A Systematic Approach to Professional Development Can Lead to Improved Student Achievement: A Technology Integration Model

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Developed by the Psychology in Education Research Lab (PERL), College of Human Services, Iowa State University, and the Iowa Department of Education.
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Executive Summary

The following report is organized into four major sections reflecting the scaling up of four initiatives in the following areas: 1) elementary school mathematics; 2) elementary school reading; 3) middle school mathematics; and 4) middle school reading. The elementary school initiatives focused on fourth grade math or reading achievement and the middle school initiatives focused on eighth grade math or reading achievement.

There were two elementary math consortia, three elementary reading consortia, three middle school math consortia, and three middle school reading consortia. The number of participating schools varied across consortia. Each consortium was established and organized during the first year of the three-year funding cycle. During the first year, students’ achievement has measured in the spring (2003-2004 academic year). Achievement was assessed during the spring for each of the remaining two years of the funding cycle (2004-2005 and 2005-2006 academic years).

Organizational Structure.

The key to scaling up initiatives is the planning and organizational efforts that begin prior to the funding cycle. Approximately six months prior to the start of the fall semester of the first funding year, most of the planning and organizational efforts were 95% complete. Also, when signing on to a consortium initiative, all participating schools had to: 1) agree to receive common professional development from the professional team located in the Area Educational Agency; 2) agree to implement consortium educational interventions and activities; and 3) encourage individual teachers to report out monthly on the implementation rate of consortium educational interventions, report on professional development activities, and the use of technology to support professional development within consortiums. Once schools joined a consortium, they could not change course in the middle of the three-year cycle by using the ESEPT/E2T2 money to support other initiatives. The only option was for a school to discontinue participation in which case that schools funding went back to the consortium for redistribution to continuing participants.

Student Data Collection & Analysis.

In the detailed data summaries that are provided for each consortium, the focus is on improvement in student math and reading achievement at either the fourth or eighth grades. In all
cases, these analyses are longitudinal in that only students for whom a pretest score and a posttest score are available are included in the analyses. This insures that participating children were in the classroom to receive the impact of the teacher implemented educational interventions that the teacher received through the professional development system. Thus, the focus was on change in student achievement in reading and or math during the fourth or eighth grades for two consecutive academic years 2004-2005 and 2005-2006 (years two and three of the funding cycle). This provided the opportunity for a replication of initial results which may strengthen confidence in initial findings when the design is quasi-experimental.

Individual consortium data collection and analyses were developed as quasi-experimental designs. The independent variable was teacher implementation of educational intervention strategies and activities. The dependent variable was either total math score or total reading score from the Iowa Test of Basic Skills (ITBS), a commercial standardized norm-referenced achievement test. Data were analyzed at two levels, the school level where consortium buildings were compared to a state-wide comparison group and the student level where growth in achievement was compared for proficient and non-proficient students from the participating consortium schools.

Since the state-wide comparison group of schools was made up of schools that did not participate in the ESEPT/E2T2 project, the comparison group was not only selected in order to be representative of the state as a whole, but also served as a no-treatment control for the consortium specific educational interventions and activities. Thus, throughout the following document we use the terms control group or comparison group interchangeably.

System Analysis

The systematic approach to change taken by the ESEPT/E2T2 project contains several interrelated elements: 1) professional development, 2) technology integration, 3) teacher implementation, and 4) change in student achievement. This involves the combining of student and teacher data in order to determine the paths of impact within the model. Consequently a single pilot study is included at the end of this report that tests for the goodness of fit of the model we refer to as the Iowa Professional Development Model (IPDM).

Findings: School Level of Analysis

At the school level of analysis there were mixed findings. In some cases, by the second or third year, experimental schools were performing at a level similar to the state-wide comparison
group. In other cases, differences were still rather large. This simply reflects the fact that when experimental schools identify the subject area (math or reading) that was in greatest need of improvement, it will take two or three years for noticeable change to occur in student achievement scores. Further, in some cases the second year progress may not be replicated during the third with a new set of students in the same schools. Also, affecting the replicability of data is the introduction of new participating schools during the third year of the funding cycle.

*Findings: Student Level of Analysis*

This is where the data are most impressive. When the progress of students identified as non-proficient at the beginning of the school year are compared with proficient students (from the same schools and grades), data consistently demonstrate a “closing of the gap” between the two groups of students. This is a rather consistent finding across consortia. Further it is a highly replicable finding within a consortium during the second and third years of the funding cycle. In other words, growth or change in student achievement is occurring for the non-proficient reader or math student in an impressive manner that may be missed by only an analysis of school level Performance.

As will become evident by reading further, neither the rate of improvement nor the effect of the educational interventions were the same across elementary school math, elementary school reading, middle school math and middle school reading initiatives. For example the average effect size (Cohen d) estimating the impact of the educational interventions on non-proficient students’ progress during the academic year was: 1) elementary math, d = .71 (large impact); 2) elementary reading, d = .77 (large impact); 3) middle math, d = .76 (large impact); and 4) middle reading, d = .25, (small impact). Generally speaking, the math initiatives were more effective in promoting non-proficient student progress than was the case for the reading initiatives. However, the beginning reading initiatives at the elementary level seem to be much more effective than middle school initiatives in this regard.

*Findings System Analysis*

Last but certainly not least is the question of the effectiveness of the Iowa Professional Development Model (IPDM) that integrates teacher training on educational interventions with a technology to deliver and support student change at the classroom level. Is this an effective system that can link professional development activities to teacher implementation of educational interventions that facilitate change in student achievement?
A single consortium was evaluated in order to test the model. A Structural Equation Modeling (SEM) approach was taken to addressing the systems question. The data must be considered pilot data at this time and requires replication within the consortium as well as across consortia. Regardless, the path analysis model does provide a good fit for the data and does suggest that the integration of technology and teacher training can be successfully implemented if the effort is systematic.

In order to provide the reader with a grounding for the geographical boundaries and the basic format for professional development, visuals of both are located in Appendix A.
Introduction

Incremental and fundamental change are two different types of change. (Cuban, 1992, 1996, 1997). The terms incremental and fundamental are based on the concepts of first- and second-order changes introduced by Watzlawick, Weakland, and Fisch in 1974 (Cuban 1992, 1996).

**First-order change**
- Is perceived as an extension of the past
- Fits with existing paradigms
- Is consistent with prevailing values and norms
- Can be implemented with existing knowledge and skills
- Requires resources currently available to those responsible for implementing the innovations
- May be accepted because of common agreement that the innovation is necessary.

**Second-order change**
- Is perceived as a break with the past
- Lies outside existing paradigms
- Conflicts with prevailing values and norms
- Requires the acquisition of new knowledge and skills
- Requires resources currently not available to those responsible for implementing the innovations
- May be resisted because only those who have a broad perspective of the school see the innovation as necessary.

The goal of incremental change is to “improve efficiency and effectiveness in existing structures of schooling, including teaching” (Cuban, 1996, p.76). The underlying assumption of incremental change is that the existing structures do not need to be dramatically changed, while fundamental change assumes that the structures and process need to be completely “overhauled” (p.76). Although changes may start out as fundamental, they commonly become incremental changes. Changes and reform are not the same, according to Cuban, who asserted that the tendency to equate the two had created confusion.

**Implications for Research and Practice within E2T2**

In the E2T2 process it was felt that it was not necessary to have the “right” theory, but to have one that provided a roadmap for the program, highlights its essential components, and
explains how the program is expected to achieve the desired outcomes. National Staff Development Council (NSDC) noted that “the problem is not that we don’t know what effective staff development is; it is that we don’t act on what we know.” (NSCD, 2002, p. 11) To act requires courage, commitment, and systemic support to implement the type of staff development that we know will make a difference for both educators and students. Guskey and Sparks (1996) proposed a student achievement model that depicts the complex relationship of multiple factors that influence student academic success. The model acknowledges that staff development, along with other systemic factors such as the quality of staff development, administrator support, school culture, teacher knowledge and practices, parent involvement, and parent knowledge and skills work together to impact student achievement.

Change theory underlying the design of the E2T2 process was based on the following assumptions: First, is the belief that schools are not businesses while recognizing that some change theories have focused on a business-mass production model. That is if you do “x” you will get “y”. According to Cuban, “The profound difference between businesses and schools in purposes, in deliberative decision making, and in accountability for outcomes mean that the core assumption of business inspired reformers is deeply flawed” (Cuban, 2005, p.157). The sheer complexity of the task of transforming schools, particularly classroom practices, in dramatically different settings has been lost in the rush to extract strong student performance on tests through consistency of teaching. Second, practitioners bring to their classrooms strong moral and service-oriented values inherent to teaching. These overlap with but nevertheless differ from the technical values of policy makers, corporate leaders, researchers, and administrators. Experienced and thoughtful practitioners accumulate detailed knowledge about students, broaden their repertoire of teaching skills, and gain deeper understanding of the content they teach; forms of expertise that few researchers, policymakers, or CEOs lacking classroom experience can fathom. From these teacher values and types of expertise emerge standards for judging success and failure that diverge considerably from those described above. (Cuban, 2005, p. 34-35). Third, teachers facing change need a certain amount of what Cuban called adaptiveness: whether and how they can put their personal signature on the mandated policy and make it work for their students. To most policymakers, business leaders, administrators, and researchers, however, teachers’ alterations of their design and variations in practice are signs of failed policies. (Cuban, 2005,p. 35) Fourth, there is the belief that while school buildings and districts should determine
the focus of the reform, individual teachers working in professional learning communities with grade alike or content alike individuals connected by technology. In a learning community, members commit to ongoing learning and participate in learning experiences with a deliberate intent to transform teaching and learning at their school or within their district (NSDC, 2001; DuFour & Eaker, 1998).

*Professional Development*

It has also been found that learning communities of teachers are effective in promoting teacher professional development (Newmann & Wehlage, 1995; Bruce & Calhourn, 1996; McLaughlin & Talbert, 2001; Bryk & Schneiger, 2002). Overall, theory suggest that building community is an effective strategy for enhancing educational outcomes for those involved.

As Joyce and Showers (1995) observed, that the school building is an organizational unit most capable of facilitating student growth. However, in the E2T2 process our focus was not only on the building but also on creating professional learning communities of like subject/grade teachers beyond the building and district walls. It was felt that teachers learn from each other in the process of planning instruction, developing the materials to support it, watching each other work with students, developing collaborative communities and thinking together about the impact of their behavior on the learning of their students, particularly if the students were involved in the same subject/grade. The collaborative work of peer-coaching study teams was much broader than observations and conferences. According to Joyce and Showers, designing the workplace so that teachers can work together to implement changes (through peer coaching) is still the key to transferring the content of training into the repertoire of the classroom and school, whether the content is teaching and curriculum or processes for collegial action. (Joyce & Showers, 1995) This helps create for teachers an environment that facilitates reflection on practice and the conscious development of skills through personal inquiry. Effective staff development requires cooperative relationships that break down the isolation and increase the collective strength of the community of educators. This also addresses the issue that significant levels of innovation demand changes in the very culture of educators. The creation of a culture of educator-learners connected via technology is necessary if significant improvement is to be sustained and future innovations are to be permitted without monstrous effort.

In addition, faculties are not, for the most part, very well organized to study themselves and make decisions for collective action, nor does the structure of the school provide much time
for collegial study and decision making. This recognition of the need for community building within a teacher education continuum is consistent with the argument developed by Renshaw (2002) who saw community building as an ongoing, evolving process that occurred over a long period of time and as having a profound impact on not just learning but on the quality of learning that could take place. Renshaw (2002) saw building a learning community as a way of networking social capital. The success of one member of the community is dependent on the success of other members. Promoting self-learning, and promoting the learning of others, becomes networked throughout the community. The result is that the community as a whole benefits, and individuals also benefit at an enhanced rate through mutual support. Consequently, membership in a learning community provides access to a variety of social capital (Rensway, 2002). Such capital includes knowledge, skill and ‘know-how’. A purposeful dissemination and sharing of such capital can be a useful community-building tool with individuals recognizing their increased capital and actively enhancing the community learning process. The cycle of capital enhancement can be powerful in the social learning process, particularly when such processes are acknowledged as being complex and treated with the respect generally accorded such intricate social structures when they promote change.

Crowther (2001), like Renshaw (2002) conceptualized professional development (PD) as a change agent. Community building becomes a process that provides a supportive climate that is not only receptive to change and change initiative, but actively promotes an expectation of change as a consequence of teacher learning. The object is to design training so that people learn to become more effective learners. In this collaborative environment supported by technology, it was observed that continued technical assistance, whether provided by an outside PD or content expert or by peer experts, resulted in much greater classroom implementation than was achieved by teachers who shared in the initial training but did not have the long-term support of coaching or collaboration.

The Logic of Change

According to Cuban (2005), the overall causal chain of logic for current reform efforts included in NCLB is: 1) state-mandated curriculum standards will be implemented, 2) will steer teaching practices, which in turn will, 3) shape what students learn, as measured by the state tests, and 4) then will lead to success in college and the market place. The first two causal links require evidence that state policy has, indeed, been implemented and has guided classroom
practices. The third causal link is the assumption that changed instructional practice will result in higher student achievement, and the fourth is that higher test scores predict future success in college and in the workplace.

The current program of research (ESETP) initiated in 2003 chose to focus only on the first three logical links identified by Cuban as the “NCLB logical sequence”. In our words, a systematic approach to large-scale change requires developing the capacities of teachers and administrators to use pedagogical practices with fidelity while adapting these practices to meet the demands of differentiated instruction. This means first benchmarking building strengths and weaknesses in terms of student achievement. The second step involves developing appropriate educational interventions at the building level based on findings from the benchmarking process. The third step is the determination of the effectiveness of the educational interventions by evaluating gains in student achievement in reading and mathematics at the building level.

Technology Integration Model

In a rural state trying to develop state-wide initiatives in reading and mathematics, time, geographical distance, and money are critical to the success of systematic change. This is where the use of technology in support of professional development becomes a critical systems element in promoting student achievement.

In Iowa, the intermediate education agency (Area Educational Agency) has the responsibility for providing professional development for state-wide initiatives. Thus, the Area Education Agency (AEA) provides professional development at the beginning of the school year and continued support throughout the year. While the initial professional development provided at the beginning of the school year is face-to-face, real time support is provided to the local schools via IP conferencing, web-sites, and electronic communication. Thus, the link between the initiators of professional development and the participating teachers is a technology infrastructure. The second technology component is the use of the aforementioned equipment by teachers to communicate among participating schools. Thus, the team building process is not only within a building but also among buildings within an AEA initiative.

This project recognizes that high quality staff development is a multi-step process to: 1) develop educators’ knowledge, attitudes, skills, aspirations, and behaviors, 2) apply what was learned in the staff development training experiences(s) to enhance classroom practice, and 3) anticipate increased student achievement and make plans to evaluate for program impact.
Staff development programs focusing only on developing teachers’ knowledge and skills are shortsighted because they rely on the following faulty assumption: “What is learned is used”. Exposure to new information does not automatically result in consistent and accurate implementation of the new learning or in changes in attitudes, skill, and behaviors. When staff development programs assume learning will be used, without appropriate practice of the behavior or strategy, the potential for the behavior or strategy and the potential for impact on student achievement is diminished.

**Quasi-Experimental Design**

As with most evaluation and research studies done in education, it is difficult to suggest that the staff development program caused the changes that occurred in student learning and that nothing else could have. Contribution suggests that the staff development program supported by technology was involved in, yet it was not solely responsible for, the increase in student achievement. Evaluation has to acknowledge that other factors interact to influence student achievement. Some of the other factors, such as familiarity with the tests, improved test-taking skills, different cohort of students, other learning experiences the teachers participate in, new teachers, or new principal at the school may also contribute to the increases in student achievement.

Whitehurst has identified evidence-based education as the integration of professional wisdom with the best available empirical evidence in making decisions about how to deliver classroom instruction. It is difficult to implement an experiential instructional intervention with a controlled environment in education. Consequently, collecting and analyzing empirical data to support and modify instructional practice has been viewed by education practitioners and researchers as problematic, for education practitioners to combine professional wisdom with professional knowledge, they must be able to critically determine if the evidence of a school or classroom reform is valid and if that particular reform is applicable to their situation (Whitehurst, Student Achievement and School Accountability Conference, October 2002).

The following research studies reflects efforts to scale-up reading and mathematics statewide initiatives during the academic years of 2003-2004, 2004-2005, and 2005-2006. The state of Iowa was organized into 12 consortiums that paralleled the intermediate agency structure in the state. Geographically, the entire state was covered. These 12 consortiums were organized into four initiatives in terms of the educational intervention to be implemented. The choice of
educational intervention was determined by each consortium by benchmarking student achievement. The four initiatives were elementary mathematics (Grades 3, 4, & 5), elementary reading (Grades 3, 4, & 5), middle school mathematics (Grades 6, 7, & 8) and middle school reading (Grades 6, 7, & 8). Each of these categories of initiatives will be represented by both quasi-experimental studies and case studies. Quasi-experimental designs were employed for data collection efforts because it was not possible to randomly assign schools to either an experimental group receiving the educational intervention or a no-treatment control group. The E2T2 (Title 2d) funding that served as the financial basis for implementing the state-wide initiatives required that participation be on a first come first served basis. However, since participating schools could be added by consortiums on a yearly basis, this potential biasing effect should be diminished by the 2005-2006 academic year.

The student data collection scheme for the three year funding period was a cross-sequential longitudinal design. This scheme identifies the collection intervals for the dependent variable measuring student achievement. The dependent variable was reading or math scores from the Iowa Test of Basic Skills (ITBS). The scheme shown below would reflect data collection efforts for the elementary math or reading categories. The middle school data collection scheme would be the same with the exception that grades would be 5, 6 & 7.

This data collection design provides the basis for cross-sectional analyses of grade data (X1, X2, X3), a longitudinal cohort analysis (X1, Y2, Z3), and a time-lag analysis (X1, Y1, & Z1). During the funding cycle (2003-2004, 2004-2005, and 2005-2006 academic years) schools were required to report out on grades four and eight. Consequently, the data analyses for this report will be restricted to these two grade levels for the 2004-2005 data and the 2005-2006 data.

The teacher data collection scheme was comparable. Teachers in participating schools completed web-based data collection instruments assessing 1) perception of professional development, 2) frequency of implementing educational interventions on a weekly basis, and 3) frequency of use of technology to support implementation efforts. The teacher assessment instrument is located in Appendix A.
Three year data collection scheme.

<table>
<thead>
<tr>
<th>Year</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>X₁</td>
<td>X₂</td>
<td>X₃</td>
</tr>
<tr>
<td>2005</td>
<td>Y₁</td>
<td>Y₂</td>
<td>Y₃</td>
</tr>
<tr>
<td>2006</td>
<td>Z₁</td>
<td>Z₂</td>
<td>Z₃</td>
</tr>
</tbody>
</table>

Consortium Internal Evaluation Efforts.

As mentioned above, each consortium was responsible for its own internal evaluation efforts. These internal evaluation reports are located in Appendices B, C, D, & E. These internal evaluation reports will provide the reader further insight into individual consortium efforts and also informs the external evaluation analyses. The appendices are organized around the four category format of elementary mathematics (Appendix B), elementary reading (Appendix C), middle school mathematics (Appendix D) and middle school reading (Appendix E).

Consortium External Evaluation Methodology (Student Data)

Each consortium was organized in the following manner for evaluation purposes over the three-year funding cycle. Each consortium budget must contain 10% for evaluation expenses. This was further divided into 5% for external evaluation expenses and 5% for internal evaluation expenses. The external evaluations were conducted by the Psychology in Education Research Lab (PERL) at Iowa State University. Each consortium has responsible for the internal evaluation activities that were developed in consultation with PERL. As mentioned above, a consortium had to have a single focus in terms of the improvement of mathematics or reading achievement in either grade four or grade eight. Once this consortium focus was identified through data driven decision making (2003 ITBS scores), all participating schools in a consortium then identifies instructional activities that would be common to all consortium members. These instructional activities were identified as the educational intervention that would
serve as the independent variable to which any observed change in the dependent variable (ITBS math or reading scores) would be attributed.

This means that each consortium was made up of schools (buildings) with a common educational intervention at the building level. These common educational interventions served as the basis for the professional development provide by the Area Education Agency at the beginning of the school year and was supported by the technology infrastructure during the school year. Further, student performance was determined by a common standardized achievement test.

The following explanation of data collection efforts and data analysis is common for all of the consortia. These constraints provide a mini-tutorial in the development of a quasi-experimental clinical trials approach to scaling-up educational interventions.

**Learning** is commonly defined in the academic learning literature as “an enduring change in behavior, or in the capacity to behave in a given fashion which results from practice or other forms of experience”. However, when considering change across grades in a schooling environment, maturation also contributes to change. For example, when tracking individual student’s standardized achievement test performance across grades, both maturation and learning contribute to growth (e.g., change in ability). Consequently, the following data have been transformed to Normal Curve Equivalent scores (NCE) for the reported analyses. This logic has led us to characterize the data being analyzed as **Learning Curves**.

Our interest was in the improvement in math or reading achievement at grades four and eight as reflected by learning curves reflecting only status prior to entry into the grade and status near the end of instruction in that grade. Thus all cross-sectional analyses for a given year were 2 by 2 mixed design ANOVA analyses. The between group factor was group (experimental or control) and the within subject factor was the repeated measure of testing (pre-post).

**Analysis of Schools**

Since participating schools were not randomly selected for participation or randomly assigned to experimental or control conditions, it is expected that there would be main effect differences for groups (experimental & control). Incidentally a mixed model ANOVA with repeated measures includes a co-variance manipulation that adjusts for the aforementioned expected difference between groups. Consequently, it is the two-way interaction that is of interest.
In order to provide the reader with a sense of this change, all summary data are reported in an ANOVA summary table format and the two-way interaction is depicted graphically to provide visual evidence of change during the school year. Statistical analyses were conducted using SAS mixed model. In this model, students and buildings are random components and students are nested in buildings and buildings are nested in groups. The unit of analysis is building.

*Comparison/Control Schools*

Following consultation with the Iowa Department of Education, it was decided to use a single comparison group for all consortia when analyzing the experimental and comparison buildings in order to determine the impact of educational interventions during the 2004-2005 and 2005-2006 academic years. A total of 60 buildings were randomly selected to make up two sample comparison groups (elementary and middle school). The two samples were developed to reflect a proportional representation of the seven school district sizes in Iowa. None of the comparison schools participated in the E2T2/ESEPT initiative during the three-year funding cycle. Thus, the comparison group also served as a no-treatment control group for assessing the effect of the educational intervention. These two weighted stratified random samples of elementary and middle school buildings were used as comparison/control groups for: 1) fourth grade reading and mathematics, and 2) eighth grade reading and mathematics. Also to the extent possible, the two comparison/control groups were the same for 2004-2005 and 2005-2006.

*Students included in Data Analyses.*

A Learning Curve Analyses were conducted for each of the academic years 2004-2005 and 2005-2006. A requirement for inclusion in the analysis was that each student have both a pretest and a posttest score. Data analysis for a single consortium during an academic year includes; 1) a comparison of the experimental group of buildings and the comparison buildings, 2) a comparison of proficient and non-proficient students within the experimental group of buildings that received the educational interventions. This latter analysis focused on “closing the gap” during the academic year in either grade four or grade eight. The 2005-2006 analysis is essentially a replication with extension study conducted to provide credibility to results since random assignment was not a component in the data collection design. The buildings were the same from year to year with the exception that new buildings could join. Professional development activities were essentially the same and the educational interventions remained the
same. The only difference was new students in the fourth or eighth grades during the 2005-2006 academic year.

Consortium External Evaluation Methodology (Teacher data)

Teacher data were collected in order to determine the impact of teachers’ implementation of professional development training on student achievement gains during the academic year. This involved the use of structural equation modeling techniques from a path analysis perspective. Data were analyzed using the LISREL computer program. This analysis was conducted for only two middle school consortia due to consortium size (adequate number of buildings receiving the educational intervention) and the restriction that only buildings with both student and teacher data could be included in the analysis. These data are analyzed for the 2005-2006 academic year.

Elementary School Consortia - Mathematics

The first category of ESETP studies involve projects focusing on elementary mathematics. There are two consortia in this category. Both consortia made the decision to focus on mathematics because of low achievement scores in math at the fourth grade.


Participants. During the 2004-2005 academic year, five buildings with 4th grade classrooms participated. The number of participating students from the experimental group buildings was 213. These buildings were located in the urban area and would be considered inner city schools by Iowa demographics.

Educational interventions. Participating buildings chose to focus their efforts to improve 4th grade math scores by introducing four intervention strategies; 1) DDI record management, 2) every day counts calendar math, 3) number concepts, and 4) distributed practice. These strategies are discussed in detail in the internal evaluation located in Appendix B.

Data Analysis. A 2 (group) by 2 (repeated measures) mixed ANOVA was used to compare improvement in fourth grade math for the five experimental group schools and the comparison group schools. The dependent variable being analyzed was total math score from the ITBS. Data were transformed to Normal Curve Equivalent scores prior to analysis.
Experimental vs Control Schools

<table>
<thead>
<tr>
<th>Group</th>
<th>2003-2004</th>
<th></th>
<th>2004-2005</th>
<th></th>
</tr>
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<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Experiment</td>
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<td>20.14</td>
<td>56.00</td>
<td>20.23</td>
</tr>
<tr>
<td>Comparison</td>
<td>60.14</td>
<td>18.76</td>
<td>63.22</td>
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</tr>
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</table>

<table>
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<th>MS</th>
<th>F-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
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<td>23482.00</td>
<td>23482.00</td>
<td>11.46</td>
<td>0.0017</td>
</tr>
<tr>
<td>Error</td>
<td>38</td>
<td>77892.02</td>
<td>2049.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>1</td>
<td>14313.00</td>
<td>14313.00</td>
<td>84.10</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Year*group</td>
<td>1</td>
<td>3667.70</td>
<td>3667.70</td>
<td>21.55</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Building</td>
<td>33</td>
<td>87665.00</td>
<td>2656.53</td>
<td>5.45</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Student(building)</td>
<td>1480</td>
<td>721167.00</td>
<td>487.28</td>
<td>2.86</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Error</td>
<td>1513</td>
<td>257506.00</td>
<td>170.20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mathematics: 4th Grade

![Graph showing the comparison between experiment and comparison groups over two years.](image-url)
As can be noted from the ANOVA summary table, the main effect for group F(1,38) = 11.46, p< .01, was statistically significant. This would be expected since experimental group schools had identified math achievement as a problem area needing educational intervention efforts. The significant main effect for year (pretest, posttest) indicates a significant overall gain (both groups) in math achievement during the fourth grade F(1,1513) = 84.10, p < .01.

It is the two-way interaction that is of primary interest in this analysis. The significant Group*year interaction F(1.1513) = 21.55, p<.05 reflects a greater rate of improvement in math achievement for experimental schools than for the comparison schools. This is reflected in the graph of the interaction above and can be verified in the means table. The experimental group of schools gained approximately 10 NCE percentile ranks while the comparison group of schools gained approximately 3 NCE percentile ranks during the year.

Proficient vs. Non-Proficient Students.

Focusing only on the experimental group of schools, the progress of students who started the year as non-proficient (defined as the 41st percentile on national norms on the ITBS) was compared with classmates identified as proficient at the beginning of the year.

Participants were 213 fourth grade students from the five participating buildings. Two hundred and six students were identified as non-proficient and seven as proficient at the beginning of the year. This is simply a student level analysis of the experimental group data. Educational interventions were those described above. The means summary table reflecting improvement in math achievement by proficient and non-proficient students during the fourth grade is shown below.

<table>
<thead>
<tr>
<th></th>
<th>2003-2004</th>
<th>2004-2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Non-Proficient</td>
<td>29.97</td>
<td>10.96</td>
</tr>
<tr>
<td>Proficient</td>
<td>62.14</td>
<td>13.09</td>
</tr>
</tbody>
</table>

The non-proficient group of students included those students from the NCLB subgroups. The improvement for this group was approximately 15 NCE percentile ranks. When estimating the impact of the educational interventions for the non-proficient group, a large effect size is observed Cohens d’ = 1.10. This reflects the closing of the gap between ability groups during the fourth grade. These data are used to inform instruction.
**Council Bluffs Consortium (2005-2006):**

This analysis reflects a replication of the 2004-2005 study reported above. Three buildings have been added but the educational interventions remain the same as in the 2003-2004 academic year. The data analyses are the same as conducted for the 2004-2005 data. Keep in mind that this cross-sectional analysis includes five schools who have been in the consortium for their third year of participation and three school who are participating for the first time.

Summary data are shown below.

*Experimental vs Control Schools*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Experiment</td>
<td>54.01</td>
<td>18.17</td>
</tr>
<tr>
<td>Comparison</td>
<td>58.84</td>
<td>19.25</td>
</tr>
</tbody>
</table>
Although there was a slight improvement from pretest (M = 54.01) to posttest (M = 55.29) the rate of improvement was not a great for the experimental group of schools (see means table above. Although there was an overall statistically significant main effect for year F (1, 1725) = 18.32, p< .01, the bulk of the improvement was observed in the comparison group of schools.

These replication results may be due to the impact of the three new schools introduced into the consortium during the 2005-2006 school year. It is interesting to note that when visually comparing the 2004-2005 pretest scores (M = 46.58) with 2005-2006 pretest scores (M = 54.01) for the experimental buildings, students are starting the year at a much higher level of performance. This likely reflects the effects of previous exposure to the educational interventions in grades two and three for the five schools that had been in the consortium since its inception.

Proficient vs, Non-Proficient Students.

Participants were 363 students were from the eight experimental schools. At the beginning of the fourth grade, 116 were identified as non-proficient and 247 as proficient. Pretest and posttest means are included in the means summary table below. Again, the rate of gain for the non-proficient students was notable. The effect size estimate for the impact of educational interventions was moderate, Cohen d = .42.

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Non-Proficient</td>
<td>34.16</td>
<td>9.48</td>
<td>39.01</td>
<td>13.45</td>
</tr>
<tr>
<td>Proficient</td>
<td>63.33</td>
<td>13.08</td>
<td>62.94</td>
<td>14.14</td>
</tr>
</tbody>
</table>

These data strongly suggest that the educational interventions are impacting student achievement at the fourth grade level. The professional delivery system and the implementation of consortium instructional strategies and activities are having the desired results. When
compared to a state-wide standardized comparison group, significant progress is being made at both the building level and at the student level.

The school data suggest that it will take at least two years in many cases for significant improvement in math achievement as measured by a norm-referenced standardized achievement test to be observed. As seen by the impact of new schools, there is not likely to be much of an impact of educational interventions during the first year of participation.

The student data is more sensitive to the impact of the educational interventions and the gains in math achievement observed in the non-proficient student group are heartening. The educational intervention activities and strategies appear to be effective for these students and there is a “closing of the gap” between proficient and non-proficient students.

**Keystone Consortium (2004-2005).**

*Participants.* Keystone was a very small consortium with only one school participating for the first two years and a second school joining the consortium during the third year. During the 2004-2005 academic year, 82 fourth grade students received the educational interventions that were developed by the AEA professional development team and provided to building teachers to implement in their classrooms.

*Educational Interventions.* Intervention strategies and activities included; 1) worthwhile tasks, 2) writing for understanding, 3) manipulatives, 4) problem-based instructional tasks, 5) ALEKS, and 6) TI-15 calculators. Detailed information is found in the internal evaluation case study located in Appendix B

*Data Analyses.* The data analyses were the 2 (group) by 2 (pretest/posttest) mixed ANOVAs for both the experimental and control group comparison as well as the ability group (proficient/non-proficient) comparison.

The experimental and control group analysis shown must be interpreted with caution because only one experimental school is involved and the comparison group is made up of 30 schools.
Experimental vs Control Schools.

The rate of improvement in math achievement for the consortium school students is better than for the state-wide comparison group. As can be noted from the ANOVA summary table, the two-way group by year interaction is not statistically significant. However, as can be noted in the means summary table, the increase in NCE percentile ranks was approximately six for the experimental school and three for the comparison schools. As mentioned above, the lack of balance between the number of experimental group schools and comparison group schools is a limitation of this analysis.

<table>
<thead>
<tr>
<th>Group</th>
<th>2003-2004</th>
<th>2004-2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Experiment</td>
<td>51.80</td>
<td>21.32</td>
</tr>
<tr>
<td>Comparison</td>
<td>60.14</td>
<td>18.76</td>
</tr>
</tbody>
</table>
At the beginning of the fourth grade, 56 of the 82 students were identified as non-proficient according to state standards. This is simply an analysis of the experimental school students growth in math achievement during the fourth grade during the 2004-2005 academic year. As can be noted in the means table, the gain in NCE percentile ranks during the academic year for the non-proficient group of students was about twice the size of the gain for the proficient group of students. Although the non-proficient group did not catch up with the proficient group, there was a closing of the gap between the two ability groups.

<table>
<thead>
<tr>
<th></th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
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<td>Group</td>
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<td>5442.31</td>
<td>5442.31</td>
<td>1.20</td>
<td>0.2839</td>
</tr>
<tr>
<td>Error</td>
<td>25</td>
<td>113452.50</td>
<td>4538.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>1</td>
<td>2685.17</td>
<td>2685.17</td>
<td>16.01</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Year*group</td>
<td>1</td>
<td>181.38</td>
<td>181.38</td>
<td>1.08</td>
<td>0.2985</td>
</tr>
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<td>Building</td>
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<td>82182.00</td>
<td>2833.85</td>
<td>6.00</td>
<td>&lt;.0001</td>
</tr>
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<td>Student(Building)</td>
<td>1353</td>
<td>638740.00</td>
<td>472.09</td>
<td>2.82</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Error</td>
<td>1382</td>
<td>231747.00</td>
<td>167.69</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Proficient vs Non-Proficient Students

In an effort to capture the impact of consortium educational intervention on the non-proficient group of students, a Cohen size effect estimate was computed on pretest and posttest scores. The Cohen $d = .66$, a moderate to large effect on the non-proficient student group during the fourth grade.

**Keystone Consortium (2005-2006).**

During the 2005-2006 academic year, two schools participated in the consortium intervention activities. Professional development activities and instructional strategies and activities were the same as during the 2004-2005 academic year. Statistical analyses were the same as for the 2004-2005 data.
Experimental vs Control Schools

Again, caution must be urged in the interpretation of these data due to the small number of experimental schools. Interestingly the two-way interaction approached statistical significance $F (1, 1457) = 3.41, p < .06$. As can be noted in the graph below, although the experimental schools started the year performing at a lower level than the state-wide comparison group, they did catch up by the end of the year. Pretest and posttest means are provided in the means summary table below.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean SD</td>
<td>Mean SD</td>
</tr>
<tr>
<td>Experiment</td>
<td>56.38 18.02</td>
<td>61.84 18.72</td>
</tr>
<tr>
<td>Comparison</td>
<td>58.84 19.25</td>
<td>61.35 18.65</td>
</tr>
</tbody>
</table>

Also, the ANOVA summary table below provides information about the significant main effect for year, $F (1,1457) = 24.89, p < .01$, that signals a significant increase in math achievement for the combined groups. Although these data are to be interpreted with caution,
they do support a systematic approach to professional development that takes a quasi-experimental approach to the delivery, implementation and analysis of student achievement data in mathematics at the fourth grade level.

<table>
<thead>
<tr>
<th></th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F-value</th>
<th>P-value</th>
</tr>
</thead>
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<td>2.17</td>
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<td>0.9797</td>
</tr>
<tr>
<td>Error</td>
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<td>3286.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
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<td>2824.76</td>
<td>2824.76</td>
<td>24.89</td>
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<tr>
<td>Year*Group</td>
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<td>386.64</td>
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<td>&lt;.0651</td>
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<tr>
<td>Building</td>
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<td>117420.00</td>
<td>3914.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student(Building)</td>
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<td>4.69</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Error</td>
<td>1457</td>
<td>165325.00</td>
<td>113.47</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Proficient vs. Non-Proficient Students**

Of the ninety-five fourth graders in the two experimental schools, 29 were identified as non-proficient in math coming into the fourth grade. As can be noted from the means summary table, the rate of improvement for the non-proficient students was greater than for the proficient group of students. These data in combination with the analysis of school data reported above, does reflect the fact that the gap is closing during the fourth grade as a result the educational interventions. An effect size estimate was computed for the pretest-posttest gain in math achievement for the non-proficient group of students. The Cohen d = .66, a moderate to large effect for the non-proficient student group during the fourth grade.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Non-Proficient</td>
<td>36.62</td>
<td>8.48</td>
<td>44.55</td>
<td>14.85</td>
</tr>
<tr>
<td>Proficient</td>
<td>65.06</td>
<td>13.70</td>
<td>69.44</td>
<td>14.83</td>
</tr>
</tbody>
</table>

**Summary Statement**

A systematic professional development approach to staff development does appear to be effective in promoting student achievement in mathematics at the fourth grade. Credible quasi-experimental data strongly supports this statement. A systematic professional development model was the basis for the delivery and implementation of two different but effective educational interventions in two different parts of the state. This replication of results in two different consortiums strengthens the claim for effectiveness. By providing a replication of results within each consortium (across two different academic years), the argument for effectiveness of a consortium’s educational interventions is further strengthened.
Elementary School Consortia – Reading

Three consortia chose to focus on promoting elementary reading achievement. Though the three consortia had a common theme and a common systematic approach to the delivery of professional development (AEAs to local schools), educational intervention strategies and activities varied across consortia. Also, due to difficulties in implementation, one consortium did not provide data that could be used for external evaluation purposes. This consortium (Great River) did complete an internal evaluation which can be found in Appendix C along with the two consortia for whom the external evaluations are reported below.

Green Valley Consortium (2004-2005)

Participants. During the 2004-2005 academic year, three small rural schools made up the consortium. Student participation included 111 fourth grade students for whom pretest and posttest scores were available. Again, the small number of participating schools suggest caution in interpreting the statistical significance of the building effects.

Educational Intervention strategies included; 1) read aloud, 2) fluency instruction, and 3) Picture Word Induction Model (PWIM). Detailed descriptions of the educational interventions can be found in the internal evaluation report located in Appendix C.

Data analysis for this consortium was consistent with analyses previously reported. The dependent variable was the total reading score from the ITBS.

