical analysis indicated no significant differences between the responses of intervention school administrators and those of comparison school administrators.

Second, administrators were asked to respond to a set of items about planning for technology in their schools; these items were included because the literature review emphasized the importance of a school's technology plan (Fabry & Higgs, 1997). The statistical analyses conducted on this set of items revealed no significant difference between the responses of intervention school administrators and comparison school administrators.

Third, a set of nine questions asked administrators about the extent to which professional development opportunities are used by their staff. The list of opportunities included, for example, on-site courses and trainings, on-site visits to other schools, online courses, conferences, and summer workshops. Overall, the analysis indicated no significant differences in responses between intervention school administrators and comparison school administrators, with the exception of two items. Significant differences were found for "on site visits to other schools" and "online courses." In both cases, comparison school administrators indicated more frequent use of these two opportunities than did intervention school administrators. Of the opportunities listed, both administrator groups indicated that on-site courses/trainings and summer workshops were most frequently used by staff.

Finally, a set of 15 questions asked administrators about the impact that technology has had on their school. These items are particularly important since they reflect the administrator's attitudes about the utility of technology. Statistical analysis indicated significant differences between the responses of intervention school administrators and comparison school administrators in only two cases, as indicated in Table 6: reducing tardiness, and increasing the extent to which the curriculum is individualized to meet students' needs. Both groups of administrators indicated larger impacts of technology with regard to increasing communication, increasing efficiency in their own work, and increasing student creativity.

Table 6. Impact of Technology on Your School*

In your school how much impact has technology had on . . .	Administrator Means		Significance
	Intervention (n=12)	**Comparison (n=10)**	
providing staff with better data for decision making?	3.50	3.80	n.s.
increasing the amount and types of information people expect from you?	3.58	4.10	n.s.
enabling you to do your job more efficiently?	4.33	4.20	n.s.
making your job more complicated?	3.08	3.40	n.s.
increasing communication with parents?	4.00	4.30	n.s.
improving your communication with students?	3.33	3.70	n.s.
increasing collaborative learning within classrooms?	3.50	3.60	n.s.
increasing individualized curriculum to meet student needs?	3.00	3.90	.033
increasing class activities that are appropriate for multiple learning styles?	3.75	4.00	n.s.
increasing the use of multiple resources for instruction?	3.75	3.80	n.s.
increasing student motivation?	3.75	4.10	n.s.
reducing tardiness?	2.25	1.60	.051
reducing absences?	2.25	1.60	n.s.
increasing collaboration among staff?	3.25	3.40	n.s.
increasing creativity in student projects?	4.00	4.10	n.s.

*Means are based on items using a five-point rating scale where 1=no impact and 5= major impact.

Overall, the analyses to establish equivalency of teachers and administrators indicated that intervention teachers and administrators and comparison teachers and administrators are essentially equivalent on user and organizational characteristics. These results suggest that the comparison schools are an appropriate set for tracking changes as a result of the TIP program.

YEAR ONE RESULTS FOR INTERVENTION TEACHERS

During the 2003–2004 school year, TIP was implemented at each of 11 intervention school. Teacher mentees at each school were identified through their 2003 teacher survey results, school administrators' nomination, and through characteristics such as being technology savvy and/or displaying a willingness to learn and use new classroom practices. Four teacher mentees were selected, on average, in each of the intervention schools. McREL staff worked closely with these mentees over the school year. These mentees were a primary focus of the first-year evaluation. To assess the effects of the intervention in this

first year, gains for these teachers are compared to all other teachers in the intervention schools. In the next year of the program, gains are expected from all intervention school teachers; these will be compared to gains experienced by teachers in comparison schools.

In spring of 2004, certified teachers from each of the 11 intervention schools were asked to complete an online survey. A total of 199 teachers completed this survey. Of these teachers, 146[2] also had completed the 2003 survey. Twenty-nine of the 146 teacher respondents identified themselves as mentees. The responses of teachers who completed both the 2003 and 2004 surveys were analyzed. Table 7 displays the number of teacher respondents by year and by school, as well as response rates per school. The number of mentee respondents is indicated in parentheses. The overall response rate for 2004 was 87 percent compared to a 69 percent response rate in 2003. Individual school response rates for 2004 varied from 50 percent to 97 percent.

Table 7. Number* of Respondents by Year and by School

Intervention Schools	2003 Respondents	2003 Response Rate	2004 Respondents	2004 Response Rate	Number of Teachers Who Responded Both Years
South Elementary	22	100%	24 (4)	100%	18
Beresford Elementary	20	67%	25 (5)	83%	16
Monett Middle School	17	55%	27 (4)	87%	12
Wheatridge Middle School	33	86%	38 (4)	97%	28
Flandreau Elementary	19	68%	22 (0)	79%	15
Flandreau Middle School	16	80%	19 (1)	95%	11
Flandreau High School	16	67%	20 (3)	83%	14
Lyons Central Elementary	10	63%	14 (2)	88%	9
Lyons Park Elementary	14	78%	9 (2)	50%	7
Lyons Middle School	4	22%	16 (2)	89%	3
Lyons High School	19	66%	26 (2)	90%	13
Total	190	69%	240 (29)	87%	146

* Teachers who floated between schools are not included.

The six subscales from the teacher survey (described earlier in this report) address user characteristics in relationship to the influential aspects of technology integration: teacher perceptions on their comfort, attitudes, and technology use in their classroom. The teacher attitude subscale also includes items that address teacher perceptions about organizational issues.

To determine whether there were differences after one year between mentees and other teachers on each of the six subscales, an analysis of covariance (ANCOVA) was conducted. Teacher type (mentees/other teachers) was used as the independent variable, and subscales were used as the dependent variable. The

[2] Teachers identified themselves by using the last four digits of their social secu1rity number.

pretest was used as a covariate to adjust posttest scores in order to control for initial differences between the two groups. A higher adjusted score would be expected for mentees than for other teachers who have not yet received the individualized training and attention from McREL staff through the TIP project.

Results from the ANCOVA for each of the six subscales are displayed in Figure 4. Significant differences in survey responses were found for four of the six subscales: teacher comfort in using technology; extent that technology supports classroom practice, degree that technology has changed the classroom learning environment, and teacher comfort level in student-related technology activities. These differences indicate that at the end of the year, the mentee user characteristics are greater than those of other teachers in four of the six subscales, indicating increases in mentee technology user characteristics following the McREL intervention.

