LoTi Project School Summary Report

for
Bleyl Middle School

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Section One: Introduction

The LoTi Project Schools use the critical components of 21st Century learning as articulated by the Partnership for the 21st Century (i.e., critical thinking, collaboration, problem-solving, and self-directed investigations) to increase student academic achievement in core content areas based on NCLB targets. (Appendix A) The emphasis is on contextual learning that enables students to transfer their content understanding to real world situations using the available technology assets in the classroom. In LoTi Project classrooms, there is a renewed emphasis to provide greater rigor and relevance to the eligible content as students transition from passive to active learners and employ technology as a seamless tool.

A campus becomes a LoTi Project School for numerous reasons: (1) increasing student achievement on standardized tests scores in one or more core content areas; (2) implementing a 21st Century learning approach across all grade levels and content areas; (3) improving the efficient and effective use of learning technologies in the classroom; and/ or (4) improving instruction based on national and international reform models such as: Daggett's Rigor & Relevance, Marzano's Research-based Practices, and Webb's Depth of Knowledge. The outcome of becoming a LoTi Project School is increased student engagement, a higher LoTi (Levels of Technology Implementation) level in each classroom, and improved student achievement.

The challenge of today's classrooms requires teachers to utilize the available learning technologies to engage students in their own learning and bridge the generation gap with today's millennial learners. During the 2007-2008 school year, Bleyl Middle School in the Cypress-Fairbanks Independent School completed its second year as a LoTi Project School focusing on bringing more H.E.A.T. (Higher-order thinking, Engaged learning, Authenticity, and Technology use) to their continuous improvement efforts at the classroom level.

Section Two: Implementation Model

Each LoTi Project School followed the 4-Step LoTi Implementation Model to achieve success according to its targeted goals and objectives. The Model consists of the following stages: Assess, Plan, Implement, and Sustain.

Assess:
The Assess Stage involved data collecting strategies for assessing the targeted staff's pre/post LoTi levels and pre/post CIP levels at Bleyl Middle School (see Appendices B and C). This stage provided the (1) mechanism to identify trends in professional development needs for the targeted staff members (e.g., complex student projects, student-centered instruction) and (2) the impetus to increase teachers' level of technology implementation (LoTi) toward the "target" technology level as established by the Texas StaR Chart.

Plan:
The Plan Stage addressed the creation of a Next Steps Action Plan that was tailored to the targeted staff members aggregate LoTi and CIP data. The Next Steps Action Plan for Bleyl Middle School outlines a specific course-of-action involving goals, objectives, action steps, and deliverables to elevate the LoTi levels in the classroom by increasing the amount of H.E.A.T. (i.e., Higher order thinking, Engaged learning, Authentic connections, Technology use).

Implement:
At the Implement Stage, District Certified LoTi Trainers and Mentors implemented professional development interventions targeting specific instructional needs at Bleyl Middle School. These needs were based on earlier assessment data and consistent with the Next Steps Action Plan. The interventions included lesson plan reviews and content-related workshops focusing on H.E.A.T.

Sustain:
The most critical stage of the LoTi Implementation Cycle is the Sustain Stage. The stage enabled building administrators and National LoTi Certified Trainers to sustain positive changes in classroom instructional practices through H.E.A.T. walkthroughs, peer mentoring sessions, and on-going dialogue between the campus LoTi Liaison and the National LoTi Project School Coordinator. These events promoted clear articulation among all stakeholders involved in the LoTi implementation process to ensure that all goals and objectives were achieved based on the Next Steps Action Plan.

Section Three:
Goals & Objectives

School LoTi Goal(s):

1. Elevate technology implementation at Bleyl Middle School based on the LoTi and the H.E.A.T. Frameworks.

2. Increase CIP (Current Instructional Practices) toward greater emphasis on student-centered classrooms.

3. Improve student academic achievement in science and math.

School LoTi Objective(s):

1. The Bleyl Middle School Science and Math staff will increase their overall LoTi and CIP Levels by one level, respectively.

2. Bleyl Middle School will achieve AYP (Annual Yearly Progress) in 6^{th}-8^{th} grade mathematics based on the TAKS.

3. Bleyl Middle School will achieve AYP (Annual Yearly Progress) in 8^{th} grade science based on the TAKS.

Section Four: Statistical Analysis

The purpose of this report was twofold: (1) to determine changes in student academic achievement in mathematics in Grades 6-8 from the 2006-07 to the 2007-08 school year and (2) to determine changes in student academic achievement in science in Grade 8 from the 2006-07 to the 2007-08 school year.