Experimental vs Control Schools

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>53.02</td>
<td>17.07</td>
<td>56.11</td>
<td>17.65</td>
</tr>
<tr>
<td>Comparison</td>
<td>59.05</td>
<td>19.06</td>
<td>60.99</td>
<td>19.19</td>
</tr>
</tbody>
</table>

DF | SS     | MS     | F-value | P-value |
---|--------|--------|---------|---------|
Group | 1 | 6354.49 | 6354.49 | 4.91    | 0.0297 |
Error | 76 | 98462.53 | 1294.81 |
Year | 1 | 1311.84 | 1311.84 | 21.53   | <.0001 |
Year*group | 1 | 67.84 | 67.84 | 1.11 | 0.2915 |
Building | 31 | 117031.00 | 3775.19 | 6.27 | <.0001 |
Student(building) | 1607 | 967638.00 | 602.13 | 9.88 | <.0001 |
Error | 1638 | 99794.00 | 60.92 |
schools exhibited a lower level of achievement at pretest than did the state-wide comparison group. Although the experimental schools demonstrated a greater rate of improvement during the fourth grade, the two-way group by year interaction was not statistically significant (see ANOVA summary table above). However, a visual inspection of the interaction (see graph below) does support the data from the means summary table that the rate of improvement was greater for the experimental group of schools than for the state-wide control schools.

![Reading: 4th Grade](image)

**Proficient vs Non-Proficient Students**

Of the 111 students from the three schools, 83 were classified as proficient in reading and 28 as non-proficient in reading at the beginning of the fourth grade. As can be noted in the means summary table below, the non-proficient group of students began the fourth grade at a much lower level of achievement than the proficient group of students. Further, the non-proficient students did not catch up by the end of the year. However, the rate of improvement has
much higher for the non-proficient group and the gap was closing. Specifically, the non-proficient students demonstrated an average 7.5 NCE percentile point gain compared with an average 1.5 NCE percentile rank gain made by the proficient group.

<table>
<thead>
<tr>
<th></th>
<th>2003-2004</th>
<th>2004-2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Non-Proficient</td>
<td>31.54</td>
<td>9.54</td>
</tr>
<tr>
<td>Proficient</td>
<td>60.27</td>
<td>12.25</td>
</tr>
</tbody>
</table>

When a Cohen effect size estimate was computed for the non-proficient groups’ gain in math achievement during the fourth grade, the effect size was large, $d = .71$.

**Green Valley Consortium (2005-2006)**

During the 2005-2006 academic year, the same three buildings participated and the same educational interventions were implemented with a new class of fourth graders. The following is to be considered a replication study. Statistical analyses are the same as for the 2004-2005 data.
As can be noted from the graph above, the pretest performance of the two groups were similar. However, while the control group performance remained steady, the performance by the experimental group of schools actually showed a decline. As can be noted from the means summary table below, there was a decline of two NCE percentile ranks in reading achievement for the schools receiving the educational intervention. As can be seen in the ANOVA summary table below, nothing really replicated at the school level.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Experiment</td>
<td>57.06</td>
<td>15.59</td>
</tr>
<tr>
<td>Comparison</td>
<td>58.05</td>
<td>18.95</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
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<td>31.54</td>
<td>31.54</td>
<td>0.02</td>
<td>0.8989</td>
</tr>
<tr>
<td>Error</td>
<td>48</td>
<td>92902.08</td>
<td>1935.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>1</td>
<td>94.73</td>
<td>94.73</td>
<td>1.69</td>
<td>0.1934</td>
</tr>
<tr>
<td>Year*Group</td>
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<td>165.86</td>
<td>165.86</td>
<td>2.96</td>
<td>&lt;.0853</td>
</tr>
<tr>
<td>Building</td>
<td>31</td>
<td>169707.00</td>
<td>5474.42</td>
<td>10.00</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Student(building)</td>
<td>1370</td>
<td>750174.00</td>
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<td>9.79</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Error</td>
<td>1401</td>
<td>78390.00</td>
<td>55.95</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Proficient vs Non-Proficient Students

Interestingly, there were only 65 fourth grade students in the three schools for whom both pretest and posttest scores were available during the 2005-2006 school year. Of this total, 48 were identified as proficient in reading achievement and 17 as non-proficient in reading achievement. As can be noted from the mean summary table below, the average performance of students in the non-proficient group increased while the average performance of the proficient students decreased. These data coupled with the school data shown above would suggest that the overall decline in school data across the academic year 2004-2005 was due primarily to the decline in performance of the proficient students.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Non-Proficient</td>
<td>38.00</td>
<td>6.51</td>
</tr>
<tr>
<td>Proficient</td>
<td>63.81</td>
<td>11.78</td>
</tr>
</tbody>
</table>
Cedar Run Consortium (2004-2005)

Participants. During the 2004-2005 academic year, three buildings participated in the Cedar Run Consortium. The three schools would be identified as urban schools by the demographics of Iowa. These schools had a fourth grade population of 128 students for whom both pretest and posttest scores were available. Due to the fact that two schools dropped out following the 2004-2005 academic year, no replication study was conducted.

Educational Intervention. Only one intervention strategy was introduced during the year, this was the software program Graphic Organizers. Information is available from the case study in Appendix C.

Data analyses were the same as for other consortia. Again, the dependent variable being analyzed was the total reading score from the ITBS.

Experimental vs Control Schools

Although the number of participating schools is small, the second year data that is analyzed looks very good. As can be noted from the graph below, although the experimental group of schools were slightly below the control group at the beginning of the school year,
The experimental group of schools caught up with the control group of schools by the end of the year in terms of reading achievement. A closer examination of the data is available in the means summary table below.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>56.66</td>
<td>19.88</td>
<td>61.56</td>
<td>17.05</td>
</tr>
<tr>
<td>Comparison</td>
<td>59.05</td>
<td>19.06</td>
<td>60.99</td>
<td>19.19</td>
</tr>
</tbody>
</table>

While the control group of schools increased approximately 2 NCE percentile ranks on average during the fourth grade, the experimental schools averaged approximately a 5 NCE percentile rank gain. The interaction was statistically significant \( F(1,1655) = 8.72, p < .01 \) as was the year main effect \( F(1,1655) = 46.80, p < .01 \). These data are shown in the ANOVA summary table below.

<table>
<thead>
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</table>

**Proficient vs Non-Proficient Students.**

During the 2004-2005 academic year, there were 128 fourth grade students for whom pretest and posttest data were available for analysis. These are the same students whose performance was analyzed at the school level in the analyses above. Of the 128 student, at the beginning of the fourth grade 33 were identified as non-proficient readers and 95 were identified as proficient. As can be noted from the means summary table below, on average non-proficient students increase in reading achievement approximately 11 NCE percentile ranks during the school year. The proficient students also improved in reading achievement (approximately 2.5 NCE percentile ranks). Again, estimating the effect size of the gain for non-proficient during the year, Cohen's \( d = 1.14 \); a large effect. Thus, the educational interventions were very effective in promoting the growth in reading achievement during the fourth grade for non-proficient readers.
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<tr>
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</tr>
<tr>
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<td>65.4</td>
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**Summary Statement**

These data provide support for the use of a systematic professional development approach to the scaling up of educational interventions. However, the effectiveness of specific educational interventions at the building level is mixed in the Green Valley Consortium. This statement is made in light of the failure to replicate second year findings during the third project year for the Green Valley consortium. As mentioned above however, this may have been due to atypical movement in and out of the participating schools from the second project year to the third. The Cedar runs building level data were very impressive during the second project year. Unfortunately, two of the three schools did not participate during the third year which precluded a replication study.

At the student level of analysis, there is no doubt that the systematic professional development approach to scaling up of educational interventions was very successful. In both consortia, the effect of the educational interventions were large even though the educational interventions differed across consortia.

Overall the systematic approach to professional development when scaling up elementary school math and reading initiatives at the elementary school level appears to be working well in Iowa. At the school level of analysis, math and reading achievement are improving relative to a control group of schools who were not participating in ESETP/E2T2 initiatives. At the student level of analysis, the effectiveness is even more dramatic.

**Middle School Consortia – Mathematics**

Three consortia focused on the middle school and the promotion of mathematics achievement. These consortia are 1) Southern Prairie, 2) Loess Hills and 3) Heartland. These consortia extend across the southern part of Iowa. These consortia were organized in the same way as the elementary consortia. The systematic professional development model for the delivery of teacher training was the same system as for the elementary consortia. Obviously,
educational interventions differed. Mathematics achievement at the eighth grade was measured using the ITBS total math score. Mathematics achievement was the focus for improvement because of a previous history of low performance at the eighth grade level. Data were analyzed at both the building level and the student level.

A fourth consortium, Mississippi Bend, also focused on middle school mathematics. Unfortunately, none of the participating schools had midyear or spring testing dates for the ITBS. Thus, there was no possibility of inclusion in the external evaluation. However, the internal evaluation report is located in Appendix D.

**Southern Prairie Consortium (2004-2005)**

*Participants.* Four school made up the Southern Prairie consortium during the second project year (2004-2005). There were a total of 382 eighth grade students for whom both pretest and posttest scores were available.

*Educational Interventions.* Intervention strategies were primarily instructional strategies and included: 1) representations/models, 2) mental math, 3) estimation practice, 4) daily math/short skill practice, 5) concept previews, and 6) extended problem solving tasks. Detailed information is available in the case study located in Appendix D.

*Data Analyses.* The same statistical analyses employed with the elementary school data were employed with the middle school data. The dependent variable was the total math score from the ITBS.

*Experimental vs Control Schools*

As can be noted from the following graph, when compared with the state-wide comparison group of schools, there were few differences in either the level of achievement at the beginning of the eighth grade or the rate of improvement. As can be noted from the means summary table below, the increase in NCE percentile ranks was approximately 2.6 for the experimental schools and 2.9 for the comparison schools.

While there was no significant main effect for group or significant year by group interaction, as can be noted in the following ANOVA summary table, the main effect for year was statistically significant $F(1,2528) = 30.79$, $p < .01$. This simply reflects the fact that the overall rate of improvement in math achievement for both the control and comparison schools was statistically significant during the eighth grade during the 2004-2005 academic year.
### Proficient vs Non-Proficient Students

Across the four participating buildings, there were a total of 382 eighth grade student with both pretest and posttest scores. At the beginning of the eighth grade school year, 130 of
these students were identified as non-proficient and 252 as proficient in mathematics achievement. As can be noted from the means summary table below, the mean differences at pretest was quite large. The average growth in math achievement for proficient students was virtually flat with a decrease of less than 1 NCE percentile rank during the eighth grade. In contract, the non-proficient student demonstrated an average improvement in math achievement of approximately 10 NCE percentile ranks during the eight grade. The Cohen effect size estimate for this gain was in the moderate to large range \( d = .66 \).

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<td></td>
<td>Mean</td>
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<td>Mean</td>
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</tr>
<tr>
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<td>63.45</td>
<td>11.58</td>
<td>62.09</td>
<td>16.97</td>
</tr>
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</table>

**Southern Prairie Consortium (2005-2006)**

*Participants.* The same four buildings participated during the third year of the three-year funding cycle. This year, there were 393 students with pretest and posttest scores.

*Educational Interventions.* The same interventions were implemented in the participating classrooms as were implemented during the 2004-2005 academic year. This time lag analysis could be considered a replication study.

*Statistical Analyses.* The same analyses that were conducted for all consortia.

**Experimental vs Control Schools**

As can be noted from the following graph, the data for 2005-2006 are very similar to the 2004-2004 data previously discussed. However, during the 2005-2006 academic year, while the control group showed no growth in achievement achievement during the eighth grade, on average the experimental schools demonstrated a small increase ( 1.2 NCE percentile ranks). The data are shown in the means summary table below.
As can be noted from the ANOVA summary table, neither the main effect for group or year were statistically significant. However the statistically significant year by group interaction $F(1,2843) = 4.79$, $p<.05$, shown in the graph above does support the claim that the intervention schools did catch up with the control schools by the end of the academic year.
Proficient vs Non-Proficient Students.

Of the 393 students in the data analyses, during the 2005-2006 academic year, 109 were identified as non-proficient at the beginning of the year and 284 were proficient.

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<td></td>
<td>Mean</td>
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<td>Mean</td>
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<tr>
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<td>Proficient</td>
<td>65.24</td>
<td>13.96</td>
<td>64.29</td>
<td>15.66</td>
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These data reflect on average an improvement of approximately 7 NCE percentile ranks for the non-proficient students in the four participating schools. The Cohen effect size estimate d = .53 reflects a moderate effect.


Participants. This consortium was made up of four schools in the rural southwest part of Iowa. During the 2004-2005 academic year, a total of 192 eighth grade students with both pretest and posttest scores attended the experimental group schools.

Educational Interventions. The instructional activities that served as educational as the educational interventions were: 1) problem solving, 2) reasoning with proof, 3) communication, 4) correction and representation. These interventions are described in detail in the case study found in Appendix D.

Data Analyses. Data analyses reported for Loess Hill are the same as for all consortia. The dependent variable was the total math score from the ITBS.

Experimental vs Control Schools

As can be noted from the graph below, both the experimental and control schools started the 2004-2005 academic year at virtually the same level of academic achievement. At the end of the year, the experimental schools on average were slightly ahead of the control group schools.
The means summary table provides pretest and posttest means. As one can note from the

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</table>

ANOVA summary table below, neither the main effect for group nor the group by year interaction was statistically significant. However, the main effect for year was significant F (1, 2338) = 22.72, p < .05. This simply speaks to an overall significant improvement by schools in both the experimental and control groups.
Proficient vs Non-Proficient Students

Of the 192 eighth grade students in the experimental schools, 118 were identified as non-proficient in mathematics at the beginning of the 2004-2005 academic year. As can be noted from the means summary table below, the non-proficient students as a group increased on average 14 NCE percentile ranks during the eighth grade. The effect size estimate for this gain was quite large Cohen $d = 1.05$.

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<td>Mean</td>
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<tr>
<td>Non-Proficient</td>
<td>31.53</td>
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<td>17.41</td>
</tr>
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</table>

Loess Hills Consortium (2005-2006)

During the third year of the funding cycle, one school was added to the Loess Hills Consortium. A total of 322 eighth grade students in the five participating schools had both pretest and posttest scores. The educational interventions remained the same.

Experimental vs Control Schools

As shown in the graph below, during the 2005-2006 year, the experimental group of schools and the control group of schools exhibited very similar development during the eighth grade. As can be determined from the accompanying means summary table, the experimental
schools at a slightly higher level of achievement (approximately 1.5 NCE percentile ranks) at the beginning of the school and maintained that advantage throughout the year.

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<td>Mean</td>
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<td>57.93</td>
<td>19.58</td>
<td>57.44</td>
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</tr>
</tbody>
</table>

As one would anticipate, the results on the analysis of variance indicated no significant effects for either the main effects (group or year). Further, the group by year interaction was also nonsignificant. In summary, no significant differences were observed between the experimental and control groups of schools.

*Proficient vs Non-Proficient Students.*

When the focus turned to the student level of analysis, the impact of educational interventions on the rate of improvement by non-proficient students was striking. During the 2005-2006 academic year, 52 out of 322 eighth graders were identified as non-proficient in mathematics. As can be noted from the means summary table below, the performance level of non-proficient students increased approximately 7 NCE percentile ranks during the eighth grade. The Cohen effect size estimate for this increase as measured was moderate to large, \( d = .59 \)

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**Heartland Consortium (2004-2005)**

*Participants.* During the 2004-2005 academic year, nine buildings participated in the Heartland middle school math consortium. The total number of eighth grade students for whom both pretest and posttest scores were available was 882.

*Educational Interventions.* Instructional strategies and activities included: 1) mental math, 2) base instructional decisions on students, 3) understanding, 4) promoting discourse, 5) extending student thinking, 6) daily math review, and 7) worthwhile tasks. Detailed information is available from the case study in Appendix D.

*Statistical Analyses.* The same statistical analyses were performed on the Heartland data as for all the other consortia. The dependent variable was the total math score from the ITBS.
Experimental vs Control Schools

As can be noted from the means summary table and the ANOVA summary table below, experimental schools started and ended the school year with a higher level of math achievement than the control schools. These data reflect the fact that this consortium had initiated a mathematics intervention (Every Student Counts) in the middle schools in 2002. Thus, this consortium is continuing an intervention program that predates the ESETP/E2T2 initiative. The statistically significant main effect for groups F (1, 65) = 4.72, p < .05, confirms that the difference in favor of the experimental schools was maintained during the eighth grade. However, the group by

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</table>

year interaction is also significant, F (1, 3028) = 19.98, p < .01. This qualifies the main effect for group by signaling that the rate of improvement for the control schools was on average greater than for the experimental schools.

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</table>

A visual representation of these findings is presented graphically on the following page.
Proficient vs Non-Proficient Students.

At the beginning of the eighth grade, 340 of the 882 students from the nine participating schools were identified as nonproficient. Thus, while the school level of analysis indicates a high average level of performance for all 882 students, almost a third of these students were non-proficient by state standards. However, as can be noted from the means summary table below, the rate of improvement made by non-proficient students during the eight grade was rather striking while there was a slight decrease in the performance level of proficient students. The non-proficient students demonstrated a gain of approximately 14 NCE percentile ranks during the school year. The effect size estimate $d = 1.08$ indicated a large effect of the educational interventions for mathematically non-proficient eighth graders.

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<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Non-Proficient</td>
<td>32.82</td>
<td>9.83</td>
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<td>15.33</td>
</tr>
<tr>
<td>Proficient</td>
<td>67.59</td>
<td>13.61</td>
<td>63.87</td>
<td>17.33</td>
</tr>
</tbody>
</table>
Heartland Consortium (2005-2006)

Participants. During the third year of the funding cycle, ten new buildings joined the consortium. Thus, the number of participating buildings was 19 and the total number of students with both pretest and posttest scores was 2004. This large increase in participating buildings was due in part to the building level success demonstrated during the 2004-2005 school year and the efforts of the professional development team in the recruitment process.

Educational Interventions. The professional development activities and educational interventions did not change.

Statistical Analyses. The standard analyses were performed. While this is a replication in terms of the educational interventions, it will be interesting to see what impact ten new schools will have on the data for the 2005-2006 academic year. These data have implications for the impact of scaling up on successful projects.

Experimental vs Control Schools.

The replication data for the 2005-2006 academic year is shown in the means summary table below. These data reflect basically the same relative levels of performance for the 2005-2006 academic year as for the 2004-2005 academic year. The basic difference being that during the 2005-2006 academic year, on average there was no decline in performance by control schools. The ANOVA results indicated no significant main effects or interaction. The

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</thead>
<tbody>
<tr>
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</tr>
<tr>
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<td>57.93</td>
<td>19.58</td>
<td>57.44</td>
<td>18.66</td>
</tr>
</tbody>
</table>

The graphic representation of the 2005-2006 means are presented below for visual inspection with the 2004-2005 data reported above.
Proficient vs Non-Proficient Students.

At the beginning of the eighth grade during the 2005-2006 academic year, 432 of the 2004 participating students were identified as non-proficient in math. Thus, approximately 20% of the total number of students in participating schools were non-proficient at the beginning of the school year. As can be noted from the means summary table below, on average, non-proficient students improved approximately 7 NCE percentile ranks during the school year. In contrast, the average performance of proficient students dropped approximately 1.3 NCE percentile ranks during the eighth grade year.

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<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Non-Proficient</td>
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<td>12.77</td>
</tr>
<tr>
<td>Proficient</td>
<td>68.12</td>
<td>15.27</td>
<td>66.79</td>
<td>17.00</td>
</tr>
</tbody>
</table>

The Cohen effect size estimate for the non-proficient student group gain was $d = .64$, a moderate to large effect. This again demonstrates that the educational interventions are effective in closing the math achievement gap during the eighth grade at consortium schools.
Summary Statement

The middle school mathematics consortia are doing a good job of scaling up their individual consortia. In particular, the Heartland Consortium. When these experimental groups are compared with the state-wide control/comparison group, the comparisons are favorable for all three consortia. The fact that these favorable findings are replicable speak favorably for a systematic approach to professional development and the effectiveness of consortium defined educational interventions.

This is particularly the case when attention turns to the student level of analysis and the focus is on closing the gap between mathematically proficient and non-proficient eighth graders. In all three consortia, the effect size estimates for the achievement gains made by non-proficient students ranged from moderate to large.

These data also make clear that an analysis of results restricted to either the school as the unit of analysis or the student level of analysis does not provide a clear picture of the learning that is occurring during the eighth grade when scaling up an educational initiative. At the school level when comparing to a state-wide standard, school level performance is valuable information for administrative decisions about the curriculum. However, a finer grained analysis at the student level of analysis (proficient vs non-proficient) is also necessary in order to determine “for whom” the educational interventions are most effective. These student data provide for decisions pertaining to differential instruction decisions.

Middle School Consortia – Reading

Focusing on whole grade reading interventions is a relatively new initiative in Iowa. The concern has grown over the past decade that students are not progressing as well as they should in reading achievement during the middle school years. Previously, the focus on early reading ended at grades four or five and the assumption was made that reading achievement would continue to develop without special attention. This has not proven to be the case in Iowa as well as across the country. Thus, the whole-grade middle school reading initiative was implemented to address these issues.

Participants. During the second year of the three-year funding cycle, six inner city middle schools made up the Des Moines Consortium. From these six schools, 1175 eight grade students for whom both pretest and posttest scores were available received the consortium educational interventions.

Educational Interventions. This consortium took a rather eclectic approach to the development of educational interventions and activities which included: 1) read aloud/think aloud, 2) independent reading, 3) data warehouse, 4) vocabulary, 5) mini-lessons guided practice, 6) writer’s notebook, 7) conferencing with students, 8) writing mini-lessons, and 9) publishing process. The case study in Appendix E provides additional details.

Statistical Analyses. The same analyses were compiled for all consortia. The dependent variable was the total reading score from the ITBS.

Intervention vs Control Schools

Experimental buildings started the school year at a lower level of achievement than the state-wide comparison schools. Also, on average there was no growth in reading achievement being demonstrated by the experimental schools. The mean summary table below provides these data and also the fact that there was an increase of approximately 2 NCE percentile ranks in reading performance exhibited by the state-wide control schools.

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</table>

In fact the ANOVA summary table below indicates a statistically significant main effect for Group F (1, 34) = 6.69, p < .01. This is not surprising since these middle schools were selected for participation because there were the poorest performing schools in an urban district.

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<thead>
<tr>
<th></th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F-value</th>
<th>P-value</th>
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<tr>
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<td>36694.00</td>
<td>36694.00</td>
<td>6.69</td>
<td>0.0142</td>
</tr>
<tr>
<td>Error</td>
<td>34</td>
<td>186520.70</td>
<td>5546.92</td>
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</tr>
<tr>
<td>Year</td>
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<td>1435.88</td>
<td>1435.88</td>
<td>30.29</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Year*group</td>
<td>1</td>
<td>1777.91</td>
<td>1777.91</td>
<td>37.50</td>
<td>&lt;.0001</td>
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<tr>
<td>Building</td>
<td>34</td>
<td>179158.00</td>
<td>5269.35</td>
<td>8.12</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Student(building)</td>
<td>3365</td>
<td>2184270.00</td>
<td>649.11</td>
<td>13.69</td>
<td>&lt;.0001</td>
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<tr>
<td>Error</td>
<td>3399</td>
<td>161144.00</td>
<td>47.41</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Further, a statistically significant interaction of group by year $F(1, 3399) = 37.50, p. <.01$ was observed. This interaction is show in graphic form below. During the 2004-2005 academic year the gap in reading achievement increased rather that decreased. While the experimental schools held their own, the control schools on average increase.

**Proficient vs Non-Proficient Students**

There were a total of 1175 eighth grade students with both pretest and posttest scores. Of this total, approximately half (583) were identified as non-proficient readers at the beginning of the eighth grade.

Although there was no progress made at the school level of analysis, the student level of analysis painted a somewhat better picture. As can be noted from the means summary table below, on average, there was a slight improvement in reading achievement for the students identified as non-proficient readers at the beginning of the eighth grade. On average, the claim can be made that there was a small closing of the gap between proficient and non-proficient readers in the six participating schools. The gain was small as estimated by the Cohen effect size estimate $d = .18$. 

![Graph showing reading achievement improvement](image-url)
<table>
<thead>
<tr>
<th></th>
<th>2003-2004</th>
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<th>2004-2005</th>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Non-Proficient</td>
<td>30.77</td>
<td>10.21</td>
<td>32.81</td>
<td>12.38</td>
</tr>
<tr>
<td>Proficient</td>
<td>63.89</td>
<td>14.69</td>
<td>61.66</td>
<td>15.40</td>
</tr>
</tbody>
</table>

**Des Moines Consortium (2005-2006)**

*Participants.* Two middle schools were added during the third year of the three year funding cycle for a total of eight experimental schools with 1940 eight grade students having both pretest and posttest scores.

*Educational Interventions.* The same as the previous year.

*Statistical Analyses.* The standard analyses for all consortia.

*Experimental vs Control Schools.*

As reflected in the graph below, the 2005-2006 data looked very similar to the 2004-2005 data. The exception being the the level of achievement was approximately 2 NCE percentile
Ranks higher for both the experimental and control groups of schools. These data are shown in the means summary table below. The ANOVA results indicated that there was no significant group main effect $F(1, 34) = 2.45, p>.12$ during the second year. Unfortunately, the year main effect was statistically significant $F(1, 4177) = 41.27, p<.01$. Phrased differently, there was a significant decrease in math achievement during the eighth grade when considering the experimental and control buildings as a whole.

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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Experiment</td>
<td>50.16</td>
<td>20.75</td>
<td>49.00</td>
<td>19.93</td>
</tr>
<tr>
<td>Comparison</td>
<td>54.40</td>
<td>19.51</td>
<td>53.46</td>
<td>18.27</td>
</tr>
</tbody>
</table>

Proficient vs Non-Proficient Students.

Of the 1940 eight grade students in the experimental schools, 815 were identified as non-proficient and 1125 as proficient at the beginning of the eighth grade. As can be noted from the mean summary table below, the non-proficient students on average did show improvement.

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<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Non-Proficient</td>
<td>31.25</td>
<td>10.85</td>
<td>33.48</td>
<td>13.28</td>
</tr>
<tr>
<td>Proficient</td>
<td>63.87</td>
<td>14.49</td>
<td>60.25</td>
<td>16.01</td>
</tr>
</tbody>
</table>

Though small, non-proficient students did gain approximately 2.25 NCE percentile ranks during the eighth grade. The Cohen effect size estimate $d = .18$ confirms the small effect of the educational interventions on non-proficient student’s achievement.


Participants. The Davenport consortium was made up of three middle school buildings and would also be considered urban by Iowa standards. A total of 447 eighth grade students had both pretest and posttest scores. Of this total, 209 were identified as non-proficient in reading at the beginning of the eighth grade during the 2004-2005 academic year.

Educational Interventions. Similar to the Des Moines consortium, the Davenport consortium implemented a number of educational interventions: 1) implementation of strategy, 2) shared reading, 3) independent reading, 4) computer instruction, 5) teacher directed small group reading, 6) creating community, 7) teacher read aloud, 8) distributed practice, 9) guided
reading, 10) vocabulary development and 11) literacy cadre. Further details can be found in the case study located in Appendix E.

Statistical Analyses. The same analyses that were performed on all consortia’s data.

Experimental vs Control Schools.

As can be noted in the graph below, while the experimental schools started the year approximately 5 NCE percentile ranks below the state-wide control schools, the experimental schools on average had a slightly greater rate of improvement in reading achievement during the 2004-2005 academic year. Means are shown in the summary table immediately below the graph.

<table>
<thead>
<tr>
<th></th>
<th>2003-2004</th>
<th>2004-2005</th>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Experiment</td>
<td>47.93</td>
<td>20.40</td>
</tr>
<tr>
<td>Comparison</td>
<td>52.20</td>
<td>18.66</td>
</tr>
</tbody>
</table>

Unfortunately, as can be noted from the ANOVA summary table below, the group by year interaction only approached significance F(1, 2671) = 1.64, p > .20. Further, as reflected in group differences depicted in the graph above, the main effect for group was statistically significant
F(1,39) = 13.52, p < .01. However, the main effect for year was also statistically significant F(1, 2671) = 91.94 indicating an overall increase (when collapsing across groups) in reading achievement.

**Proficient vs Non-Proficient Students**

As mentioned above, of the 447 participating students, approximately half (209) were identified as non-proficient starting the eighth grade. As can be determined by an inspection of the means summary table below, on average both groups improved their reading achievement scores.

<table>
<thead>
<tr>
<th></th>
<th>2003-2004</th>
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<th>2004-2005</th>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Non-Proficient</td>
<td>30.61</td>
<td>10.81</td>
<td>35.72</td>
<td>12.89</td>
</tr>
<tr>
<td>Proficient</td>
<td>63.13</td>
<td>13.58</td>
<td>63.66</td>
<td>14.51</td>
</tr>
</tbody>
</table>

The non-proficient students as a group improved their reading achievement scores by approximately 5 NCE percentile ranks over the academic year. This improvement is reflected in the Cohen effect size d = .43, a moderated effect.

**Davenport Consortium (2005-2006)**

*Participants.* One middle school was added to the consortium during the third year of the three-year funding cycle. This brought the total number of participating schools to 4 and the total number of eighth graders students with both pretest and posttest scores to 955. Four hundred and four of the 955 students were identified at the beginning of the eighth grade as non-proficient readers.

*Educational Interventions.* The same as the previous year.

*Statistical Analyses.* The standard analyses performed on all consortia data.

**Experimental vs Control Schools**

As can be noted from the means summary table and graph below, the school level data are different from results obtained the previous year. Both the experimental group of schools and the state-wide control groups essentially stayed the same in terms of reading achievement.

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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Experiment</td>
<td>49.54</td>
<td>19.71</td>
<td>48.91</td>
<td>19.06</td>
</tr>
<tr>
<td>Comparison</td>
<td>54.40</td>
<td>19.51</td>
<td>53.46</td>
<td>18.27</td>
</tr>
</tbody>
</table>
The initial levels of reading achievement at the beginning of the year were a bit higher during 2006-2005 year. However, the main effect for Group was statistically significant F (1, 22) = 6.31, p < .01. When averaging across pretest and posttest scores, the state-wide experimental schools as a group had higher reading achievement scores. Also, the main effect for year was statistically significant F (1, 3132) = 15.43, p < .01. When averaging across groups, the posttest scores were significantly lower than pretest scores. Thus, we are observing on average a decline in reading achievement for both groups of schools.

Proficient vs Non-Proficient Students

The student level of analysis does provide some good news. As noted from the means summary table below, there was an average increase of approximately 2 NCE percentile ranks in non-proficient student’s reading achievement scores during the eighth grade.

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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Non-Proficient</td>
<td>31.42</td>
<td>9.64</td>
<td>33.45</td>
<td>11.97</td>
</tr>
<tr>
<td>Proficient</td>
<td>62.82</td>
<td>13.73</td>
<td>60.25</td>
<td>14.87</td>
</tr>
</tbody>
</table>
Also, there was a decrease of approximately 2 NCE percentile ranks in the reading achievement scores of proficient students during the eighth grade. The Cohen effect size estimate $d = .19$ was a small effect. Although small, on average, gains by nonproficient students was replicated.

**Northwest Consortium (2004-2005)**

*Participants.* During the second year of the three-year funding cycle ten schools made up the Northwest Consortium. From these ten schools, there were 792 eighth students with both pretest and posttest scores. Of this total, 222 were indentified at the beginning of the school year as non-proficient in reading.

*Educational Interventions.* The instructional strategies and activities included: 1) reading level text, 2) student/teacher read aloud, 3) vocabulary, 4) graphic organizer, 5) flex grouping, 6) $6 +$ traits, 7) think aloud, and 8) questioning. Further detail is provided in the case study located in Appendix E.

*Statistical Analyses.* The standard analyses used for all consortia were conducted. As was the case with all reading consortia, the dependent variable was the total reading score from the ITBS.

*Experimental vs Control Schools.*

The analysis at the school level is interesting in that the experimental group of schools started the school year with a higher level of reading achievement than the state-wide comparison group. The mean summary table shown below shows that this advantage was maintained throughout the eighth grade. On average the comparison group did improve more during the year than did the experimental group of schools. These data are shown graphically on the following page.

<table>
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<tbody>
<tr>
<td>Experiment</td>
<td>55.67</td>
<td>18.31</td>
<td>56.43</td>
<td>18.12</td>
</tr>
<tr>
<td>Comparison</td>
<td>52.20</td>
<td>18.66</td>
<td>54.24</td>
<td>18.55</td>
</tr>
</tbody>
</table>
The ANOVA results indicated a nonsignificant main effect for groups. However, the year main effect was statistically significant $F(1, 3016) = 55.17, p < .01$, as was the group by year interaction $F(1, 3016) = 11.44, p < .01$. These results are reflected in the graph. While the experimental group of schools is performing at a higher level, the difference is not statistically significant. On the other hand, the combined average posttest score was significantly higher than the combined average pretest score. As can be seen in the graph above, a greater proportion of the increase is contributed by the control group schools.

*Proficient vs Non-Proficient Students.*

At the student level of analysis, the data look similar to what we have seen in other middle school reading consortia. The gap between non-proficient and proficient readers is being closed. The means summary table indicates the same level of reading achievement at pretest and posttest for the proficient readers. However, on average there is a gain of approximately 2.33 NCE scores during the eighth grade for non-proficient readers. The Cohen effect size estimate of the gain by non-proficient students $d = .22$ indicates a small effect. Thus, the educational
interventions being implemented by the Northwest Consortium are promoting a small gain in reading achievement for the non-proficient readers.

**Northwest Consortium (2005-2006).**

*Participants.* During the third year of the funding cycle only nine schools participated in the consortium. The dropout school was the largest school in the consortium. Thus, during the 2005-2006 school year there were 505 eighth graders for whom there were both pretest and posttest scores. This total included 109 non-proficient readers and 396 proficient readers at the beginning of the school year.

*Educational Interventions.* The same as for the previous year.

*Statistical Analyses.* The standard analyses used to analyze all consortia data.

**Experimental vs Control Schools**

As can be noted from the means summary table below, during the third year of the three-year funding cycle, the experimental group of school and the state-wide comparison group of schools were performing at basically the same level. While there was a slight improvement in the performance of experimental schools, there was a slight decrease in the performance of the control group of schools.

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<td>Mean</td>
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<tr>
<td>Experiment</td>
<td>53.65</td>
<td>18.65</td>
</tr>
<tr>
<td>Comparison</td>
<td>54.40</td>
<td>19.51</td>
</tr>
</tbody>
</table>

The ANOVA results reflect the data in the means summary table. The main effects for group and year were nonsignificant. However, the group by year interaction was statistically significant $F (1, 2682) = 6.08, p<.01$. This simply reflects the fact that the experimental group started the year at a slightly lower level of reading achievement and by the end of the year were slightly higher in reading achievement. This is your classic cross-over interaction. Given the magnitude of the differences, nothing to get excited about.

**Proficient vs Non-Proficient Students.**

At the student level of analysis, the closing of the gap between proficient and non-proficient students is replicated. The means summary table below suggests greater improvement in this regard compared to the 2004-2005 data. This year, the non-proficient students on average gained
3.59 NCE percentile ranks during the eighth grade. This is also reflected in the larger Cohen effect size $d = .31$.

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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Non-Proficient</td>
<td>33.43</td>
<td>9.87</td>
<td>37.02</td>
<td>13.12</td>
</tr>
<tr>
<td>Proficient</td>
<td>62.94</td>
<td>13.74</td>
<td>61.77</td>
<td>14.79</td>
</tr>
</tbody>
</table>

Modeling Impact of Professional Development and Technology Integration on Student Achievement

As mentioned at the outset, when trying to change schooling we believe that starting with the professional development of teachers is the approach to take when scaling up an initiative. Further, we believe that the use of technology for training and communication is not only economically a good approach but, can also be shown to influence teacher implementation of educational interventions that impact student achievement in a positive manner. This assumption holds to the extent that teachers implement with fidelity the educational interventions developed and provided by the professional development system. Thus, teacher implementation is viewed as a primary mediating variable when taking a systems approach to determining the impact of technology and professional development training on student achievement.

We now turn to an effort to determine if this model fits the data. For the following analysis, the Northwest Consortium 2005-2006 data on student achievement from participating (experimental) schools was combined with data (see Appendix A), from teachers at those schools who received professional development training and were responsible for the implementation of the educational interventions. A Structural Equation Modeling (SEM) approach was selected for the analysis of these data from the 2005-2006 academic year.

The number of participating schools and students were reduced to seven schools. This reduction was necessary because of the lack of teacher data from two schools. The interpretation of the model shown below is the following. These data must be considered a pilot study and replication is required in order to suggest that these are anything but tentative findings.
PreRead8 0405 and PostRead8 0506 = ITBS total scores of reading; Professional Communication = q10 + q11 + q13 + q14; Professional Development = q2; Strategy Implementation = q6 * q7. All questions are from the Teacher Survey located in Appendix A.

The maximum likelihood method in the LISREL 8.72 program (Joreskog & Sorbom, 2005) was used to conduct the path analysis. Results show that the model is saturated and the fit was perfect. Fit Indexes: $df = 3$; Chi-square = 11.73 ($p = .01$); RMSEA = .02; CFI = 1.00; SRMR = .03.

In Figure 1 below, the results indicate that the pretest-reading score in the year of 2005 is highly related to post-test reading score in the year of 2006 ($\beta = .82, p < .01$). As expected the result supported the hypotheses that professional communication significantly predicted strategy implementation ($\beta = .24, p < .01$) and strategy implementation significantly predicted post-read score ($\beta = .15, p < .01$). That is, teachers’ frequent use of professional communication facilitated strategy implementation in their reading courses, which in turn increased their students’ reading scores even after controlling for the previous year’s reading score.

However, the results do not provide support for only professional development ($\beta = .13, p > .05$). In other word, the association of professional development and strategy implementation is in the positive direction, but failed to reach the significant level. Moreover, both professional communication and professional development were not significantly related to post-reading score ($\beta s = .07$ and .04, $p > .05$).
Figure 1: The Path Model (Fully Recursive) for Northwest Reading Experiment 8th Grade

Note: N = 432; * p < .05.
References


Appendix A

Map of Iowa E²T² Consortia

Iowa Professional Development Model (IPDM)

E²T² Teacher Survey
Iowa Professional Development Model

Student Learning – the Center of School Improvement and Staff Development

Operating Principles
✓ Focus on Curriculum, Instruction and Assessment
✓ Participative Decision-making (School & District)
✓ Leadership
✓ Simultaneity

Cycle of Professional Development

- Collecting / Analyzing Data
- Program Evaluation (Summative)
- Ongoing Data Collection (Formative Evaluation)
- Collaboration / Implementation
- Ongoing Components
- Goal Setting & Student Learning
- Selecting Content
- Designing Process for Professional Development
- Training / Learning Opportunities
E2T2 Professional Development Survey

The following set of questions concern the E2T2 professional development classroom instructional strategies. How much time did you spend becoming familiar with and learning the E2T2 strategies? On Average, how much time have you spent engaging in the following activities this past month:

<table>
<thead>
<tr>
<th></th>
<th>(A) None</th>
<th>(B) 1-30 minutes</th>
<th>(C) 31-60 minutes</th>
<th>(D) 61-90 minutes</th>
<th>(E) 91-120 minutes</th>
<th>(F) 121 or more minutes</th>
</tr>
</thead>
</table>

1. On average, the amount of time you spent learning the E2T2 instructional theory on which the instructional strategies are based?