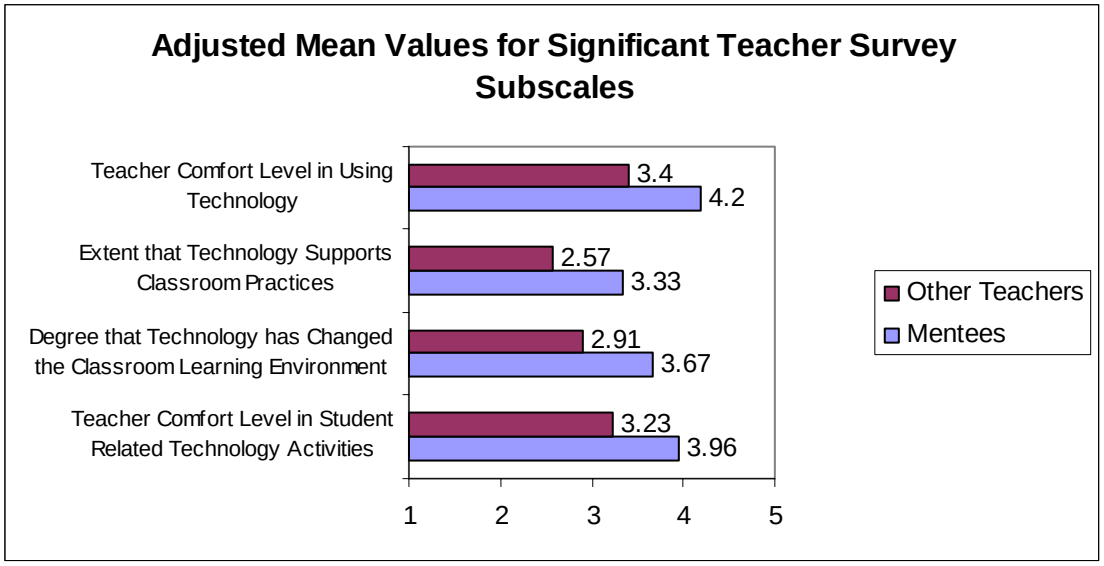

Figure 4. End-of-year differences in the characteristics of mentees and other teachers.

In addition to the six subscales, an ANCOVA was used to analyze the survey item in which teachers classified themselves as a technology user. Again, the pretest was used as a covariate to adjust posttest scores.

The ANCOVA results ($F=158.7$, $p<.001$) indicated a significant difference between mentees ($M=3.39$) and other teachers ($M=2.14$) after adjusting for initial differences. Figure 5 shows the percentage of mentees and other teachers within five types of technology users. As expected, a greater percentage of mentees are in the higher skill levels of users than other teachers.

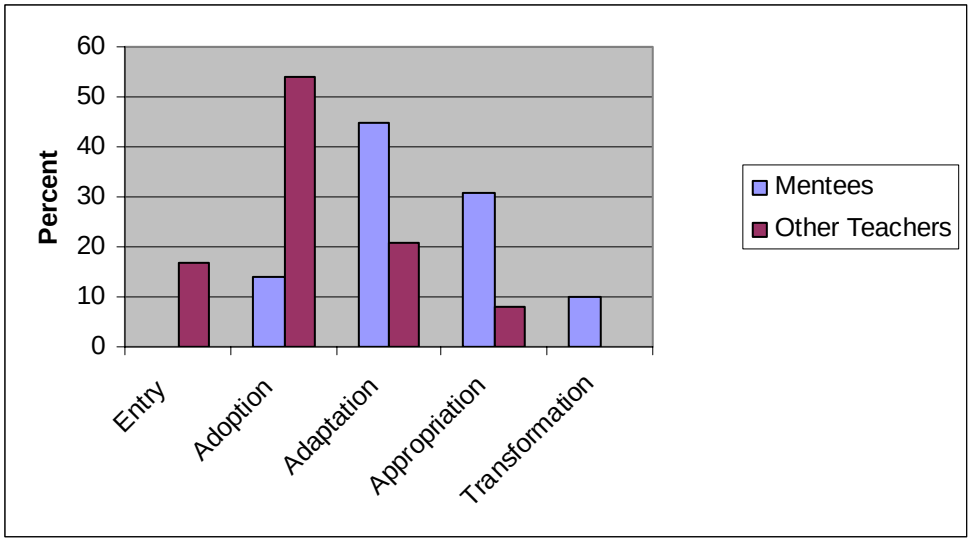

Figure 5. Type of technology user by mentees or other teachers.

SUMMARY OF FINDINGS

The presentation of the findings in this section is organized around the five evaluation questions for McREL's Technology Integration Program. During this first year of implementation, the findings primarily apply to the mentees at each site.

What impact has the initiative had on teachers' knowledge, attitudes, and beliefs regarding the role and use of technology in their instruction?

- The comfort level of mentees in using technology and in using student technology-related activities increased more over the course of the year than did the comfort level of other teachers.

- The attitudes of mentees, who were more experienced and knowledgeable about computers coming into TIP, improved toward developing and implementing technology projects.

How did the project affect participants' use of technology?

- Findings from the survey item that classified respondents by type of technology user indicated that mentees are at a higher level of technology user sophistication than other teachers. The average rating for mentees indicated that they are shifting toward more student-based project learning and encouragement of student use of a variety of technology tools. The significantly higher levels of mentees, after adjusting for starting levels, indicate that the gain was not simply maturation or expected development.

What impact has the initiative had on teachers' capacity to integrate technology into their instruction?

- Mentees perceived that technology supported their classroom practices to a greater extent than other teachers.

- Administrators indicated that mentees had increased their capacity to use technology.

How have classrooms been affected by TIP? What was the impact of the project on teaching and learning?

- Mentees perceived that technology had changed their classroom learning environment.

These findings support the expected impacts of TIP on technology integration in classrooms.

NEXT STEPS

The MTI was developed to produce the knowledge base needed to design and test a research-based intervention for schools and districts in enhancing their curriculum with technology. The resulting intervention should be systematic and show evidence of producing positive results in the classroom. As outlined in this report, McREL is well underway in proving the efficacy of this intervention.

During the 2004–2005 school year, two important milestones are anticipated. First, the transfer phase of the intervention has begun, increasing the internal capacity of schools to engage in effective technology integration in the classroom. At the conclusion of this phase in spring 2005, two years' worth of data will have been collected and analyzed on both the field sites and comparison sites. The data will be used to determine the effect of the intervention, which will provide evidence that TIP offers schools a solid, research-based model for technology integration and professional development. Second, a facilitator's guide will be published to guide schools as they adopt and implement the intervention. This guide will include detailed information that can be used by a school or district to implement the intervention with little or no additional training from McREL.