TAKS Achievement
Students participated in the annual TAKS assessments for 6^{th}-8^{th} grade in Spring 2007 and 2008. These assessments are used by the state of Texas to measure student achievement based on the knowledge and skills specified in the Texas Essential Knowledge and Skills (TEKS) in Social Studies (Grade 8), Science (Grade 8), Writing (Grade 7), Math (Grades 6-8), and Reading (Grades 6-8).

The type of statistical analysis used to determine statistically significant academic gains in student achievement in mathematics and science based on the TAKS involved a z test for proportions. A **z-test for proportions** was used to compare percentage changes in the students meeting the standards from 2006-07 to 2007-08 due to the fairly large sample sizes across grades.

In addition to reporting the total number of students who met the standard from 2006-07 to 2007-08, it is important to report the percentages who met the standard because the total number of students who were tested varies from year to year for each school. Therefore, even though the raw numbers may look significantly different, the actual percentage of students from year to year may not be significantly different.

It is important to mention that the subsequent analysis of TAKS data did not take into consideration changing student populations that may have occurred from the 2006-07 to 2007-08.

Section Five: Results

Results: TAKS – Mathematics and Science
Target Goal: Improve student achievement in 6th-8th grade mathematics and 8th grade science based on the TAKS.

Figure A: Comparison of Percentage of Students Who Passed the TAKS in Math and Science

Subject	2006-2007 (Met standard)	2007-2008 (Met standard)	Statistically Significant Difference in Percentage Meeting the Standard from 2006-07 to 2007-08?*
Math (6th-8th)	79.8% (1044/1308)	86.3% (1130/1310)	**YES**
Science (8th)	69.8% (308/441)	80.4% (345/429)	**YES**

* *Based on z test for proportions. An adjusted p-value of ≤ .016 is considered statistically significant.*

Discussion: Figure A displays student achievement data on the Math and Science TAKS for 6th-8th Grade and 8th Grade, respectively, for Bleyl Middle School. The data reveals the number of 6th-8th grade students who successfully passed the TAKS in Mathematics and the number of 8th grade students who successfully passed the TAKS for Science for the 2006-07 and 2007-08 school years.

Based on Figure A, 79.8% or 1,044 of the 6th-8th grade students achieved the *Met Standard* classification during the 2006-07 school year for the TAKS in Mathematics. During the 2007-08 school year, 86.3% or 1,130 of the 6th-8th grade students achieved the *Met Standard* classification for the TAKS in Mathematics. The recorded differences in math achievement scores for students achieving the *Met Standard* status were statistically significant. The results showed a 6.5% increase in students achieving the *Met Standard* classification from the 2006-07 to the 2007-08 school year based on the Math TAKS.

Based on Figure A, 69.8% or 308 of the 8th grade students achieved the *Met Standard* classification during the 2006-07 school year for the TAKS in Science. During the 2007-08 school year, 80.4% or 345 of the 8th grade students achieved

the *Met Standard* classification for the TAKS in Science. The recorded differences in science achievement scores for students achieving the *Met Standard* status were statistically significant. The results showed a 10.6% increase in students achieving the *Met Standard* classification from the 2006-07 to the 2007-08 school year based on the Science TAKS.

Section Six:
Findings & Recommendations

Finding(s)
A summary of the TAKS data in mathematics and science at Bleyl Middle School by the end of the 2007-08 school year revealed the following trend:

1. The number of students achieving *Met Standard* status on the TAKS in mathematics for 6th-8th Grade increased from 1,044 students to 1,130 students from the 2006-07 school year to the 2007-08 school year.

2. The percentage of students achieving *Met Standard* status on the TAKS in mathematics for 6th-8th Grade increased from 79.8% to 86.3% from the 2006-07 school year to the 2007-08 school year. The recorded differences in math achievement scores for students achieving the *Met Standard* status were statistically significant.

3. The number of students achieving *Met Standard* status on the TAKS in science for 8th Grade increased from 308 students to 345 students from the 2006-07 school year to the 2007-08 school year.

4. The percentage of students achieving *Met Standard* status on the TAKS in science for 8th Grade increased from 69.8% to 80.4% from the 2006-07 school year to the 2007-08 school year. The recorded differences in science achievement scores for students achieving the *Met Standard* status were statistically significant.