2. On average, the amount of time you spent watching the E2T2 instructional strategies being demonstrated?

3. On average, the amount of time you spent practicing the E2T2 instructional strategies prior to using them in your classroom?

4. On average, the amount of time the E2T2 trainer spent coaching you in using the E2T2 instructional strategies.

5. On average, the amount of time you spent with others (not the trainer) discussing the use of the E2T2 strategies.

Question 6 assesses your average weekly use of this E2T2 general instructional strategy acquired through E2T2 professional development.

6. On average, how frequently do you implement this E2T2 general instructional strategy in your classroom? Please check one of the following frequencies.

- Never
- Once Per Week
- 2 X Per Week
- 3 X Per Week
- 4 X Per Week
- 5 X Per Week (Daily)
Question 7 assesses your average daily use of this E2T2 specific instructional strategy acquired through E2T2 professional development.

7. How much time do you spend (in minutes) implementing this E2T2 specific instructional strategies during a typical class period. Please mark with an x the appropriate box.

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</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>1-9 Minutes</td>
<td>10-19 Minutes</td>
<td>20-29 Minutes</td>
</tr>
<tr>
<td></td>
<td>30-39 Minutes</td>
<td>40-49 Minutes</td>
<td>50-59 Minutes</td>
<td>60 Minutes or More</td>
</tr>
</tbody>
</table>

Please indicate how often (on average) you use each of the following forms of communication to follow up on E2T2 professional development activities. This would also include discussing, sharing, or coaching colleagues in your building or district.

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<th>(A)</th>
<th>(B)</th>
<th>(C)</th>
<th>(D)</th>
<th>(E)</th>
<th>(F)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never</td>
<td>Once per week</td>
<td>2 X Week</td>
<td>3 X Week</td>
<td>4 X Week</td>
<td>5 X Week (Daily)</td>
</tr>
</tbody>
</table>

_____  8. ICN
_____  9. IP Video Conference
_____  10. E-mail
_____ 11. Web based discussion (list serves, chat rooms, e-mail, etc.)
_____ 12. Telephone/FAX
_____ 13. On-line or Internet Resources (professional organization web sites)
_____ 14. AEA media resources
_____ 15. Face to Face
Appendix B
Elementary School Mathematics
Council Bluffs
Key Stone
Development Types of Activities:
The strategies we chose as the focus of our E2T2 plan have been the focus of our overall elementary mathematics professional development plan for the past 6 years. During monthly, district-wide meetings, teacher leaders present and model strategies to the rest of the teaching faculty. Time for collaborative planning and reflection is built in. Coaching is most often done via the supervision of the building principal. With the implementation of the E2T2 initiative, participants were invited to monthly training sessions in which the E2T2 technology strategist reviewed the theory (see Jenkins, 2003, 2005, and Marzano 2001) and demonstrated the use of the technology through modeling. During the technology training, participants were able to practice the use of the software with feedback and coaching coming from the E2T2 technology strategist. This year, we also introduced the E2T2 staff to PC Tablets. The tablets were used to integrate technology with problem solving strategies through the use of the LCD. Throughout the past 4 years of our E2T2 plan, most of the professional development has occurred in the setting of a computer lab. However, some development occurs as needed and in the individual participant’s classroom. Collaboration and coaching is a major component of this latter form of PD.

Selection of the best practices within the Professional Development:
Parental involvement occurs in a number of ways, mostly tied to the reporting of student progress toward learning goals. Other ways that parents have been involved include sharing end of year expectations with parents at the beginning of the year in very specific ways that show parents examples of problems their children will be expected to know how to solve. In addition in 2006-07, staff incorporated the use of PC Tablets with students to show various ways students answered problem solving activities.

Strategies used in the E2T2 initiative are grounded in the research surveyed by Robert Marzano’s Classroom Instruction that Works (2001). Specifically, we have been able to address such scientifically-based researched strategies as feedback, practice, goal-setting, and hypothesis-testing with the use of the PC Tablets.

A second prong to our initiative pertains to making use of problem-solving strategies to improve mathematical understanding. This new approach is supported by the work of the Dept. of Education’s Every Student Counts. For the specific benefits of teaching mathematics through problem-solving, see Teaching Mathematics Through Problem Solving: Prekindergarten – Grade 6 (2003, NCTM).

Both of these approaches implemented to improve student learning were decided upon through an analysis of district assessment data and ITBS results.
Integration of Technology:
- Use of hand-helds by principals for monitoring strategies
- Use of LtoJ software to monitor and report student learning progress
- Use of LCD overhead projectors to demonstrate and provide feedback as well as to perform reciprocal teaching (individual student to whole group or small group to whole group)
- Use of tablet PCs in conjunction with the overhead LCD projectors to support reciprocal teaching as well as the NCTM standards of representation, communication, reasoning, and proof. Teachers and students used this technology during the 06-07 school year to better incorporate problem-solving strategies into mathematical learning across all strands of math.

Internal Evaluation of the Project:
Our overall internal evaluation shows that math achievement is improving over the past 3-6 years as indicated in the charts below showing average national percentile ranks at grades 4-8. It has been difficult to demonstrate whether specific strategies have caused this or whether it was a combination of a number of strategies (professional development devoted to math, LtoJ principles, alignment of curriculum and instruction through the LtoJ process, use of the Investigations program, problem-solving/posing, increased use of technology, and/or improved technology).
Fifth Grade Math Summary

Sixth Grade Math Summary
All Averages – Grades 2-8 – Combined

Averages of Average Percentile Ranks Across Grades 2-8 (Math Total)

Data on the Closure of Achievement Gaps:

Using fourth grade ITBS proficiency data over the past 5 years (data reported to the state and data in which at least 10 students comprise each group), we find that the gaps between all students and the subgroups (ELL, SPED, Hispanic, Black, and SES) have generally decreased:

- ELL proficiency gap went from 23.5% in 02-03 to just 18.1% in 06-07.
- Hispanic proficiency gap went from 24.6% in 02-03 to just 15.2% in 06-07.
- SES proficiency gap went from 11% in 02-03 to 6.6% in 07-07.
- Black proficiency gap increased as it went from 17.1% in 02-03 to 24.7% in 06-07.
- SPED proficiency gap increased as it went from 37.2% in 02-03 to 41.6% in 05-06.

What Worked Well in this Project:

- Using the LtoJ continuous improvement strategies and software to help us manage and use our formative assessment data in a variety of situations to help students improve learning. Examples of these situations include TAT (teacher assistant teams) referrals (using scatter overlays allow the team to “see” the discrepancy at hand; showing student run charts to parents at conferences and with the scatter overlay to show the learning progress and where their student falls within the class from week to week; using class run charts to provide feedback on improvement over time to the entire class.
- Having more access to technology for use by students and teachers
- Having three grant coordinators for implementation and evaluation of the grant
- Multiple forms and formats of quizzes (powerpoint, web resources to download and edit) which better support a variety of teaching and learning styles
Barriers Encountered in this Project:
- Time to teach teachers
- Time for teacher practice with PC’s
- Challenge of implementing wireless technology

Literature Reviewed and Cited:


Keystone AEA 1 agrees with the National Research Council: “Careful research has demonstrated that mathematical proficiency is an obtainable goal. In a handful of schools scattered across the country, high percentages of students from all backgrounds have achieved high levels of performance in mathematics.” Helping Children Learn Mathematics, 2002, National Research Council.

An analysis of mathematics student achievement data in AEA 1 schools show that students on free and reduced lunch have 11% fewer students proficient at 4th grade than the AEA 1 aggregate; 13% fewer students proficient at 8th grade than the AEA 1 aggregate; 13% fewer students proficient at 11th grade than the AEA 1 aggregate. An analysis of students with Individual Education Plans show that there are 34% fewer proficient at 4th grade than the AEA 1 aggregate; 47% fewer proficient at the 8th grade than the AEA 1 aggregate; 44% fewer proficient at the 11th grade than the AEA 1 aggregate.

Observational data from the AEA technology and mathematics consultants tells us that technology integration in mathematics at elementary, middle and high school continues to be a challenge in most districts. Our first Enhancing Education Through Technology Grant made inroads into upper elementary mathematics by providing ALEKS, an online tutoring program for grades 4 through 6. Our math team has studied journal articles and research from the Iowa Department of Education content network, research from the National Council of Teachers of Mathematics and the National Research Council. We have also studied the student achievement results of the E2T2 consortiums that focused on achievement in mathematics. This research and data analysis has led us to focus the 2006-2007 E2T2 grant on continuing support for ALEKS for upper elementary students; supporting assessment workshops for lower elementary teachers using materials from the Math Perspectives Teacher Development Center; integrating graphing calculators in eighth grade mathematics classrooms in Dubuque with the Texas Instruments Navigator Classroom Learning System; and implementing the research-based Cognitive Tutor Algebra 1 curriculum in ninth grade classrooms. It is our contention that these three technologies, ALEKS, TI Navigator, and Cognitive Tutor will help to narrow the mathematics achievement gap for IEP and Free and Reduced Lunch students.

Keystone AEA’s Goals for the E2T2 Grant:
(1) The need to increase the student achievement in mathematics at the 4th grade level is addressed in two ways: (1) identifying student deficiencies in the lower grades using the precise assessments from the Math Perspectives Teacher Development Center and (2) continuing to provide ALEKS passwords for 4th, 5th and 6th grade students. Our research for 4th grade students using ALEKS has shown increased proficiency. Available research shows that precise mathematics assessments for lower elementary students, followed by learning experiences in identified areas of need lead to improved proficiency and better readiness for upper elementary mathematics.
(2) The area of greatest need in mathematics achievement continues to be 8th grade mathematics. Our action plan with Dubuque Community School District is to address the need of increased technology integration at the Middle Schools and increased teacher knowledge of best practice in technology integration. The graphing calculator is the most important technology tool for middle school teachers and students and research shows positive effects on student achievement with informed use of graphing calculators.

(3) The area of need for increased student achievement in mathematics for 11th grade students will be addressed by increasing the number of students successfully completing Algebra 1 at the 9th grade. Algebra 1 is the gatekeeper for more rigorous and relevant mathematics courses at the 10th, 11th and 12th grade level. National and Iowa research has shown that Cognitive Tutor Algebra I is a technology rich program that increases successful completion of Algebra 1 for all students.

Parent Connections:
Keystone AEA 1 has helped schools by providing letters to inform parents of ALEKS passwords and the benefits of ALEKS in increasing the mathematics achievement of their student. We will continue to work with schools on these parent letters. At the middle and high school level we will work with schools to plan and implement a parent night to inform parents of the technology integration in the mathematics classroom.

Action Plan:
Elementary: This E2T2 grant will pay for materials and four days of professional development to train elementary teachers to identify student deficiencies in the lower grades by using the precise assessments and interventions from the Math Perspectives Teacher Development Center. Follow-up meetings and observation of assessments given will be held both in the schools and on the video conferencing system with Keystone’s math consultant. A math blog has been set up to further increase communication and problem solving among participants and the Keystone math consultant.

This E2T2 grant will pay for ALEKS passwords for all 4th, 5th and 6th grade students in participating schools. This part of the grant is a continuation of a part of our previous E2T2 grant. Our schools credited ALEKS for helping them attain student achievement goals and providing a model for integrating technology into the classroom. Most of our AEA 1 teachers have been trained in the use of ALEKS but we will provide professional development to new teachers that trains them in the analysis of data provided by ALEKS. Keystone will provide ongoing technology and math support for schools to be successful.

Middle School: Keystone AEA 1 will be partnering with Dubuque Community School District to provide graphing calculators through the Texas Instruments Navigator Classroom Learning System. Data analysis at Dubuque Community Schools provided the need to focus on middle school mathematics for the E2T2 grant. The professional development will start with a two day summer workshop that will provide theory, demonstration and practice in using graphing calculators and integrating them into their present curriculum. During the academic year there will be quarterly workshops to increase content knowledge of teachers, continue practice with the calculators and using the Navigator system to inform instruction. Keystone’s
math consultant will be partnering with teachers in the classroom to facilitate peer coaching and teacher observation and reflection.

**High School:** Keystone AEA 1 will provide to selected high schools **Cognitive Tutor Algebra 1** licenses for students in their district. The **Cognitive Tutor** teachers will be provided training to successfully implement this curriculum. There will be a two day summer workshop to provide training for the program that includes theory, demonstration and practice of the components of **Cognitive Tutor**. During the academic year there will be three workshops to provide support for the **Cognitive Tutor** teachers. The purpose of these workshops is to work on implementation issues, increase teacher knowledge of successful technology integration and provide practice in changing teacher practice in the mathematics classroom. Keystone’s math consultant will be partnering with teachers in the classroom to facilitate peer coaching and teacher observation and reflection.

**Research:**
The data from the E2T2 grant study has indicated that it is highly likely that ALEKS and the other strategies from the AEA 1 E2T2 Consortium have positively impacted the mathematics achievement of lower performing 4th grade students.

The **Cognitive Tutor®** from Carnegie Learning includes full curricula in Algebra I that combines software-based, individualized computer lessons with collaborative, real-world problem-solving activities. Students spend about 40% of their class time using the software, and the balance of their time engaged in classroom problem-solving activities. The **Cognitive Tutor®** curricula helps students to succeed in math by integrating interactive software sessions, text, and teacher-led classroom lessons.

Students using **Cognitive Tutor®** receive the benefits of individualized instruction, ample practice, immediate feedback and coaching. “Just-in-time” help, “On-demand” help, and positive reinforcement put students in control of their own learning and keep them on task. This enables teachers to spend more time with students who need additional intervention.

The U.S. Department of Education recognizes **Cognitive Tutor®** Algebra I program as one of only two math curricula scientifically proven to have significant, positive effects on student learning. **Cognitive Tutor®** has also been implemented in Iowa schools and has showed positive results in outside evaluations.

The TI-Navigator System enables real-time, formative assessment through a feature called Quick Poll and supports instructional strategies that research shows lead to improved student achievement. The collaborative learning environment, another research-based strategy, allows students to contribute real-time to a shared workspace that’s projected to the class in order to generate classroom discussion. Exploring core concepts helps promote deeper understanding. Screen Capture allows teachers to instantly monitor students’ work to ensure they are on track and on task by viewing screen shots students’ work. The Class Analysis feature immediately shows student results on assignments, quizzes and tests, so teachers know who needs additional help. Automatic grading is also available to teachers.
The TI-Navigator uses real-time feedback to instantly assess student understanding and is designed to work with TI graphing calculators already in widespread use. The TI-Navigator System provides wireless communication between students’ TI graphing calculators and the teacher’s PC to increase interactive engaged learning. Class materials like data lists, lecture notes, collected data and tests may be sent directly from the teacher’s PC to students’ TI calculators.

Together, ALEKS, TI Navigator System, Cognitive Tutor, Video Conferencing System and Math Blog help to advance the vision of NCTM to create: “a classroom where all students have access to high-quality, engaging mathematics instruction. Technology is an essential component of the environment, as students work alone or in groups with the skilled guidance of their teacher.”

Rhonda Sheeley, Keystone AEA
Sue Runyon, Keystone AEA
Peggy Magner, Keystone AEA
Appendix C
Elementary School Reading
Green Valley
Cedar Runs
Great River
Mississippi Bend
In the fall of 2002, the 20 school districts served by Green Valley Area Education Agency XIV (GVAEA 14) were asked to review the Iowa Test of Basic Skills achievement scores for the three previous years. Upon review, the consortium felt that 4th grade reading was the area most in need of improvement. The Comprehensive School Improvement Plan of each of the participating districts has a goal stating that the number of students performing in the low proficiency in reading will decrease. The performance levels in phonemic awareness, phonics, fluency, vocabulary, and comprehension as demonstrated in test scores were not the optimum desired and were the targets in every district’s Comprehensive School Improvement Plan.

Attachment A: Student Reading Data 1999-2001

1999-2001 Area 14 Reading Scores

- Between the 1999-00 school year and 2000-01 school year, Area 14 fourth graders showed encouraging overall improvement on the Iowa Test of Basic Skills (ITBS) reading test. Fewer students scored in the low range, and more students scored in the intermediate and high range.

Staffs in these districts were using technology to support curriculum within the limits of the available technology. Due to funding constraints, there were significant gaps in the use of technology among the districts particularly in the districts considered “at-risk” or in need of assistance. The grant was to address the needed professional development and technology to support the reading curriculum.

The consortium’s goal was to increase 4th grade reading achievement. The goal was addressed by the use of student diagnostic data for focusing professional development to implement the Comprehensive Reading Program.
Attachment B: The Comprehensive Reading Program

Comprehensive reading program means a high-quality reading program of classroom instruction for all children, and intervention for children at risk of reading difficulty, that

- is built on scientifically based research;
- includes instructional content for the five essential components of reading instruction (phonemic awareness, phonics, vocabulary development, reading fluency, and reading comprehension);
- includes explicit instruction, coordinated instructional sequences, and ample teacher-directed application, guided practice, and independent practice;
- includes instructional content that is aligned with grade-level standards and benchmarks;
- uses instructional materials that are aligned with the five essential components of reading instruction and grade-level standards, benchmarks, and instructional goals;
- provides more than 90 minutes of uninterrupted reading instruction per day;
- includes screening and diagnostic assessment for identifying and diagnosing individual student instructional needs; and
- includes classroom-based assessments for frequent, ongoing monitoring of student progress.

The consortium team worked with the Green Valley Area Education Agency (GVAEA) Reading Team to research various practices and decided on work in the area of reading that addressed deficiencies in the Comprehensive Reading Program that incorporated both technology and effective teaching. The action plan revolved around Every Child Reads and used its methodology supported by technology. Teachers were given initial professional development in organizing, analyzing, and using diagnostic data as per Basic Reading Inventory. A member of the Reading Team worked with the technology person in GVAEA 14 to develop Excel spreadsheets for the purpose of organizing and analyzing diagnostic as well as summative information.

Attachment C: Scientifically Based Reading Research

Fluency – Fluency is reading with appropriate speed, accuracy, and expression and phrasing so that reading sounds conversational.

Research findings:
- Poor readers do not get much practice reading.
- A major difference between good readers and poor readers is fluency.
- It is important for students to read connected text so they may not transfer practice with sight words.
- Repeated and monitored early reading improves reading fluency and general reading achievement.

Research:

Comprehension – Comprehension is reading with understanding.

Research findings:
- There is a need to implement activities that support the understanding of texts read in class.
- Comprehension and decoding can exist side by side in the primary grades.
- There is a need for explicit instruction in the use of strategies.
- Students of all ages have difficulty comprehending expository texts.
- Little time is spent in the primary classrooms with nonfiction, or informational texts.

Research:
The first step for each district staff was to align its curriculum with the Iowa Test of Basic Skills. Districts were assisted in this endeavor by the AEA staff.

To increase the reading achievement of 4th graders, it was determined that a solid foundation from kindergarten through 3rd grade was essential to their success. To this end instructors in Kindergarten through 3rd grade were targeted to receive intensive professional development in action-research instruction. These professional development efforts were aimed toward the literacy leadership teams of the participating schools. Literacy teams included classroom teachers, special education teachers, and principal as instructional leader. In turn, the
literacy leadership teams developed their capacity with the help of technical assistance from the GVAEA Reading Team. A reading consultant provided on-going support to the schools in their efforts.

Principal Leadership Academies were held to support the building principal. Principals were provided with professional development in the Downy Walk-Through, the Instructional Practices Inventory Walk Through, and literacy walk through. These observations were loaded on a palm pilot provided to the principal and uploaded to the GVAEA database.

Attachment D: Literacy Walk Through sample

<table>
<thead>
<tr>
<th>General Features of Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
</tr>
<tr>
<td>Lesson Focus:</td>
</tr>
</tbody>
</table>

1. Lesson Introduction: Instructor includes an introductory statement about what students will be learning to do and a brief explanation of why or how the concept, process, skill, or strategy will be useful to them as readers.

Comments:

2. Instructor Models and Demonstrates: Instructor includes key statements that describe their thinking as they apply the concept or strategy.

Comments:

3. Instructor provided opportunities for students to engage in guided practice with the instructional task.

Comments:

4. Instructor provided opportunities for students to engage in independent practice with the instructional task.

Comments:

5. Instructor provided coaching and/or scaffolding during initial student responses.

Comments:

6. Students were highly engaged during the teacher-led instruction.

Comments:

7. Students were engaged in the lesson during independent work.

Comments:

8. Students were successful in completing activities at a high level of performance.

Comments:

Troyce Fisher facilitated discussions from Balanced Leadership: What 30 years of research tells us about the effect of leadership on student achievement. Research supporting leadership was provided by the Learning First Alliance publication: “Beyond Islands of Excellence: What Districts Can do to Improve Instruction and Achievement in all Schools; and the Iowa Content Network (Study number 4-6-82.)

In-depth study with participating districts’ lead teams centered on the Comprehensive Reading Program as defined by the Every Child Reads materials developed by the Iowa State Department of Education Literacy Team. The GVAEA Reading Team concentrated efforts in a Professional Learning Community setting to develop capacity to lead efforts with the Lead Teams and with the participating buildings’ staffs and principals. In turn, training was provided to participating districts’ leadership teams to build capacity to work with their own staff to further the capacity to organize and analyze data and then to provide the best instruction to meet
student needs. Support was also given to principals as the instructional leader in the school to increase student achievement. Thus, the GVAEA Reading Team, District Leadership Teams, and district Principals became a learning community. Literacy Leadership Team development concentrated on areas of the Comprehensive Reading Program.

Fluency was determined to be an area where comprehension could be addressed as well as increasing fluency. The following instructional strategies to improve fluency were presented to the greater learning community. Research based guidelines and appropriate state and local standards and benchmarks were used to determine reasonable expectations for reading fluency at various stages of reading development.

**Attachment E: Fluency Norms, Basic Reading Inventory, Ninth Edition**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentsil</th>
<th>Fall WCPM</th>
<th>Winter WCPM</th>
<th>Spring WCPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Above G.L.: 75% and above</td>
<td>10 or more</td>
<td>40 or more</td>
<td>75 or more</td>
</tr>
<tr>
<td></td>
<td>G.L.: 50% - 74th</td>
<td>7 - 13</td>
<td>21 - 39</td>
<td>48 - 74</td>
</tr>
<tr>
<td></td>
<td>N.A.: 26th - 49th</td>
<td>3-6</td>
<td>12 - 20</td>
<td>27 - 47</td>
</tr>
<tr>
<td></td>
<td>N.S.: 25th and below</td>
<td>1 or less</td>
<td>5 or less</td>
<td>13 or less</td>
</tr>
<tr>
<td>2</td>
<td>Above G.L.: 75% and above</td>
<td>74 or more</td>
<td>98 or more</td>
<td>115 or more</td>
</tr>
<tr>
<td></td>
<td>G.L.: 50% - 74th</td>
<td>49 - 73</td>
<td>72 - 97</td>
<td>89 - 114</td>
</tr>
<tr>
<td></td>
<td>N.A.: 26th - 49th</td>
<td>24 - 48</td>
<td>47 - 71</td>
<td>65 - 88</td>
</tr>
<tr>
<td></td>
<td>N.S.: 25th and below</td>
<td>23 or less</td>
<td>46 or less</td>
<td>64 or less</td>
</tr>
<tr>
<td>3</td>
<td>Above G.L.: 75% and above</td>
<td>101 or more</td>
<td>117 or more</td>
<td>136 or more</td>
</tr>
<tr>
<td></td>
<td>G.L.: 50% - 74th</td>
<td>73 - 100</td>
<td>90 - 116</td>
<td>107 - 135</td>
</tr>
<tr>
<td></td>
<td>N.A.: 26th - 49th</td>
<td>49 - 72</td>
<td>59 - 89</td>
<td>79 - 106</td>
</tr>
<tr>
<td></td>
<td>N.S.: 25th and below</td>
<td>48 or less</td>
<td>58 or less</td>
<td>78 or less</td>
</tr>
<tr>
<td>4</td>
<td>Above G.L.: 75% and above</td>
<td>119 or more</td>
<td>139 or more</td>
<td>155 or more</td>
</tr>
<tr>
<td></td>
<td>G.L.: 50% - 74th</td>
<td>95 or 118</td>
<td>111 - 138</td>
<td>124 - 152</td>
</tr>
<tr>
<td></td>
<td>N.A.: 26th - 49th</td>
<td>71 - 94</td>
<td>87 - 110</td>
<td>100 - 125</td>
</tr>
<tr>
<td></td>
<td>N.S.: 25th and below</td>
<td>70 or less</td>
<td>86 or less</td>
<td>99 or less</td>
</tr>
</tbody>
</table>

Principals and teachers were instructed in the technique of modeling fluent reading. Selection of text became important to choose texts of sufficiently easy levels to promote ample independent reading and oral reading with 99% accuracy. Repeated reading was promoted because of its high impact on achievement in fluency. Strategies presented for instructions included Choral Reading, Partner Reading, Readers Theater, Repeated Reading, and Picture Word Induction Model. (PWIM)
Comprehension instructional strategies were of importance to meet the 4th grade achievement goal. Classroom teachers were asked to do an evaluation of the number of books, range of books, balance of fiction and nonfiction books, and accessibility to students. Providing a print-rich environment with both narrative and informative books and a varied range was determined to address gender gaps and IEP/nonIEP gaps in reading. The Green Valley AEA Media staff was used to provide information to the teachers and districts to choose books for the classrooms and libraries. Teachers were given instruction in acquiring books through the online check out system. Extensive training was given for Read Alouds and Talk Alouds and Think Alouds and Gist (Summarization) to monitor comprehension. A non fiction Read Aloud is reading aloud to your students to provide opportunities for the students to learn curriculum concepts. Talk Alouds provide an opportunity to model the reader writer connection. Think Alouds provide an opportunity for the teacher to share with the students comprehension strategies in the process of gaining meaning from written text. Informational texts were used for read-alouds, constructing visual representations, and for reading instruction. Question Answer Relationship was used to develop higher levels of questioning. Teachers were instructed in choosing and implementing instruction appropriate for specific students and goals.

Phonemic Awareness and Phonics strategies included those outlined by the Every Child Reads materials. Phonemic Awareness strategies used techniques for teaching letter naming, matching, and formation. Phonics instructions should be deliberate and purposeful as well as systematic. Teachers selected and delivered appropriate lessons according to the students’ level of spelling, phonics, and word identification skills. Teachers were instructed in teaching word attack skills and moved into structural analysis skills with students.
Vocabulary instruction strategies that teachers learned included selecting materials for reading aloud that expanded the students’ vocabulary. Teachers learned that vocabulary should be explicitly taught to students through explanation of meanings and example uses, associations to known words, and word relationships. The importance of repeated encounters with new words and multiple opportunities to use new words was stressed.

The GVAEA Reading Team through leadership development symposiums held 2 – 4 times per year enhanced the capacity of the district literacy leadership teams. Strategies were presented to the leadership team using the Iowa Professional Development model. All of the strategies were studied by teachers in professional development presented by the leadership teams with the support of the technical assistant. They were given an opportunity to collaborate and practice before they were used in the classroom. The GVAEA technical assistance provider gave teachers support. The technical assistance provider and the principal also did demonstrations in the classroom.

Attachment G: Iowa Professional Development Model

Attachment H: Literacy Lead Team Development

Literacy Lead Team Professional Development
March 6 or 7, 2006

- Goal
  - To continue to build a learning community around literacy.
  - To deepen our understanding of effective instruction
- Introduction
  - Welcome
- Theory
• Demonstration
  o Think-alouds from *Bear Facts* by Gare Thompson
  o Think-alouds from *My America: A Poetry Atlas of the United States* collected by Lee Bennett Hopkins, *Eureka! Poems About Inventors* by Joyce Sidman, and *Extra Cheese: Please: Mozzarella’s Journey From Cow to Pizza* by Cris Peterson
  o Video demonstration of Choral Reading by Karen Stoll from Washington Elementary, Mt. Vernon, IA.

• Practice
  o Guided practice of think-alouds from provided books.
  o Independent practice-Bryson Activity
  o Independent practice of gradual release of responsibility within a series of lessons
  o Independent practice-planning an instructional sequence for fluency instruction

• Upcoming Events
  o iSight visit to be scheduled during the month of May
  o Summer Literacy Institute- August 15-16, 2006

The GVAEA Reading Team instituted a summer literacy institute that was open to all educators in the area. These summer literacy institutes were a 2-day learning opportunity. The reading team as a result of analyzing spring data from the districts involved determined a focus. A researcher in the focus area provided instruction. Follow-up classes were provided. Some buildings chose to develop a professional learning community to continue learning in the focus area. Technical assistance was provided to districts both with small groups and the entire staff in the form of demonstrations and support in the classrooms and professional development.

**Attachment I: Summer Literacy Institute, 2006**

_A Institute 2006_  
A two-day institute meant to strengthen and deepen understanding of the Comprehensive Reading Program and build capacity of teachers to implement scientifically based interventions that support diverse learners.

_Showcasing_
✓ A Comprehensive Reading Program
✓ Tiered Interventions
✓ Differentiated Instruction

**Jeanne A. Wanzek**
Jeanne Wanzek is a research associate at the University of Texas at Austin in the Vaughn Gross Center for Reading and Language Arts. She is currently coordinating two research projects examining student response to interventions at the elementary and middle school levels. Her research interests include effective instructional design and beginning reading instruction.

**Event Schedule**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
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<tbody>
<tr>
<td>7:30-8:00</td>
<td>Sign in</td>
</tr>
<tr>
<td>8:00-8:15</td>
<td>Introduction</td>
</tr>
<tr>
<td>8:15-9:45</td>
<td>Dr. Jeanne Wanzek</td>
</tr>
<tr>
<td>9:45-10:00</td>
<td>Break</td>
</tr>
<tr>
<td>10:00-11:30</td>
<td>Dr. Jeanne Wanzek</td>
</tr>
<tr>
<td>11:30-12:30</td>
<td>Lunch (On Your Own)</td>
</tr>
<tr>
<td>12:30-1:30</td>
<td>Dr. Jeanne Wanzek</td>
</tr>
<tr>
<td>1:30-2:45</td>
<td>Break</td>
</tr>
<tr>
<td>2:45-3:45</td>
<td>Dr. Jeanne Wanzek</td>
</tr>
<tr>
<td>3:45-4:00</td>
<td>Dismissal</td>
</tr>
</tbody>
</table>

Registration deadline is June 15, 2006.

Please register on the GVAEA 14 website:  
_http://www.acea14.k12.ia.us_

Choose
1. “Classes for Educators” or “Go Sign Me Up” button
2. “credit courses”  
3. “1 credit”  
4. “Summer Literacy Institute 2006”  
5. “Please select” drop down menu and choose an option.
6. Complete the remainder of the information.
7. Be sure to actually check out.

If there are questions before June 15th  
please contact: Joyce Williams  
Phone- 800-942-2398  
E-mail: jwilliams@jena14.k12.ia.us
Implementation of the teaching strategies was studied in each district using the implementation guidelines set forth by Every Child Reads. Implementation logs were gathered, summarized, and analyzed by district leadership teams as to fidelity to the model and frequency of use. Each district looked at this data in conjunction with student diagnostic data to determine the results and future actions for the district.

Attachment J: Staff Summary

<table>
<thead>
<tr>
<th>Name</th>
<th>Grade Level</th>
<th># Lessons Taught</th>
<th># Words/Added</th>
<th>Cat. by Students</th>
<th>Cat. for Instruction</th>
<th>Tiers</th>
<th>Syllables</th>
<th>Sentences</th>
<th>Articulation</th>
<th>Vocab.</th>
<th>Strategy</th>
<th>Collaboration</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary</td>
<td>3rd</td>
<td>37/38</td>
<td>9/20</td>
<td>P - S - 3 C - O -</td>
<td>P - 2 S - 3 C - 0 -</td>
<td>20</td>
<td>NF - Y - F -</td>
<td>Y</td>
<td>S / O</td>
<td>Y - PATM</td>
<td>0</td>
<td>6 RA</td>
<td>1 ThA</td>
</tr>
<tr>
<td>Patty</td>
<td>4th</td>
<td>24/33</td>
<td>20/15</td>
<td>P - S - 1 C - 0 -</td>
<td>P - 2 S - 2 C - 0 -</td>
<td>35</td>
<td>NF - Y - P -</td>
<td>Y</td>
<td>8 / 0</td>
<td>Y - PATM</td>
<td>0</td>
<td>7 RA</td>
<td>1 ThA</td>
</tr>
<tr>
<td>Joyce</td>
<td>2nd</td>
<td>20/40</td>
<td>32/5</td>
<td>P - S - 3 C - O -</td>
<td>P - 3 S - 2 C - 0 -</td>
<td>20</td>
<td>NF - Y - F -</td>
<td>Y</td>
<td>S / O</td>
<td>Y - PATM</td>
<td>0</td>
<td>3 RA</td>
<td>1 ThA</td>
</tr>
<tr>
<td>Diana</td>
<td>3rd/4th</td>
<td>32/60</td>
<td>25/16</td>
<td>P - S - 2 C - 1</td>
<td>P - 0 S - 4 C - 0 -</td>
<td>17</td>
<td>NF - Y - P -</td>
<td>Y</td>
<td>10 / 0</td>
<td>Y - PATM</td>
<td>2</td>
<td>8 RA</td>
<td>1 Exollent</td>
</tr>
<tr>
<td>Kay/Karen</td>
<td>1st/2nd</td>
<td>11/22</td>
<td>17/12</td>
<td>P - S - 1 C - 1</td>
<td>P - 5 S - 2 C - 0 -</td>
<td>38</td>
<td>NF - Y - P -</td>
<td>Y</td>
<td>11 / 0</td>
<td>Y - PATM</td>
<td>4</td>
<td>8 RA</td>
<td>3 ThA</td>
</tr>
<tr>
<td>All Gr.</td>
<td>22-60</td>
<td>13:37</td>
<td>9:32</td>
<td>P - S - 10 C - 5</td>
<td>P - 8 S - 17 C - 14</td>
<td>0-38</td>
<td>SF 1 F</td>
<td>NF</td>
<td>All / PATM</td>
<td>All</td>
<td>0-4</td>
<td>RA - 27</td>
<td>ThA - 4</td>
</tr>
</tbody>
</table>

Each district established a baseline from the district data using an individual reading inventory (BRI), phonemic awareness inventory (PAT), vocabulary inventory (PPVT), and the previous year’s Iowa Test of Basic Skills. Each year thereafter data was collected with the help of the technical assistant and, in conjunction with each district’s literacy leadership team, the data was analyzed with an eye to what instructional needs should be addressed in the future. This data was also collected into an area database and analyzed by the AEA reading team so as to meet the districts’ needs.
An analysis of the data from 2003-2004 to 2006-2007 showed that fourth graders have made gains in ITBS reading scores. These gains have not been consistent from year to year but the trend line does show an increase since 1999-2000 school year as shown in the first graph. There has been a decrease from 40% in the percentage of fourth graders in the low portion of the ITBS in reading in 1999-2000 and an increase from 10% in the number in the high group in 1999-2000. Because the gains have not been consistent and there is still more than 20% in the low group, work needs to continue with strengthening the core reading program as well as provide interventions for struggling readers. To address this need, more information needs to be presented to the area educators to meet the needs of all learners. Work will center on the Every Child Reads Unit 4: Meeting the Needs of All Learners developed by the Iowa State Department of Education Literacy Team.
Cedar Run Consortium

Cedar Run Consortium is composed of AEA 267, AEA 10, Cedar Rapids, Iowa City and Waterloo.

The selection of elementary reading and middle level math was made during fall/winter of school year 2002-2003. At that time, all five Consortium partners, CR, IC, Waterloo, AEA 10 and soon-to-be AEA 267, had in common one or more elementary schools on SINI status for failing to meet their CSIP/APR reading goals. The decision to support middle school math was made because all three UEN districts; Cedar Rapids, Iowa City and Waterloo, predicted that their Junior High/Middle schools would be SINI in the near future.

**National, state, consortium and local data** all pointed toward focusing on middle school math and elementary reading as evidenced by the following:

**National Perspective:**
The results of the third Trends in International Mathematics and Science Study (TIMSS) are well known and will not be repeated here.

**State Perspective:**
According to the following Iowa Department of Education Public School Profile -- Nov. 2003, the following was reported regarding math and science student achievement:

- Iowa ranked 2nd in the nation for having the highest percentage of public school 4th graders scoring at the highest two levels in science.(NCES)
- Iowa 4th graders ranked 9th in the nation in reading. (NAEP)
- Iowa 4th graders ranked 10th in the nation for having the most students scoring at the highest two levels in math. (NAEP)
- Iowa 8th graders ranked 10th in the nation in math. (NAEP)

The 2003 State Condition of Education report also sites the following as challenges that lie ahead:

- Make curriculum more challenging and meaningful.
- Prepare students for lifelong learning.
- Engage families and communities as partners in developing high expectations.
- Integrate 21st century skills into classroom expectations.

**Consortium Perspective:**
It is impractical and probably unnecessary to restate data analysis from each participating district comprising the Cedar Run Consortium (the specifics can always be located via each district’s performance data at [http://www.iowaschoolprofiles.com/profileslist.asp](http://www.iowaschoolprofiles.com/profileslist.asp)). The following excerpts are sample data analyses taken from entities within the Consortium to illustrate the need to focus on math and science achievement. For convenience, the data are arranged in broad categories.
Smaller LEAs (up to 1500 K-12 students)
- 4th grade males have a 5% higher proficiency rate than females in mathematics.
- The proficiency rates for 4th grade Latino students dropped in reading comprehension and mathematics over the past three years. There are approximately a 40% higher number of proficient students who are non-Latino.
- 8th grade students scored somewhat lower in the area of math total in 2003-2004 when compared to the last two years.
- 8th grade students scored lower in the area of science than in the past two years. 13% decrease in students proficient.
- 4% less 11th grade students were proficient in math total in 2003-2004.
- 2% less 11th grade students were proficient in science total in 2003-2004.
- 11th grade male students had more in the proficient level in science and math than female students for 2003-2004.
- 11th grade students with IEP's have less students in the proficient area in reading, math and science. The gap is significant.