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APPENDIX A: MTI TRAINING MODULE DEVELOPMENT

A series of training modules were developed during the pilot test. These modules addressed specific needs of school leaders and teachers in the infusion of technology into the curriculum. They were designed to be delivered to schools by McREL consultants and were recommended based on the results of the McREL Teacher Technology Survey and in consultation with the school's administrative team. As part of McREL's quality assurance process, each of the MTI modules was pilot-tested with educator audiences at least twice, beginning in 2001. The 14 modules are summarized below. These modules were pilot-tested and edited based on participant feedback:

Classroom Technology Management – This module assists teachers in learning how classroom groupings and activities relate to the use of technology, compare present use of technology with desired use of it, identify strategies to reach the desired use of technology, share successful management strategies with peers, and write an action plan to better use classroom- and building-level technology.

E-mail and Internet – This module is designed for teachers who wish to improve their use of Internet resources, both in the classroom and for professional purposes. The e-mail portion of the workshop focuses on using the address book, setting up group e-mails, and sending attachments. It also introduces student e-mail projects as potential classroom activities. Teacher-friendly Internet sites are examined for potential classroom and professional use.

Technology Leadership – This module assists participants in understanding how leadership at many levels builds a technology program. In this module, participants learn to use top-down/bottom-up thinking for successful leadership, and see themselves as leaders.

Technology and Lesson Plan Integration – In this module, teachers discuss technology tools used in education, explore the elements of effective lesson plan design, search a variety of lesson plan websites, design a technology-rich lesson, and design an assessment of student learning for a technology-rich lesson.

Proficiencies and Unit Planning – In this module, participants determine their technological proficiency level, implement an action plan to move to the next level of proficiency, and apply proficiency information and research on effective classroom instructional techniques to their future lesson and unit plan development.

Technology Planning – In this module, participants gain a basic knowledge of the technology planning process, analyze school district technology plan samples, get hands-on experience with a six-step technology planning process, and learn about available resources to aid in technology planning.

Technology and Writing Integration – In this module, participants discuss a five-step writing process and ways technology can support each step, preview websites that

support the writing process, practice a variety of strategies in the five-step writing process, preview websites to discover effective methods for developing rubrics, and use rubrics to evaluate student writing samples.

Technology and the Problem-Solving Process – In this module, participants create lesson plans that incorporate problem-solving strategies, create a multimedia presentation to introduce the lesson to their class, learn how to locate and organize resources for use in the problem-solving lesson, and prepare to teach a unit on problem solving.

Technology and Multiple Intelligences – In this module, participants discuss Howard Gardner's theory of multiple intelligences, learn about and use technology resources that support each of the eight intelligence areas, design technology-based activities that support instruction for each of the eight intelligence areas for a theme to use in the classroom, learn how to supply information about multiple intelligence theory and apply it to future lesson plan development, and design at least eight technology-based activities — one for each intelligence area that support classroom instruction.

Navigating Desktops and Networks – In this module, participants learn to identify the basic concepts and classroom uses of networks, identify classroom applications for using group folders on the network, identify the major parts and functions of the desktop, practice switching among open applications on the desktop, learn to discern file and folder structure and appearance, distinguish when to use *Save* and *Save As*, successfully navigate the hard drive and network to retrieve previously saved files, use the *Find* feature to locate previously saved files, and investigate print dialog boxes and how to switch network printers.

Software Evaluation and Planning – In this module participants learn to ask the right questions when selecting software, create a project to evaluate productivity software, develop criteria to evaluate classroom software, and begin to develop a software plan for your school or district.

Microsoft Office™ in the Classroom – In this module, participants learn about the three most widely used components of Microsoft Office: Word, PowerPoint, and Excel in both Windows and Macintosh operating systems. Participants also discuss ways to apply these applications in their classrooms.

Data Analysis Using Excel – In this module, school and district leaders deepen their understanding of data and develop strategies for data utilization and presentation.

Using Technology with Classroom Instruction that Works – In this module, participants examine the nine effective instructional strategies addressed in *Classroom Instruction that Works* (Marzano, Pickering, & Pollock, 2001) from a technology integration perspective.

The **E-Mail & Internet** and **Navigating Desktops and Networks** modules were eliminated from the set of training materials in view of feedback from administrators and teachers in the field, which indicated that this content was no longer relevant to the needs of schools and districts.

APPENDIX B: TECHNOLOGY INTEGRATION READINESS RUBRIC

MTI Field-Test Site Readiness Rubric

	1	2	3	4	5	Rating
Hardware and Infrastructure						
Labs (approx 15-20 machines) (include mobile labs)	One per 300 or more students	One per 226 to 299 students	One per 165 to 225 students	One per 131 to 164 students	One per 130 students or less	
	Notes:					
Student to computer ratio (net connected)	8 students or more /computer	7 students /computer	5 or 6 students /computer	4 students /computer	3 students or fewer /computer	
	Notes:					
Infrastructure	20% or less of computers are networked and Internet capable	21-60% of computers are networked and Internet capable	61-84% of computers are networked and Internet capable	85-90% of computers are networked and Internet capable	Over 90% of computers are networked and Internet capable	
	Notes:					

	1	2	3	4	5	Rating
Hardware and Infrastructure						
Network reliability	• Network frequently down (more than five times in the <u>most recent</u> semester) • Outages last over 2 hours	• Network down often (more than once a month 4-5 times) • Outages usually last for at least an hour	• Network down 2–3 times a <u>semester</u> • Outages usually for an hour or less	• Network down 2–3 times a <u>year</u> • Outages last less than an hour	• Network downtime is less than twice a year • Outages last less than an hour	
	Notes:					
Network speed	• Slow network login is routine • Speed degraded with more students on internet • Noticeable slowdown during network login and class changes	• Network login time is acceptable • Users may experience a dip in speed during class changes.	• No speed degradation during a full lab • Network login time is acceptable	• Users may experience some slowness during class changes • Graphic-heavy web pages may load slowly when labs are full • Network login is quick	• Even graphic-heavy web pages load quickly • No significant sluggishness during class changes • No speed degradation during a full lab	
	Notes:					

	1	2	3	4	5	Rating
Hardware and Infrastructure						
Projection system (not TV monitors)	1/350 or more students	1/250-350 students	1/176-249 students	1/131 to 175 students	1/130 or fewer students	
	Notes:					
Avg. # of computers per classroom (LAN/WAN connected to Internet)	0	1	2	3 - 4	5 or more	
	Notes:					
Multimedia computers (capable of playing audio and video)	1/8 or more students	1/6-7 students (2001 national average)	1/4-5 students	1/3 or fewer students	• 1/3 or fewer students • One multimedia authoring machine per lab (audio and video production)	
	Notes:					