Recommendations
Based on the findings from the TAKS data in mathematics and science, it is recommended that Bleyl Middle School consider the following interventions to improve math and science achievement and increase the amount of H.E.A.T. in the classrooms:

1. Create and sustain an expectation of LoTi 3 implementation in all math and science classrooms.

2. Conduct frequent H.E.A.T. walkthroughs to ensure the presence of H.E.A.T. aligned to the targeted 6th-8th grade Math TEKS and the 8th grade Science TEKS.

3. Form grade level/content area professional learning communities that focus on strategies to generate more H.E.A.T. pertaining to student learning in mathematics and science.

4. Create a culture of high Levels of Technology Implementation (LoTi) and Current Instructional Practices (CIP) Intensity Levels in the classroom aligned to the targeted 6th-8th grade Math TEKS and 8th grade Science TEKS.

5. Focus professional development efforts on selected Marzano research-based practices that align with the targeted 6th-8th grade Math TEKS and the 8th grade Science TEKS and support the tenets of H.E.A.T. in the classroom.

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Appendix A: 21st Century Skills & Themes

21st Century Skills

- Information, Media, and Technology Skills
  - ✓ Information Literacy
  - ✓ Media Literacy
  - ✓ ICT Literacy
- Learning and Innovation Skills
  - ✓ Creativity and Innovation Skills
  - ✓ Critical Thinking and Problem-solving Skills
  - ✓ Communication and Collaboration Skills
- Life and Career Skills
  - ✓ Flexibility & Adaptability
  - ✓ Innovative & Self-Direction
  - ✓ Social & Cross-Cultural Skills
  - ✓ Productivity & Accountability
  - ✓ Leadership & Responsibility

21st Century Themes

- Global Awareness
- Financial, Economic, Business and Entrepreneurial Literacy
- Civic Literacy
- Health Literacy

Appendix B: Levels of Technology Implementation (LoTi) Framework

Level	Category	Description
0	Nonuse	A perceived lack of access to technology-based tools or a lack of time to pursue electronic technology implementation. Existing technology is predominately text-based (e.g., ditto sheets, chalkboard, overhead projector).
1	Awareness	The use of computers is generally one step removed from the classroom teacher (e.g., integrated learning system labs, special computer-based pullout programs, computer literacy classes, central word processing labs). Computer-based applications have little or no relevance to the individual teacher's instructional program.
2	Exploration	Technology-based tools serve as a supplement to the existing instructional program (e.g., tutorials, educational games, simulations). The electronic technology is employed either as extension activities or as enrichment exercises to the instructional program and/or generally reinforces lower cognitive skill development.
3	Infusion	Technology-based tools including databases, spreadsheets, graphing packages, probes, multimedia applications, desktop publishing, and telecommunications augment selected instructional events (e.g., science kit experiment using spreadsheets/graphs to analyze results, telecommunications activity involving data sharing among schools). The use of the technology reinforces higher cognitive skill development and complex thinking skills such as problem-solving, reasoning, decision-making, and scientific inquiry.

Level	Category	Description
4A	Integration mechanical	Technology-based tools are integrated in a (Mechanical) manner that provides rich context for students' understanding of the pertinent concepts, themes, and processes. Heavy reliance is placed on prepackaged materials and outside resources (e.g., mentors, consultants) that aid the teacher in the daily operation of their instructional curriculum. Technology (e.g., multimedia, telecommunications, databases, spreadsheets, word processing) is perceived as a tool to identify and solve authentic problems relating to an overall theme/concept.
4B	Integration (Routine)	Teachers can readily create Level 4 (Integrated units) with little intervention from outside resources. Technology-based tools are easily integrated in a routine manner that provides rich context for students' understanding of the pertinent concepts, themes, and processes. Technology (e.g., multimedia, telecommunications, databases, spreadsheets, word processing) is perceived as a tool to identify and solve authentic problems relating to an overall theme/concept.
5	Expansion	Technology access is extended beyond the classroom. Classroom teachers actively elicit technology applications and networking from business enterprises, governmental agencies (e.g., contacting NASA to establish a link to an orbiting space shuttle via INTERNET), research institutions, and universities to expand student experiences directed at problem-solving, issues resolution, and student activism surrounding a major theme/concept.
6	Refinement	Technology is perceived as a process, product (e.g., invention, patent, new software design), and tool toward students solving authentic problems related to an identified "real-world" problem or issue. Technology, in this context, provides a seamless medium for information queries, problem-solving, and/or product development. Students have ready access to and a complete understanding of a vast array of technology-based tools to accomplish any particular task.