Medium Sized LEAs (more than 1500 K-12 students, non-UEN)
- The overall decline in 11th grade math performance was due to a decrease in the percentage of male students who were proficient. Female students experienced a very slight decline from 01-02 to 02-03, but improved slightly from 02-03 to 03-04.
- Overall, 8th grade science performance, which had improved from 01-02 to 02-03, declined from 02-03 to 03-04.
- The same pattern of improvement in science achievement from 01-02 to 02-03, and then a decline from 02 03 to 03-04, occurred for both male and female students.
- There was a small increase in the percentage of proficient 11th grade students eligible for free and reduced lunch from 01-02 to 03-04. Those not eligible showed a small improvement from 01-02 to 02-03, but there was no improvement from 02-03 to 03-04.

Urban Education Network LEAs (multiple high school districts)
- Math proficiency scores have increased at the fourth grade, decreased at the eleventh grade but remain high at 82% and increased at the eighth grade the last three years.
- The eighth and eleventh grade proficiency scores have decreased over the last four years in reading and math for students who are eligible for free and reduced lunch. The number of students in this subgroup at eleventh grade is small.
- Students in the categories of special education, African American, Hispanic American, lower socioeconomic status and English language learner status had lower scores in both reading and math and are below the state trajectories.

Area Education Agency
- The math achievement of 4th grade students eligible for free and reduced lunch, which had decreased very slightly from 01-02 to 02-03, moved back to their original performance in 03-04. Students not eligible for FRL showed a small improvement each year over the three-year period.
- Small increases in the percentage of proficient 4th grade students in math occurred for both IEP and non-IEP students from 02-03 to 03-04. This represented a continuation of
the trend for non-IEP students, and a reversal of the slight decline that had occurred for
IEP students from 01-02 to 02-03.

- While there was a very slight increase in the percentage of 8th grade non-IEP students
  who were proficient in math over the period from 01-02 through 03-04, this was not true
  for IEP students. They demonstrated some improvement from 01-02 to 02-03, but the
  percentage of proficient IEP students then decreased in 03-04.

- Once again, different patterns of proficiency in 8th grade math performance occurred for
different racial groups for the period 01-02 through 03-04. White students had very small
increases in the percentage of proficient students over this period, as did American Indian
students, where the percentage gains were larger. Both black and Hispanic students
showed a decrease in the percentage of proficient students over this period. Asian and
multiracial students experienced gains from 01-02 to 02-03, but then declined from 02-03
to 03-04.

With the above data as a backdrop, Cedar Run Consortium E2T2 funds were used in support of
math and reading and were primarily focused on two Iowa Department of Education initiatives;
"Every Student Counts" and Every Child Reads". This narrow focus coincided with the work
being done by AEA267 and AEA10 consultants in support of district reading and math CSIP
goals, particularly in schools struggling with SINI or watch list status requirements. In Year 2 it
became evident that the focus was too narrow and was expanded to embrace three additional
initiatives: (1) GPS technology for middle and high school science, (2) SwiftKnowlege - a data
analysis tool and (3) TIMP(S) - a technology mentorship program. Though the scope was
expanded slightly, the primary uses of E2T2 funds are still in support of student achievement and
focused on the areas of elementary reading and middle grades mathematics.

**Scientifically Based Research**

**Reading SBR based on state-wide initiative “Every Child Reads”**

http://www.iowa.gov/educate/content/view/729/729/

Every Child Reads (ECR) K-12 is designed to develop and refine a professional development
strategy for large-scale, building-based structured school improvement focused on accelerating
the reading achievement of students in kindergarten through 12th grade, with a special emphasis
on students who are experiencing difficulty and to develop the capacity of the educational system
to support structured school improvement effort in reading. There are two major goals that are
pursued simultaneously: (1) to build a learning community engaged in studying literacy and
promoting growth in literacy, and (2) to improve student achievement in literacy. ECR’s
professional development sequence, designed to guide school staffs to collectively engage in
quality professional development, provides schools guidance in the use of Iowa’s professional
development model as the vehicle for the study of literacy and literacy acquisition and the
selection of instructional models and strategies appropriate to the needs of students. Accelerating
student achievement is complex and challenging work for schools. Research has clearly
demonstrated that to improve student achievement schools must improve instruction. This
requires quality professional development. ECR is designed to provide research-based content
and the facilitation needed for improving instruction in order to accelerate the achievement of all students.

Mathematics SBR based on state-wide initiative “Every Child Counts”
http://www.iowa.gov/educate/esc/index.html

The ESC goals are to 1) Improve achievement of K-12 students in mathematics and 2) Build learning communities engaged in the study of mathematics, mathematics instruction, and student achievement in mathematics through effective implementation of Iowa's Professional Development Model.

The Every Student Counts initiative states clearly that Teaching for Understanding emphasizes Problem-Based Instructional Tasks and Meaningful Distributed Practice, which are briefly described here.

Teaching for Understanding

• Posing Problem-Based Instructional Tasks
• Engaging student in the tasks and providing support as they develop their own representations and solution strategies
• Promoting discourse among students to share their solution strategies and justify their reasoning
• Summarizing the mathematics and highlighting effective representations and solution strategies
• Extending students thinking by challenging them to use effective representations and/or solutions strategies in new situations
• Listening to students and basing the instructional decisions on their understanding

Problem-Based Instructional Tasks

• Are accessible yet challenging to all students
• Encourage student engagement and communication
• Can be solved in several ways
• Encourage the use of connected multiple representations
• Encourage appropriate use of intellectual, physical and technological tools
• Help students develop a deep understanding of important mathematics
• Helps students develop a deep understanding of a BIG IDEA
• Helps students develop flexibility and fluency with skills and concepts
• Builds on and extends understanding
• Uses problems and activities that help students learn to use multiple representations, and learn to use multiple reasoning strategies
• Uses problems from a variety of contexts so students learn to make connections

“Learning for understanding is essential to enable students to solve the new kinds of problems they will inevitably face in the future.” (NCTM, 2000, p.21)
“Students who memorize facts or procedures without understanding often are not sure when and how to use what they know, and such learning is often quite fragile.” (NCTM, 2000, p.20; referencing Bransford, Brown, and Cocking, 1999)

“Instructional programs that emphasize conceptual development, with the goal of understanding, can facilitate significant mathematics learning without sacrificing skill proficiency.” (Heibert, 2003, p.16)

“Problem solving should be the site in which all of the strands of mathematics proficiency converge.” (Kilpatrick, Swafford, & Findell, 2001, p.421)

“Practice should be used with feedback to support all strands of mathematical proficiency and not just procedural fluency…practice on computational procedures should be designed to build on and extend understanding.” (Kilpatrick, Swafford, & Findell, 2001, p.423)

Science SBR based on state-wide initiative “Every Learner Inquires”
http://www.iowa.gov/educate/content/view/403/673/1/2/

Every Learner Inquires (ELI) is a capacity building effort in science targeting improved student understanding and achievement through improved instructional practices. ELI focuses on inquiry-based instruction aligned with the National Science Education Standards and follows the Iowa Professional Development Model. There are two learning strands, one focusing on the elementary levels and the other on secondary.

“Inquiry is in part a state of mind -- that of inquisitiveness. Most young children are naturally curious. They care enough to ask "why" and "how" questions. But if adults dismiss their incessant questions as silly and uninteresting, students can lose this gift of curiosity. Visit any second-grade classroom and you will generally find a class bursting with energy and excitement, where children are eager to make new observations and try to figure things out. What a contrast with many eighth-grade classes, where the students so often seem bored and disengaged from learning and from school!

The National Science Education Standards released by the National Research Council in 1995 provide valuable insights into the ways that teachers might sustain the curiosity of students and help them develop the sets of abilities associated with scientific inquiry. The Standards emphasize that science education needs to give students three kinds of scientific skills and understandings. Students need to learn the principles and concepts of science, acquire the reasoning and procedural skills of scientists, and understand the nature of science as a particular form of human endeavor. Students therefore need to be able to devise and carry out investigations that test their ideas, and they need to understand why such investigations are uniquely powerful. Studies show that students are much more likely to understand and retain the concepts that they have learned this way.”

Bruce Alberts
President, National Academy of Sciences
**Monitoring** was the responsibility of the Consortium's oversight committee working hand-in-hand with AEA reading, math, and technology consultants. The Consortium's oversight committee monitored all activities to assure E2T2 funds were available to support infusion of appropriate technology at the district and building levels. The interface of E2T2 funding and support was facilitated through AEA consultants as they responded to district needs with special emphasis on professional development, technology acquisition and implementation at the classroom level. The incorporation of the E2T2 projects into the everyday responsibilities of the consultants was a major success of our E2T2 projects. LEA superintendents wanted E2T2 services to be as transparent as possible; integration met this need. Decisions regarding appropriate technologies were made when AEA consultants intermingled with staff, teachers and administrators at the district or building level. The pursuit of district CSIP goals was the driving force behind all E2T2 supported activities.

**Implementation** through Year 3 is described in the following set of tables.

<table>
<thead>
<tr>
<th>Year</th>
<th>Cohort 1 (Twain Elem)</th>
<th>Cohort 2 (Lucas Elem)</th>
<th>Cohort 3 (Kirkwood)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-2004</td>
<td>12 teachers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004-2005</td>
<td>12 teachers</td>
<td>10 teachers</td>
<td></td>
</tr>
<tr>
<td>2005-2006</td>
<td>12 teachers</td>
<td>10 teachers</td>
<td>12 teachers</td>
</tr>
<tr>
<td>2005-2006 PD</td>
<td>In-district training (early release Thursdays)</td>
<td>August - 1 day training by Publisher</td>
<td>August - 2 day training by Publisher</td>
</tr>
<tr>
<td></td>
<td>Cross district support via PolyCom</td>
<td>Year-long training in-district (early release Thursdays)</td>
<td>Year-long training in-district (early release Thursdays)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cross-district support via PolyCom</td>
<td>Cross-district support via PolyCom</td>
</tr>
</tbody>
</table>

**“Earobics” (Iowa City)**

Strategy supported by E2T2:

Reading Comprehension

Intervention:

Integrate Earobics software as a reading program supplement.

Targeted Group:

Second and third graders who, according to district assessments and teacher recommendations, were well below their peers in reading comprehension and were at risk of becoming non-readers.

SBR:

Reading SBR based on state-wide initiative “Every Child Reads”

[http://www.iowa.gov/educate/content/view/729/729/](http://www.iowa.gov/educate/content/view/729/729/)
“Read Naturally” (Cedar Rapids)

Strategy:
Reading Fluency

Intervention:
Integrate Read Naturally software as a reading program supplement.

Targeted Group:
Second through fifth grade classrooms where, according to district assessments and teacher recommendations, a significant number of students were reluctant readers or were at risk of becoming non-readers.

SBR:
Reading SBR based on state-wide initiative “Every Child Reads”
http://www.iowa.gov/educate/content/view/729/729/

<table>
<thead>
<tr>
<th>Year</th>
<th>Cohort 1</th>
<th>Cohort 2</th>
<th>Cohort 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-2004</td>
<td>Pilot - 2 schools</td>
<td>4 schools - 50 teachers</td>
<td></td>
</tr>
<tr>
<td>2004-2005</td>
<td></td>
<td></td>
<td>4 schools - 50 teachers</td>
</tr>
<tr>
<td>2005-2006</td>
<td></td>
<td></td>
<td>4 schools - 50 teachers</td>
</tr>
<tr>
<td>2005-2006 PD</td>
<td></td>
<td>• Train-the-Trainer sessions 2 hours each month for 6 months (Aug, Sept, Oct, Jan, Feb, Apr). Topics will include Peer Coaching, Strategy Instruction, and Differentiating Instruction. • Study Groups on Fluency and/or Reading components will also be offered. • Approximately 4 hours of training in August on Read Naturally for each of our elementary buildings that opts to start using it as supplemental intervention.</td>
<td></td>
</tr>
</tbody>
</table>

“Incorporating GPS Technology into Inquiry Science” (Middle and High School Science (AEA 10))

Strategies:
1. Deepen Content Understanding of Science as Inquiry
2. Develop Skills at GIS and other Geotechnologies
3. Use Available Technology to Collect Water Quality Data
4. Analyze and Interpret Data using Available Technologies
5. Implement Technology into Inquiry Investigations
6. Collaborate as a Learning Community
Interventions:
1. Incorporate GPS (Global Positioning System) and GIS (Geographic Information System)
2. Student Showcase to share student work.

Targeted Groups:
Middle and high school science classes.

SBR:
Science SBR based on state-wide initiative “Every Learner Inquires”
http://www.iowa.gov/educate/content/view/403/673/1/2/

<table>
<thead>
<tr>
<th>Year</th>
<th>Cohort 1 (Pilot)</th>
<th>Cohort 2</th>
<th>Cohort 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-2004</td>
<td>10 schools</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 teachers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004-2005</td>
<td>8 schools/8 teachers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005-2006</td>
<td>8 schools/8 teachers</td>
<td></td>
<td>8 schools/8 teachers</td>
</tr>
<tr>
<td>PD</td>
<td>Level I training</td>
<td></td>
<td>Duplicate Level 1 training with Cohort 3</td>
</tr>
<tr>
<td></td>
<td>9/16/04 – Learning how to use the tools contained within the GPS kits for data collection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9/17/04 – Learning how to link the GPS receivers with computers, introduction to on-line collaborative projects.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11/2/04 – Analyzing and interpreting GPS data.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2/15/05 – Work in Collaborative Groups on student action research projects.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5/10/05 – Showcase student learning.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>05-06 – Level II being developed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TIMP Technology Integration Mentorship Program (AEA 267/10)

Strategies:
1. Technology Integration
2. Mentoring

Interventions:
1. Multiple technology integration training with classroom follow-up
2. Involvement of building-level leadership

Targeted Groups:
Limited to teams of teachers with participating administrators.

SBR:
SBR based on state-wide development and dissemination of the “Iowa Professional Development Model” (IPDM)

<table>
<thead>
<tr>
<th>Year</th>
<th>Cohort 1</th>
<th>Cohort 2</th>
<th>Cohort 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-2004</td>
<td>48 teacher/ administrator teams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>Cohort 1</td>
<td>Cohort 2</td>
<td>Cohort 3</td>
</tr>
<tr>
<td>----------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
</tr>
<tr>
<td>2004-2005</td>
<td>32 teacher/administrator teams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005-2006</td>
<td></td>
<td>16 teacher/administrator teams</td>
<td></td>
</tr>
</tbody>
</table>

**Graphic Organizers (AEA 267)**

Strategy:
Reading Comprehension

Intervention:
Integrate Kidspiration software and Microsoft Excel to teach with graphic organizers.

Targeted groups:
All elementary reading classrooms to augment and foster reading comprehension skills.

SBR:
Reading SBR based on state-wide initiative “Every Child Reads”
http://www.iowa.gov/educate/content/view/729/729/

<table>
<thead>
<tr>
<th>Year</th>
<th>Cohort 1</th>
<th>Cohort 2</th>
<th>Cohort 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-2004</td>
<td>25 teachers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004-2005</td>
<td>25 teachers</td>
<td>59 teachers</td>
<td></td>
</tr>
<tr>
<td>2005-2006</td>
<td></td>
<td>59 teachers</td>
<td>55 teachers</td>
</tr>
</tbody>
</table>

“Individual Learning” (Middle Grades Math (267))

Strategies:
1. Problem Solving
2. Authentic Tasks

Interventions:
1. Worthwhile tasks,
2. Representations
3. Meaningful routines

Targeted Groups:
Middle Grades Mathematics

SBR:
Mathematics SBR based on state-wide initiative “Every Child Counts”
http://www.iowa.gov/educate/esc/index.html

<table>
<thead>
<tr>
<th>Year</th>
<th>Cohort 1</th>
<th>Cohort 2</th>
<th>Cohort 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004-2005</td>
<td>46 teachers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005-2006</td>
<td>46 teachers</td>
<td>25 teachers</td>
<td></td>
</tr>
</tbody>
</table>

**External Data:**

External data for all E2T2 consortia projects were collected and analyzed by The Psychology in Education Research Lab (PERL) at Iowa State University. Attachment A is a copy of the professional development analysis done by PERL for Cedar Run Consortium’s grade 4 reading project using Graphic Organizers.
The details of this analysis and other state-wide analyses will be provided by the Iowa Department of Education as a separate document.

**Internal Data:**

The data on the graphs in attachment B were collected via an annual survey of teachers who self-reported their reaction to the use of the strategies taught two times during the implementation process: 1) soon after the initial professional development and 2) after about a year of implementation. The data seems to bear out what good educators intuitively know; namely, grappling with and becoming good at the use of a new strategy is a process that takes time. Further, with the passage of time and growing confidence in the use of the new innovation, the more teachers perceive the innovation as potentially effecting student achievement in a positive direction.

**What we found:**

The Concerns-based Adoption Model (CBAM) was chosen as a reference point for interpreting and extracting meaning from the above graphs. There are other interpretations and meanings to be drawn from the same data. Others are encouraged to draw their own conclusions.

**Pages 1 through 3, Attachment B** illustrate the movement of teachers through the early to upper middle behavior indicators as described in the CBAM model.

**Page 1, Attachment B** shows that after a year of implementation most participants have grown quite comfortable using new strategies in their classrooms. About half are comfortable enough to step outside the PD and use the strategies in new ways.

Similarly **page 2, Attachment B** illustrates that with the passage of only a year, most teachers added the new strategies to their repertoire of routinely used classroom strategies.

**Page 3, Attachment B** illustrates the importance of good professional development. The data illustrate that teachers take the safe road by going slowly early on as they see for themselves if the new strategies are really going to work with their kids. Once up and running using the strategies as shown in professional development many teachers are stepping outside the safety zone to try modifications to fit their kid’s needs.

**Pages 4 and 5, Attachment B** illustrate the movement of teachers through the middle to upper levels of expressions of concern as described in the CBAM model.

The data suggests that some participating teachers began implementation rather skeptically, not at all sure if the new strategies would pay off in improved student achievement. After only a year, the skepticism was replaced by higher degrees of certainty that students would be better off for the use of the new strategies. In fact, all teachers who responded after a year’s implementation said their kids were performing better than similar groups they had had in previous years.
Additional internal data:

- Well over 5000 students have been affected by the professional development supported by E2T2 funds.
- 91% of teachers receiving E2T2 funded professional development felt positive to extremely positive that the training had resulted in improved student achievement while only 2% felt negative.
- 90% of teachers receiving E2T2 professional development rated the performance of their students as good to excellent. No teacher rated student performance as fair or worse.
- 85% of teachers reported success in implementing E2T2 initiatives into their district standards and benchmarks.
- Frequency of use of the PD strategies:
  - 70% - every week.
  - 16% - at least monthly.
  - 8% - once per semester
  - 6% - not at all
- 64% of teachers participating in E2T2 funded professional development were with the initiative for multiple years.
- 94% of teachers felt they had internalized the PD strategies well enough to teach them to someone else. 32% were excited to do so.
- 88% of teachers felt comfortable to very comfortable using the strategies with students in their classroom. 11% felt they needed more training to become comfortable.
- 90% of teachers were able to articulate their PD strategies throughout grade levels at their buildings.
- 98% of teachers planned to continue using the PD strategies in the future. 2% had no plans to use them.
- 86% of teachers used the strategies pretty much as modeled during professional development.
- Challenges facing teachers in implementation:
  - 71% - lack of time
  - 57% - technology access
  - 7% - lack of training
  - 8% - lack of support
  - 3% - no challenges
  - 3% - there is no apparent need for the strategy
- To the open-ended question: “If asked by a legislator or business leader, ‘what do you think of the program?’ What would you say?”; 100% of responses were positive and supportive. Selected examples are:

  “I found it helpful and used it for my Career development plan with others. We then held workshops for others to share what we had learned. This is a good use of money in my opinion, but we need time to implement, teach others, and practice. Too often we learn and go right on to something else that's new and not really implement.”
“This is a great program that gives training and time to practice the skills before implementing them in the classroom. The skills are important enough to further student learning that must be sufficiently learned before teaching them to students and other staff.”

“It helps us close the gap a bit more between those students who come to school with all their tools in their belt and the ones who are missing or have possibly never had many of the tools to help them be successful academically.”

**Teacher Fidelity:**

ESETP (Evaluating State Educational Technology Program), a statewide program evaluation system driven by a technological infrastructure that connected all local education agencies, area education agencies, Iowa State University, and the Iowa Department of Education, was crucial to the work done by Cedar Run Consortium to track teacher fidelity; adherence to professional development.

Three of the ESETP objectives were met as follows:

- **To continue the development of the communications network for E2T2 and ESETP.**
  - IP video conferencing units were purchased throughout the Consortium and strategically placed to augment existing communications networks; filling in voids and improving local limitations of various infrastructures such as the ICN (Iowa Communications Network). Static IP addresses were assigned and shared via a state directory thereby enabling a far-reaching potential for E2T2 participants and others to network with each other.

  A wide range of educators were encouraged to jump in and use the video conferencing units as they saw fit. Extensive professional development was made broadly available through AEA consultants. *See pages 1 and 2, Attachment C*

  Monthly usage logs were kept at all sites to monitor usage. *See pages 3, 4 and 5, Attachment C* for an example of a usage log.

- **To provide limited resources for additional assessment and validation of E2T2 projects.**
  - A percentage of ESETP funds were used to support the development and scoring of assessments in support of mathematics and reading; not limited to assessing only E2T2 participants. The Iowa Collaborative Assessment Modules (ICAM) are stand-alone assessments that can be used to meet state requirements for multiple measures. Each module was designed to align with a content standard in either mathematics or reading. Districts independently determined which assessment module(s) they administered as part of their district-wide assessment system.

  UEN districts opted to use some ESETP funds for scoring ICAMS or other local assessments.
To validate and use observational rubrics for measurement of fidelity of implementation.

- The decision was made early on in the use of ESETP funds to locally develop a set of observational rubrics to try to ascertain the degree to which teachers adhered to quality professional development. See page 1, Attachment D.

- Further, it was decided that a person intimately familiar with the content of teachers’ professional development would be employed to use the observational rubric in classrooms with teachers; making equal numbers of on-site observations of E2T2 classrooms and remote observations using IP videoconferencing technology; specifically PolyComs. See page 2, Attachment D

  - In the spring of 2005, 2 pairs of observations were conducted; 2 each onsite and 2 each remote
  - During school year 2005-2006 ten observations were made; 5 onsite and 5 off-site via videoconferencing units.

- There were several opportunities to visit E2T2 classrooms throughout the 2004-2005 and 2005-2006 school years. The first pair of observations took place in the late spring of 2005. See pages 3 and 4, Attachment D

  - Based strictly on the use of the observational rubric, two things stood out to the observer;
    - The observed teachers strove to be true to the professional development they received. Fidelity was in many ways a function of practice and experience.
    - There was little difference in the effectiveness of the observational rubric whether done remotely or on-site.

**Present status and future of Year 1-3 E2T2 projects:**

**Earobics**

- Although not supported by any external support after the year 1-3 E2T2 funding, Earobics is alive and well in Iowa City. Earobics has become an integral component of the District’s reading curriculum. It is most extensively used in schools with highly transient student populations, 30% or greater.

- By all accounts, Earobics will continue as a part of the curriculum for the foreseeable future.

**Read Naturally**

- Although not supported by any external support after the year 1-3 E2T2 funding, Read Naturally is alive and well in the Cedar Rapids Schools. After the pilot phase supported by E2T2 funds, Read Naturally has become an integral component of the District’s reading curriculum and is supported from district funds. Read Naturally integration has reached the mentoring phase; brought about by way of commercial train-the-trainer workshops.
• By all accounts, Read Naturally will continue as a part of the curriculum through the foreseeable future.

Graphic Organizers
• Graphic Organizers have been shown to be powerful tools for focusing thinking as students write and read.
• AEA 267 used years 1-3 E2T2 funding to support the use of graphic organizers in the work done by their reading consultants in the field.
• Graphic organizers have grown to be an integral reading comprehension strategy throughout AEA 267 as well as the State; thanks to the Department of Education’s Every Child Reads initiative.
• AEA 267 pulled together numerous graphic organizer templates reflecting a combination of the work of many great educational leaders, local as well as national. Some, dating back as far as Benjamin Bloom's work of three to four decades ago, some as recent as Robert Marzano's work in Dimensions of Learning and in Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education. The templates are hosted off the AEA 267’s homepage at: http://www.aea267.k12.ia.us/cia/index.php?page=thinking_skills
• By all accounts, Graphic Organizers will continue to grow in importance as districts seek to meet and exceed their own expectations.

GPS/GIS
• The GPS initiative, now in its 5th year, continues to be supported by AEA 10 E2T2 funds.
• The initiative has evolved into collaboration among the AEA, LEAs, the University of Iowa, Iowa State University Extension, Iowater, and local communities.
• The successes of the GPS/GIS project were used in part to leverage a $200,000 Iowa Department of Education S.T.E.M. (Science, Technology, Engineering and Math) grant.
• The GPS/GIS initiative seems destined to continue as a subset of larger efforts such as those related to the S.T.E.M. grant

Technology Integration Mentorship Program (T.I.M.P.)
• The appetite for help with technology integration continues to increase. T.I.M.P. is a popular form of professional development among teachers and administrators.

Individual Learning Math
• This AEA 267 math initiative came into being about the same time as the Iowa’s Every Student Counts math initiative. ESC demands basically upstaged the AEA 267 initiative and it died for lack of participants. On the other hand, the strategies undertaken are also central to the NCTM-based Every Student Counts initiative.
The Great River Consortium consists of 17 School districts in Southeast Iowa. This consortium focused on reading during the first three years of the grant period, and mathematics during the 4th and subsequent years. ESETP was designed to evaluate fidelity of implementation of E2T2 activities through the design and use of focused walkthroughs, as well as through the use of videoconference technology. Participating teachers also maintained a professional development log and an implementation log to assess knowledge gained from professional development activities and to determine the degree of implementation through measures of frequency and duration of reading based interventions as part of the internal evaluation. Iowa State University provided the external evaluation study that included an analysis and comparison of Iowa Tests of Basic Skills student achievement data by strategy.

- **Where did the initiative come from based on what data?**

Research has shown that early reading achievement is a strong indicator of future academic success. Improving students’ reading skills will prepare them for all other courses in school, thus improve their ability to learn. Based on a review of student achievement data for this region from Iowa Tests of Basic Skills, a review of participating school district Comprehensive School Improvement Plans and Annual Progress Reports, reading was chosen to be the focus of this consortium’s E2T2 effort.

More fourth grade students in Great River AEA scored in the low performance category in reading (30%) than the state average (26.3%). When scores were disaggregated by socioeconomic status (SES), the percentage of students in the low performance category range from 32.0% (11 Grade) to 50.7% (8th Grade). ITBS/ITED data also showed a significant gap in reading achievement at the 4th (17.8%) and 8th (24.2%) grades with a 10% gap in the 11th grade between socioeconomic groups at the low achievement level throughout AEA #16. The achievement gap was found significant in the highest need districts (Burlington and Keokuk).

*Source: 2000-2001 ITBS Data*

Additionally, 54% (rounded) of AEA#16 districts were found to be above the Iowa average of Free/Reduced lunch percentage and 60% (rounded) of AEA#16 buildings were found to be above the Iowa average of Free/Reduced lunch percentage. *Source: 2001-2002 Public School Free and Reduced Lunch Eligibility as published by the Iowa Department of Education*

65% percent of the districts in AEA#16 indicated a need (as identified in CSIP’s and APR’s) to secure additional reading assessment strategies. Over 94% of the districts indicated they need additional professional development in the area of best instructional practices in reading. Approximately 35% indicated a desire to integrate technology into reading instruction and assessment. *Source: 2000-2001 District Comprehensive School Improvement Plans as published in the AEA16 Annual Progress Report, January 2002.*
As a result of these data, this consortium’s E2T2 goals were:

- To increase student achievement in reading as measured by the percentage of students proficient on the ITBS test in reading within the region (Grade 4, 8, 11) and,
- To lessen the achievement gaps between those receiving free and reduced lunch and those who do not within region.

Who was involved in the decision to do this project and what was the SBR under which the project was taken?
The initial E2T2 and subsequent applications were developed by representatives from the school districts in the Great River AEA led by Dr. Sally Lindgren, AEA 16’s Coordinator of Media & Technology. School district representatives consisted of teachers, technology/site coordinators, and an assistant superintendent.

The Iowa Professional Development model was used to integrate Every Child Reads (ECR) to Great River AEA consortium schools. Every Child Reads is a state wide initiative designed to provide research-based content and the facilitation needed for improving instruction in order to accelerate the achievement of all students.

(Source: http://www.iowa.gov/educate/content/view/729/729/)

How did you determine the initiative/intervention would address the problem?
Every Child Reads is based on research and has shown success in improving reading instruction in order to improve student achievement in reading. Great River AEA16 ITBS data suggest that achievement is needed in the area of reading at the 4th, 8th and 11th grade levels. Reading gaps existed between students and students eligible for free and/or reduced lunch. The Iowa Professional Development model provided for an integrated strategy to embed professional learning with day-to-day work in the classroom. AEA reading consultants, implementation coaches, leadership teams and area teachers work together to improve reading instruction. Each participating school developed an implementation plan, based on the Iowa Professional Development Model and identified key technology that would be used to help implement specific reading strategies as identified through Every Child Reads. This approach allowed each school to determine their particular focus within the initiative based on local needs and supported by local student achievement data.

How did you generate the plan for the intervention?
Instruction of reading strategies were delivered through several professional development activities which were designed around the Iowa Professional Development Model and included: Monthly staff development training days at the AEA through Every Child Reads, Reading for Understanding and Partnering for Improvement area wide initiatives; leadership team meetings twice a month at the implementing school; and AEA consultants’ site visits to participating schools and classrooms. AEA reading consultants routinely visited classrooms and work directly with teachers and students to model, collaborate, observe, and provide researched based articles to read and react. Classroom data collection has been on going and has been used with the assistance of the reading consultants and leadership teams to adjust strategies as part of the on-going nature of professional development and school improvement.
• **What was the intervention (in HIGHLY specific terms)?**

The intervention implemented within the scope of E2T2 included three research based, general strategies that improve reading: Fluency Development, Reading Comprehension, and Vocabulary Development. Specific instructional strategies supporting each general strategy follows:

**General Strategies/ Specific Strategies**

- **A. Fluency Development**
  
  **Partner Reading**

  **Description and Instructional Process**

  Research suggests that fluency instruction including partner reading, Choral reading, Readers Theatre, and Structured Repeated readings be incorporated into a comprehensive reading program. However, direct fluency instruction should make up only a small part of that instruction. In most studies, the fluency work was brief (15-30 minutes per lesson). This was most commonly done on an “every other day” basis, depending tremendously on the grade level, classroom schedule and make up of the classroom; including environment. Fluency instruction is not generally considered a standalone intervention, so instructional time may vary greatly.

- **B. Reading Comprehension**
  
  **Read/Think/Talk Alouds**
  **Graphic Organizers**
  **Accelerated Reader (AR)**

  **Description and Instructional Process**

  To quote the National Reading Panel, “the idea behind this approach to instruction is that reading comprehension can be improved by teaching students to use specific cognitive strategies or to reason strategically when they encounter barriers to comprehension as they read.” This being said, comprehension should be a part of daily instruction. The problem in setting aside a certain block of time is that it is dependent on the strategy a teacher is using at the time. A Read Aloud, Talk Aloud, or Think Aloud, are strategies that can be used inside of a PWIM unit of study or as a stand-alone strategy. So, if a teacher is doing a PWIM lesson that day, they might be utilizing one of these strategies (usually 30-45 minutes). If a teacher is using a graphic organizer or accelerated reader lesson, they might be spending as little as 15-20 minutes or as much as 60 minutes per day. There is not an accepted recommendation for the time an instructor spends on comprehension; only that instruction should be done on a daily basis to meet the needs of the student.
C. Vocabulary Development

**Picture Word Inductive Model (PWIM)**

**Word Mapping**

**Description and Instructional Process**

Research says that students need to add between 2,000 and 3,000 words to their reading vocabularies each year, direct instruction of vocabulary in a balanced literacy program is critical. Explicit instruction in vocabulary should be augmented by wide reading exercises to enhance word acquisition. Research clearly shows that different types of words require different levels of instruction. There obviously is a difference in the amount of time spent on sight words (essential words, tier 2 words) and less frequently used words for instructional purposes. The time that should be allocated for vocabulary instruction depends on many variables. Explicit instruction strategies such as PWIM, or Word Mapping are used during direct vocabulary instruction. There is much that can be accomplished with indirect strategies as well. Experts agree that some type of vocabulary instruction should be done on a daily basis, whether it is direct or indirect. Instructors using the PWIM average 2-3 lessons per week. A strategy such as Word Mapping would be used less frequently, on average one lesson per week. Lesson length typically ranges from 30-45 minutes.

- **How did you implement the intervention (research design, training, timeline, etc.)?**
  Several strategies were used to implement E2T2 activities. Professional Development occurred through the regional initiative: “Reading for Understanding” and the state initiative “Every Child Reads.” Implementation Coaches provided site-based support to building teams and the regional initiative “Partnering for Improvement” helped leadership teams to analyze and interpret student achievement data- including basic understandings about poverty (Ruby Payne Framework training, during Year 1 of the grant period).

  Supporting technologies were introduced to teachers at the “ACUT” conference and supported by the site/technology coordinators within each district. Site/technology coordinators were trained to provide technical assistance with specific technology identified within each implementation of the intervention and in data collection through the external and internal evaluation instruments. The site coordinators met monthly through out each school year, and continue to meet monthly supporting the integration and use of technology.

**Professional Development and Support Activities**

**ACUT November 13-14, 2003. Technology/Grant Awareness**
November 4-5, 2004 Technology Implementation(s)
November 10, 2005 Sharing Implementation Results

**Other Support Activities Completed (Dates determined by district)**

Kurzweil Training –Fort Madison (March, 2004)
Leap Frog Training & Summer Institute for K-2 Teachers (Summer 2004) 
Burlington *expanded Summer 2005 to additional grade levels 
add Autoskills software to secondary implementation 2005-2006 
AR training (Summer 2004) – Central Lee 
Curriculum alignment and Understanding by Design (Summer 2004, 2005) – Keokuk 

Partnering for Improvement 
2003-3004: Oct. 21, Nov. 24, and April 20 
All district team level participation. Ruby Payne’s Framework for Understanding Poverty and development of the Implementation Plans. 
All district team level participation. Analyzing Student Achievement data 
2005-2006: Nov. 7, 21, 22, 29; Jan. 5, 17, 26, 30; Mar. 2, 14, 28, 30 
All district team participation through regional delivery. 

Implementation Coaches – Meet monthly. 
Planning and training and support for school Implementation Plans (AEA staff) 
2003-2004 Sept. 19, Oct. 17, Nov. 21, Jan 16, Mar 19, April 16 and May 21 
2005-2006: Implementation coaches participate with regional delivery of PFU. 

Every Child Reads (ECR) & Area Reading Teams- Professional Development training, local team planning with AEA reading Consultants (implementation planning and support). 
2004-2005: Sept. 23, Nov. 11, Jan. 20, Feb. 24, April 14 

ECR/ On Site Support sessions - 
2005-2006: 69 sessions logged within 6 participating districts 

Reading for Understanding 
2003-2004: Sept. 22-23, Nov 18, Jan 27, Feb 12, Mar 9 
2004-2005: Sept. 21, Nov.16, Jan. 15, Mar 22 
2005-2006: Sept. 27, Nov. 3, Feb. 6, Mar 21
What data collection and analysis procedures did you use?

A. PD Logs - Each participating teacher received a Professional Development (PD) Log and will document all forms of professional development including date and description of the activity, time spent and rate knowledge gained as a result of the activity. Teachers completed the logs as they participated in professional development activities related to their implementation plan. Individual teacher logs were turned into consortium coordinator for compiling. Basic descriptive statistics were applied to this data.

B. iLog – Participating teachers were asked to contribute “iLogs” to document implementation (frequency and duration) of instructional strategies as it pertains to their school’s E2T2 implementation plan. Basic descriptive statistics were applied to this data.

C. Observational Rubric – An observational rubric was designed spring 2004-Fall 2005 to assess teacher fidelity of implementation. AEA16 Reading consultants used this model during on site visits to the classroom. During the period November, 2004 – May, 2005, the observational rubric was further developed into a hybrid model of PDK’s “Classroom Walk Through” into a “Content Focused Walk Through.” Area-wide training of this revised Walk Through training was provided to LEA curriculum directors, lead teachers, technology coordinators and AEA school improvement consultants. (Spring 2005).

The resulting observational rubric was also used with the Polycom Video Conference cameras to create a video observation of the implementation of the intervention. These video sessions provided further evidence of implementation as well as professional reflection opportunities to the implementing teachers. Iowa State University performed the analysis of the video sessions, as part of the E2T2 Teacher Fidelity Study. Seven teachers provided 28 video sessions that were reviewed.

What did you find?

A. PD Logs - 2,256 PD logs have been submitted. There appears to be a small positive relationship between time spent and knowledge gained through professional development activities supporting the implementation plan. Findings from this data suggest that professional development greater than approximately 200 minutes result in less variability and more knowledge gained as reported by the participating teachers. Professional development greater than 500 minutes consistently yielded self reported scores of 7-10 on a [1 to 10] scale.

B. iLogs - To date, 929 iLogs have been submitted. Analysis of frequency data suggest that the highest self-reported success occurred when the strategy was taught in blocks of 61-90 minutes duration at least 4 times a week.
C. Observation Rubrics - Teachers observed by AEA reading consultants were implementing ESC reading strategies. Ilogs accurately described reading strategies implemented. Video Observations indicate consistent implementation of ESC strategies across districts. Additionally, a review of AEA aggregate *ITBS student achievement data indicated that reading achievement at the 4th grade level has improved with 81.8% students proficient (This is a gain of 11.8% since 2000-2001), while students with Free and Reduced Lunch showed similar gains from 59.1% proficient in 2000-2001 to 73.7% in 2006-2007.

8th grade AEA aggregate ITBS data improved from 67.6% students proficient in 2000-2001 to 72.4% students proficient in 2006-2007. Low SES students improved from 49.3% students proficient in 2000-2001 to 59.5% students proficient in 2006-2007.

11th grade AEA aggregate ITED data showed small gains from 73.3% students proficient in 2005-2006 to 74.1% in 2006-2007. Low SES student data also showed small gains during the same time period with 55.1% students proficient in 2005-2006 to 57.7% students proficient in 2006-2007. Two high need high schools were added to E2T2 during the 2004-2005 school year. *See graphs attached (PowerPoint)

• What does it mean?
Many factors contribute to the success of student learning. Research confirms that improved instruction leads to improved learning. Active instruction through the use of technology engages students. Learning is accelerated when students are engaged. The following is a summary of what has been learned from this consortium’s E2T2/ESETP activities:

E2T2 has enhanced reading achievement. This has been evidenced by improved reading ITBS scores, increased in the ITED reading comprehension scores, increased school library circulation, more non-fiction books are being checked out as a result of the “Read Aloud” strategy and teachers have sponsored “family Nights” each year.