	1	2	3	4	5	Rating
Software **Note: In this section, use Ratings 1, 3, and 5 ONLY**						
Word Processing	No word processing software on computers.		All computers have word processing software, but different versions or old versions.		All computers have current versions of word processing software.	
	Notes:					
Spreadsheet (mandatory at MS and HS)	No spreadsheet software on computers.		All computers have software, but different versions or old versions.		All computers have current versions of software.	
	Notes:					
Presentation	No presentation software on computers.		All computers have software, but different versions or old versions.		All computers have current versions of software (PowerPoint or HyperStudio type).	
	Notes:					
Gradebook	No gradebooks used	Gradebooks used by some teachers	Different versions of gradebooks are used by all teachers	Gradebook is part of the student information system	Gradebooks tied to standards and DDDM	
	Notes:					

	1	2	3	4	5	Rating
Personnel						
Tech support	• Staff overwhelmed with numerous problems and lack level of expertise • No one designated or allocated time for the job	• Person(s) designated for support, but not given enough time or training to do so	• Designated staff to keep network reliable and maintain equipment • Significant or long delays remain	• Adequate staffing to keep network reliable and maintain equipment without long delays	• Staff maintains equipment in expeditious manner, network problems few	
	Notes:					

	1	2	3	4	5	Rating
Planning **Note: In this section, use Ratings 1, 3, and 5 ONLY**						
Technology Plan	Has minimal plan required by state and E-rate		• Has a current plan which includes - Needs assessment - Goals - PD strategy - Budget - Evaluation • District tech committee is in place • Plan evaluated annually		• Tech plan is part of district consolidated or strategic plan • Plan is updated based on evaluation 3 or more times per year	
	Notes:					
Administrators participate in Gates grant	No participation		Some administrators have participated		All district administrators (supt., principals) have participated	
	Notes:					

Additional Infrastructure Information

Lab Access (student time) HS- typical 10th grader	30 min or less/week	Between 30 and 60 minutes/week	between 1 & 2 hrs per week	Between 2 & 3 hrs per week	3 hrs or more per week
	10 minutes or less per week	11-35 minutes per week	35-45 minutes per week	45min-1.5 hr per week	Over 1.5 hr per week
EL average access	Notes:				
Operating system (gets to machine capability)	Win 95 Mac 7.6<		Mac 8.x> Win 98		Mac 9.x> Win 2000 or XP
	Notes:				
Web Browser	Internet Explorer <4 Netscape Navigator <4		Netscape Navigator 4 Internet Explorer 5		Netscape Navigator 7 Internet Explorer 6
	Notes:				

Professional Development Information

- School/district will provide substitutes for job-embedded release time _____Yes _____No
- How many substitutes in your district? _____
- Any problems getting enough subs? _____

  Notes: _____

  School/district will utilize PD days in school calendar for MTI _____Yes_____No

  Notes: _____

  School/district offers stipends or other incentives for off-contract hours _____Yes _____No

  Describe incentive - i.e.,

  - Provide teachers with computers or software
  - Credit available
  - Other incentives (describe):

    _____

    _____

- Teachers routinely participate in professional development
  - Evenings _____
  - Weekends_____
  - Summer _____

  Describe Professional Development:

  - _____ hands-on
  - _____ set and get
  - _____ small group collaborative activities
  - _____ teachers can use immediately in classroom
  - _____ teachers expected to use immediately in classroom
  - _____teachers have some choice in professional development activities
  - _____ teachers involved in planning professional development activities
  - _____ teachers involved in teaching professional development activities
  - _____ number of professional development days
  - How do you integrate technology into professional development opportunities? Explain.

    _____

    _____

Initiatives the school or district is participating in:

_____
_____
_____
_____
_____

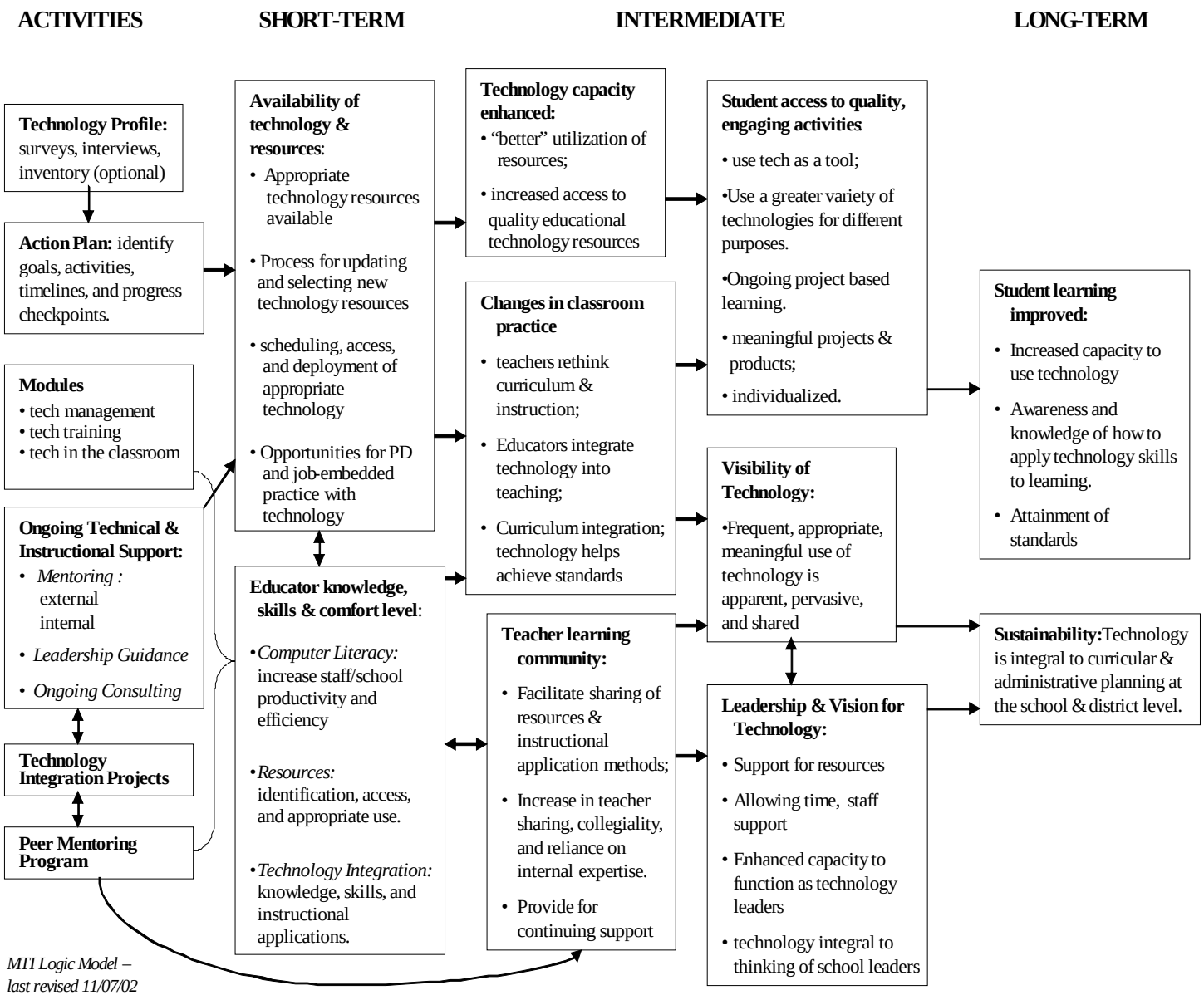
Teacher Scale

Percentage of teachers at skill levels	**ENTRY** Teachers just starting to use technology and for minimal things like word processing.	**ADOPTION** Teachers have some comfort with technology as a curriculum tool. Some use in student-designed technology projects.	**ADAPTATION** Shifting towards more student-based learning. Uses variety of multimedia tools and acts as a facilitator for student learning.	**APPROPRIATION** Technology integrated throughout all learning.	**TRANSFORMATION** Uses technology integrally in most applications. Provides assistance to peers and engages students in authentic tasks.
	Notes:				

Interest level of site personnel participating in this interview, and other notes:

_____
_____
_____
_____
_____

APPENDIX C: TIP LOGIC MODEL



APPENDIX D: TEACHER TECHNOLOGY SURVEY

The purpose of this survey is to gather information about the use of technology in your school. In particular, the information you provide via this survey will help provide your school and district with valuable information that will support technology integration. The survey will also be used by McREL staff to guide their support to your school via the McREL Technology Initiative.

Please be assured that your responses to this survey will be kept completely confidential. Your candidness in responding to the questions is what will make the results from this survey useful – there are no "right or wrong" answers. Your participation in this survey is **greatly appreciated**.

DIRECTIONS

- The survey should take about 30 minutes to complete.
- The first question on the survey asks for the last four digits of your social security number. This will serve as your anonymous id for this project and is used so that we can compare survey responses over time. Again, please remember that survey results are confidential and reported in aggregate form only. [34]
- Please answer **every** question on each page – please note that this survey has questions on **both sides** of every page.
- Unless otherwise noted, please mark only **one** response per question.

Thank you for your time and effort.

[4] As well as being used for planning purposes in the McREL Technology Initiative (MTI), the information provided by this survey will be used as part of a formal field test study evaluating the impact(s) of the MTI. Should you have any question about this study, the instruments, or how the information will be used, please do not hesitate to contact Judy Northup at (303) 632-5531, jnorthup@mcrel.org

ABOUT YOU

1. Please write in the last four digits of your Social Security Number: _____

   ❑ I am a Mentee for the MTI project.

   ❑ I am a member of the Leadership Team for the MTI project.

2. I currently teach the following subject(s): *(Mark all that apply)*

   ❑ All Subjects (elementary) ❑ Language Arts ❑ Science ❑ Foreign Language
   ❑ Social Studies ❑ Mathematics ❑ Visual/Performing Arts ❑ Vocational Education
   ❑ Technology ❑ ESL ❑ Special Education ❑ Health/P.E.
   ❑ Other: *specify* _____

3. I currently teach the following grade level(s): *(Mark all that apply)*

   ❑ Kindergarten ❑ Third ❑ Sixth ❑ Ninth ❑ Twelfth
   ❑ First ❑ Fourth ❑ Seventh ❑ Tenth ❑ None of the above
   ❑ Second ❑ Fifth ❑ Eighth ❑ Eleventh

4. I have been employed as an educator for ____years**.**

5. I have actively used technology in my classroom for ____years**.**

6. I have used technology at home or school for ____years.

7. In a typical 7-day week, I use the computer personally for ____hours and professionally for ____hours.

8. On average, how many hours per typical 7-day week do you spend using the following?

Word processing	___hrs	Database	___hrs	Reference	___hrs	Desktop Publishing	___hrs
Spreadsheet	___hrs	Internet	___hrs	Games	___hrs	Photo editing	___hrs
Multimedia	___hrs	Simulations:	___hrs	Drawing	___hrs	E-mail	___hrs

9. Please indicate: (1) how many times **you** engage in this activity in a typical school **month**; and (2) your comfort level with each of the following technology activities.

Activity	Number of times you do this in a "typical" month	How comfortable are you with this activity? VERY Comfortable Uncomfortable				
a. Communicating with other teachers in the district using the e-mail system		*1*	*2*	*3*	*4*	*5*
b. Communicating with other professionals outside of the district via e-mail		*1*	*2*	*3*	*4*	*5*
c. Sharing technology projects with other teachers (such as lesson plans, multimedia presentations, and web-based activities)		*1*	*2*	*3*	*4*	*5*
d. Using electronic grade books for student information		*1*	*2*	*3*	*4*	*5*
e. Creating multimedia presentations for my classes		*1*	*2*	*3*	*4*	*5*
f. Using scanners and digital cameras to create materials for my classes		*1*	*2*	*3*	*4*	*5*
g. Setting up files of Favorites/ Bookmarks for my students to use in research and projects		*1*	*2*	*3*	*4*	*5*
h. Conducting online searches to locate resources for my instruction		*1*	*2*	*3*	*4*	*5*
i. Publishing materials that I have created on the Internet		*1*	*2*	*3*	*4*	*5*
j. Mentoring other teachers in using technology		*1*	*2*	*3*	*4*	*5*
k. Discussing technology ideas and resources with other teachers		*1*	*2*	*3*	*4*	*5*

10. I would classify myself as the following type of technology user**:**
*(Note: please choose the <u>one</u> response that most closely describes your skill level)***.**

- ❑ **<u>Entry</u>**: Teachers who are just starting to use technology for learning

  They usually use technology for word processing and data bases.

  With their students, technology is used predominantly as a reward activity or specifically for technology training such as keyboarding.

- ❑ **<u>Adoption</u>**: Teachers who have some comfort level with technology and are taking initial steps to use it in their curriculum

  They use e-mail and Internet on a regular basis.