Appendix C: Current Instructional Practices (CIP) Framework

CIP Intensity Level 1
At a CIP Intensity Level 1, the participant's current instructional practices align exclusively with a subject-matter based approach to teaching and learning. Teaching strategies tend to lean toward lectures and/or teacher-led presentations. The use of curriculum materials aligned to specific content standards serves as the focus for student learning. Learning activities tend to be sequential and uniform for all students. Evaluation techniques focus on traditional measures such as essays, quizzes, short-answers, or true-false questions. Student projects tend to be teacher-directed in terms of identifying project outcomes as well as requirements for project completion.

CIP Intensity Level 2
Similar to a CIP Intensity Level 1, the participant at a CIP Intensity Level 2 supports instructional practices consistent with a subject-matter based approach to teaching and learning, but not at the same level of intensity or commitment. Teaching strategies tend to lean toward lectures and/or teacher-led presentations. The use of curriculum materials aligned to specific content standards serves as the focus for student learning. Learning activities tend to be sequential and uniform for all students. Evaluation techniques focus on traditional measures such as essays, quizzes, short-answers, or true-false questions. Student projects tend to be teacher-directed in terms of identifying project outcomes as well as requirements for project completion.

CIP Intensity Level 3
At a CIP Intensity Level 3, the participant supports instructional practices aligned somewhat with a subject-matter based approach to teaching and learning—an approach characterized by sequential and uniform learning activities for all students, teacher-directed presentations, and/or the use of traditional evaluation techniques. However, the participant may also support the use of student-directed projects that provide opportunities for students to determine the "look and feel" of a final product based on specific content standards.

CIP Intensity Level 4
At a CIP Intensity Level 4, the participant may feel comfortable supporting or implementing either a subject-matter or learning-based approach to instruction based on the content being addressed. In a subject-matter based approach, learning activities tend to be sequential, student projects tend to be uniform for all students, the use of lectures and/or teacher-directed presentations are the norm as well as traditional evaluation strategies. In a learner-based approach, learning activities are diversified and based mostly on student questions, the teacher

serves more as a co-learner or facilitator in the classroom, student projects are primarily student-directed, and the use of alternative assessment strategies including performance-based assessments, peer reviews, and student reflections are the norm.

CIP Intensity Level 5
At a CIP Intensity Level 5, the participant's instructional practices tend to lean more toward a learner-based approach. The essential content embedded in the standards emerges based on students "need to know" as they attempt to research and solve issues of importance to them using critical thinking and problem-solving skills. The types of learning activities and teaching strategies used in the learning environment are diversified and driven by student questions. Both students and teachers are involved in devising appropriate assessment instruments (e.g., performance-based, journals, peer reviews, self-reflections) by which student performance will be assessed. However, the use of teacher-directed activities (e.g., lectures, presentations, teacher directed projects) may surface based on the nature of the content being addressed and at the desired level of student cognition.

CIP Intensity Level 6
Similar to a CIP Intensity Level 7, the participant at a CIP Intensity Level 6 supports instructional practices consistent with a learner-based approach, but not at the same level of intensity or commitment. The essential content embedded in the standards emerges based on students "need to know" as they attempt to research and solve issues of importance to them using critical thinking and problem-solving skills. The types of learning activities and teaching strategies used in the learning environment are diversified and driven by student questions. Students, teacher/facilitators, and occasionally parents are all involved in devising appropriate assessment instruments (e.g., performance-based, journals, peer reviews, self-reflections) by which student performance will be assessed.

CIP Intensity Level 7
At a CIP Intensity Level 7, the participant's current instructional practices align exclusively with a learner-based approach to teaching and learning. The essential content embedded in the standards emerges based on students "need to know" as they attempt to research and solve issues of importance to them using critical thinking and problem-solving skills. The types of learning activities and teaching strategies used in the learning environment are diversified and driven by student questions. Students, teacher/facilitators, and occasionally parents are all involved in devising appropriate assessment instruments (e.g., performance-based, journals, peer reviews, self-reflections) by which student performance will be assessed.