The use of technology has supported reading achievement as a result of E2T2. There has been an increase in the use of computers, and projectors. The increased use of projectors has allowed teachers to teach more effectively with technology. The use of Classroom Performance Systems (CPS) has allowed for immediate instructional feedback in the classroom. Teachers have been able to access data to guide content and strategy delivery.

E2T2 has improved professional development opportunities. Essential vocabulary has been identified in each content area. Curriculum has been reviewed and aligned with grade level indicators. Teachers have been trained in the use of software applications such as: Power Point, Successmaker, Autoskills, LeapPads and video streaming.

• What should be done in the future?
Great River AEA consortium schools should continue to implement the “Every Child Reads” initiative. AEA Reading consultants have benefited from the design and use of new tools (such as the observation rubric) and should continue monitoring the degree of implementation within area schools. All participants are better data collectors and interpreters of data collected. The use
of data should continue to be used to make instructional decisions. Reading achievement within the region has improved and effort to continue this improvement should be maintained. Also, as ITBS/ITED student achievement data may suggest, the E2T2 consortium has begun similar work with mathematics (2006-2007). Again, using the Iowa Professional Development Model, participating schools have begun to implement the statewide initiative “Every Student Counts (ESC)”. At the elementary level, the software application ALEKS has been adopted to support the ESC strategies. Initial classroom performance assessment data from the ALEKS software management system suggest students are achieving better at classroom levels. Interactive white boards integrated with student response systems, tablets, slates and projectors (Interactive White Board Systems) have been installed at five pilot middle schools (8th grade), and have so far, shown improved engagement of student learning at classroom levels.

Student achievement data should continue to be collected through ITBS/ITED. Attention should be made to LOW SES students at the middle and high school levels in mathematics*, as ITBS/ITED data show that this subgroup of students is performing below the state average. Additional Interactive Board Systems should be placed into high need classrooms at the middle and high school levels. *See graphs attached (PowerPoint)

Implementation (ilogs) and professional development (PD logs) should be maintained throughout the implementation of E2T2 activities. Consultant observations and videoconference technology should continue to be used to determine the degree of implementation of ESC strategies in the classroom.

** What grade levels did you introduce the intervention in each year?**

Participating schools initially determined the grade level based on local student achievement data from Iowa Tests of Basic Skills within the K-8 level. All participating schools maintained participation for three years. Burlington CSD added two middle schools and the high school during the second year. Burlington and Keokuk were defined as two high need school districts with a greater percentage of low SES students. The following summarizes participating grade levels by district and school and identifies the general reading strategy and technology used to support the strategy.

| Burlington* | Black Hawk | Vocabulary Development | LeapFrog LeapPad | K-1 |
| Course | Vocabulary Development | LeapFrog LeapPad | K-1 |
| Grimes | Vocabulary Development | LeapFrog LeapPad | K-2 |
| North Hill | Vocabulary Development | LeapFrog LeapPad | K-1 |
| Sunnyside | Vocabulary Development | LeapFrog LeapPad | K-3 |
| Perkins | Vocabulary Development | LeapFrog LeapPad | K-1 |

**Secondary Schools added during second year E2T2**

| BHS | Reading Comprehension | AutoSkills | 9-12 |
| J. Madison | Reading Comprehension | AutoSkills | 6-8 |
| Oak Street | Reading Comprehension | AutoSkills | 6-8 |
| Central Lee Elementary | Vocabulary Development | Star Reading | K-8 |
| Fort Madison Richardson Elem. | Reading Comprehension | Kurzweil | K-2, 5 |
Keokuk*
GW Elem.     Reading Comprehension  PowerSchool    1,2,5
Hawthorn     Reading Comprehension  PowerSchool    1,2,4
Wells Elem.  Reading Comprehension  PowerSchool    1, 3-6
High School  Reading Comprehension  Star Reading   9-12
Middle Sch.  Reading Comprehension  AR Software    7-8
Morning Sun Elementary  Reading Comprehension  CPS System    3-6
New London Clark Elem.  Fluency Development  SIS System    1-6
WACO Elementary  Reading Comprehension  CPS, Projectors   6
Wapello Junior High  Reading Comprehension  SuccessMaker    7-8
West Burlington Elementary  Reading Comprehension  CPS, LtoJ   1-6
Winfield Middle  Vocabulary Development  Projectors    8

*High Need District as determined by Percent SES students
Appendix D
Middle School Mathematics
Southern Prairie
Loess Hills
Heartland
E2T2 (Enhancing Education Through Technology)

Name of the Consortium: Southern Prairie A.E.A. 15

Project Coordinators/Project Web Address:
• Bob Steingreaber, AEA 15 Technology Coordinator (bob.steingreaber@gpaea.k12.ia.us)
• Lisa Jacobs, AEA15 Technology/Math Consultant (lisa.jacobs@gpaea.k12.ia.us)
• Project Website, http://www.aea15.k12.ia.us/curr/e2math.php

Project Summary and History:

When designing the Area 15 E2T2 plan, we wanted to focus on the Iowa Professional Development model and select strategies that would be integral to district school improvement plans and could be sustained beyond grant funding. The original team involved in the decision for the area of focus, grade level, and method of intervention included the AEA Instructional Services Director, Instructional Resources Coordinator, Professional Development Coordinator, Content Specialists, Instructional Technology Consultant, and the ELL(English Language Learner) Consultant. District level input to the plan included superintendents, technology coordinators, and teachers. An analysis of the Iowa Test of Basic Skills (ITBS) student data in the AEA Annual Progress Report(APR) clearly indicated that grades 6-8 Mathematics was an area that was in need of improvement.

Need/Grade/Focus Area: Grades 6-8 Mathematics

• The percent of eight graders proficient in mathematics was below the state average from 1996-1998 to 2001-2003.
• The percent proficient in eighth grade mathematics in AEA 15 steadily decreased from 74.6% (1996-1998) to 65% (2001-2003).

It was a shared belief by the planning group that professional development for teachers in researched-based instructional strategies and the integration of technology to support the strategies would be effective in increasing student achievement in 8th grade mathematics.

Grant Goals:
• Project Goal for Mathematics: The percent of students in Area 15 proficient at eighth grade mathematics on ITBS will increase.
• Project Goal for Advanced Technology #1: To use advanced technology as a method of delivery for professional development opportunities in the areas of mathematics and the
integration of technology. Delivery methods will include use of the ICN (Iowa Communication Network), desktop videoconferencing as a pilot project, collaborative web-based tools, and web-based courses with facilitators.

- Project Goal for Advanced Technology #2: To train Area 15 teachers to effectively use technology tools (with a focus on web-based tools) for instruction in the area of mathematics, as a tool to collect and analyze student data, and to improve communication with parents and students.

Specific Scientific Evidence Based Content Strategies and Method of Instruction:

**Instructional strategies** - The AEA15 Middle School Every Student Counts (MS ESC) instructional strategies include (1) Distributed Practice and (2) Problem Based Instructional Tasks. Both of these scientifically evidence based mathematics strategies were selected from the *Iowa Every Student Counts Initiative* and are supported by the key themes for mathematics instruction identified in the Iowa Content Network and the National Council of Teachers of Mathematics.

The five implementation data points collected as strategies for Area 15 ESC by the Iowa State On-line Survey are listed below under each of the two focus strategies they represent.

- **Distributed Practice**
  - *Daily Math/Short Skill Practice*
  - *Mental Math/Estimation Practice*
  - *Representations/Models*
  - *Concept Previews*

- **Problem Based Instructional Tasks**
  - *Extended Problem Solving Tasks*

**The Research Sources for the Focus Strategies:**

<table>
<thead>
<tr>
<th>Instructional Strategies</th>
<th>Description</th>
<th>Researcher and Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Distributed Practice</td>
<td>Long-term retention is best served if assignments. . . Are spread out in time rather than concentrated within short intervals</td>
<td>1. Suydam, 1985</td>
</tr>
<tr>
<td>2. Problem-based Tasks</td>
<td>Does not use “drill &amp; practice”—does use problem-solving, estimation, mental arithmetic, calculators, questions, manipulatives</td>
<td>2. Iowa Content Network Madsen, Smith, Lanier, 1995; Riordan, Noyce, 2001</td>
</tr>
</tbody>
</table>

- The National Council of Teachers of Mathematics Principals and Standards published in 2000
• The Educational Practice Series Four Handbook published in 2000 by the International Academy of Education
• Adding It Up, Published in 2001 by the National Academy of Sciences
• The Iowa Content Network: Some of the key themes identified so far in the studies with research design rated 3 or above are: Focus on meaning and understanding, Multiple representations, Problem-centered approach, NCTM-Standards-based approach.

**Instructional technology** was an integral part of implementing the ESC instructional strategies. The focus was on tools that could assist students in developing conceptual understanding through visualization, multiple representations, and interactive exploration. Technology was also used in the project for students to communicate their reasoning. Overhead cameras, projection devices, graphing calculators, instructional software, interactive applets, streaming videos, and interactive whiteboards are specific examples of technology used to support the ESC instructional strategies.

Additional technology to support communication and implementation of the project at the teacher level included videoconferencing units in every district and AEA office, a webpage with teacher resources, digital video “vignettes” demonstrating the instructional strategies, email groups, on-line implementation reporting, training and access to classroom sets of graphing calculators.

Instructional technology was integrated in the ESC strategy training sessions plus an additional day each year was dedicated to technology in support of the MS ESC strategies. TI73 calculator trainings were held as summer courses.

**Parent involvement** - All MS ESC teams were required to sponsor a parent event. Districts were given a list of activities to choose from to meet this requirement including hosting an open house, Math Night, Parent-Teacher conference, or newsletter. Teachers provided parents with specific suggestions to help families support their child develop math skills. Links for resources for parent resources were made available on the project website.

**Participation and target teams** - All Area 15 middle schools educators were eligible to participate in the professional development. Target teams received additional funding to support their math team. Currently there are 18 Area 15 districts participating in the Middle School Every Student Counts Project. Of the 18, ten districts with low ITBS math scores were identified as E2T2 target districts and received additional equipment funding to support the implementation of Every Student Counts. The minimum equipment funding for an E2T2 target team is $3000. Larger districts receive proportionally more. **All participating districts** receive substitute reimbursements during the school year. New participants also receive a stipend for attending additional summer trainings.
**Iowa professional development model** – This project was based on the Iowa Professional Development Model and the Iowa Every Student Counts Initiative. Specific components of the project that aligned with the Iowa Professional Development Model include the analysis of ITBS data, workshops (i.e. ESC strategy sessions), and workplace implementation (i.e. modeling SEB Instructional Strategies, instructional practice, collection of implementation data, regular team meetings, coaching and co-lesson planning). The ESC strategies sessions focused on theory, demonstration, and practice.

**Scheduled Professional Development Activities:**
The ESC professional development included five days training for new teams and new participants and three days each year for continuing participants. Instructional technology was an integral part of the full day ESC strategy sessions. In addition, a full day each year was devoted to technology integration in middle school mathematics. The first four years Dr. Larry Leutzinger from UNI provided most of the large group content. The AEA Math Specialists attended trainings at the state level and they have developed the capacity to plan and lead future ESC strategy sessions. This year, the AEA math consultants are planning and delivering ESC professional development to elementary, middle, and high school groups in the newly merged Great Prairie AEA area.

**Support activities for implementation** – A CD of video “vignettes” with teachers modeling the strategies was given to all participants. AEA Math Specialists conducted on-site classroom visits and attended team meetings where teachers dialoged about classroom implementation of the strategies. Coaching that included co-planning lessons as well as teachers visiting each other classrooms was required for participation. Videoconferencing between partnering teams was also encouraged. A website to support the implementation of the strategies was created and maintained by AEA staff. Regular email messages about the project were made possible through an AEA created list serve.

**What did you do to increase fidelity?** We required teachers to self-report implementation data monthly using the Iowa State Online Survey Tool. Teachers were contacted if they were behind on their implementation logs. Dialog about implementation was expected at the monthly team meetings. Teachers were asked to share classroom experiences including student work at the strategy sessions. An observation tool for classroom observations was developed and the AEA Math Specialists scheduled visits with each teacher in the initiative. Building administrators were also expected to conduct periodic walk-through observations. Consistent professional development for new and returning team members will be important for maintaining consistent implementation of the instructional strategies.

**Expansion to elementary and high school** - With the hiring of two fulltime Mathematics Specialists, AEA 15 was able to expand Every Student Counts to include elementary and high
school initiatives. Both completely funded with AEA and local school dollars. There were 109 elementary and 35 high school Area 15 ESC participants in 2006-07. The AEA Math Specialists attend many of the district level monthly team meetings and conduct classroom observations on-site for each teacher participating in the project. An on-line survey form created in Key Survey was developed at the AEA for the elementary and high school teachers. This year, the Middle School ESC participants will be required to use the AEA on-line reporting tool in addition to the Iowa State Survey. The Key Survey form is easy to use and provides valuable data that helps project coordinators determine levels of implementation as well as information to help plan professional development. AEA staff has also created an on-line form to report team meetings.

Additional Consortium Resources:
- Two Mathematics Specialists- Shelley Bramschreiber and Kelly Schloss
- One Technology/Mathematics Consultant- Lisa Jacobs
- Technology Support- Jon Proenneke (networking/video conferencing setup) and Larry Chaplin (Audio/Video Specialist and Co-op Purchasing Contact)
- Printing through Agency Print Shop
- Use of Agency Equipment/Resources

**Internal Data**

Internal Evaluation:

*Internal data collected at the AEA included 1) levels of participation in professional development; 2) Frequency of building level meetings; 3) Participation in the online implementation survey; 4) Percent proficient on ITBS Grade 8 Mathematics for Area 15 and reported in each District’s APR; 5) Scores of students in grades 7 and 8 on a pre/post test compiled from released National Assessment of Educational Progress (NAEP) items.*

**Area 15 APR Mathematics Data** (AEA15 APR Feb. 2007 page 7)

<table>
<thead>
<tr>
<th>Percent of students proficient in Grade 8 Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 8</td>
</tr>
<tr>
<td>75.3%</td>
</tr>
</tbody>
</table>

**Number of participants:**
The summer 2003 the ESC MS initiative started with 5 target districts which included 30 teachers and 8 administrators. There are 18 districts participating at the middle school level this year. Below is a table of all districts in Area 15 and their number of participants for MS ESC
2007-2008. The total count is 62 and includes administrators that actively participate in the ESC professional development.

<table>
<thead>
<tr>
<th>District</th>
<th>District</th>
<th>District</th>
<th>District</th>
<th>District</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Albia</td>
<td>5</td>
<td>Fairfield</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Cardinal</td>
<td>0</td>
<td>*Fremont</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Centerville</td>
<td>3</td>
<td>Harmony</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>Chariton</td>
<td>1</td>
<td>Keota</td>
<td>9</td>
</tr>
<tr>
<td>0</td>
<td>*Davis County</td>
<td>0</td>
<td>**Lineville</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>*Eddyville-Blakesburg</td>
<td>2</td>
<td>Moravia</td>
<td>4</td>
</tr>
</tbody>
</table>

(*Davis County, Eddyville-Blakesburg, Fremont, and Seymour have participated in previous years. Lineville is the only district that has never participated in the AEA15 MS ESC Initiative. There are also five non-public districts in Area 15 and they are not participating in ESC.)

**Teacher Implementation:**
- 59 Area 15 middle school teachers were in the system for online implementation data 2006-2007
- Forty-three (73%) of the teachers successfully logged in and entered data in the Iowa State System
- Thirty-three of the teachers reported monthly data six or more months during the school year.
- Of the 16 teachers not entering data, all but two had enabled their accounts and setup passwords.

Specific Every Student Counts Data Collected from Each District:
- **Team action plan**
- **ITBS analysis forms**
- **Team meeting logs**
- **Teacher implementation logs**
- **Walk-through observations**
- **ESC student pre & post test**

**Every Student Counts Pre and Post-Test Analysis** (Used for Planning Professional Development):
- 1339 Area 15 eighth grade students (17 districts) participated in the fall 2006 Every Student Counts Pre-test created from released NAEP items.
- 1145 Area 15 eighth grade students (16 districts) participated in the spring 2007 post-test.
- The percent of students with correct responses on the post-test was equal to or above the national percent on 20 of the 25 items.
- Four of the five items Area 15 scored lower than the nation were in geometry & measurement. One item was in the area of data analysis.
• Area 15 pre-test Fall 06 had a higher percent correct on 23 of the 25 items as compared with students tested the first year the same assessment was given to a group of Iowa students Fall 2002.

• On Item 5 (Number Sense) Area 15 students were only 2 percentage points below the state 2002 group on their pretest. Area 15 students were 6 percentage points above the state 2002 group on their post-test.

• On Item 18 (Measurement) Area 15 students were 30 percentage points below the state 2002 group. On their post-test they were still 24 percentage points below the state 2002 group.

• Area 15 students showed gains on 24 of the 25 items from the Fall 06 Pre-test to the Spring 07 Post-test.

• Area 15 students did not show gain on item number 10 (Data analysis). Their scores decreased 9%.

• Most of the gains were between 1% and 12%. The two items students had the highest gains in were both in the category of number sense. On item number 2 the gain was 29% and item number 3 the gain was 16%.

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External Data: Growth Curves Report
Study Conducted by Dr. Gary Phye, Iowa State D

• This data shows AEA15 is closing the Gap between the scores of Proficient and Non-Proficient 8th Grade Math Students.

Buildings = 4 Students = 382
Southern Prairie AEA 15
Middle-School Mathematics Analysis –
Mathematics 8th grade Proficient vs. Non-Proficient

<table>
<thead>
<tr>
<th></th>
<th>2003-2004</th>
<th></th>
<th>2004-2005</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std.dev</td>
<td>Mean</td>
<td>Std.dev</td>
</tr>
<tr>
<td>Non-Proficient</td>
<td>30.02</td>
<td>12.47</td>
<td>40.22</td>
<td>18.01</td>
</tr>
<tr>
<td>Proficient</td>
<td>63.45</td>
<td>11.58</td>
<td>62.09</td>
<td>16.97</td>
</tr>
</tbody>
</table>

Effect Size for non-proficient student’s gain = .80

What worked well in the project?
The project goal was met. The percent of students in Area 15 proficient at eighth grade mathematics on ITBS increased from 64.1 percent in 2002-03 to 74.4 percent in 2005-06. The Iowa professional development model which includes regular team meetings and making instructional decisions based on student data was very effective. The instructional strategies (meaningful distributive practice and problem-based instructional tasks) were basic enough that teachers could start implementing right away while building skills and conceptual understanding to improve the implementation of the strategies. Many technology tools are available to support the implementation of the strategies.

Another positive aspect of the project has been the involvement of special education teachers. There are several participating teachers that are in co-teaching environments. Local teams often include special education, title, and gifted teachers. An effort has been made to model ways of differentiate instruction to meet the needs of all students. Participation levels and the successful expansion of the initiative into elementary and high school surpassed our expectations.

Current Project Status and Problems:
There are eighteen Area 15 districts participating in Middle School Every Student Counts. AEA 15 and 16 merged as of July 2007 and the Every Student Counts professional development is expanding beyond AEA 15 in all three levels—elementary, middle school, and high school. There are approximately 100 participants in the newly formed Great Prairie Middle School Every Student Counts Initiative. All participating teams are meeting monthly, analyzing ITBS data, and collecting teacher implementation data. Technology continues to be an integral part of the implementation of the ESC instructional strategies. The new technology tools that many teachers currently show an interest in are the interactive whiteboards and the immediate student response devices.
Great Prairie AEA and all districts within the area have access to at least one video conferencing unit funded by E2T2 or EsetP (Evaluating State Educational Technology Programs). The locations and contact persons for scheduling the video conferencing units is available on the Great Prairie AEA website. Currently, the video conferencing units are used for meetings to save travel time and costs. We would like to see more teacher-to-teacher sharing and use of the equipment for classroom applications. The major technical issues have been related to school firewalls, but the LEA and AEA technology staff have solved each issue as it has been identified.

Support and involvement of the building level administrators continues to be a challenge. There are many initiatives and areas of school improvement that require the involvement of building level administrators. Four out of five year 1 target districts had a change in administration at the building level between year 1 and year 2. Teacher turnover is also a concern. Five of the original 21 target teachers (24%) moved out of their positions between year 1 and year 2.

**Support after the grant period:**
Great Prairie AEA will continue to plan and provide Every Student Counts professional development. Districts will have to pay teacher substitutes and stipends as they currently do for other Great Prairie Initiatives. Without the E2T2 and EsetP funding, there will be very limited budget for university support and additional technology.

**What should be done in the future?**
In the future, an effort needs to be made to combine the resources and expertise in the newly formed Great Prairie (AEA15/16) area in support of the Every Student Counts Initiative. Many teachers have been in the project for several years so a shift toward developing tools and supporting classroom implementation of the strategies needs to become the focus. ESC professional development needs to continue modeling and supporting the implementation of the instructional strategies concurrently with emerging technologies.

The project coordinators for Every Student Counts and the participants in the project need to continue to use student data for making instructional decisions.
Evaluating State Education Technology Programs

Loess Hills AEA 13 Consortium

The Evaluating State Education Technology Programs (ESETP) initiative at AEA 13 and across the state of Iowa focused on a systemic “scaling-up system” for 1) improving professional development as reflected in the implementation of the Iowa Professional Development Model (IPDM), 2) the development of credible data that link professional development activities to student achievement, 3) the approval of the Iowa Accountability Plan, and 4) the development of a state report card for each district.

As a result, a two-factor research design model was introduced in Iowa in collaboration with the Title II, Part D Enhancing Education Through Technology (E2T2) initiative. The E2T2 initiative focuses on professional development as the best way to positively impact student achievement in reading, mathematics and science.

Design and Development. Based on a five-year profile of ITBS scores at the 8th grade level, the Loess Hills consortium’s superintendent advisory committee for NCLB identified 8th grade mathematics as an area of need and the focus for the consortium. The consortium’s educational intervention involves using the Iowa Professional Development Model (IPDM) to provide teachers with strategies for integrating the five National Teachers of Mathematics (NCTM) process standards (problem solving, reasoning and proof, communication, connections, and representations) into their mathematics instruction in the areas of the NCTM content standards (numbers & operations, algebra, geometry, measurement, and data analysis/probability). However, foundational to the Loess Hills consortium’s educational intervention is the belief that all students should learn important mathematical concepts and processes with understanding. According to Heibert, “Instructional programs that emphasize conceptual development, with the goal of understanding, can facilitate significant mathematics learning without sacrificing skill proficiency (Heibert, 2003, p.16).”

In addition to implementing the Iowa Professional Development Model, the Loess Hills mathematics consultants participate in the Iowa Department of Education-initiated Every Student Counts (ESC) professional development initiative and use its principles and practices as guidance for the design of the consortium’s professional development program. The ESC goals are to 1) improve achievement of K-12 students in mathematics, and 2) build learning communities engaged in the study of mathematics, mathematics instruction, and student achievement in mathematics through effective implementation of the Iowa Professional Development Model.

The Every Student Counts project has three fundamental research-based components:

- Teaching for Understanding
- Problem-Based Instructional Tasks
- Meaningful Distributed Practice
The Every Student Counts initiative clearly states that Teaching for Understanding emphasizes Problem-Based Instructional Tasks and Meaningful Distributed Practice. The Iowa Department of Education website provides details of these research-based components:

**Teaching for Understanding**

- Posing Problem-Based Instructional Tasks
- Engaging student in the tasks and providing support as they develop their own representations and solution strategies
- Promoting discourse among students to share their solution strategies and justify their reasoning
- Summarizing the mathematics and highlighting effective representations and solution strategies
- Extending students thinking by challenging them to use effective representations and/or solutions strategies in new situations
- Listening to students and basing the instructional decisions on their understanding

**Problem-Based Instructional Tasks**

- Help students develop a deep understanding of important mathematics
- Are accessible yet challenging to all students
- Encourage student engagement and communication
- Can be solved in several ways
- Encourage the use of connected multiple representations
- Encourage appropriate use of intellectual, physical and technological tools

**Meaningful Distributed Practice**

- Targets an identified need based on multiple data sources
- Helps students develop a deep understanding of a BIG IDEA
- Helps students develop flexibility and fluency with skills and concepts
- Builds on and extends understanding
- Uses problems and activities that help students learn to use multiple representations, and learn to use multiple reasoning strategies
- Uses problems from a variety of contexts so students learn to make connections

These research-based components and professional development activities are designed to be supported by IP-based teleconferencing and the ICN. Technology resources used during implementation include the following instructional adjuncts; 1) NCTM Navigations Series (software, web, and print materials), 2) Exemplars: Standards Based Performance Assessment and Instruction (software), 3) L to J software to support Data Not Guesswork, 4) Graphing...
calculators to support Navigations series, and 5) ALEKS software, a self-contained learning environment, with complete sets of practice and explanatory units, and an online system for the assessment and individualized teaching of mathematics.

**Training and Implementation.**
Year 1: Six schools (26 teachers) were involved in the initial phase of the AEA 13 consortium grant. With a goal of improving student achievement in mathematics at the middle level, the focus of the consortium’s staff development was to improve mathematic instruction. Participants were introduced to the NCTM Content Standards and Process Standards and professional development was offered specifically in teaching through problem solving. In an effort to monitor implementation of the NCTM standards, checklists including both teacher and student behavior were developed. Many of the technology tools and supports were introduced during the first year of implementation to enhance the instruction of the participating classroom teachers. The ongoing training and learning for the year were supported and sustained using specific technologies, including IP-videoconferencing, the Iowa Communications Network (ICN), QuickTopic Discussion Board, email and listserv, as well as a locally developed website.

Year 2: Seven additional schools joined the project with continued work being done in the area of problem solving. The Communication process standard also became an area of professional learning and implementation. Again, the ongoing training and learning for the year were supported and sustained using specific technologies, including IP-videoconferencing, the Iowa Communications Network (ICN), QuickTopic Discussion Board, email and listserv, as well as a locally developed website.

Year 3: Three more schools joined the consortium in year three bringing the total number of teachers to 41. These sixteen schools continued efforts in the areas of Problem Solving and Communication and focused additional efforts on the Connections standard. Year 3 also included the introduction of multimedia projectors and Unitedstreaming.

Year 4: During the fourth year, teachers concentrated on maintaining the work of the first three years. Professional Development focused on quality instruction in the classroom, and the continued efforts to integrate technology into meaningful practice. Data was analyzed and it was determined that additional support was needed for struggling learners. As a result, ALEKS software was offered to schools whose technology was capable of supporting the software, and whose teachers needed another tool to support quality, supplemental instruction. 1486 student licenses were utilized during this school year. Additionally, it was determined that teachers needed to form professional learning communities in an effort to focus more of their involvement in the analysis and discussion around their implementation practices and student learning needs. In addition to the ICN trainings, teachers met in regional groups three times throughout the year. Teachers also were involved in authoring problem-based instructional tasks using a collaborative environment. These problem-based tasks were entered into an online database with the expectation that these tasks would be implemented and reflected on during year five of the E2T2 project.
YEAR 5: The focus for year five is the continued effort to monitor and reflect on quality math instruction that will impact student achievement. This effort will be achieved through three regional meetings and a one-on-one consultation that focuses on the reflection and analysis of one of three video-taped lessons.

**Principal Involvement.** In designing the Loess Hills program, the consortium also considered the components research suggests are essential for accelerating student achievement. According to Emily Calhoun’s article, “Necessary Support Components for Designing and Initiative to Accelerate Student Achievement in an Academic Area”, nine essential components are key to successful school improvement efforts. The first three components, 1) a focus on instruction, 2) continuous staff development, and 3) continuous assessment of both student performance and teacher implementation, provide the foundation for school improvement. The remaining five components further increase the likelihood that the professional development will be sustained and student achievement will be attained. These components include sustained effort, technical assistance, cross role learning, willingness to lead, policy support, and adequate time.

Given this research and the emphasis placed on the leadership in the IPDM, the consortium developed the E2T2 Principal’s Series. These workshops center around the belief that a principal’s instructional leadership is fundamental to the success of the consortium’s efforts and that they play a key role in supporting and sustaining the improvement efforts of their math teachers.

One of the primary goals of the Series is to help principals recognize the importance of monitoring implementation. According to Joyce and Showers, *Student Achievement Through Staff Development*, 2002, the primary reason to monitor implementation of innovations is to interpret their effect on students. As a result, the consortium provided the principals with staff development in the Instructional Practices Inventory (IPI) process used for profiling student learning experiences and engaging faculty members in the analysis of the data for school improvement. Research has shown that effective, periodic analysis of the Instructional Practices Inventory profiles can enhance school-wide and sub-group collaborative conversations about student learning and instruction. Engagement in collaborative conversations about learning and instruction can foster faculty commitment and help build a stronger professional community. The significance of these important school-wide characteristics is well documented in the school improvement and educational change literature. As school faculty members become more and more accustomed to collecting instructional data about student learning and using those data as a basis for collective reflection and problem-solving, the nature of student learning experiences evolve, most often shifting from higher to lower percentages of student seatwork and from lower to higher percentages of student engaged, higher-order learning.

The effective use of the IPI process begins with the development of one or more valid, reliable data collectors. In many schools the principal or assistant principal is one of the first individuals trained. Principal participation is important because the principal must understand the process and provide leadership for it to be used effectively. The data collector(s) move from classroom to classroom throughout the day focusing their observations on the students and how they are learning. A large number of random, objective observations are required to develop each profile. Most schools that effectively use the IPI process collect profile data three or four times a year and devote a faculty meeting to the analysis.
and discussion of those data shortly after the data are collected. Some schools collect the data more frequently, others less frequently. Facilitating the faculty conversations so faculty-wide, meaningful problem-solving can occur based upon the profiles is probably more challenging than collecting the profile data. Facilitators of the faculty discussions must develop the ability to create authentic collaborative conversations, rather than make the analyses, identify the issues, and recommend solutions for the faculty. The faculty discussions are the critical activities in creating faculty commitment and professional community. Just as the IPI process documents instances of higher-order, student engaged, learning conversations in the classroom, so too must the facilitators of the faculty analysis foster higher-order, faculty engaged, learning conversations.

Data Collection and Analysis.
Ongoing data collection and analysis has been critical to driving the focus of our efforts. Several data tools have been utilized.

Loess Hills AEA 13 E2T2 Survey: In year one a survey was developed to monitor implementation of the technology tools distributed in this first year. This survey also included a feedback component that informed the E2T2 consultants of needs and concerns of the individual participating teachers. Data was collected and reviewed by the E2T2 consultants and was utilized to inform the content of the next professional development session via the ICN. In Year Four, the survey was redesigned to illicit more specific information on both the implementation of the process standards and utilization of technology as an instructional tool that supports these process standards.

Process Standards Checklists: During the summer after year one, checklists of the NCTM Process Standards were developed as a means to monitor the fidelity of implementation of the process standards. These checklists included observable behaviors of both teacher and students. Teacher observations were done using these checklists using two observers, one in the classroom and another remote via the IP-videoconferencing unit. Data indicated that the location of the observer was not a significant factor in the outcomes of the dual-observation process. In year four, the Process Standards Checklists were converted to eWalk software and are being distributed to principals as a means of monitoring implementation in support of the E2T2 project.

L-to-J Assessment: L-to-J is a classroom-level formative assessment of district standards and benchmarks. Data is collected over time to make instructional decisions. All of the participating teachers received training in process and the software in how to monitor student achievement. Teachers shared results of their L-to-J data on a regular basis over the ICN.

ALEKS: In year four, data indicated a need for additional ways to identify and support struggling learners. ALEKS software was provided to schools who requested licenses for identified populations. Local ALEKS results indicate that students who utilized ALEKS at least 45-minutes per week showed more growth on identified benchmarks than those using it less than 45-minutes per week.

Videotaped PBIT Lessons: In an effort to triangulate data and monitor implementation, participating teachers were asked to record three Problem-based Instructional Task (PBIT) lessons and self-reflect on their implementation of the three components of the PBIT. E2T2
consultants then utilized the Process Standards Checklists as a monitoring tool as they observed the same videoed lessons. Information from these assessments were used to drive the focus of the follow-up professional development. Work continues in this area as teachers move to collaborative learning in the format of their regional professional learning communities.

**ITBS Data:** Math achievement data on the Iowa Test of Basic Skills is a critical consideration when determining the impact of our efforts on the improved instruction and resulting performance of eight grade math students. The following table highlights the results of the past five years of data comparing the schools involved in E2T2 to that of all of the schools in AEA13 and to that of all schools’ in the state on 8th grade math proficiency.

<table>
<thead>
<tr>
<th>8th Grade Math (Average % Proficient)</th>
<th>‘03</th>
<th>‘04</th>
<th>‘05</th>
<th>‘06</th>
<th>‘07</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2T2 Schools</td>
<td>73.5%</td>
<td>74.3%</td>
<td>74.34%</td>
<td>77.54%</td>
<td>73.16%</td>
</tr>
<tr>
<td>AEA 13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State of Iowa</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Data Analysis: The results of our data analysis indicate that our efforts are having a minimal impact on 8th grade math student achievement as reflected in the 8th grade ITBS math scores over the last five years. This data indicates that further work is needed to insure the fidelity of the instructional practices shown to improve student achievement.

Our efforts in E2T2/ESETP have focused on improving curricular choices, instruction and assessment and we will continue our efforts in these areas. We will continue our work in the area of instructional practice, but realize that continued efforts are needed in a multitude of related areas in order to realize our goals of improved instruction and an increase in student achievement in middle school mathematics.

Clearly, if our efforts are going to have an impact we will need to continue to train teachers in the appropriate and effective use of technology to further supplement quality math instruction. Through the utilization of appropriate technologies, students will be able to access differentiated supplemental and intensive instruction targeted at provided the specific help and guidance each student needs to meet their instructional needs.

In addition, we will need to continue monitoring implementation and reflective practice. To this end, we will continue our focus on involving principals in leading change in their building by supporting them with additional training and tools for improving teacher walk-throughs and implementation-data collection. We realize that we will also need to further develop our concept of Professional Learning Communities, involving not only the teachers, but also the administration and building leadership teams in the study of a quality comprehensive mathematics program.

Our E2T2/ESETP project is a reform model that is working to improve student achievement and teacher quality. By continuing our efforts in the three important areas of a quality math program: curriculum; instruction and assessment, and through the supporting efforts of technology,
reflective practice and principal involvement, we believe that we will positively impact mathematics teachers and students in southwest Iowa.


Enhancing Education through Technology (E2T2) Consortium
Heartland AEA 11
October 15, 2007

The Heartland AEA 11 Enhancing Education through Technology (E2T2) consortium supports standards-based mathematics instruction through effective strategies, administrative support, best practices in technology, and professional development opportunities to increase student achievement as measured by the Iowa Tests of Basic Skills (ITBS) and Iowa Tests of Educational Development (ITED). The primary focus of E2T2 is to develop and support a learning community of middle and high school mathematics educators who come together to study research-based content and strategies, put into practice what they are learning, and share results.

Heartland AEA 11’s E2T2 middle school, mathematics initiative, designed during the 2002 – 2003 school year, was based on ITBS data (2001-2002), Heartland AEA 11’s mathematics teachers’ qualifications, and professional development opportunities. It was estimated that approximately 30% of middle school students would be identified as not-proficient in mathematics. In addition, many middle school teachers did not have a strong mathematics background and were teaching out of their subject expertise. In Iowa, only 36% of the students were being taught by mathematics teachers with a master’s degree, as reported in the Study of Mathematics Achievement in Iowa. This compares to 44% in the nation at large. Of the Iowa teachers who had master’s degrees, only 42% of those had mathematics as their focus. Only 51% of the eighth grade students in Iowa were being taught by teachers who had an undergraduate major in mathematics. In addition, the in-service training of the Iowa teachers fell behind that of the middle school teachers across the country. Only 26% spent at least 16 hours on in-service related to mathematics, while nationwide it is 39%. While this data may appear dated, there is no evidence that these numbers have increased (National Center for Education Statistics 1991). In a 2002 Heartland AEA 11 survey of mathematics teachers, 40% indicated they were less than well-prepared to teach students with diverse abilities; 63% of those surveyed felt less than well-prepared to teach students who have a learning disability which impacts mathematics learning.

During the 2006 – 2007 school year, the Heartland AEA 11 E2T2 consortium was expanded to include high school mathematics teachers. Data from the Schools and Staffing Survey (SASS) determined that authority (teacher leadership and control over school and classroom policy), not power (frequency of evaluation of teachers and professional development and ease of dismissal of teachers), is associated with mathematics and science teachers participating in the kind of professional development that improves teaching and learning activities. These activities focused on subject matter content and instructional strategies, as well as active interactions with other teachers around curriculum and instruction. E2T2 was supporting middle school mathematics teachers, and Heartland AEA 11 had a formalized professional development model for elementary mathematics teachers, Content Area Capacity Building (CAB). By adding a high school strand, Heartland AEA 11 was able to provide effective opportunities, based on scientific research, for all K – 12 Heartland AEA 11 mathematics teachers.

The processes for determining the general need for the grant and narrowing the curriculum area and grade level focus were broad-based. Multiple sources of information were used. The primary sources were: 1) mathematics scores from the Iowa Tests of Basic Skills; 2) research reviewed in
sources such as the Center for Applied Research in Educational Technology (CARET) (http://caret.iste.org), National Council of Teachers of Mathematics (NCTM) (http://www.nctm.org), National Center for Research on Evaluation, Standards, and Student Testing (CRESST) (http://www.cse.ucla.edu), What Works Clearinghouse (http://www.ed.gov/offices/OERI/whatworks), Eisenhower Clearinghouse (http://www.enc.org), and No Child Left Behind (http://www.ed.gov/nclb/research); 3) three planning sessions with consortium schools; 4) a needs assessment survey sent to all districts to gauge interest and need in curriculum and grade level; 5) district assessment data from consortium schools; 6) discussions with the six districts identified as high needs schools; 7) a 2001 survey of middle school mathematics teachers; 8) district APRs; and 9) Heartland AEA 11 and LEA goals.

The goal of this professional development model is that all students will become proficient in mathematics. Proficiency in mathematics has five interwoven strands that accurately reflect the complexity and dynamic nature of learning mathematics with deep understanding. These five interwoven strands are conceptual understanding, productive disposition, procedural or computational fluency, adaptive reasoning, and strategic competence.