  Technology is employed in collaborative learning projects with their students.

  Technology is used in student-directed learning where the students design the projects and implement them.

- ❑ **Adaptation**: Teachers who are shifting toward more student-based project learning and encourage the use of a variety of technology tools.

  They use a variety of multimedia tools and they distribute documents electronically.

  Student activities become more project-based and a wide variety of technology tools are used in those projects.

  More technology activities involve student-designed projects with the teacher serving as a facilitator.

- ❑ **Appropriation**: Teachers who are so comfortable with technology that it is integrated throughout all learning activities

  They use technology for multidisciplinary and problem-solving activities

  They facilitate the use of multiple technologies and learner ownership increases as these teachers become a facilitator

- ❑ **Transformation**: Teachers who create new ways to use technology tools for real-world applications

  They involve students in the development of authentic technology-rich activities.

  They guide others in applying information resources.

ABOUT YOUR CLASSROOM AND WORK SETTING

11. Please indicate: (1) whether or not each of the following currently occurs in your classroom; and (2) the extent to which technology supports each.

Activity	How often does this currently occur in your classroom?	Extent to which technology supports				
		No Support	Minor Support	Moderate Support	Major Support	Complete Support
a. I integrate standards into my curriculum	*Frequently Sometimes Never*	*1*	*2*	*3*	*4*	*5*
b. I work with other teachers in the development of lesson plans	*Frequently Sometimes Never*	*1*	*2*	*3*	*4*	*5*
c. I integrate a variety of subjects/content into each of my lessons	*Frequently Sometimes Never*	*1*	*2*	*3*	*4*	*5*
d. I keep students informed of their progress in class	*Frequently Sometimes Never*	*1*	*2*	*3*	*4*	*5*
e. I evaluate electronic versions of student work	*Frequently Sometimes Never*	*1*	*2*	*3*	*4*	*5*

Activity	How often does this currently occur in your classroom?	Extent to which technology supports				
		No Support	Minor Support	Moderate Support	Major Support	Complete Support
f. I spend my time coaching/advising students	*Frequently Sometimes Never*	*1*	*2*	*3*	*4*	*5*
g. Students spend time working in groups	*Frequently Sometimes Never*	*1*	*2*	*3*	*4*	*5*
h. I use class time for students to work on projects	*Frequently Sometimes Never*	*1*	*2*	*3*	*4*	*5*
i. I involve students in the development of learning activities.	*Frequently Sometimes Never*	*1*	*2*	*3*	*4*	*5*
j. I use class time for whole group lecture.	*Frequently Sometimes Never*	*1*	*2*	*3*	*4*	*5*
k. I use class time for peer tutoring.	*Frequently Sometimes Never*	*1*	*2*	*3*	*4*	*5*

12. Please indicate the degree to which the addition of technology to your teaching has changed the learning environment.

❑ Check here if you do not use technology in your teaching and skip to question #13.

As a result of adding technology to my teaching,	*Not at all*				*A lot*
a. My teaching style has changed in that I am more of a facilitator	*1*	*2*	*3*	*4*	*5*
b. I have been able to present more complex materials to my class.	*1*	*2*	*3*	*4*	*5*
c. The arrangement of the room has been altered to accommodate technology	*1*	*2*	*3*	*4*	*5*
d. I have used <u>less</u> class time for lecture.	*1*	*2*	*3*	*4*	*5*
e. Students direct their own learning	*1*	*2*	*3*	*4*	*5*
f. Students work together in collaborative groups	*1*	*2*	*3*	*4*	*5*
g. Students teach each other	*1*	*2*	*3*	*4*	*5*
h. Student projects include visuals	*1*	*2*	*3*	*4*	*5*
i. Students engage in problem-solving activities	*1*	*2*	*3*	*4*	*5*
j. Students use a variety of resources for their projects	*1*	*2*	*3*	*4*	*5*

As a result of adding technology to my teaching,	*Not at all*				*A lot*
k. Student work is creative	*1*	*2*	*3*	*4*	*5*
l. Student work is rigorous	*1*	*2*	*3*	*4*	*5*
m. Student work is shared with a variety of audiences	*1*	*2*	*3*	*4*	*5*

13. Please describe your most recent use of technology in a lesson. What did you do? How did it work?

    _____

    _____

    _____

14. In what content areas do you integrate technology into classroom practices?

    ❑Science ❑Math ❑Reading/Writing ❑Social **Studies**

    ❑Other:_____

15. When I use technology in the classroom, it is
    (Mark the one response that typically characterizes your usage)
    - ❑ Organized
    - ❑ Chaotic but rewarding
    - ❑ Chaotic and frustrating
    - ❑ **I don't use technology in the classroom**.

16. In my class, I get frustrated with technology when

    _____

    _____

    _____

17. Please indicate the degree to which you agree or disagree with each of the following statements:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a. The school administration encourages the use of technology.	*1*	*2*	*3*	*4*	*5*
b. My students have adequate access to computers.	*1*	*2*	*3*	*4*	*5*
c. My school administrator(s) understands how technology can be integrated into the classroom to improve student learning.	*1*	*2*	*3*	*4*	*5*
d. I am provided with adequate access to computers for myself.	*1*	*2*	*3*	*4*	*5*
e. I know how other teachers in my school use technology in their classrooms.	*1*	*2*	*3*	*4*	*5*
f. I have sufficient time to integrate technology into my classroom instruction.	*1*	*2*	*3*	*4*	*5*
g. Teachers in my school meet and share ideas about how to use technology in their classrooms.	*1*	*2*	*3*	*4*	*5*
h. I understand how I can use technology to help me attain school and district standards.	*1*	*2*	*3*	*4*	*5*
i. I believe that the use of computers in education almost always reduces the personal treatment of students.	*1*	*2*	*3*	*4*	*5*
j. Working with computers means working on your own, without contact with others.	*1*	*2*	*3*	*4*	*5*
k. Sometimes I wish that technology would go away.	*1*	*2*	*3*	*4*	*5*
l. Integration of technology into classrooms is a high priority for my school administrator(s).	*1*	*2*	*3*	*4*	*5*
m. Integration of technology into classrooms is a high priority for *me.*	*1*	*2*	*3*	*4*	*5*
n. I have sufficient training in how to integrate technology into my classroom instruction.	*1*	*2*	*3*	*4*	*5*
o. Technology has been helpful in meeting district and state standards.	*1*	*2*	*3*	*4*	*5*
p. Technology makes my teaching more effective.	*1*	*2*	*3*	*4*	*5*
q. I feel that computers are important for student use.	*1*	*2*	*3*	*4*	*5*

r. I use technology in my classroom to enhance student understanding.	*1*	*2*	*3*	*4*	*5*
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
s. I use technology in my classroom to improve student skills.	*1*	*2*	*3*	*4*	*5*
t. Technology helps me to accommodate different learning styles.	*1*	*2*	*3*	*4*	*5*
u. Computers can be useful instructional aids in almost all subject areas.	*1*	*2*	*3*	*4*	*5*
v. Computers can stimulate creativity in students.	*1*	*2*	*3*	*4*	*5*
w. Available technology resources are sufficient to support student learning.	*1*	*2*	*3*	*4*	*5*
x. I am willing to learn or continue to learn about integrating technology into my classroom.	*1*	*2*	*3*	*4*	*5*
y. Teachers in my school are involved in decision making related to implementation of technology.	*1*	*2*	*3*	*4*	*5*
z. I would like more training in integrating technology.	*1*	*2*	*3*	*4*	*5*

STUDENT USE OF TECHNOLOGY

Because your responses to the questions in this section may be different for different classes/sections you teach, please select a single class/section to use in your responses to these questions. The class you select should represent a typical class you teach in your main subject area.

18. Please indicate: (1) how many times a *typical* student in your class will have done this activity during the *current* semester; and (2) <u>your</u> comfort level with each of the following student activities.

Activity	My comfort level with this student activity is…					
	# of times typical student does this/ semester	Very comfortable	Comfortable	Neutral	Uncomfortable	Very Uncomfortable
a. Students use word processing for assignments		*1*	*2*	*3*	*4*	*5*
b. Students use desktop publishing to create brochures, newsletters, etc		*1*	*2*	*3*	*4*	*5*
c. Students create visual presentations		*1*	*2*	*3*	*4*	*5*
d. Students design projects that incorporate technology		*1*	*2*	*3*	*4*	*5*
e. Students create multimedia projects in which they use tools such as scanners and digital cameras		*1*	*2*	*3*	*4*	*5*
f. Students create and/or contribute to electronic portfolios		*1*	*2*	*3*	*4*	*5*
g. Students use CD-ROM resources		*1*	*2*	*3*	*4*	*5*
h. Students use or create databases/ spreadsheets		*1*	*2*	*3*	*4*	*5*
i. Students use education software, such as Accelerated Reader or Geometer's Sketchpad		*1*	*2*	*3*	*4*	*5*
j. Students help other students use technology		*1*	*2*	*3*	*4*	*5*
k. Students use e-mail for communication		*1*	*2*	*3*	*4*	*5*
l. Students use the Internet for research or gathering resources		*1*	*2*	*3*	*4*	*5*

Activity	My comfort level with this student activity is…					
	# of times: typical student does this/ semester	Very comfortable	Comfortable	Neutral	Uncomfortable	Very Uncomfortable
m. Students design web pages		*1*	*2*	*3*	*4*	*5*
n. Students use technology to share projects with other students.		*1*	*2*	*3*	*4*	*5*

19. Please describe the extent to which most of your students can do each of the following:

Activity	Most of my students ….				
	cannot do this task	***can do this task with detailed assistance***	***can do this task with limited assistance***	***can do this task without assistance***	***don't know***
a. Search the web for class-related material	*1*	*2*	*3*	*4*	*DK*
b. Develop web pages	*1*	*2*	*3*	*4*	*DK*
c. Use word processing programs	*1*	*2*	*3*	*4*	*DK*
d. Use spreadsheet/database programs	*1*	*2*	*3*	*4*	*DK*
e. Use presentation programs (e.g., PowerPoint, etc.)	*1*	*2*	*3*	*4*	*DK*
f. Use e-mail	*1*	*2*	*3*	*4*	*DK*
g. Develop multimedia class projects	*1*	*2*	*3*	*4*	*DK*

20. How many computers (including laptops available on a daily basis) are located in your classroom?

    _____

    Of these, how many computers are available for student use? _____

    How many are reserved for instructor use? _____

21. How often do you typically use the computer lab or portable lab with your classes? *(Mark only one)*

- ❑ Almost everyday
- ❑ A couple of times per week
- ❑ Once a week
- ❑ Every couple of weeks
- ❑ Once a month
- ❑ Less than that

TECHNOLOGY SUPPORT AND NEEDS

22. When I need technology help, I go to:

Name	Title
Name	Title
Name	Title

23. I would like to increase my use of technology in the following ways: *(Mark all that apply)*

- ❑ Create documents with word processing or database
- ❑ Conduct research via the internet
- ❑ Improve classroom record keeping
- ❑ Increase communications with colleagues throughout the country
- ❑ Create multimedia presentations for the class
- ❑ Design more curriculum that integrates technology
- ❑ Use e-mail to communicate with other teachers and staff members within the school
- ❑ Design collaborative projects for my students
- ❑ Individualize instruction for students
- ❑ Let the students use a variety of technology resources to design their own projects
- ❑ Create more units that integrate multiple content areas
- ❑ Provide more authentic, real-world activities
- ❑ Communicate with parents
- ❑ Change the learning environment
- ❑ Conduct online interviews with content-area experts
- ❑ Use graphic organizers
- ❑ Other (specify)_____

24. I would like to have more training in: (*Mark all that apply*)

- ❑ Basic computer skills (accessing programs, printing documents)
- ❑ How to use email (writing, sending, receiving, and storing messages; adding attachments)
- ❑ How to use the Internet (searches, downloading files, creating and managing Favorites/ Bookmarks)
- ❑ Software evaluation (choosing the right programs for your educational needs)
- ❑ Technology planning (developing and implementing a plan)
- ❑ Technology leadership (making decisions related to technology use)
- ❑ Technology and writing integration (using technology to support 6-trait writing)
- ❑ Integrating technology into the curriculum (when and how to use technology with students)
- ❑ Classroom technology management (managing resources in the classroom)
- ❑ Using technology with multiple intelligences (linguistic, musical, spatial, etc.)
- ❑ Technology and problem-solving (strategies for integration)
- ❑ Using Microsoft Office applications (Word, Excel, PowerPoint)
- ❑ Technology proficiencies and unit planning (research-based strategies for effective unit planning
- ❑ Other: *Specify* _____

25. I would like more training in the following types of specific software:

_____
_____
_____
_____

26. Finally, please complete the following sentence:

My personal vision concerning the use of technology in education is...

_____
_____
_____

Thank you for taking the time to complete this survey.