Heartland AEA 11’s E2T2 project is grounded in teaching for understanding using five research-based instructional strategies at the middle school level: 1) establishing routines (mental math and daily math review), 2) providing worthwhile tasks, 3) encouraging student discourse, 4) extending student thinking, and 5) basing instructional decisions on student understanding. Three research-based instructional strategies were implemented at the high school level: 1) meaning, distributed practice, 2) problem-based instructional tasks, and 3) teaching mathematics for understanding.

The methods of instruction integrate theory, demonstration, practice, and coaching through face-to-face meetings, ICN sessions, on-site visits, and IP video conferencing. This includes a variety of formats from large group meetings to one-on-one modeling. Numerous resources were provided to support participants. These included research articles, print materials, assessment tools, software, a CD modeling best practices, Internet sites, IP video conferencing units, electronic whiteboards, and professional books including EDThoughts; Making Sense of Fractions, Ratios, and Proportions; Teaching Mathematics through Problem Solving; What Principals Need to Know about Teaching Math; Helping Children Learn Mathematics; Principles and Standards for School Mathematics; Navigating through Geometry in Grades 9 – 12; Navigating through Algebra in Grades 9 – 12; and Whatever It Takes.

The Heartland AEA 11 consortium program provides each participating school with three years of professional development activities at the middle school level and two years of professional development activities at the high school level. In year one at the middle school level, Heartland AEA 11 engaged teachers in studying mathematical proficiency as a way to develop a deeper understanding of their content and use of instructional strategies. Teachers implemented routines and worthwhile tasks as a first step in developing mathematical proficiency in their students. In year two we continued investigating teaching for mathematical proficiency by studying the research that supported each of the five instructional strategies. By the end of year two, teachers were using a problem-based approach to teaching mathematics. The professional development materials (the black box) provided for each building team included:
• Syllabus of activities and learning
• *Every Minute Counts – Making Your Math Class Work*
• Research resources
• Ms. Toliver videotapes modeling best practice
• Software – *Graph Master* and *The Geometer’s Sketchpad*

In year three, the focus was on moving from a team of teachers to a professional learning community. The use of formative assessment, parental involvement, and integrating children’s literature were also covered in year three. The professional development materials (the silver box) provided for each building team included:

• Syllabus of activities and learning
• *A Family’s Guide – Fostering Your Child’s Success in School Mathematics*
• Middle School Math in the Home – brochures for each middle school family
• CD-ROM – *Figure This! Take a Challenge*
• Parent Night Packet – Texas Instruments

In year one of the high school professional development model, participants studied the rigorous and extensive research base for NCTM standards-based reform in mathematics education. This includes the following topics: 1) teaching mathematics for understanding, 2) teaching mathematics using problem-based instructional tasks, 3) meaningful distributed practice of concepts, skills, and problem solving, 4) assessment for learning, 5) traditional and reform approaches, and 6) general research for improving teaching and learning. The focus of year two was a more concentrated application of meaningful distributed practice of concepts, skills, and problem solving with emphasis on how mathematical knowledge and skills can be transferred to all mathematics courses, other curriculum areas, and higher education or the world of work. An IP video conferencing unit was provided to each high school so teachers are able to expand their professional learning community beyond their building as they communicate, design lessons, and demonstrate and practice designed lessons with peers. The book, *Whatever It Takes*, and respective study guide was provided so participants had a better understanding of professional learning communities. In addition, Iowa Core Curriculum information was distributed.

Heartland AEA 11 had 53 districts participating in the consortium, and as a result, three cohorts were created to handle the number of teachers and instructional leaders participating at the middle school level, and two cohorts were created at the high school level. Schools were able to self-select a start date for participation in E2T2 activities with all districts participating for a three-year period at the middle school level and two years at the high school level. All Heartland AEA 11 districts participated at either the middle school or high school level or at both levels with the exception of Des Moines Public Schools, which had its own consortium.

**Participation Data as of October 1, 2007**

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Level</th>
<th>Participation Years</th>
<th>Districts</th>
<th>Teachers</th>
<th>Instructional Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Middle School</td>
<td>2003-06</td>
<td>24</td>
<td>101</td>
<td>33</td>
</tr>
<tr>
<td>2</td>
<td>Middle School</td>
<td>2004-07</td>
<td>13</td>
<td>58</td>
<td>13</td>
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<tr>
<td>3</td>
<td>Middle School</td>
<td>2005-08</td>
<td>16</td>
<td>107</td>
<td>26</td>
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<tr>
<td>4</td>
<td>High School</td>
<td>2006-08</td>
<td>23</td>
<td>88</td>
<td>24</td>
</tr>
<tr>
<td>5</td>
<td>High School</td>
<td>2007-09</td>
<td>9</td>
<td>28</td>
<td>10</td>
</tr>
</tbody>
</table>
Although the project used a mix of professional development formats, bi-monthly visits by Heartland AEA 11 math cadre members proved to have the greatest impact on changing teacher attitude and behavior. Math cadre members included a variety of Heartland AEA 11 staff including instructional technology consultants, Heartland AEA 11 E2T2 consultants, professional learning and leadership consultants, and a program assistant for technology and resources. Math cadre members’ responsibilities included attending bi-monthly, in-district meetings; delivering resources; coaching teams in E2T2 strategies; and answering questions. Math cadre members completed an informational form documenting each visit and the progress and needs of each building team.

### Math Cadre Visit Data (Visits/Year)

<table>
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<tr>
<th></th>
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<tr>
<td>Cohort 4</td>
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<td>Blended</td>
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<tr>
<td>Cohorts</td>
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</tr>
<tr>
<td>Total/Year</td>
<td>201</td>
<td>259</td>
<td>368</td>
<td>242</td>
<td>1,070</td>
</tr>
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</table>

Internal evaluation data were collected electronically using a web-based database at both the middle and high school level. At the middle school level, teachers self-reported on the use of routines, worthwhile tasks, technology implementation, and participation in professional development. At the high school level, teachers self-reported on the use of meaningful distributed practice, problem-based instructional tasks, technology use, and participation in professional development. At both levels, instructional leaders completed a monthly reflection log to document the focus of bi-monthly meetings. These logs collected data related to the focus, goals, and reflections of the bi-monthly meetings.
Cohort 1 – 3 (2003 – 2007)

Middle School Teachers Monthly Reports – Frequency of Implementation

<table>
<thead>
<tr>
<th></th>
<th>2003 – 04 Cohort 1</th>
<th>2004 – 05 Cohort 1</th>
<th>2005 – 06 Cohort 1</th>
<th>2006 – 07 Cohort 2</th>
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<tr>
<td>Routines - Mental Math &amp; Daily Math Review</td>
<td>29,354</td>
<td>49,548</td>
<td>80,150</td>
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<td>Technology Implementation Activities/Worthwhile Tasks</td>
<td>8,370</td>
<td>17,156</td>
<td>23,830</td>
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<td>Professional Development Activities</td>
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<td>6,635</td>
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<td>4,098</td>
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</tbody>
</table>

Cohort 4 (2006 – 07)

High School Teachers Monthly Reports – Frequency of Implementation

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Meaningful Distributed Practice &amp; Problem-based Instructional Tasks</td>
<td>9,109</td>
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<tr>
<td>Technology Use</td>
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<tr>
<td>Professional Development</td>
<td>4,784</td>
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</tbody>
</table>

Technology was used as a tool for communication, instruction, professional development, and assessment throughout the grant. Usage included:

- Communication - E-mail, Listservs, IP video conferencing
- Assessment - On-line data collection, IP video conferencing, Excel
- Instruction – Electronic whiteboards, Gizmos, The Geometer’s Sketchpad, Calculators, CBRs, Interactive websites, Real-world data, Cognitive Tutor, Interactive student response systems, Discovery Education Streaming, ALEKS, podcasting, Open source math software
- Professional Development - ICN, Atomic Learning, IP video conferencing, CDs modeling best practices

All E2T2 participants were invited to attend a mini tech/math conference in both October of 2006 and 2007. A high level of interest in the utilization of technology in the mathematics classroom is indicated by registration numbers. In 2006 there were 100 registered and in 2007 there were 150 registered with a waiting list in both years. Topics covered included Gizmos, Cognitive Tutor, interactive response systems, The Geometer’s Sketchpad, Discovery Education Streaming, Iowa Educators Consortium, technology toys, ALEKS, electronic whiteboards, podcasting, IP video conferencing, Atomic Learning, graphing calculators, and open source mathematics software. A pdf of the 2007 program can be found at [http://www.aea11.k12.ia.us/e2t2/TechMathbro.pdf](http://www.aea11.k12.ia.us/e2t2/TechMathbro.pdf).

ITBS student achievement data from 19 schools were tracked for individual students who attended the same school for two consecutive years from 2002 to 2003 and 2003 to 2004. Data was tracked as students moved from 5th to 6th grade, 6th to 7th grade, and 7th to 8th grade. During this time, the number of students identified on the ITBS as below proficient decreased by an average of 6.77% while the number of students identified as being proficient increased by an average of 2.83% and above proficient by 4.63%. Students moving from grade six to grade seven
during this period experienced the most significant change with the number of non-proficient students decreasing by 15.5% and the number of above proficient students increasing 14.6%. We are currently working on collecting ITBS data from more schools in order to track performance as they move from grade to grade and their schools continue to participate and implement the E2T2 strategies.

At the National Council of Teachers of Mathematics national conference in Atlanta in March 2007, Dr. Gary Phye presented by video results of the first three years of E2T2. Dr. Phye indicated that NCLB funds were meant for the disadvantaged students. Heartland AEA 11’s E2T2 data indicate we are doing an excellent job with these disadvantaged students. Dr. Phye summarized by saying that this professional development model is a well-rounded, educational intervention that benefits all students, but benefits the disadvantaged (those who are the focus of NCLB) the most. Dr. Phye’s complete presentation, including a detailed discussion of the data, can be found at http://www.aea11.k12.ia.us/nclb/.

The end-of-course tests for Algebra 1, Geometry, and Algebra 2, designed by the Iowa Testing Program, were piloted by 15 high schools in the spring of 2007. As these tests are refined, additional high schools will consider administering these tests. As a result, they may become an E2T2 assessment tool.

The Heartland AEA 11 consortium will continue a professional development model that consistently emphasizes teaching for understanding because SBR tells us that an emphasis on teaching for meaning has a positive effect on student learning, including better initial learning, greater retention, and an increased likelihood that the ideas will be used in new situations. Instructional programs that emphasize conceptual development, with the goal of understanding, can facilitate significant mathematics learning without sacrificing skill proficiency. Students who memorize facts or procedures without understanding often are not sure when and how to use what they know, and such learning is often quite fragile. The methods of instruction will remain the same – an integration of theory, demonstration, practice, and coaching through face-to-face meetings, ICN sessions, on-site visits, and IP video conferencing. This includes a variety of formats from large group meetings to one-on-one modeling. There will be a trend of moving away from the ICN and using IP video conferencing more often. In addition, new technologies are being integrated into mathematics instruction. Gizmos, interactive student response systems, ImaginationCubed, podcasting, IP video conferencing, and open source mathematics software, all tools familiar to E2T2 mathematics teachers in 2007, were not even available when we implemented this NCLB grant in 2002.

Technology offers the promise of increasing student achievement through positive effects in student engagement and motivation. Good teaching provides relevant access to technology-based resources in the context of standards-based instruction. Inclusion of technology can help to increase student engagement. Good teaching with high levels of student engagement can lead to increased student achievement. Current thought on learning theory says that when good teaching uses a student-centered approach to instruction then good learning is apt to occur. The use of technology with student-centered teaching methods and standards-based curriculum is likely to increase student achievement. Student achievement data are most important to Heartland AEA 11 but sometimes it’s the comments from E2T2 mathematics teachers that really tell the story.
Here is an e-mail received in October 2007 that demonstrates how one mathematics teacher understands how technology can make a difference in teaching and learning.

“I am so glad that I have become involved in E2T2 - really hope that it will help me better reach and teach my students and help them towards a deeper understanding of the subject matter. It has also helped me decide upon my creative project for my masters in math ed. I would like to write on "Using Technology to Enhance the Mathematics Curriculum.”
Solving the AYP Mathematics Dilemma with Technology

Lack of educational progress in reading and mathematics is not an option with No Child Left Behind (NCLB) accountability mandates. Every academic year since January 2002 has produced a steady increase in the number of K-12 public schools identified as needing improvement. Simultaneously, due to an increasing influx of immigrants, the cultural diversity in public schools has mushroomed a decade earlier than expected. The re-authorization of the Individuals with Disabilities Education Improvement Act (IDEA) has ensured “appropriate services for all students” and reduced disproportionality in educational settings for minorities and English-limited students. Further, IDEA’s “Highly Qualified Teachers” component inextricably links Special Education and General Education classrooms. Taken as a whole, these measures and events have synergistically created “a perfect storm” for K-12 education. How can any school or district guarantee adequate yearly progress (AYP) in mathematics for ALL students?

The Mississippi Bend E2T2 Consortium

In 2002, the Mississippi Bend AEA analyzed LEA Iowa Test data, identified problem areas, set goals, aligned them with federal (NCLB) and state (Iowa Goals) legislation, developed action plans in reading and math, and set about the task of finding and funding an appropriate mathematics intervention. The funding problem was solved through NCLB Title II D monies. School district superintendents met and discussed a collaborative E2T2 math project proposal and district in-kind commitments. Sixteen out of 22 AEA 9 school districts chose to participate in the implementation of Cognitive Tutor Algebra I. Three districts opted to continue with their own math programs but agreed to participate in the E2T2 Consortium project as “controls”. The remaining three were either not suitable for the content (two K-6 districts) or qualified for their own E2T2 project (an Urban Eight Network district).

Math Project with Integrated Technology

The search for the best mathematics intervention specifically addressing math problem-solving among students in grades 7-12 benefited from the work of a panel of experts assembled by the National Science Foundation in 1999. Their report identified 5 Exemplary and 5 Promising national mathematics curricula. The Consortium also sought a program that would develop students’ technological abilities (Iowa Goals). Based on its rich developmental history, strong research base, and integrated use of technology, the E2T2 Consortium decided to implement Carnegie Learning’s Cognitive Tutor Algebra I curriculum. This program subscribes to the NCTM process and algebra content standards. E2T2 funds were used to purchase software site licenses, student textbooks, professional development training, teacher training materials, teacher stipends, external
According to Thornburg, in the course of history, learning communities have met in “four primordial learning spaces: the campfire, the watering hole, the cave, and life”. The power of cyberspace technology (the new campfire) is its ability to engage students ─ in classrooms (the watering hole) and on computers (the cave). Cognitive Tutor software, using research-based strategies (Cawelti, 2003), capitalizes on this ability and involves students in mathematics classrooms in applying mathematics principles to solve real-world problems (life) displayed in a visually accessible format on their computer screen. Cognitive Tutor supports Iowa’s Every Student Counts (ESC) K-12 math initiative. The three pillars of the ESC program ─ teaching for understanding, problem-based instructional tasks and meaningful distributed practice ─ are embedded in the Cognitive Tutor curriculum.

### Strategies

In implementing Cognitive Tutor, technology supports mathematics instruction, it doesn’t supplant it. Sixty percent of class time is spent in direct teacher instruction. The remaining 40% of class time, is spent on student-computer tutoring. The Cognitive Tutor Algebra I software is designed to deliver personalized math instruction using multiple representations. The graphical user interface displays real-world scenarios (relevant math problems) using text, drawings, tables and graphs. As a student works to solve a problem, they are provided with just-in-time feedback (if needed) and guided to an efficient solution pathway. The student continues to receive similar problems until topic mastery is achieved. Computer instruction is scaffolded and spiraled. Since learning is socially-mediated (Vygotsky), cooperative learning techniques are an integral part of classroom instruction.

### Learning Math

E2T2 Consortium school districts agreed to commit teachers, computers and the hardware necessary to support the mathematics project. Optimum implementation of Cognitive Tutor Algebra I requires a 1:1 student computer ratio. Overcoming this hurdle caused delays in implementation as districts bought new or added to their existing computer network systems. In most schools the program has been implemented by students traveling to a dedicated computer lab. In a few schools, students work on laptops in their math classroom. In-kind support from Media funds were used to pay for AEA 9/LEA Internet services, ICN fees and acquisition of videoconferencing units. In addition, a Scott County Regional Authority grant provided funds for purchasing local units. Cognitive Tutor teachers are connected by this technology. ESETP funds provide scorer stipends for the Constructed Response test.
Implementation Support

Because of local control, AEA 9 school districts have used Cognitive Tutor Algebra I in two ways: as a complete program — textbook and software (implementation) or as a partial program — software only (as a supplement). And, the program is used in middle and high schools with students of differing abilities. Carnegie Learning’s ideal Cognitive Tutor model requires teacher-directed learning 60% of class time and computer tutoring 40% of class time. Implementation support for the Cognitive Tutor teacher comes in several forms: Carnegie Learning has a 24/7 phone-in Help Desk, online tech support, an online K-12 Community Master Series website, and provides speakers on request; AEA 9 provides resources and pedagogical support; and classroom videoconferencing units allow all Cognitive Tutor teachers to connect with each other to discuss problems, observe a lesson, or to participate in coaching.

On-going Professional Development

The AEA 9 E2T2 Consortium project has followed the Iowa Professional Development Model (IPDM). To improve the quality of mathematics instruction and the technological abilities of the teacher trainees, E2T2 professional development has been technology-dependent. E2T2 resources are posted on the AEA 9 website: (http://www.aea9.k12.ia.us/04/ql_cog_tutor.php). Monthly professional development meetings are conducted over the Iowa Communications Network (ICN). Cognitive Tutor teachers communicate through email, a listserv and a distribution list. Two districts serve as Cognitive Tutor demonstration sites. Videoconferencing cohorts are formed with grade level peers. A new course, “Analyzing School/District Data to Improve Student Achievement”, was piloted during the 2005-06 school year to assist Cognitive Tutor teachers in examining their district assessment data.
Site Visits

Formal on-site visits to evaluate program implementation began in December 2003. In collaboration with Carnegie Learning, an implementation rubric was developed from Songer’s research. Representatives of Carnegie Learning have participated in all site visits. The purpose of the visit is to determine if the teacher is using the Cognitive Tutor program with fidelity to the Carnegie model, i.e. content and strategies. Since the 2003-04 school year, 65 teachers and classrooms have been visited. In 2006, the availability of videoconferencing units in Cognitive Tutor classrooms permitted some of these visits to be virtual. In the spring of 2006, select AEA 9 8th grade Cognitive Tutor Algebra I teachers were visited virtually by Gary Phye, the E2T2 external evaluator. Site visits give meaning to the analysis of data. Implementation fidelity and student gains are strongly correlated.

Assessing Impact

The goal of the E2T2 math project has always been to increase the percentage of low SES, minority and IEP students’ who are proficient in math in grades 7-12. An Algebra Assessment was developed to measure student attitude (25-item survey), content knowledge (30-item Multiple Choice test), and problem-solving ability (30-point Constructed Response test). A baseline test was administered in the spring of 2002 and again in 2003. Since the students were not the same it was decided that the assessment should be administered in the fall and spring using standard testing procedures. This has been the case since fall 2004. Cognitive Tutor teachers score the Constructed Response test twice a year. The scoring rubric has been refined and anchor papers compiled to provide consistency in scoring. A Geometry Assessment mirroring the Algebra format was developed and piloted in 2004-05.

Student Gain

For the last two years, E2T2 student achievement data from the Algebra and Geometry Assessments have been disaggregated by districts and subgroups and compared. In looking at the Cognitive Tutor Algebra I data by district, the pattern that seems to emerge is this: if the classroom teacher supplements with Cognitive Tutor, gain scores range between 7% and 18%; if the classroom teacher implements Cognitive Tutor with fidelity, gain scores range between 11% and 36%. Differences can be attributed to class and teacher characteristics. Cognitive Tutor Geometry data by district is more compelling. The geometry teachers are all implementing with fidelity and their gain scores range between 24% and 30%. A comparison of low SES, minority and IEP students in high and low implementation and control groups seems to show that using the Cognitive Tutor Algebra I curriculum benefits these students.
Appendix E: Middle School Reading
Des Moines
Davenport
Northwest
The Des Moines Public Schools (DMPS) developed three projects supported with ESETP funds.

Project 1 was the purchase and installation of a mobile laptop cart to be used at the district’s curriculum and training center. This purchase was justified based on the need to have computers available for training in support of the district’s E2T2 project. Total ESETP funds spent on this project: $24,986.15

Project 2 was the purchase of a Polycom system and firewall gateway. This purchase was justified based on the need for the Des Moines Schools to experiment with the Polycom technology, to determine how the technology would work and impact the Des Moines Public School’s network, and to use the equipment as required by the E2T2 project. Total ESETP funds spent on this project: $17,499.00

Project 3 was the purchase of licenses for the My Access! writing assessment program in FY07. This program was used as a formative assessment in support of the district’s E2T2 project. Total ESETP funds spent on this project: $15,014.85

Total ESETP funding: $57,500 (see Appendix A)

Note: ESETP funding was available for a period spanning three fiscal years (FY05-FY07). During this time the district served an accumulated enrollment of 96,000 students, which generated approximately $480,000,000 in accumulated general program funding for the district. ESETP funding calculates to be approximately $0.60 per student and approximately 0.01% of general operating funds of the district.
Internal Assessment of ESETP projects.

Project 1 Assessment Plan and Results

The assessment of the ESETP project to place a wireless laptop cart at the district’s professional development center was focused on two items: (1) did the cart equipment function as expected, and (2) was the equipment used in support of E2T2 professional development.

A check of the district’s service and repair/customer support database indicated that no service calls on this equipment were placed during the ESETP project period. Based on this information, the conclusion is the equipment functioned as expected.

A check of the professional development calendar for this period indicates that the cart was used for sessions related to training on the district’s student assessment data warehouse (an E2T2 item) and for training on the My Access! program (an E2T2 item). This information was confirmed with the district’s data warehouse trainer and the district’s My Access! trainer. Based on this information, the conclusion is that the equipment was used in support of the E2T2 project.

Project 2 Assessment Plan and Results

The assessment of the ESETP project to install and test a Polycom system was focused on one item: was it possible to configure the Polycom so that the video over IP traffic could successfully transverse the district’s network firewall.

The setup and testing of the Polycom equipment was conducted in the Spring of 2006. The Polycom equipment was fully tested and operational by March 31, 2006.

The district did consider using the Polycom equipment in support of the E2T2 external evaluation requirement to capture video of our E2T2 teachers. We opted to record the video using other methods.

The Polycom project was helpful in preparing DMPS district to be able to expand the use of Polycom equipment in other district programs. For example, currently we have eight Polycoms installed in the district in support of a Drake University teacher preparation program.

Project 3 Assessment Plan and Results

The focus of the assessment of the ESETP project to support the license fees for the My Access! writing assessment was to determine if the program was used in all twelve DMPS middle school programs. It was possible to use summary reports from the My Access! program to determine if the My Access! program was used. The reports are attached as Appendix B. It is evident from the reports that the My Access program was used across all DMPS middle schools.
Appendix A  ESETP Financials
<table>
<thead>
<tr>
<th></th>
<th>FY 2006 BUDGET</th>
<th>FY 2006 BUDGET</th>
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<th>SEPT</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
<th>JAN</th>
<th>FEB</th>
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<th>JUNE</th>
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Not Transacted on CIMS

|        | Work Comp | Indirect | Transaction report Total | 24,080.15 | 17,499.00 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | (10,335.15) |

Grant to Date | 24,080.15 | 24,080.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | 42,485.15 | (10,335.15) |

Grant Balance |
| FY 2007 Budget | JULY | AUGUST | SEPT | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY |
|----------------|------|--------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Budget 15,014.85 |      |        |      |     |     |     |     |     |     |     |     |     |
| 330            |      |        |      |     |     |     |     |     |     |     |     |     |
| 754            |      |        |      |     |     |     |     |     |     |     |     |     |
| 739            |      |        |      |     |     |     |     |     |     |     |     |     |
| 690            |      |        |      |     |     |     |     |     |     |     |     |     |

Indirect Cost

| TOTALS |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      |
| Y-T-D EXP |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      |

Revenue

Deferred Balance

Not Transacted on CMS

Work Comp

| Indirect |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      |

Transaction report Total

Grant to Date

| Grant Balance |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      | 15,014.85 |      |
Appendix B: My Access! Summary Reports
## Account Report Report

**District Name:** Des Moines Public Schools  
**Username:** sharon.reynolds0667 | **Password:** s3rB2552

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<th>School Name</th>
<th># Student Accounts</th>
<th># Student Expired Accounts</th>
<th># Teachers Accounts</th>
<th># School Admins</th>
<th># Sessions Completed</th>
<th># Groups Created</th>
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History
Des Moines Public Schools
10/03/2007 11:42

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Groups Selected: 1. BRODY MS

Assessments:
1. Autobiography (Period 6:01/30/07 13:17)
2. Autobiography (Period 4:12/12/06 10:52)
3. Autobiography (Period 5:01/30/07 14:02)
4. Autobiography (Period 7:01/30/07 13:55)
5. Autobiography (Period 8:01/30/07 14:07)
7. Encounter with a Spaceship (plot) (Period 4/10/02/06 15:16)
8. Encounter with a Spaceship (plot) (Period 5/10/02/06 15:20)
9. Encounter with a Spaceship (plot) (Period 7/10/02/06 15:24)
10. Encounter with a Spaceship (plot) (Period 8/10/02/06 15:28)
11. Exploring on the Moon (plot) (Period 6:10/02/06 15:14)
12. Exploring on the Moon (plot) (Period 4:10/02/06 15:18)
13. Exploring on the Moon (plot) (Period 5/10/02/06 15:21)
14. Exploring on the Moon (plot) (Period 7/10/02/06 15:25)
15. Exploring on the Moon (plot) (Period 8/10/02/06 15:27)
16. Learning from Experience (DChristensen 8th Grade 2006-07/09/06/06 16:48)
17. Learning from Experience (Language Arts Period 5/09/2005 19:01)
20. Learning from Experience (Language Arts Period 8/09/2005 19:26)
22. Learning from Experience (Period 6:09/07/08 11:30)
23. Learning from Experience (Period 4:09/07/08 11:35)
24. Learning from Experience (Period 5:09/07/08 11:36)
25. Learning from Experience (Period 5:01/07/07 14:03)
26. Learning from Experience (Period 7:09/07/08 11:38)
27. Learning from Experience (Period 7:01/07/07 12:57)
28. Learning from Experience (Period 8:09/07/08 11:38)
29. Learning from Experience (Period 8:01/07/07 13:57)
31. Mystery Prompt 0001 (Bowles Language Arts per 7/10/25/05 16:47)
32. Mystery Prompt 0001 (Bowles Language Arts per 8/10/25/05 16:03)
33. Mystery Prompt 0002 (Dixon Language Arts Per 3:12/21/05 10:40)
34. Mystery Prompt 0002 (Bowles Language Arts per 7/10/25/05 16:58)
35. Mystery Prompt 0002 (Bowles Language Arts Per 8/10/25/05 16:03)
36. Mystery Prompt 0002 (Dixon Language Arts Per 3:12/21/05 10:37)
37. Mystery Prompt 0003 (Bowles Language Arts per 7/10/25/05 16:39)
38. Mystery Prompt 0003 (Bowles Language Arts Per 8/10/25/05 16:03)
39. Mystery Prompt 0003 (Dixon Language Arts Per 3:12/21/05 10:42)
40. Mystery Prompt 0004 (Bowles Language Arts per 7/10/25/05 16:30)
41. Mystery Prompt 0004 (Bowles Language Arts Per 8/10/25/05 16:04)
42. Mystery Prompt 0004 (Dixon Language Arts Per 3:12/21/05 10:42)
43. Requiring School Uniforms (1:07/11/06 17:00)
44. Requiring School Uniforms (Period 7:02/11/05 14:26)
45. School Rules: Dressing in the Classroom (Period 7:02/08/05 16:30)
46. Spending Money (Bowles Language Arts per 7/12/13/05 14:28)
47. Spending Money (Bowles Language Arts per 8/12/13/05 14:32)
48. To Change a Day In Your Life (Period 7/02/08/05 16:33)
### History Report

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**Total**: 122 122 4 4 4 4 4

**Note**: If a student took different assessments, the "Number of Students" column will double count at above table.
### History

**Des Moines Public Schools**

10/03/2007 11:43

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### Groups Selected:

1. CALLANAN MS 711

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1. Acts of Courage (Braun lang arts/reading 02/16/07 09:02)
2. Acts of Courage (Callanan 03/08/06 16:38)
4. Acts of Kindness (Maynard lang arts/reading 11/06/06 16:01)
5. A Day as a Bird (Callanan 01/19/06 16:53)
6. A Day as a Bird (Maynard lang arts/reading 09/21/06 17:42)
7. A Married Mission to Mars (Maynard lang arts/reading 01/13/07 12:23)
8. Breaking Barriers (Braun lang arts/reading 09/04/07 19:54)
9. Animal Testing (Braun lang arts/reading 04/07/06 19:43)
10. An Important Issue - HR Unit 0004 Level B (Braun lang arts/reading 04/07/07 19:47)
11. A Special Day (Braun lang arts/reading 02/30/06 15:00)
12. A Special Day (Callanan 01/19/06 17:06)
13. A Special Day (Maynard lang arts/reading 09/21/06 17:43)
14. Autobiography (Callanan 01/23/06 16:33)
15. Autobiography (Maynard lang arts/reading 01/11/07 16:17)
16. Banishing Books (Braun lang arts/reading 04/07/07 19:50)
17. Banishing Books (Maynard lang arts/reading 03/08/07 19:47)
18. Banishing Dead Pets (Braun lang arts/reading 04/07/07 19:52)
19. Banishing Extreme Sports (Maynard lang arts/reading 03/08/07 16:15)
20. Breaking Barriers (Braun lang arts/reading 02/19/07 09:09)
21. Cherished Memories (Callanan 01/19/06 17:09)
22. Cherished Memories (Maynard lang arts/reading 11/06/06 18:03)
23. Conflict in Society (Maynard lang arts/reading 01/31/07 13:30)
24. Designing Your Dream City (Maynard lang arts/reading 01/11/07 16:26)
25. Do You Want Fame? (Braun lang arts/reading 04/07/07 19:55)
26. Do You Want Fame? (Maynard lang arts/reading 02/18/07 17:15)
27. Family and Friendship (Braun lang arts/reading 08/25/06 15:10)
28. Family and Friendship (Maynard lang arts/reading 03/08/05 16:24)
29. Family and Friendship (Callanan 03/09/05 16:03)
30. Favorite Hobby (Braun lang arts/reading 09/27/07 16:55)
31. Favorite Hobby (Maynard lang arts/reading 12/01/07 17:54)
32. Favorite Person (Braun lang arts/reading 02/16/07 09:12)
33. Favorite Person (Maynard lang arts/reading 01/11/07 16:10)
34. Feeling Proud (Braun lang arts/reading 09/25/06 15:05)
35. Feeling Proud (Callanan 01/19/07 17:10)
36. Feeling Proud (Maynard lang arts/reading 09/09/06 17:05)
37. First Day of School (Braun lang arts/reading 10/03/06 16:47)
38. First Day of School (Maynard lang arts/reading 11/03/06 16:09)
39. Getting Home from the Middle of Nowhere (Maynard lang arts/reading 01/19/06 17:11)
40. Getting Home from the Middle of Novels (Maynard lang arts/reading 09/21/06 16:27)
41. Greatest American Figure (Braun lang arts/reading 04/07/07 15:58)
42. Happiest Time in Your Life (Callanan 01/19/06 17:12)
43. Happiest Time in Your Life (Maynard lang arts/reading 09/21/06 17:25)
44. Handsomeness in America (Braun lang arts/reading 06/07/07 19:58)
45. Handsomeness in America (Maynard lang arts/reading 02/16/07 17:18)
46. How to Handle a Bully (Braun lang arts/reading 04/07/07 20:02)
47. How to Handle a Bully (Maynard lang arts/reading 01/11/07 19:25)
48. If I Were President (Braun lang arts/reading 01/05/07 09:45)
49. Important Inventions (Braun lang arts/reading 02/16/07 09:21)
50. Important Inventions (Callanan 03/09/05 16:44)
51. Important Inventions (Maynard lang arts/reading 12/07/07 17:52)
52. Important Possession (Callanan 01/03/06 16:33)
53. Important Possession (Maynard lang arts/reading 12/07/06 17:46)
54. Learning from Experience (Callanan 09/22/05 09:24)
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56. Life Changing Experiences (Callanan 03/02/06 18:06)
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58. Life in Twenty Years (Maynard lang arts/reading 10/09/06 17:08)
59. Locker Policies (Braun lang arts/reading 04/07/07 20:04)
60. Media Influence (Braun lang arts/reading 01/05/07 09:47)
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63. People Change (Maynard lang arts/reading 01/11/07 16:20)
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65. Principal for a Week (Maynard lang arts/reading 01/07/06 16:25)
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Total: 715 / 718

Note: If a student took different assessments, the 'Number of Students' column will double count at above table.
History
Des Moines Public Schools
10/03/2007 11:43

| District Name: | Des Moines Public Schools | Gender: | All |
| Report Author: | Sharon Reynolds | Ethnicity: | All |
| Score Scale: | 6 pt. Range 2 to 6 | Language Fluency: | All |
| Revision Scope: | Last | Economic Status: | All |
| Grade Level: | All | Special Programs: | All |
| Date Range: | 08/01/2006 - 06/30/2007 | Total Number of Students: | 24 |
| Track Selected: | All | Total Number of Responses: | 24 |

Groups Selected: 1. HARDING MS 728

Assessments:
1. Acts of Kindness (period one: 10/25/04 13:15)
2. Learning from Experience (Block 1: 09/13/05 15:49)
3. Learning from Experience (Block 2: 09/13/05 15:57)
4. Learning from Experience (McCue's Classes: 01/10/07 08:10)
5. Learning from Experience (Period 1: 09/13/05 15:09)

History Report

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Note: If a student took different assessments the 'Number of Students' column will double count at above table

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**Des Moines Public Schools**  
**10/03/2007 11:44**

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**Groups Selected:** 1  
HIATT MS  
560

**Assessments:** 1  
A Special Day (Language Arts per 3:10/31/06 10:20)

**History Report:**

No data to display

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Note: If a student took different assessments, the 'Number of Students' column will double count at above table.

10/3/2007
### History

**Des Moines Public Schools**

10/03/2007

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**Groups Selected:**

1. HOYT MS 691

**Assessments:**

1. A Bus Trip to Anywhere (L Arts 8th grade 06-07 Group 1:12/14/06 10:31)
2. A Day as a Bird (Creative Writing 8 06-07:10/29/06 08:34)
3. A Mannequin Mission to Mars (L Arts grade 8 06-07 group 2:17/16/06 08:22)
4. An Empty Room (L Arts 8th grade 06-07 Group 1:15/16/06 08:20)
5. A Person You Admire (L Arts 8th grade 06-07 Group 1:15/16/06 08:21)
6. A Skill to Master (L Arts grade 8 06-07 group 3:11/16/06 08:23)
7. A Special Day (L A 3:10/14/04 14:41)
8. A Special Day (L A 4:10/14/04 14:47)
9. A Special Day (L A 5:10/14/04 14:47)
10. A Special Day (L A 6:10/14/04 14:47)
11. A Special Day (Language Arts Pr 4:11/8/10/04 15:30)
13. A Special Day (Language Arts Pr 7:11/10/04 15:33)
14. Autobiography (L Arts grade 8 06-07 group 2:11/18/06 08:23)
15. Designing the Ideal School Building (L Arts grade 8 06-07 group 3:11/16/06 08:24)
16. Do You Want to Be Famous? (Seversen Grade 8 06-07:11/26/06 10:30)
17. Earning An Allowance (plot) ** Unavailable after 0000/0001/0005 ** (L A 3:01/28/05 10:54)
18. Earning An Allowance (plot) ** Unavailable after 0000/0001/0006 ** (L A 4:01/29/05 21:46)
19. Earning An Allowance (plot) ** Unavailable after 0000/0001/0005 ** (L A 5:01/29/05 21:49)
20. Earning An Allowance (plot) ** Unavailable after 0000/0001/0005 ** (L A 6:01/29/05 22:17)
21. Family and Friendship (Language Arts 3:11/10/06 10:55)
22. Family and Friendship (Language Arts 4:11/10/06 10:55)
23. Getting Home from the Middle of Nowhere (L Arts grade 8 06-07 group 2:12/14/06 10:30)
24. Life in Twenty Years (Creative Writing 8 06-07:10/28/06 08:35)
25. Recommending Good Entertainment (L A 3:01/28/05 10:55)
26. Recommending Good Entertainment (L A 4:01/28/05 21:47)
27. Recommending Good Entertainment (L A 5:01/29/05 22:00)
28. Recommending Good Entertainment (L A 6:01/29/05 22:12)
29. School Rules: Eating in the Classroom (L A 3:01/29/05 10:56)
30. School Rules: Eating in the Classroom (L A 4:01/29/05 10:56)
31. School Rules: Eating in the Classroom (L A 5:01/29/05 22:01)
32. School Rules: Eating in the Classroom (L A 6:01/29/05 22:14)
33. School Rules: Eating in the Classroom (Language Arts 3:09/28/06 10:13)
34. School Rules: Eating in the Classroom (Language Arts 4:09/28/06 10:25)
35. Separate Schools for Boys and Girls (Language Arts 3:09/28/06 10:17)
36. Separate Schools for Boys and Girls (Language Arts 4:09/28/06 10:25)
37. Society's Biggest Problem (L Arts 8th grade 09-07 Group 1:12/10/06 10:22)
38. Society's Biggest Problem (L Arts grade 8 06-07 group 2:12/14/06 10:20)
39. Society's Biggest Problem (L Arts grade 8 06-07 group 3:12/14/06 10:27)
40. Soda Machines (L A 3:01/28/05 10:57)
41. Soda Machines (L A 4:01/29/05 21:45)
42. Soda Machines (L A 5:01/29/05 22:04)
43. Soda Machines (L A 6:01/29/05 22:15)
44. Soda Machines (Language Arts 3:09/28/06 10:19)
45. Soda Machines (Language Arts 4:09/28/06 10:26)
46. Songs from I Am Sam (Language Arts 3:10/03/06 10:38)
47. Songs from I Am Sam (Language Arts 4:10/03/06 10:39)
48. Spending Money (Language Arts 3:09/28/06 10:20)
49. Spending Money (Language Arts 4:09/28/06 10:27)
50. State Tests and Retention Policy (Language Arts 3:09/28/06 10:21)
51. State Tests and Retention Policy (Language Arts 4:09/28/06 10:28)
52. Time Spent with a Famous Person (L Arts grade 8 06-07 group 3:12/14/06 10:28)
53. Violence on Television (L A 3:01/28/05 10:57)
54. Violence on Television (L A 4:01/29/05 21:00)
55. Violence on Television (L A 5:01/29/05 22:04)
56. Violence on Television (L A 6:01/29/05 22:16)
57. Violence on Television (Language Arts 3:09/28/06 10:22)
58. Violence on Television (Language Arts 4:09/28/06 10:28)
59. Violence on Television (Seversen Grade 8 06-07:11/26/06 10:33)
60. What Does Your School Need? (Language Arts 3:09/28/06 10:25)
61. What Does Your School Need? (Language Arts 4:09/28/06 10:29)
62. Year-Round Schooling (L A 3:01/28/05 10:58)
63. Year-Round Schooling (L A 4:01/29/05 21:51)
64. Year-Round Schooling (L A 5:01/29/05 22:05)
65. Year-Round Schooling (L A 6:01/29/05 22:16)
66. Year-Round Schooling (Language Arts 3:09/28/06 10:24)
67. Year-Round Schooling (Language Arts 4:09/28/06 10:30)


10/3/2007
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Note: If a student took different assessments, the 'Number of Students' column will double count at above table.


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Des Moines Public Schools
10/03/2007 11:45

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Groups Selected: 1 MCCOMB MS 062

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1. A Day as a Bird (3rd Period:04/27/05 17:19)
2. A Day as a Bird (4th Period:04/27/05 17:32)
3. A Day as a Bird (5th Period:04/27/05 17:35)
4. A Day as a Bird (6th Period:04/27/05 17:38)
5. A Day as a Bird (7th Period:04/27/05 17:41)
6. A Day as a Bird (8th Period:04/27/05 17:44)
7. A Day as a Bird (Hypothesis 04/04/28/05 02:19)
8. A Day as a Bird (Hypothesis 04/04/28/05 11:05)
9. A Day as a Bird (Period 4:10/17/06 16:43)
10. A Day as a Bird (Period 6:01/17/07 13:17)
11. A Day as a Bird (Period 9:12/10/05 13:20)
12. Ag Building Journal (Ag Bldg:11/13/04 06:55)
13. A Man's Mission to Mars (Period 5:01/18/06 13:11)
14. A Special Day (Period 6:04/05/07 13:35)
15. Autobiography (Period 6:10/25/06 12:59)
16. A Wrinkle in Time by Madeleine L'Engle (Period 6:09/12/06 17:42)
17. Bill of Rights Essay (6th Period:03/01/05 13:13)
18. Bullying Research Paper (3rd Period:11/13/04 06:00)
20. Bullying Research Paper (5th Period:11/13/04 07:05)
22. Bullying Research Paper (7th Period:11/13/04 07:08)
23. Favorite Person (3rd Period:01/13/05 23:31)
24. Favorite Person (4th Period:01/13/05 23:32)
25. Favorite Person (5th Period:01/14/05 16:27)
26. Favorite Person (6th Period:01/14/05 16:28)
27. Favorite Person (6th Period:01/14/05 16:29)
28. Favorite Person (Hypothesis 04/01/21/05 15:16)
29. Favorite Person (Hypothesis 04/01/21/05 15:19)
30. Favorite Person (Period:04/10/17/06 16:44)
31. Getting Home From The Middle of Nowhere (Period:04/27/05 17:22)
32. Getting Home From The Middle of Nowhere (4th Period:04/27/05 17:33)
33. Getting Home From The Middle of Nowhere (5th Period:04/27/05 17:36)
34. Getting Home From The Middle of Nowhere (6th Period:04/27/05 17:39)
35. Getting Home From The Middle of Nowhere (7th Period:04/27/05 17:41)
36. Getting Home From The Middle of Nowhere (Hypothesis 04/04/28/05 09:25)
37. Getting Home From The Middle of Nowhere (Hypothesis 04/04/28/05 11:07)
38. Getting Home From The Middle of Nowhere (Period:04/13/17/06 16:46)
39. Getting Home From the Middle of Nowhere (Period:08/12/19/08 13:19)
40. Getting Home From the Middle of Nowhere (Period:04/13/23/06 15:27)
41. Important Possession (3rd Period:12/07/04 09:25)
42. Important Possession (4th Period:12/07/04 09:30)
43. Important Possession (5th Period:12/07/04 09:31)
44. Important Possession (6th Period:12/07/04 09:32)
45. Important Possession (7th Period:12/07/04 09:33)
46. Important Possession (Hypothesis 4/19/04 09:25)
47. Important Possession (Hypothesis 6/12/07/04 09:28)
48. Important Possession (Hypothesis 6/12/07/04 10:46)
49. Important Possession (Period:04/10/17/06 16:44)
50. Learning from Experience (Bowman 8th Language Arts 06-07-02/02/07 18:11)
51. Learning from Experience (Per 04/10/05 16:21)
52. Learning from Experience (Per 04/10/05 19:41)
53. Learning from Experience (Per 04/10/05 19:42)
54. Learning from Experience (Per 04/10/05 19:48)
55. Learning from Experience (Period 8:09/11/06 12:26)
56. Learning from Experience (Period 8:10/6/05 14:31)
57. Learning from Experience (Period 8:10/6/05 17:56)
58. Learning from Experience (Period 9:08/11/06 13:09)
59. Life in Twenty Years (3rd Period:04/27/05 17:22)
60. Life in Twenty Years (4th Period:04/27/05 17:32)
61. Life in Twenty Years (5th Period:04/27/05 17:36)
62. Life in Twenty Years (6th Period:04/27/05 17:39)
63. Life in Twenty Years (7th Period:04/27/05 17:41)
64. Life in Twenty Years (Hypothesis 04/04/29/05 09:21)
65. Life in Twenty Years (Hypothesis 04/04/29/05 11:06)
66. Life in Twenty Years (Period:04/10/17/06 16:45)
67. Life in Twenty Years (Period:04/10/24/05 11:36)
68 Life in Twenty Years (Period 9:10/24/06 11:43)
69 Locker Policies (3rd Period:04/27/05 17:16)
70 Locker Policies (4th Period:04/27/05 17:31)
71 Locker Policies (5th Period:04/27/05 17:34)
72 Locker Policies (6th Period:04/27/05 17:37)
73 Locker Policies (7th Period:04/27/05 17:39)
74 Locker Policies (Hyslope 4th:04/29/05 09:42)
75 Locker Policies (Hyslope 6th:04/29/05 11:10)
76 Lunchtime Shift (Lunchtime Skits:11/13/04 06:57)
77 Newspaper Article (Newspaper:11/13/04 06:49)
78 Poetry (Creative Writing:11/13/04 06:50)
79 Principal for a Week (Period:8/10/23/05 15:10)
80 School Rules: Eating in the Classroom (Period:8/04/13/07 15:15)
81 School Rules: Eating in the Classroom (Period:9/04/10/07 15:13)
82 Short Story (Creative Writing:11/13/04 06:53)
83 Soda Machines (3rd Period:04/27/05 17:19)
84 Soda Machines (4th Period:04/27/05 17:31)
85 Soda Machines (5th Period:04/27/05 17:34)
86 Soda Machines (6th Period:04/27/05 17:37)
87 Soda Machines (7th Period:04/27/05 17:40)
88 Soda Machines (Hyslope 4th:04/29/05 09:34)
89 Soda Machines (Hyslope 6th:04/29/05 11:28)
90 Violence on Television (3rd Period:04/27/05 17:18)
91 Violence on Television (4th Period:04/27/05 17:32)
92 Violence on Television (5th Period:04/27/05 17:35)
93 Violence on Television (6th Period:04/27/05 17:38)
94 Violence on Television (7th Period:04/27/05 17:40)
95 Violence on Television (Hyslope 4th:04/29/05 09:30)
96 Violence on Television (Hyslope 6th:04/29/05 11:00)
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Note: If a student took different assessments the 'Number of Students' column will double count at above table.
History
Des Moines Public Schools
10/03/2007 11:45

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Groups Selected: 1. MEREDITH MS 769

Assessments:
1. Do You Want Fame? (Period 3 03/28/06 09:06)
2. Do You Want Fame? (Period 3 03/28/06 09:51)
3. Do You Want Fame? (Period 5 03/29/06 09:13)
4. Do You Want Fame? (Period 5 03/29/06 09:14)
5. Family and Friendship (Lang-Per 4 10/07/06 11:28)
6. Family and Friendship (Language Per 6 10/07/06 11:36)
7. Family and Friendship (Language Per 7 10/07/06 11:40)
8. Important Inventions (Lang-Per 4 12/15/06 11:53)
9. Important Inventions (Language Per 6 12/15/06 11:53)
10. Important Inventions (Language Per 7 12/15/06 12:00)
11. Learning from Experience (3rd Period 06-07/08 08/07/06 11:23)
12. Learning from Experience (3rd Period 06-07/08 11/07/06 13:39)
13. Learning from Experience (Lang-Per 4 09/11/06 12:43)
14. Learning from Experience (Language Per 6 09/11/06 16:39)
15. Learning from Experience (Language Per 7 09/12/06 07:52)
16. Learning from Experience (Period 3 09/12/05 07:40)
17. Learning from Experience (Period 5 09/12/05 07:46)
18. Locker Policies (Period 3 11/14/05 17:18)
19. Locker Policies (Period 5 11/14/05 17:21)
20. Recommending Good Entertainment (Lang-Per 4 04/13/07 16:54)
21. Recommending Good Entertainment (Language Per 6 04/13/07 17:08)
22. Recommending Good Entertainment (Language Per 7 04/13/07 17:10)
23. Teenage Responsibility (plot) (Lang-Per 4 12/04/06 08:32)
24. Teenage Responsibility (plot) (Language Per 6 12/04/06 08:37)
25. Year-Round Schooling (3rd Period 06-07/04/02/07 18:53)

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**Total:**

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Note: If a student took different assessments, the 'Number of Students' column will double count at above table.
**History**

Des Moines Public Schools

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Groups Selected: 1. MERRILL MS 701

Assessments:

1. Bill of Rights (Language Arts 2:03/05/07 16:54)
2. Bill of Rights (Language Arts 8:03/05/07 16:56)
3. Bill of Rights (Language Arts 8:02/15/07 17:06)
4. Cherished Memories (Language Arts 2:09/21/06 19:57)
5. Cherished Memories (Language Arts 4:13/05/06 17:04)
6. Cherished Memories (Language Arts 6:12/05/07 17:07)
7. Cherished Memories (Language Arts 6:09/21/06 20:20)
8. Cherished Memories (Language Arts 8:13/05/05 17:08)
9. Cherished Memories (Language Arts 8:09/21/06 20:30)
10. Idea Bank (Language Arts 2:12/15/06 09:24)


10/3/2007
# MY Access! History Results

## History Report

![Graph showing assessment and scores](Image)

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<th>Track</th>
<th>Group Name</th>
<th>Writing Assignment Name</th>
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<td>Cherished Memories (Language Arts 2)</td>
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**Total:** 113 113 3 3 3 3 3 3

Note: If a student took different assessments, the 'Number of Students' column will double count at above table.
### History
**Des Moines Public Schools**

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**Groups Selected:**

1. MOULTON ES 138

**Assessments:**

1. A Day as a Bird (Johnson 8th Grade 06-07:10-23/06 16:27)
2. A Day as a Bird (Wallace 01-23/07 20:57)
3. Cherished Memories (Johnson 8th Grade 06-07:10-23/06 15:35)
4. Cherished Memories (Wallace 01-23/07 21:17)
5. Free Write Journal (Gallegos 8th Lang Arts:03/10/05 12:35)
6. I am Sam (Gallegos 8th Lang Arts:04/14/05 15:06)
7. Important Inventions (Gallegos:03/09/05 14:21)
8. In 2015 years? (Gallegos 8th Lang Arts:05/02/05 14:18)
9. Sound prompt (Gallegos 8th Lang Arts:03/15/05 11:05)
10. State Tests and Retention Policy (8th grade:05/18/05 16:23)
11. Violence on Television (Gallegos 8th Lang Arts:03/14/05 12:25)
## History Report

![Bar Chart](chart.png)

<table>
<thead>
<tr>
<th>#</th>
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<th>Track</th>
<th>Group Name</th>
<th>Writing Assignment Name</th>
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Note: If a student took different assessments, the "Number of Students" column will double count at above table.
Groups Selected: 1 WEEKS MS 840

Assessments:
1. A Bus Trip to Anywhere (Turley: 10/23/06 09:57)
2. A Manned Mission to Mars (Group 1A:31/17/07 11:53)
3. A Manned Mission to Mars (Group 1B:31/17/07 11:59)
4. A Manned Mission to Mars (Group 1C:01/17/07 12:03)
5. A Manned Mission to Mars (Group 2A:31/23/07 06:34)
6. A Manned Mission to Mars (Group 2B:31/23/07 06:39)
7. A Manned Mission to Mars (Group 2C:31/23/07 08:41)
8. A Manned Mission to Mars (Group 3A:01/23/07 06:43)
9. A Manned Mission to Mars (Group 3B:01/23/07 06:46)
10. A Manned Mission to Mars (Group 3C:01/23/07 08:20)
11. A Manned Mission to Mars (Group 4A:01/23/07 08:22)
12. A Manned Mission to Mars (Group 4B:1/23/07 08:54)
13. A Manned Mission to Mars (Group 4C:01/23/07 08:57)
15. A Manned Mission to Mars (Group 5B:01/23/07 12:14)
16. A Manned Mission to Mars (Group 5C:01/23/07 12:16)
17. A Manned Mission to Mars (Per 1/01/16/07 15:20)
18. A Manned Mission to Mars (Per 2/01/23/07 09:10)
19. A Manned Mission to Mars (Per 3/01/23/07 12:34)
20. A Manned Mission to Mars (Per 7/01/23/07 14:15)
21. An Important Choice (Group 1A:05/23/07 23:49)
22. An Important Choice (Group 1B:05/23/07 23:53)
23. An Important Choice (Group 1C:05/23/07 23:57)
25. An Important Choice (Group 2B:05/23/07 16:00)
26. An Important Choice (Group 2C:05/23/07 00:02)
27. An Important Choice (Group 3A:05/23/07 00:05)
28. An Important Choice (Group 3B:05/23/07 00:08)
29. An Important Choice (Group 3C:05/23/07 00:10)
30. An Important Choice (Group 4A:05/23/07 00:14)
31. An Important Choice (Group 4B:05/23/07 00:16)
32. An Important Choice (Group 4C:05/23/07 00:19)
33. An Important Choice (Group 5A:05/23/07 00:30)
34. An Important Choice (Group 5B:05/23/07 00:38)
35. An Important Choice (Group 5C:05/23/07 00:40)
36. A Train That Can Go Anywhere! (AIMS Practice Pilot Prompt) (Turley: 10/25/06 09:51)
37. A Trunk in the Attic (Period 1:02/05/05 17:59)
38. A Trunk in the Attic (Period 2:03/01/05 15:20)
39. A Trunk in the Attic (Period 3:03/15/05 15:43)
40. A Trunk in the Attic (Period 5:04/07/05 13:17)
41. A Trunk in the Attic (Period 6:03/14/05 18:43)
42. A Trunk in the Attic (Period 7:03/15/05 15:46)
43. Banning Books (Group 1A:01/17/07 11:54)
44. Banning Books (Group 1B:01/17/07 12:50)
45. Banning Books (Group 1C:01/17/07 12:04)
46. Banning Books (Group 2A:23/07 06:36)
47. Banning Books (Group 2B:23/07 06:36)
48. Banning Books (Group 2C:23/07 06:42)
49. Banning Books (Group 3A:23/07 06:44)
50. Banning Books (Group 3B:23/07 06:46)
51. Banning Books (Group 3C:23/07 06:50)
52. Banning Books (Group 4A:23/07 06:52)
53. Banning Books (Group 4B:23/07 06:54)
54. Banning Books (Group 4C:23/07 06:57)
55. Banning Books (Group 5A:23/07 12:11)
56. Banning Books (Group 5B:23/07 12:14)
57. Banning Books (Group 5C:23/07 12:16)
58. Banning Books (Per 1/01/23/07 06:29)
59. Banning Books (Per 2/01/23/07 09:11)
60. Banning Books (Per 3/01/23/07 12:35)
61. Banning Books (Per 7/01/23/07 14:18)
62. Cereal Brand (1st Period:12/13/05 17:09)
63. Cereal Brand (2nd Period:12/13/05 17:11)
64. Cereal Brand (5th Period:12/13/05 17:12)
65. Cereal Brand (6th Period:12/13/05 17:12)
66. Cereal Brand (7th Period:12/13/05 17:13)
67. Facing Your Fears (Group 1A:06/22/07 22:50)


10/3/2007
161. Recommending Good Entertainment (1st Period: 03/30/06 17:03)
162. Recommending Good Entertainment (2nd Period: 03/30/06 17:10)
163. Recommending Good Entertainment (5th Period: 03/30/06 17:10)
164. Recommending Good Entertainment (5th Hour: 03/28/06 17:11)
165. Recommending Good Entertainment (7th Period: 03/28/06 17:12)
166. To Change a Day in Your Life (Group 7A: 05/30/06 23:47)
167. To Change a Day in Your Life (Group 1B: 06/22/07 23:04)
168. To Change a Day in Your Life (Group 3C: 05/23/06 23:56)
169. To Change a Day in Your Life (Group 2A: 05/23/06 00:00)
170. To Change a Day in Your Life (Group 2B: 05/23/06 14:59)
171. To Change a Day in Your Life (Group 2C: 05/23/06 00:00)
172. To Change a Day in Your Life (Group 5A: 05/23/06 00:00)
173. To Change a Day in Your Life (Group 5B: 05/23/06 00:07)
174. To Change a Day in Your Life (Group 5C: 05/23/06 00:11)
175. To Change a Day in Your Life (Group 5D: 05/23/06 00:14)
176. To Change a Day in Your Life (Group 6A: 05/23/06 00:17)
177. To Change a Day in Your Life (Group 6B: 05/23/06 00:18)
178. To Change a Day in Your Life (Group 7A: 05/23/06 00:37)
179. To Change a Day in Your Life (Group 7B: 05/23/06 00:38)
180. To Change a Day in Your Life (Group 7C: 05/23/06 00:41)
181. Violence on Television (Period: 05/09/05 15:10)
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<td>76</td>
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<td>22:29</td>
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10/3/2007
| WEEKS MS | None | Group 7B | To Change a Day in Your Life (Group 7B) | 05/24/2007 14:33 | 2 | 2 | 4 | 4 | 3 | 3 | 3 | 4 | 4 |
| WEEKS MS | None | Group 7B | Facing Your Fears (Group 7B) | 05/25/2007 13:36 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 4 | 4 |
| WEEKS MS | None | Group 7C | Banishing Books (Group 7C) | 01/26/2007 13:31 | 1 | 1 | 3 | 3 | 3 | 3 | 3 | 2 | |
| WEEKS MS | None | Group 7C | Homelessness in America (Group 7C) | 02/01/2007 13:24 | 1 | 1 | 4 | 4 | 3 | 3 | 3 | 4 | 4 |
| WEEKS MS | None | Group 7C | Locker Policies (Group 7C) | 02/02/2007 14:18 | 3 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 |
| WEEKS MS | None | Group 7C | An Important Choice (Group 7C) | 05/24/2007 13:40 | 1 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| WEEKS MS | None | Group 7C | To Change a Day in Your Life (Group 7C) | 05/02/2007 13:59 | 2 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| WEEKS MS | None | Group 7C | Facing Your Fears (Group 7C) | 05/24/2007 16:14 | 2 | 2 | 4 | 3 | 3 | 3 | 3 | 3 | 3 |
| WEEKS MS | None | Per 1 | Learning From Experience (Per 1) | 05/15/2006 08:17 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| WEEKS MS | None | Per 1 | Favorite Person (Per 1) | 08/26/2006 09:23 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| WEEKS MS | None | Per 1 | Locker Policies (Per 1) | 03/31/2007 08:18 | 1 | 1 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| WEEKS MS | None | Per 1 | A Manned Mission to Mars (Per 1) | 02/01/2007 13:58 | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| WEEKS MS | None | Per 1 | How to Handle a Bully (Per 1) | 02/02/2007 15:11 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| WEEKS MS | None | Per 1 | Homelessness in America (Per 1) | 02/02/2007 17:17 | 6 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| WEEKS MS | None | Per 1 | Banishing Books (Per 1) | 02/22/2007 20:12 | 5 | 5 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| WEEKS MS | None | Per 2 | Favorable Person (Per 2) | 10/01/2006 18:32 | 14 | 14 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| WEEKS MS | None | Per 2 | Banishing Books (Per 2) | 02/06/2007 08:51 | 2 | 2 | 4 | 4 | 3 | 3 | 3 | 4 | 4 |
| WEEKS MS | None | Per 2 | Homelessness in America (Per 2) | 02/02/2007 08:52 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| WEEKS MS | None | Per 2 | How to Handle a Bully (Per 2) | 02/02/2007 08:14 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| WEEKS MS | None | Per 2 | A Manned Mission to Mars (Per 2) | 02/02/2007 18:59 | 6 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| WEEKS MS | None | Per 5 | Favorable Person (Per 5) | 08/26/2005 14:55 | 10 | 10 | 3 | 3 | 2 | 2 | 2 | 2 | 2 |
| WEEKS MS | None | Per 5 | Locker Policies (Per 5) | 03/01/2007 20:08 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| WEEKS MS | None | Per 5 | Banishing Books (Per 5) | 02/22/2007 11:56 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| WEEKS MS | None | Per 6 | A Manned Mission to Mars (Per 5) | 02/02/2007 12:00 | 5 | 5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| WEEKS MS | None | Per 5 | Homelessness in America (Per 5) | 02/02/2007 13:36 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 |
| WEEKS MS | None | Per 5 | How to Handle a Bully (Per 5) | 02/02/2007 13:45 | 9 | 9 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| WEEKS MS | None | Per 7 | Banishing Books (Per 7) | 01/10/2006 13:47 | 10 | 10 | 3 | 3 | 2 | 2 | 3 | 3 | 2 |
| WEEKS MS | None | Per 7 | A Manned Mission to Mars (Per 7) | 02/02/2007 13:36 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 |
| WEEKS MS | None | Per 7 | How to Handle a Bully (Per 7) | 02/02/2007 13:41 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| WEEKS MS | None | Per 7 | Homelessness in America (Per 7) | 02/02/2007 10:53 | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| WEEKS MS | None | Per 7 | Banishing Books (Per 7) | 02/02/2007 10:53 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

Total: 272 272 3 3 3 3 3 3 3

Note: If a student took different assessments, the 'Number of Students' column will double-count at above table.
Where did the initiative come from? Based on what data? Who was involved?
In the fall of 2002, members of the Davenport Schools administration, including the Development Supervisor, Director of Learning Services and representatives from our Technology Department, met with district curriculum coordinators in math, science and reading to determine focus area for the *Enhancing Education Through Technology* application. The decision was based on the district-wide focus on literacy and a series of data points, starting with the Iowa Tests of Basic Skills and confirmed by the Degrees of Reading Power. Data from the Iowa Tests of Basic Skills confirmed that in that year, as in previous years, our intermediate level reading proficiency was far below reading performance at elementary and high school levels.

<table>
<thead>
<tr>
<th>Level</th>
<th>High Performance 90th %tile or better</th>
<th>Intermediate 41- 89th % tile</th>
<th>Low 40th %tile or lower</th>
<th>% Proficient 41st %tile or better</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>12.9%</td>
<td>49.2%</td>
<td>38%</td>
<td>62%</td>
</tr>
<tr>
<td>Intermediate</td>
<td>8.5%</td>
<td>44.4%</td>
<td>47.1%</td>
<td>52.9%</td>
</tr>
<tr>
<td>High School</td>
<td>14.1%</td>
<td>51%</td>
<td>34.9%</td>
<td>65.1%</td>
</tr>
</tbody>
</table>

Though many local, state and federal resources had been dedicated at an elementary level to target that important age range, the district identified the intermediate schools as having crucial reading achievement needs as well, further evidenced by the Iowa Tests of Basic Skills scores disaggregated for each of our six intermediates and our intermediate program at our alternative school, the Kimberly Center for Alternative Education.
This represented an average of nearly 11% deviation from performance expectation. In addition, the district average of 47.1% of intermediate students below proficiency in Reading Comprehension by 8th grade and only 38% of 4th grade elementary students below proficiency, indicated that our students were falling incrementally behind in Reading Comprehension as they moved through the intermediate school level. Once Intermediate Reading was selected, the administration examined data from the Degrees of Reading Power assessment given in 6th grade compared to that given in the 9th grade. DRP scores confirmed that our students had fallen further behind over the previous years.

### Degrees of Reading Power – Needs Category

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<td>6th Grade</td>
<td>30.9%</td>
<td>26.7%</td>
<td>51.7%</td>
</tr>
<tr>
<td>9th Grade</td>
<td>29.6%</td>
<td>30.9%</td>
<td>44.1%</td>
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Finally, the Davenport Community Schools places a strong emphasis on reducing the achievement gap, especially the performance gap between Euro-American and African-American students. Achievement gap data confirms the need within any comprehensive academic approach to provide specialized intervention programs to address the needs of low achieving subgroups:

### Achievement Gap on the Degrees of Reading Power - % in Needs Category

<table>
<thead>
<tr>
<th>School</th>
<th>Euro-American % Needs</th>
<th>African-American % Needs</th>
<th>Achievement Gap</th>
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</thead>
<tbody>
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<td>57.6%</td>
<td>73.8%</td>
<td>16.2%</td>
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<tr>
<td>Sudlow</td>
<td>27.9%</td>
<td>68.3%</td>
<td>40.4%</td>
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<tr>
<td>Walcott</td>
<td>48.8%</td>
<td>80.8%</td>
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<tr>
<td>Williams</td>
<td>36.2%</td>
<td>79.0%</td>
<td>42.8%</td>
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<tr>
<td>Wood</td>
<td>45.2%</td>
<td>66.0%</td>
<td>20.8%</td>
</tr>
<tr>
<td>Young</td>
<td>44.3%</td>
<td>75.0%</td>
<td>30.7%</td>
</tr>
<tr>
<td>Kimberly Center</td>
<td>0.0%</td>
<td>80.0%</td>
<td>80.0%</td>
</tr>
<tr>
<td><strong>District Total</strong></td>
<td><strong>45.2%</strong></td>
<td><strong>73.9%</strong></td>
<td><strong>28.7%</strong></td>
</tr>
</tbody>
</table>

**How was the plan generated?**

Once Intermediate Reading was established as our primary need and area of focus, administration engaged in a dialogue with the Mississippi Bend Area Education Agency and other school districts in the region and determined the need to apply as a separate Urban Education Network member, with separate level and content dimensions on which to focus grant activity. Internal discussions with administration expanded to include the Director of Professional Development, the Language Arts Curriculum Coordinator for intermediate reading, district intermediate-level Reading Specialists and our intermediate Principals and included review of district standards and benchmarks and current and potential initiatives that enhance education through technology.

**How was the selection made to address the problem? Based on what SBR?**
These stakeholders adopted the Enhancing Education Through Technology Program Goals:
- To increase students’ reading proficiency as measured by ITBS
- To ensure all 8th grade students are technologically literate

To accomplish these goals, the district established a secondary reading initiative funded through Enhancing Education Through Technology (E2T2) that blended research-based reading instruction and technology integration in two new courses in six Davenport middle schools. These E2T2 initiative classes use technology integration and a blend of research-based practices for instruction including:

1. Vocabulary and Reading Comprehension Instruction
   **Definition:** Teachers use a variety of strategies to explicitly teach vocabulary and reading comprehension
   **Research:** “Computer vocabulary instruction [READ 180] shows possible learning gains over traditional methods. Vocabulary instruction leads to gains in comprehension. . . .” Report of the National Reading Panel, p. 4-4. “It is clear that vocabulary should be taught both directly and indirectly. Vocabulary instruction should be incorporated into reading instruction.” Report of the National Reading Panel, p. 4-24.

2. Guided Reading
   **Definition:** Students are grouped according to their reading instruction needs; they read materials at their reading level; they work in small groups with the teacher to learn strategies and skills that meet their reading needs.
   **Research:** “Text comprehension can be improved by instruction that helps readers use specific comprehension strategies.” (Put Reading First, p. 49 and Report of the National Reading Panel, p. 4-6) “Students can be taught to use comprehension strategies” (Put Reading First, p. 53) “Teachers need training to become effective in explaining what they are teaching and in modeling their own thinking processes for their students, which leads to improved student performance” (Report of the National Reading Panel, p. 4-8) “Six strategies which have a firm scientific basis for improving text comprehension include: monitoring comprehension, using graphic and semantic organizers, answering questions, generating questions, recognizing story structure, and summarizing.” (Put Reading First, pp. 49-53)

3. Shared Reading
   **Definition:** All students are in one group; students read grade level material; they are instructed in grade level skills and strategies.
   **Research:** “Text comprehension can be improved by instruction that helps readers use specific comprehension strategies.” (Put Reading First, p. 49 and Report of the National Reading Panel, p. 4-6) “Students can be taught to use comprehension strategies.” (Put Reading First, p. 53) explaining what they are teaching and in modeling their own thinking processes for their students, which leads to improved student “Teachers need training to become effective in performance.” (Report of the National Reading Panel, p. 4-8)

4. Teacher Read Aloud
**Definition:** Teacher carefully selects short piece of text to read aloud. The selection is chosen for a specific instructional purpose, and students listen carefully to comprehend the intended purpose/information.

**Research:** “Poor readers can be helped to read better if they are assisted to read material that they are incapable of reading by themselves.” (Eldredge & Quinn, 1988) “Six strategies which have firm scientific basis for improving text comprehension: monitoring comprehension, using graphic and semantic organizers, answering and generating questions, recognizing story structure, and summarizing.” (Put Reading First pp. 49-53)

**How was the plan implemented?**
The project included implementation of 6th Grade READ 180 and 7th and 8th Grade Reading Workshop courses. Technology integration and research-based reading instruction was implemented with participating students, as individuals, in small groups, or the whole class – depending upon the needs of students. These strategies included:

1. **Vocabulary Instruction:** In Sixth Grade READ 180, students work through structured vocabulary instruction on a daily basis as part of their computer rotation. This instruction focuses on vocabulary needed to comprehend the text passages they will also be reading. This is done individually. In Reading Workshop, teachers pre-teach vocabulary needed for the text that students will be reading. In addition, they also explicitly teach word parts (roots, suffix, prefix) three times a week. Their curriculum guide and regular meetings provide the support and resources needed for this work.

2. **Guided Reading:** Typically, this occurs daily for all students in Sixth Grade READ 180 classrooms for 20 minutes each. In Reading Workshop classrooms, at least one guided reading group meets daily for 20 minutes. Guided reading consists of: small groups, students read selections at their instructional level, students reading the selection independently, teacher monitoring and coaching as needed, teacher teaching skills and strategies as needed by individual or small groups of students.

3. **Shared Reading:** Typically, this occurs daily for all students in Sixth Grade READ 180 and Reading Workshop classrooms. Shared reading consists of: All students read same selection, selections are closer to grade level than the guided reading text, grade level skills are taught, reading strategies are modeled, and vocabulary development is incorporated. READ 180 materials provide teacher resources, and Reading Workshop teachers refer to curriculum guides and their own, individual planning.

4. **Teacher Read Aloud:** Typically, this is part of both Sixth Grade READ 180 and Reading Workshop classes daily. Teacher read alouds are designed to provide a hook to a lesson or to promote enjoyment of reading. Benefits include: modeling fluency, increasing vocabulary, providing exposure to different text structures, encouraging independent reading, deepening content understanding, providing background knowledge, making connections to text, providing vicarious experiences, and whetting student appetite for information. Read Aloud selections should be carefully selected and the purpose clearly identified. Teacher will complete these steps: introduction, activation of students’ listening comprehension, reading of the passage, eliciting responses from students.
Project activities included teacher training, curriculum writing, collaborative planning and practice. Professional development was ongoing and addressed the needs of various audiences:

- Board, Administration and Building Leadership
- Technology Overview
- Scholastic Red Overview
- Concerns Based Adoption Model (CBAM) Overview
- Curriculum Leadership (Curriculum Contact, Reading and Media Specialists)
- Curriculum Development
- CBAM, innovation configurations

Facilitators
- CBAM, one-legged interviews
- Scholastic Red
- Ongoing training on strategies, Teacher Strategy surveying, study of Implementation and classroom observation
- Data analysis, model replication district-wide vs. building specific

Teachers
- CBAM subjects to guide professional development
- Scholastic Red (integrated teams math, social studies, science) and surveying (all)
- Read 180 (reading teachers)

In addition to training, the district leadership team and participating teachers received technical assistance on the initial implementation of the Concerns Based Adoption Model (CBAM) to guide effective professional development activities. The Davenport E2T2 program was founded on the concept of the correlation between teacher support and successful implementation. The CBAM process is based on assessing and addressing individual teachers Stages of Concern (SOC) to guide professional development, teacher support and implementation expectations. Building level Facilitators served as contact and support for teachers, supported by district-level project management team. CBAM included “one-legged interviews” conducted by Facilitators who followed up on any emerging issues that may have impacted implementation. Additional teacher support included opportunities for collaborative planning and practice at a building level and broad based Technology Support from our Learning Information Services. This department was “on call” for teachers during implementation to mitigate initial integration problems, including “remote access” to teachers’ computers for service delivery and guidance, electronic surveying for CBAM integrated into database application for SOC analysis and “screen shot” tutorials for teachers on use of strategy surveys. The CBAM Innovation Configuration was used as an observational rubric to assess teacher fidelity of implementation. Rubrics were developed in each of the content strategies to determine ideal implementation and for use as a guide for classroom observations. The CBAM Stages of Concern Analysis included an online survey and database analysis for each participant to guide Professional Development. Follow up “one-legged interviews” by Facilitators and classroom observations provided additional information on fidelity of implementation.

Our Scholastic Red provider also showed teachers support with year-end celebrations for participating teachers with preliminary results, sharing time and give-aways. Other instructional support included purchase of materials, computers, and software resulting in technology
integration in program classrooms. Ongoing technical support was provided through the district Learning Information Services and Scholastic Technology Support staff. In-district trainers and facilitators provided building-level support and monitoring of implementation to support sustainability. A district leadership team provided grants management and both formative and summative internal evaluation. External evaluation, in partnership with Iowa State University and the Iowa Department of Education, validated program activities, outcomes and internal evaluation.

All E2T2/ESETP programming and activities fostered community and parental involvement as a critical component in efforts to meet the unique needs of participating students. Informational brochures, video aids, and other materials were used with parents of participating students to provide information and engagement. Additionally, Davenport Community Schools media specialists prepared and distributed summer reading lists for participating students. These lists helped the students and their parents find enjoyable books for their children during summer months. Technology integration was presented at open houses and discussed at Parent-Teacher conferences. Additionally, the READ 180 program provided Parent Reports that documented student achievement and celebrated learning gains.

Davenport’s E2T2/ESETP program participation included:

<table>
<thead>
<tr>
<th>Student participants</th>
<th>03-04</th>
<th>04-05</th>
<th>05-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>READ 180</td>
<td>297</td>
<td>237</td>
<td>252</td>
</tr>
<tr>
<td>Reading Workshop</td>
<td>222</td>
<td>254</td>
<td>415</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teacher Participants</th>
<th>03-04</th>
<th>04-05</th>
<th>05-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Facilitators</td>
<td>5</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>READ 180</td>
<td>8</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Reading Workshop</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Literacy Cadres</td>
<td>31</td>
<td>38</td>
<td>30</td>
</tr>
</tbody>
</table>

The ESETP funding provided support for these participants and was specifically used for technology integration in assessment, assessment scoring and classroom observation to support the E2T2 project activities. Video-conferencing units were integrated into participating classrooms in the six intermediate schools, creating a live link between classroom teachers and instructional specialists to allow observation and modeling. Computers were purchased for classroom and lab implementation of the READ 180/Scholastic Reading Inventory software for monitoring student progress.
What data collection and analysis were used?
Internal evaluation was based on study of implementation and data analysis. Teacher implementation was evaluated through the CBAM Stages of Concern survey administered in October and April of each year. Teacher completion of Scholastic Red course work was examined and topped 95%, prompting a call from the provider with praise for teacher interest. Results from the ongoing Teacher Strategy Surveying by the state and classroom observations assessed fidelity of implementation based on the rubric provided by the Innovation Configuration. Data analysis of student achievement was based on Course Grades for Reading Workshop and READ 180, the ITBS administered in February and the Scholastic Reading Inventory. ITBS Reading Comprehension subtests were disaggregated by subgroups included percentile ranking, but also, based on input from the Iowa Department of Education, included National Scale Scores (NSS). Use of NSS gives a more accurate evaluation of student progress. This ground breaking work on use of NSS in the district laid a foundation for the Davenport Community Schools to pilot this process under its District In Need of Assistance Growth Model with the Iowa Department of Education.

What were the conclusions and meaning?
The three year project demonstrated that READ 180 and Reading Workshop dramatically increased student achievement culminating in the third year of the project. These gains should be considered even more compelling because the participating students are among the district’s most academically challenged, scoring between 25th – 45th percentile on ITBS Reading Comprehension. Over 15% of participants also had learning disabilities severe enough to qualify for special education services. Even with these challenges, participating students thrived in these classes:

- All READ 180 participants not only increased in proficiency but also outpaced non-participants in annual growth on National Scale Scores on the Iowa Tests of Basic Skills (ITBS) Reading Comprehension subtest.
- All 7th grade Reading Workshop participants also increased in proficiency with participants in two of the six buildings outpacing non-participant peers on National Scale Scores on ITBS Reading Comprehension.
- All 8th grade Reading Workshop participants not only increased in proficiency but also outpaced non-participants in annual growth where sample size was large enough to be meaningful on National Scale Scores on ITBS Reading Comprehension.
- Of sixth grade READ 180 and 7th and 8th grade Reading Workshop participants, 20.7% previously in the “needs” category moved to the “meets” category on ITBS Reading Comprehension subtest.
- These overall gains not only increased student achievement of an academically challenged population, but also resulted in a dramatic decrease in the district’s achievement gap:

In the following chart based on the culminating year of the project, yellow indicates where participants increased in proficiency, while green indicates where participants not only
progressed, but actually outpaced non-participant peers. The data demonstrate that program participants not only outpaced non-participants in the majority of classes, but also that achievement gains by participants in minority ethnic groups outpaced gains by majority participants.