APPENDIX E: ADMINISTRATOR TECHNOLOGY PROFILE

School: _____

Your Title: _____

ABOUT YOU

1. How many years have you been employed as an educator? _____

2. How many years have you used computers in your job? _____

3. How many years have you personally used computers? _____

4. Indicate your skill level in using the following software: *(circle one response per item)*

	No skill at all		Average		Expert
a. Word processing	1	2	3	4	5
b. E-mail	1	2	3	4	5
c. Desktop publishing	1	2	3	4	5
d. Spreadsheet	1	2	3	4	5
e. Multimedia	1	2	3	4	5
f. Data base	1	2	3	4	5
g. Internet browsers	1	2	3	4	5
h. Student information/management systems	1	2	3	4	5

5. What type of technology user are you in relation to supporting your teachers? *(check one box)*

- Type I: Educator who is just starting to use technology for learning
  - **t**echnology for personal and professional productivity
  - Use technology that is readily available
  - Use technology mainly for word processing and data bases

- Type II: Educator who has some comfort level with technology and is taking an initial step towards its use in the curriculum
  - Use e-mail and Internet on a regular basis
  - Use technology for tasks for which he/she has been specifically trained
  - Use only one or two technology tools

- Type III: Educator who is supporting a teacher's shift toward student-based project learning and encourages the use of a variety of technology tools
  - Use a variety of multimedia tools and distributes documents electronically
  - Regularly apply technology to meet personal and professional productivity needs
  - Organize several technology tools for use in activities and do so with minimal assistance

- Type IV: Educator who is comfortable with technology and able to support its integration throughout all learning activities
  - Use technology for problem-solving activities and productivity becomes dependent upon technology
  - Facilitate the use of multiple technologies among faculty and staff
  - Use technology to increase and enhance personal and professional productivity

- Type V: Educator who supports the creation of new ways to use technology tools for real-world application
  - Provide instruction to peers on how to apply productivity tools to enhance their professional productivity
  - Provide demonstrations and assistance to others

6. Indicate the extent to which you agree with the following statements: *(circle one response per statement)*

	Strongly disagree	**Disagree**	**Agree**	**Strongly agree**
a. The district encourages the use of technology in your school.	1	2	3	4
b. I encourage staff to use technology.	1	2	3	4
c. The community is supportive of using technology in our school.	1	2	3	4
d. Teachers in my school are in favor of using technology in their classrooms.	1	2	3	4
e. I know how technology can be integrated into the classroom to improve student achievement.	1	2	3	4
f. Teachers in my school know how technology can be integrated into their classrooms to improve student achievement.	1	2	3	4
g. I believe that the use of computers in education reduces the personal interaction between teachers and students.	1	2	3	4
h. Integration of technology into classrooms is a high priority for me.	1	2	3	4
i. Students have less interpersonal contact with others when working with computers.	1	2	3	4
j. Technology has been helpful in meeting district and state standards.	1	2	3	4
k. Technology makes teaching more effective.	1	2	3	4
l. I feel that computers are useful as instructional aids.	1	2	3	4
m. I believe that computers can stimulate student creativity.	1	2	3	4
n. I use incentives to encourage faculty to participate in technology professional development.	1	2	3	4
o. I help teachers acquire technology for their classroom projects.	1	2	3	4

7. I would like to improve my ability to do the following with technology: *(check all that apply)*

- Use e-mail to communicate with faculty and parents
- Conduct research via the Internet
- Create documents with word processing
- Create documents using databases
- Provide better data for decision-making
- Provide information about students
- Communicate with colleagues
- Provide staff development opportunities via the Internet
- Develop presentations through the use of multimedia
- Change the learning environment
- Other _____

ABOUT YOUR SCHOOL

8. To what extent does your school uses software to: *(circle one response per item)*

	Never	Seldom	Occasionally	Frequently
a. generate spreadsheets	1	2	3	4
b. record finances	1	2	3	4
c. record student registration	1	2	3	4
d. track student demographics	1	2	3	4
e. track student attendance	1	2	3	4
f. track eligibility records	1	2	3	4
g. track IEPs	1	2	3	4
h. generate tests	1	2	3	4
i. score tests	1	2	3	4
j. record student performance	1	2	3	4
k. report student performance	1	2	3	4
l. manage schedules	1	2	3	4
m. record student grades	1	2	3	4
n. generate report cards	1	2	3	4
o. generate transcripts	1	2	3	4

9. Indicate the extent to which you agree with the following statements about planning for technology in your school. (*circle one response per statement)*

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
a. I am familiar with the school's technology plan.	1	2	3	4
b. I was involved in the development of the district's technology plan.	1	2	3	4
c. I was involved in the development of my school's technology plan.	1	2	3	4
d. Teachers were involved in the technology planning process.	1	2	3	4
e. Community members were involved in the technology planning process.	1	2	3	4
f. The school technology plan is reviewed annually.	1	2	3	4
g. The technology plan is being successfully implemented.	1	2	3	4
h. The school technology plan is integrated in the school improvement plan.	1	2	3	4
i. Technology has been integrated into the curriculum plan.	1	2	3	4

10. Indicate the extent to which the following professional development opportunities are used by staff at your school. *(circle one response per item)*

	Never	Seldom	Occasionally	Frequently
a. On-site courses and trainings.	1	2	3	4
b. On-site visits to other schools	1	2	3	4
c. On-site vendor presentations	1	2	3	4
d. Online courses	1	2	3	4
e. Conferences	1	2	3	4
f. Peer training	1	2	3	4
g. Peer mentoring	1	2	3	4
h. Graduate courses	1	2	3	4
i. Summer workshops	1	2	3	4

11. In your school, how much impact has technology had on: (*circle one response for each statement*)

	No impact		**Some impact**		**Major impact**
a. providing staff with better data for decision-making?	1	2	3	4	5
b. increasing the amount and types of information people expect from you?	1	2	3	4	5
c. enabling you to do your job more efficiently?	1	2	3	4	5
d. making your job more complicated?	1	2	3	4	5
e. increasing communication with parents?	1	2	3	4	5
f. improving your communication with students?	1	2	3	4	5
g. increasing collaborative learning within classrooms?	1	2	3	4	5
h. increasing individualized curriculum to meet student needs?	1	2	3	4	5
i. increasing class activities that are appropriate for multiple learning styles?	1	2	3	4	5
j. increasing the use of multiple resources for instruction?	1	2	3	4	5
k. increasing student motivation?	1	2	3	4	5
l. reducing tardiness?	1	2	3	4	5
m. reducing absences?	1	2	3	4	5
n. increasing collaboration among staff?	1	2	3	4	5
o. increasing creativity in student projects?	1	2	3	4	5

Thank you