<table>
<thead>
<tr>
<th>Reading Comprehension NSS Average Gains 2006 vs 2005</th>
<th>05-06 GR</th>
<th>E2T2 Reading Program</th>
<th>Count</th>
<th>Average</th>
<th>Count</th>
<th>Average</th>
<th>Count</th>
<th>Average</th>
<th>Count</th>
<th>Average</th>
<th>Total Count</th>
<th>Total Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>READ 180</td>
<td>Non-Participants</td>
<td>7</td>
<td>16.7</td>
<td>70</td>
<td>12.4</td>
<td>15</td>
<td>10.8</td>
<td>108</td>
<td>8.2</td>
<td>200</td>
<td>10.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>34</td>
<td>13.2</td>
<td></td>
<td>196</td>
<td>2.3</td>
<td>86</td>
<td>0.8</td>
<td>601</td>
<td>5.4</td>
<td>917</td>
<td>4.6</td>
</tr>
<tr>
<td>6 Total</td>
<td>41</td>
<td>13.8</td>
<td>266</td>
<td>5.2</td>
<td>101</td>
<td>2.2</td>
<td>709</td>
<td>5.9</td>
<td>1117</td>
<td>5.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Reading Workshop</td>
<td>Non-Participants</td>
<td>4</td>
<td>20.3</td>
<td>51</td>
<td>14.1</td>
<td>17</td>
<td>16.6</td>
<td>113</td>
<td>11.3</td>
<td>185</td>
<td>12.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>32</td>
<td>11.0</td>
<td></td>
<td>183</td>
<td>12.1</td>
<td>78</td>
<td>17.2</td>
<td>693</td>
<td>13.9</td>
<td>986</td>
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</tr>
<tr>
<td>7 Total</td>
<td>36</td>
<td>11.8</td>
<td>234</td>
<td>12.5</td>
<td>95</td>
<td>16.8</td>
<td>806</td>
<td>13.5</td>
<td>1171</td>
<td>13.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Reading Workshop</td>
<td>Non-Participants</td>
<td>3</td>
<td>16.7</td>
<td>87</td>
<td>10.5</td>
<td>13</td>
<td>17.9</td>
<td>124</td>
<td>14.6</td>
<td>227</td>
<td>13.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>34</td>
<td>13.4</td>
<td></td>
<td>133</td>
<td>12.3</td>
<td>79</td>
<td>8.4</td>
<td>711</td>
<td>10.6</td>
<td>957</td>
<td>10.7</td>
</tr>
<tr>
<td>8 Total</td>
<td>37</td>
<td>13.7</td>
<td>220</td>
<td>11.3</td>
<td>92</td>
<td>9.7</td>
<td>835</td>
<td>11.1</td>
<td>1184</td>
<td>11.1</td>
<td></td>
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<tr>
<td>Grand Total</td>
<td>114</td>
<td>13.1</td>
<td>720</td>
<td>9.5</td>
<td>288</td>
<td>9.5</td>
<td>2350</td>
<td>10.3</td>
<td>3472</td>
<td>10.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Davenport E2T2 project demonstrated the effectiveness of technology integration in reading instruction to reach and motivate secondary at-risk learners. The teachers and leadership team learned a great deal about fidelity of program implementation and its impact on individual achievement. Observations can be categorized as Support, Leadership, Implementation and Assessment:

- **Support**: Scope of implementation required a designated district technician for READ 180, beyond the technical support available from software provider; district and building recognition and support of reduced class size for both programs was critical.
- **Leadership**: Three tiers of leadership were critical in assuring success: 1) Initial implementation was greatly supported by a paid grant manager who supervised and provided troubleshooting in the early phases of the grant. 2) Kathleen Learn, Secondary Reading Specialist, provided a focus on best practice and enforced implementation with fidelity. 3) Building instructional facilitators provided ongoing staff development and program support at the building level.
- **Implementation**: Appropriate student selection/assignment was critical as annual analysis of internal data revealed that students in the upper end of “bubble” did not experience the gains of the more academically challenged students; the development and continued use of innovation configurations provided a measurable framework implementation with fidelity.
• *Assessment:* We found that use of National Scale Scores (NSS) to be very helpful in actually assessing the degree of progress in student achievement. Continued disaggregating at the student level and longitudinal data will continue to reinforce and refine the secondary reading model and district-wide in a Growth Model pilot program with the Iowa Department of Education.
Why We Did This Project:

Where the Initiative Came From, Who Determined Project, Based on What Data

In 2003-04, the E2T2 Northwest Iowa Collaborative was formed and consisted of 87 school districts located within the boundaries of four AEAs in Northwest Iowa. Since then, the AEAs have merged and are currently known as Prairie Lakes AEA 8 and Northwest Iowa AEA. The Sioux City CSD also elected to be part of the collaborative and so their three urban middle schools joined the initiative. How Project Was Determined: In determining whether to address math, reading, or science, data was collected from all school districts within the AEAs. Reading, at all levels, demonstrated the greatest need in terms of low student proficiency as determined by ITBS tests. In a series of meetings with district superintendents, AEAs, and advisory groups, it was decided to address the need at the middle school level. In Iowa, a strong Every Child Reads and Reading First initiative was being implemented at the elementary level, and it seemed appropriate to move to the next level. The target population was middle school students, grades 5th-8th, dependent upon the schools’ middle level configurations. At that time, not knowing if additional funding would be secure, all districts who elected to participate were required to join for the three years of the funding. 29 of the 87 districts chose to participate in the first year with additional districts joining in Year 2 and Year 3 as funding was extended for an additional three years. In all, 51 districts have participated for a minimum of three years and 38 of these districts will continue to participate through the 2007-08 and 2008-09 school years. Of these 38 districts, all will have participated from four to six years.

The data used to determine need was as follows:

2001-2002 8th Grade ITBS Reading Data for AEAs 3, 4, 5, and 12

<table>
<thead>
<tr>
<th></th>
<th>AEA 3</th>
<th></th>
<th>AEA 4</th>
<th></th>
<th>AEA 5</th>
<th></th>
<th>AEA 12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>I</td>
<td>H</td>
<td>L</td>
<td>I</td>
<td>H</td>
<td>L</td>
</tr>
<tr>
<td>All 8th</td>
<td>31.5</td>
<td>12.5</td>
<td>56.0</td>
<td>24.3</td>
<td>17.9</td>
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</tr>
<tr>
<td>Male</td>
<td>33.8</td>
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<td>Female</td>
<td>26.7</td>
<td>12.2</td>
<td>61.1</td>
<td>19.7</td>
<td>18.0</td>
<td>62.2</td>
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</tr>
<tr>
<td>SES</td>
<td>45.1</td>
<td>5.9</td>
<td>49.0</td>
<td>39.4</td>
<td>7.4</td>
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<tr>
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<td>25.1</td>
<td>6.1</td>
<td>68.8</td>
<td>20.8</td>
<td>20.4</td>
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<tr>
<td>IEPs</td>
<td>79.7</td>
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<td>82.8</td>
<td>17.2</td>
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<td>12.8</td>
<td>66.4</td>
<td>19.4</td>
<td>19.4</td>
<td>61.1</td>
<td>21.2</td>
</tr>
</tbody>
</table>

Overall, within the AEAs, the aggregated district reading data in 2000-01 as reported in their APR’s showed 30.3% of students scoring in the low proficiency level, 55.4% in the intermediate level, and 14.3% in the high performance
level. In Sioux City, the data was more dismal. In the three middle schools, the average proficiency was 54% with 46% reading below proficiency. Sioux City Middle Schools are represented in the AEA 12 data, which had the lowest proficiency levels in all of the AEAs. Other areas of concern were the growing number of gaps and low academic performances in reading among SES, gender, ELL/Minority, and Special Needs students, increase in middle level students lacking motivation to read and/or ability to read informational text, and middle level staff not prepared in teaching reading comprehension strategies with reading teachers being the least prepared.

**Project Goals and Interventions, and SBRR Used Throughout Project with Specific Activities, Assessment, and Evaluation**

Goals and interventions were determined through a series of meetings with district and AEA advisory groups and directors. In applying for the funding, the Iowa Department of Education, specifically John O’Connell, provided strong leadership and guidance, meeting with the directors as goals and interventions were being written. The final grant was read at the Iowa DE and all parts were approved before delivery began. SBRR, professional development, technology and other components required specific approval from other DE divisions. The results are as follows

**Overall Academic-Technology Goal:** To provide exemplary, sustained professional development and continuous support for middle level reading/language arts, resource/Special Needs teachers, and media/librarians through the learning and application of scientific, research-based reading strategies with supportive appropriate technologies that result in the development of an improved curriculum and continuous improvement in the proficiency level of middle level 5th-8th grade students in reading. In addition, as five districts wished to make this a school-wide initiative continuous training and support has been provided to the three Sioux City middle schools, Spirit Lake, Spencer, Okoboji, and Odebolt-Arthur. These schools had to agree to all teachers participating as appropriate in all interventions with a minimum of 40 hours of professional development a year.

**Academic and Technology Program Interventions**

- **Intervention 1: Multiple Assessment Strategies in Reading**—ITBS and ICAMs; Vocabulary Logs, Read Aloud Logs, QAR Logs, ISU Logs, Polycom Use Logs, Principal Walk-throughs, Observation Rubric
- **Intervention 2: Scientific Research-based Reading Strategies for Middle Level Learners:** Read Aloud, Think Alouds, QAR, Vocabulary, Lexiled Text, Flexible Grouping, Graphic Organizers
- **Intervention 3. Integration of Technology Strategies Based on Research and Best Practices and Aligned to Reading Strategies:** AEA Online Databases, Video-conferencing, Multi-media Projectors, Inspiration Software.
- **Intervention 4: Internal/External Learning Teams Using Prepared Unit Materials and Aligned With Peer Coaching:** Non-fiction units based on Enduring Understandings and Essential Questions embedded with technology use
- **Intervention 5: Sustained Professional Development and Support:** Minimum of 40 hours annually following the Iowa Professional Development Model
- **Intervention 6: Program Evaluation:** Compilation of ISU data, ITBS Data, Exit Questionnaires, Satisfaction Data

**Delivery of Interventions:** Workshops were conducted by trained AEA reading strategists four times during the school year with an additional two days during the summer. Workshops supported SBRR strategies through research, theory, practice, demonstration and modeling. All language arts/resource teachers were asked to teach two units each year. The units were developed and provided by E2T2 facilitators. These units were developed on one Enduring Understanding and were divided into four separate content areas for 5th-8th grade classrooms. Those developed included: (1) **Rights** (Human, Diversity, Children’s, Immigrant,), (2) **Character** (Grit and Determination, Resolve and Resourcefulness, Courage, Heroism), (3) **Stewardship** (Animals, Air, Water, Land) or **Family** (Friendship, Family, Personal Challenges, Obstacles) and another on **Issues** (Bullying, School Violence, Tolerance, Permissive Behavioral). These units consisted of lexiled EBSCO articles taken from AEA Online as well as books for struggling readers. (Note: AEA Online was purchased by the AEAs for all school children and families in Iowa. This unique database includes access to EBSCO, SIRS, Multi-media Archives, Clip-ART, Atomic Learning, World Book Online, DE Streaming and AccuWeather. EBSCO has been a strong resource for this
initiative in that to provide current and motivating non-fiction in terms of books for leveled materials would have been cost prohibitive.) Each unit, then, was built on Enduring Understandings and Essential Questions put on posters for each teacher’s room. Accompanying the unit was a power point, vocabulary, read alouds, QAR lessons, and assessments. The purpose of the units was to demonstrate to teachers ways units could be developed that supported each student’s reading level with lexiled materials. That everyone reading the same book or the same basal would not get them the results they wanted—all students being able to read proficiently. By giving them units already made, they then had the time they needed to target their teaching to the strategies. The third year each teacher made their own unit and they continue to add units each year. 6+ Traits strategies are also taught to support the reading-writing connection. In Sioux City, the entire 6th-8th grade curriculum is currently being rewritten based on leveled units using the E2T2 unit format and supported by lexiled articles and books. Based on district standards and benchmarks, the units also meet rigor and relevance standards of model core curriculum.

In addition, summer courses continue to be provided at no cost each summer for both participants and other classroom teachers in the districts. These courses provide direct instruction in SBRR strategies and in supportive technologies. Additional strategies are also taught including how to use the BRI data and Word Journeys. Courses taught on use of multi-media projectors, video streaming, power points, and Inspiration became more popular each year as teachers determined these technologies supported improvement in reading. By year four, 100 more video projectors were purchased due to teacher requests and flash drives are being provided for teachers, as many districts cannot support the video streaming bandwidth needs during the school day.

In the school-wide initiatives, most language arts and resource teachers attended the workshops as well as the school-wide training enabling them to help staff in their schools through demonstration and practice. All school-wide training had to agree to a minimum of 40 hours each year for professional development and all staff were required to turn in the same logs, be open for walk-throughs and observations, and complete all activities designed by E2T2 and the building reading leadership teams. Thus far, over 650 teachers and administrators have participated in the initiative for three to six years.

Additional Support for All Schools: Northwest Iowa E2T2 website. During the first two years, E2T2 provided all the units and supporting materials. In Year 3, teachers began developing their own units including accompanying power points, posters, enduring understandings, lists of lexiled articles, and the like. The school-wide initiatives also required for extensive research to be completed on topics in all content areas. For example, Sioux City middle schools purchased and began implementing a 6th-8th grade National Geographic inquiry-based science program. They requested lexiled articles to accompany each of the units. Hundreds of articles were found. Because of the science, social studies, math, art, music, industrial technology and other teacher requests, researchers were hired to support the teachers’ need for lexiled materials. In order to sustain this initiative beyond funding, a website was developed that captures all of the units, materials, power points, posters, and articles requested. Video streaming aligned with units will shortly be added. This website can be found at www.nwia-e2t2.k12.ia.us. It is a unique, user-friendly site and easily connects teachers to their needs. Instead of having to spend hours researching for articles on EBSCO, they can simply find what has already been requested and download and print. If they don’t find what they need, they can email the researcher who will fill their requests in a short turn about time. The website continues to grow daily and truly supports meeting individual’s reading needs on all topics providing students with prior knowledge or extending and expanding the material being learned. In addition, all classrooms can support reading---not just language arts rooms.

SBRR Used to Implement all Reading Strategies, Activities Aligned with SBRR, and Assessment & Evaluation Strategies Used Throughout E2T2 Initiative
<table>
<thead>
<tr>
<th>E2T2 SBRR Reading Strategies</th>
<th>SBRR Scientific-based Reading Research (NRP-National Reading Panel)</th>
<th>Instructional Materials and Technology Used</th>
<th>Technology, Assessment &amp; Evaluation Strategies to Support Reading Improvement</th>
</tr>
</thead>
</table>
NRP Franklin, M.R., Roacy, P.B., & Clary, E., Jr. (1992) Overcoming the reading comprehension barriers of expository texts. *Educational Research Quarterly*, 16 (1), 5-14. | Non-fiction Read Alouds, Think Alouds and Talk Alouds were Demonstrated, Modeled and Practiced during workshops. These strategies were aligned with units and materials provided. Multi-media projectors used for demonstration and practice. | Iowa State On-line Logs Conducted by Teachers on a Monthly Basis  
Observation Rubric by facilitator using Polycoms and in-classroom sites for observation.  
Teacher Read, Think, and Talk Aloud Logs evaluated with student samples required.  
Summary report on logs to participating staff and to Principal Advisory Committee  
Principal Walk-Throughs Using Palms (See Below) |
NRP Sinatra, R.C. Stahl-Gemake, J., & Berg, D.N. (1984). Improving reading comprehension of disabled readers | Specific graphic organizers aligned with unit material text structures were provided with each unit and correlated with the text structure of the EBSCO articles and/or leveled text and books provided to the teachers.  
Teachers were provided with Inspiration software, training in the software and construction of appropriate graphic organizers and appropriate use of organizers. Computers were provided to each building dependent on number of teachers and grade levels (one to three computers) as | |
| **Year 2 Talk Aloud-**      |                                                                 |                                                                                                             | |
Observation Rubric and observations conducted by facilitators using Polycoms  
In Year 4, all principals were provided Palms and MediaX software. We developed two programs for use: one exactly aligned with E2T2 SBRR reading strategies and one aligned with Iowa Teacher Standards and embedded with E2T2 strategies in Iowa Teacher Standards 1-4.  
All principals were offered Walk Through training and/or in-house support and required to do monthly walk-throughs to determine both amount of | |
NRP Sinatra, R.C. Stahl-Gemake, J., & Berg, D.N. (1984). Improving reading comprehension of disabled readers | Specific graphic organizers aligned with unit material text structures were provided with each unit and correlated with the text structure of the EBSCO articles and/or leveled text and books provided to the teachers.  
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All principals were offered Walk Through training and/or in-house support and required to do monthly walk-throughs to determine both amount of |


well as Office software to ensure all teachers could receive any materials and organizers sent online.

and fidelity of implementation of SBRR strategies.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Jamestown Materials and BRI materials were provided and taught in fall workshops and school-wide training. Leveled non-fiction texts, Reader’s Theater scripts, poetry and other fluency materials were developed and teachers trained in using them with the units provided.</td>
<td>BRI used in multiple schools and data collected by teachers and buildings. Data reviewed by E2T2 facilitators and building leadership teams.</td>
</tr>
<tr>
<td>Jamestown materials were provided in Year 4 due to not enough work being conducted in explicit fluency instruction. SiouxCity middle schools Reading Academy students, those students below the 40th percentile, were not receiving fluency instruction and were infrequently reading text at their own level. Other schools wished to support fluency instruction so training was provided at the workshops, in buildings, and through summer school. Data collection on fluency to be collected in 2007-08 and beyond.</td>
<td>Principal Walk-throughs and Palm data supports monitoring of fluency integration and instruction.</td>
</tr>
<tr>
<td>NRP Beck, I.L., Perfetti, C.A., &amp; McKeown, M.G. (1982). Effects of long term vocabulary instruction on lexical</td>
<td>Vocabulary was integrated into all E2T2 non-fiction units and was required for all staff in school-wide initiatives. All participants were trained extensively in vocabulary strategies with theory,</td>
</tr>
<tr>
<td>Iowa State Monthly On-Line Log</td>
<td>Observation Rubric used to conduct polycom observations and in-classroom observations</td>
</tr>
<tr>
<td>ITBS</td>
<td></td>
</tr>
</tbody>
</table>
Comprehension Strategies:

1. Flexible Grouping- Year 1
2. Summary-Year I
3. Question and Answer Relationship (QAR)- Year 3
4. Multiple Strategy Instruction -Year 1
5. Text Structure- Year 1


| Teacher logs with supporting student examples. Logs reviewed by facilitators, data gathered, and reported to all teachers in workshop and/or school-wide. Principal Walk-Throughs to determine amount and fidelity of implementation. Extensive data was and continues to be collected. Data indicated in school-wide initiatives 82% implementation in all classrooms. 88% implementation by workshop participants. We continue to routinely collect it to ensure that it will continue to be implemented. Research suggests it takes 5-7 years to change practice. That is why we do not let down on any data collection. |

Teacher logs: QAR with data disaggregated and reported to teachers and Principal Advisory Board. Principal Walk-throughs using Palms


In school-wide initiatives, all staff in Year 1 and beyond were required to: 1. Use vocabulary strategies, 2. Motivate students to read by reading out loud at least once a week, 3. Use lexiled articles or units for 150 minutes a week (team total) 4. Lexile all of their classes so as to determine the reading level of materials being used or being requested.
What Were The Results of This Project:

Data Collection and Analysis: Data collection has been extensive including both formative and summative data. The following summarizes data collected including the type of data, desired outcomes, and findings. From the findings we were and continue to be able to continuously modify and improve our practices.

1. E2T2 Exit Questionnaire (April 2006 and 2007 To Be Continued Through 2009): Process: Schools who elected to enter E2T2 beginning in 03-04 and/or 04-05 were asked to fill out a questionnaire based on the following:

- 4-indicated a high degree of expertise;
- 3-indicated becoming an expert;
- 2-indicated a novice;
- 1-indicated not using the strategy, skill or practice.

The data included analysis of skills in using the Read Alouds, Explicit Vocabulary Instruction; Students Reading at Instructional/Independent Level; Fluency, Writing, Talk Alouds, Graphic Organizers, Think Alouds, QAR, Flexible Grouping; Leveled Informational Text; Enduring Understandings and the impact of the E2T2 Initiative. Additional Questions asked for the teacher’s opinion on the E2T2 experience as well as suggestions for Improvement.

Outcome: To determine teacher implementation of strategies; understanding of strategies; ability to use strategies.

Overview of Results: 101 teachers reported a high decree of or becoming an expert in the following areas:

1. Read aloud: 70.9%
2. Explicit vocabulary instruction: 96.9%
3. Students reading at instructional level: 8.9%
4. Fluency: 59.3%
5. Writing: 67.8%
6. Talk Aloud: 58.5%
7. Graphic Organizers: 89.2%
8. Think Alouds: 59.6%
9. QAR: 78.2%
10. Flexible Grouping: 79.6%
11. Leveled Informational Text: 66.9%
12. Enduring Understandings: 50.6%

The strategies not explicitly taught as of yet include writing, talk alouds, and think alouds. Although introduced, teachers have not yet reported out on these using cycle logs. Teachers have reported out on vocabulary for three and/or four years and read alouds for two to three years. Teachers have reported out on the QAR during one/two cycles. All nonfiction units provided for the staff required use of graphic organizers, informational text, enduring understandings and flexible grouping. Teachers only wrote enduring understandings themselves their third year.

Finding Number 1: Those strategies that were monitored through cycle logs showed the greatest expertise and understanding by the teachers. The strategy monitored the longest---vocabulary---showed the greatest expertise. Monitoring is key to implementation.

2. Teacher Satisfaction Surveys (03-04, 04-05, 05-06, 06-07 Process: At each workshop training, teachers were asked to determine their understanding of the strategy and any needs for further understanding or support. As teachers entered at various years, the data analyzed demonstrates their understanding and ability during that time.

Desired Outcome: To continuously improve teachers’ workshop professional development; to determine needs of staff attending the workshop at their location, and to tailor future workshops to their needs.

Overview of Results of Teacher Satisfaction Surveys: Compiled. Each set represent schools entering in 03-04, 04-05, 05-06, and 06-07

<table>
<thead>
<tr>
<th>Average Satisfaction</th>
<th>03-04 (54 Teachers Reporting)</th>
<th>04-05 (96 Teachers Reporting)</th>
<th>05-06 (37 Teachers Reporting)</th>
<th>06-07 (59 Teachers Reporting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand strategy demonstrated</td>
<td>100%</td>
<td>99.7%</td>
<td>98.5%</td>
<td>96.7%</td>
</tr>
<tr>
<td>Understand implementation cycle for voc, read aloud, student read alouds</td>
<td>100%</td>
<td>99.6%</td>
<td>95.1%</td>
<td>92.5%</td>
</tr>
<tr>
<td>Implement strategies for student</td>
<td>96.3%</td>
<td>98.4%</td>
<td>94.4%</td>
<td>94.8%</td>
</tr>
<tr>
<td>Use Units</td>
<td>96.3%</td>
<td>93.7%</td>
<td>93.0%</td>
<td>96.9%</td>
</tr>
<tr>
<td>Ready to Implement</td>
<td>58.2%</td>
<td>73.6%</td>
<td>79.8%</td>
<td>76.5%</td>
</tr>
</tbody>
</table>
**FINDING 2:** Each year more monitoring was added. Monitoring produces results both in satisfaction and in the work being accomplished.

3. Cycle Logs, Real Aloud Analysis Matrix and Advanced Study of Implementation of Non-fiction Read Alouds, Vocabulary and QAR of 03-04, 04-05, and 05-06 teachers (288 teachers) at multiple sites in fall and spring of 2005-06 and multiple sites throughout 2006-07. **Process:** Between each workshop (four (4) annually during the year, teachers were asked to provide specific implementation data accompanied by examples of student work. Data was collected through cycle logs---teacher proof of implementation plus student work. Data is provided on teachers from multiple sites and from teachers entering the E2T2 program in multiple years. Data being reported was analyzed on read aloud cycles, vocabulary cycles and QAR cycles. Read alouds were analyzed for fidelity of implementation on activating listening comprehension questions, student application, and peer coaching. **Outcome:** Data analyzed for fidelity of implementation and for degree of implementation.

**Overview of Results:**
Implementation Vocabulary Cycle 03-04 and 04-05 participants in from October to November 2005; 03-06 participants from October to November 2006, and 03-07 participants from October to November 2007:

a. 40 of 49 districts turned in cycle logs with 88% participation.  
b. 94% used a student friendly definitions.  
c. Of the 810 words taught, 780 words used a non-linguistic representation, 586 words used a sentence completion, 567 used concept development as a strategy to learn the words, and 589 words were taught using relationship among words.  
d. The percent of accuracy for the 405 words taught was 93%.

**Finding 3:** There was a good balance of strategies used in teaching vocabulary words. By continuing to use implementation cycles in both workshops and school-wide initiatives, teachers are now teaching vocabulary explicitly and with fidelity. Monitoring will continue to occur during the next two years with three cycles annually in all school-wide initiatives. The cycles require logs in vocabulary, QAR, time spent in use of lexiled materials, and time spent reading out loud. In workshops, cycles will include vocabulary, QAR, 6+ Traits, and use of lexiled materials.

**Additional Data Collected:**

Read Aloud Matrix with QAR for 13 Staff in Fort Dodge site in March 2006 with logs completed by teachers from November to February.

a. 24 logs were reviewed with 11 of 13 turning in logs. 
b. For the listening comprehension activating question; 11 were Think and Search Questions; 2 were On My Own; 7 were Author and Me, and 4 were Right There prompts. c. 18 of the 24 addressed the enduring understanding in their read aloud.  
d. 22 of 24 checked for understanding e. 22 of 24 addressed a student activity following the read aloud. f. 24/25 included an introduction. g. 12/24 included an OMO questions. h. Student applications included: discussion, graphic organizers, additional reading, journaling/writing.

**Finding 4:** Students need to conduct their own read alouds. Teachers need to focus read alouds around an enduring understanding. Staff development needs to focus a read aloud around an enduring understanding; demonstrate limiting the ALC to one question either being a Think and Search or Author and Me. Teachers need to complete more read aloud/QAR cycles and practice more both with the units and throughout their classes.

**Implementation Read Aloud Cycle With QAR 04-05 participants in March 2006:**

a. 100% of implementation with 100% participation  
b. 67% of logs used an activating listening comprehension prompt that required student to use critical thinking skills  
c. 87% of logs had a student application that required students to read on their own or respond to the text  
d. The majority of logs demonstrated that instruction was connected in all moves of the read aloud. 

**Finding 5:** Identified needs included: (1) Teachers to model and practice read alouds using author and me or think and search activating listening comprehension prompts. (2) Teachers to model student application so students continue to read at their instructional level. (3) We should provide support for participants to include read alouds in all content areas. (4) Districts need to continue implementation cycles in their districts and continue to collect data on read aloud implementation.
Advance Study of Implementation of Non-Fiction Read Alouds with QAR for 77 Teachers from November to February 2006.

a. Total number of logs 167.
   b. 100% participation.
   c. 79% addressed enduring understandings.
   d. 87% had student applications.
   e. 28% had demonstrations.
   f. 49% used Author and Me Prompt.
   g. 18% used Think and Search Prompt.
   h. 19% used Right There Prompt

Finding 6: Encourage Teachers to Use prompts other than Right There and to utilize On My Own prompts.

Reflections of Implementation of Conceptual Unit Instruction 2005-06 Group: New E2T2 Teachers. This data describes how the students felt when introduced to the nonfiction E2T2 rights units; how easy or difficult they found it; strategies used by teachers to group students into lexile levels; use of enduring understandings; use, success and difficulty of read alouds with student response; how writing was utilized; and support and materials needed for next unit. Data included.

a. On a scale of 1 to 10 with 10 being the most successful, teachers using their first E2T2 units rated their success at 64%.

b. Additional teacher support requested more time for planning and support in selection of Tier II vocabulary words.

c. Summarizing and graphic organizers were used the most for writing activities.

d. Students response to read alouds was highly favorable.

Finding 6: Teachers found using units with lexiled materials and enduring understandings harder to adjust to than the students. Students liked the relevancy and the ability to discuss and work with others on topics of interest. Reading curriculum needs to dramatically change in most reading classrooms. Teachers feel more comfortable with everyone reading the same novel or from the basal and more comfortable with fiction than nonfiction. Schools will have to insist on leveled text, fluency instruction, and provide monitoring as well as continuously collect data on students’ reading proficiency classroom by classroom, year by year, or teachers will fall back into their comfort zone.

4. Principal/Teacher Surveys: Process: All participating principals and teachers were asked to answer a simple questionnaire asking for needs, concerns, and suggestions. Feedback on the summer courses were also recorded. Outcome: The Principal Advisory Committee determined future needs and directions from the results of the survey.

Overview of Results (Data Principal/Teacher Feedback):
Principals/teachers wanted funds expended to improve programming on the following: The top three were:
1. More time for teachers in their buildings (substitutes) to address rewriting of curriculum and work on E2T2 nonfiction units.
3. Expanding support building-wide for learning strategies and development of leadership teams.

Overview of Results (Data Attached): Summer Course Feedback:
Recommendations for summer courses in 2006 and 2007

Finding 7: The most popular courses were the technology courses during the summer of 2007. Participants were provided with an Inspiration license or a flash drive. Teachers are more willing now to support reading using various technologies. In fact, they would all like their own multi-media projector, notebook, flash drives, Inspiration license, and time to use the AEA Online databases. They have found technology engages students, provides them with prior knowledge and or expands their knowledge on a topic, and dramatically improves their desire to read and discuss. Many use it extensively for teaching of vocabulary, QAR lessons, 6+ Traits writing, summarizing and note taking and for modeling and demonstrating read, think, and talk alouds.
Additional data is available on each schoolwide initiative including West Middle School Vocabulary implementation data for three cycles; East Middle School Career Portfolio data on read alouds, reading out loud, vocabulary and questioning strategies, flexible groups, text structure, leveled text, and graphic organizers; North Middle School on logs on reading out loud, use of lexiled materials, and vocabulary. **Finding 8:** Extensive data and monitoring has been conducted in our three Sioux City Schools. The most data and monitoring, including use of walk throughs has been done at East Middle School. Their student reading proficiency scores have changed dramatically. Last year their ITBS scores were 71% proficient in 6th grade, 72% in 7th grade and 73% in 8th grade. Although West and North Middle Schools have each improved, they have not come close to East MS. We have found two reasons for their dramatic increases: (1) **Strong principal leaderships that continuously monitors and insists upon improvement in reading**; (2) **Focused staff development on reading for four years and will continue until they reach at least 98% proficiency.**

9. **Advisory Team Recommendations: Process:** Advisory Team meetings held three times each year. Principals look at ISU, cycle logs, and survey, walk-through data to make recommendations for programming and to determine their own strengths or gaps in implementation. **Outcome:** Improvement in program and in individual school implementation.

**Overview of Results** Identified Gaps: (Advisory Team Members used the Principal Survey, Staff Satisfaction Surveys, Summer School Reflections and Cycle Logs and chose to disaggregate data into three (3) categories: Gaps, Needs, and Good News. The following briefly summarizes their conclusions.

**Gaps:** Support reading strategies across the curriculum b. Allow more time for teacher collaboration at workshops c. More support for strategies d. More follow-ups for implementation

**Identified Needs:**
- Principal-building leadership and support for E2T2 staff
- Support for other curriculum areas in reading strategies
- Spelling program assistance in Word Journeys
- More effective use of polycoms
e. More time to work on units and implementation at home
f. More collaborative planning time at meetings
g. Fewer strategies
h. Summer courses
i. More lexiled materials and non-fiction
j. Power point instruction

**Good News**
- Lexile-level readers happening in the classrooms
- Teachers learning SBRR strategies
- Vocabulary implementation happening
d. Amount of books/resources supplied
e. Ratings for summer school content were high
f. Teachers are interested and getting more comfortable with strategies and technology
g. Free credit provided
- Good instructors

**Finding 9:** Principals often fail to follow through on monitoring. The most improvement in student proficiency is found in those buildings where principals feel comfortable in monitoring teacher implementation. Many principals do not feel comfortable being instructional leaders and often fear loss of popularity when monitoring. Those who attend training with their teachers monitor better and feel more comfortable. The walk throughs are becoming the best form of monitoring and are less intimidating to both teacher and principals.

E2T2 Process and Evidence of Impact (Outcomes) taken directly from 2006-09 E2T2 3R’s Grant: Reading, wRiting & Reasoning with Technology

10. **ISU Monthly Survey: Process:** All teachers required to log on monthly to ISU and report use of required SBRR strategies. **Outcome:** Teachers implementing SBRR strategies on a daily/weekly/monthly basis.

**Overview of Results:** The ISU Survey is conducted for state reports, although all teachers report out on a monthly basis. Until February of 2006, the only data we could access was the name of the teacher and if they had completed the survey that month. This data we used to determine staff development credit and grades. Beginning in February of 2006, we are now allowed to determine the strength of implementation as reported by teachers building by building. Although this is soft data, we are able to now talk with principals about the strength of implementation in their buildings.

11. **ISU Fidelity Study: Process:** Study initiated by ISU to determine if actual implementation of SBRR strategies as reported on the monthly survey were consistent. Ten teachers required to videotape one week of reading class for the same period per day. ISU to randomly select four-five of the tapes and using a demo tape provided by our collaborative of the SBRR strategies determine the fidelity of the teachers to the strategy. **Outcome:** Direct
correlation of the ISU Monthly Survey as reported by teachers to actual implementation: fidelity of implementation of strategies.

**Overview of Results:** The viewing of the tapes will be completed in the summer of 2006. Data will then be available at some time. Data has not as yet been reported to us.

12. **ITBS data. Process:** Data compiled by ISU-comparison and compilation of 6th-8th grade data annually by cohort groups to determine reading achievement (a) annually, (b) over a three year period, and (c) in comparison to other students at that grade level in E2T2 state-wide who are working on improving math rather than reading achievement. **Outcome:** Continuous improvement in number of students proficient in reading.

**Overview of Results:** The first round of data on implementation showed a slight decline and the second a rise that indicated we were making a difference. As the data only covers some of the schools, and not necessarily our high implementing schools, we are hoping to have access to the data on each of the schools.

**Project Evaluation: ISU External Evaluation Results:** 

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<tr>
<td></td>
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<td>Non-proficient</td>
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**Effect Size for non-proficient student’s gain=.22** This means we are closing the gap due to efforts, not just a chance happening.

16. **Principal Walk-Throughs:** Piloted in 2006-07 and Process to Begin in 2007-08: Standardized Principal Walk-through to be completed by E2T2 Advisory Committee and used by all principals to further assess implementation of strategies being learned. **Outcome:** Improvement in teacher fidelity of implementation of SBRR strategies. **Finding 10:** East Middle School principal has completed over 200 walk throughs. He is currently reporting out to the principals on the positive findings he has had. All principals will conduct three rounds of walk-throughs by December 2007.

17. **Parent Survey Pilot:** Process 07-08 Administer a Pre-Post Parent Survey at EMS to find frequency of Parent Involvement, satisfaction and understanding of reading/technologies strategies to support students at home. Provide parents with students’ lexile levels and specific strategies to support reading at home and use of technologies. **Outcome:** Improved student performance as determined on standardized tests and cycle logs.

**What should be done in the future?**

A. **Summary**

1. **Teachers Understand SBRR Reading Strategies.** According to teachers in the Exit Questionnaire, 100% of respondents stated E2T2 has prepared me to use informational text; 97% that E2T2 has prepared me to use SBRR instructional strategies for comprehension of informational text, and 100% stated they have grown professionally in their understanding of middle school literacy. 96% have increased their understanding of SBRR instructional strategies.
2. **Teachers Have Increased Their Use of Strategies.** According to the Teacher Satisfaction Survey, Cycle Logs, Principal Advisory Committee and building-wide data, teachers have grown in their use of strategies, understand them, and are beginning to use them across the curriculum.

3. **Monitoring Produces Greater Results and More Implementation.** According to the cycle log data and exit questionnaire, the more the monitoring, the greater of skills being understood and implemented.

4. **Teachers At the Middle Level Are Not Prepared in Reading Strategies...This Includes Reading Teachers. Not Trained in Implementation or Monitoring in Most Teacher Training Institutions.** According to the cycle logs and exit questionnaires, teachers need more practice and demonstration of some of the SBRR strategies.

5. **Teachers Want Time to Learn and More Collaboration but Many Do Not Use Time Provided. Not A Felt Need to Change Unless Building Leadership Requires and Monitors It.** According to the teachers in all of the needs/comments/concerns on the Satisfaction Data, they need more time to collaborate with other staff, need more building-wide support in leveled text, vocabulary implementation, and instructional reading, and more time to develop curriculum when they return from the workshops.

6. **Buildings Need to Develop Programs and Support and Curriculum and Monitoring of Student Proficiency.** According to the Principal Survey, teachers need more support in all areas of SBRR strategies, use of technology to support instruction, help in developing spelling programs, and development of teacher leaders who can support the strategies within the building.

7. **E2T2 Materials Exemplary.** Materials that support E2T2, i.e. books, units, planners, etc. are much appreciated and highly needed to support all readers.

8. **Fluency Instruction and Assessment Needed In Middle Schools with Struggling Readers.** According to Exit Questionnaire and ITBS scores, teachers need more support in developing fluency skills in order to improve student reading comprehension, especially for struggling readers.

**B. Recommended Steps/Actions:**

1. Increase monitoring of strategies and cycle logs that include student samples.
2. Implement a principal walk-through program in all E2T2 schools using a like checklist and technology that can be used to collect data on implementation within the building and across the schools. Develop principal instructional leaders.
3. Develop reading leadership teams in each building with representatives from all grade levels and content areas. Train these members in a specific strategy, have them practice the strategy, and then demonstrate and deliver it to their colleagues.
4. Increase AEA reading support for the leadership teams with staff able to demonstrate any/all of the SBRR/technology strategies.
5. Encourage all teachers and schools to stay in the program for six years in order to continue to learn the SBRR strategies, collaborate, and develop curriculum using leveled and informational text until goals are met.
6. Focus on teaching fluency and collecting data as well providing the tools for timed readings as well as other materials that support fluency. Increase demonstration of ways to teach fluency with classroom materials and units.
7. Support resource teachers in their ability to teach SBRR strategies rather than focus on support for getting a student through a class.
8. Support all content area teams with lexiled materials that support their unit needs.
9. Continue to improve the website that includes lexiled materials, demonstrations of strategies by teachers in all content areas, units, recommended text, a building-wide reading plan, and materials that support learning of a particular strategy with demonstrations, graphic organizers for text structures.
10. Use polycoms for observation and taping of demonstration of strategies.
11. Increase use and sharing of technologies for teaching SBRR strategies and writing strategies.
12. Develop parent strategies that support middle level parents in improving reading for their children including ELL students.