



What Works in Oklahoma Schools

A Comprehensive Needs Assessment of Oklahoma Schools

Conducted by Marzano Research Laboratory

Englewood, Colorado

Phase II State Report

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Overview of the *What Works in Oklahoma Schools Study*: Phase II State Report

The Oklahoma State Department of Education (OSDE) has identified nine essential elements that form the blueprint for school improvement in Oklahoma schools. These nine essential elements are:

1. Curriculum
2. Classroom Evaluation/Assessment
3. Instruction
4. School Culture
5. Student, Family, and Community Support
6. Professional Growth, Development, and Evaluation
7. Leadership
8. Organizational Structure and Resources
9. Comprehensive and Effective Planning

These elements are further divided into ninety indicators representing all aspects of school operations. The framework is intended to be used by Oklahoma schools to identify areas of strength and areas of need. Areas of strength are to be celebrated. Areas of need are the focus of future school improvement initiatives.

In an effort to provide more effective feedback to Oklahoma schools, the OSDE commissioned Marzano Research Laboratory (MRL) in Englewood, Colorado to: (1) conduct a study that would help identify those elements and their indicators that are integral to the success of Oklahoma schools, (2) provide feedback to a sample of Oklahoma schools participating in the study regarding their strengths and areas of need, and (3) use the results to create a replicable system for all Oklahoma schools to better identify areas of strength and areas of need.

Four primary stakeholder groups were identified to participate in the Phase I study: (1) teachers, (2) site administrators, (3) parents, and (4) students. Surveys representing indicators for the nine essential elements were designed and field tested and then sent to 61 total schools in the spring of 2010. Of these, 33 schools were classified as Improvement status schools and 28 schools were not classified as Improvement status schools. The OSDE matched the Non-Improvement status schools with the Improvement status schools as closely as possible on demographic factors such as ethnicity and socio-economic status.

Phase I reports were delivered to each individual school and the Oklahoma State Department of Education on September 1, 2010. This report focuses on Phase II of the study.

Phase II provides a more detailed examination of classroom variables important to achievement in Oklahoma schools. Where Phase I addressed all nine of the Oklahoma essential elements using survey data, Phase II focused on what occurs in Oklahoma classrooms using data from

principal interviews, classroom observations (on-site), and video recorded observations. Teacher data was anonymous and video recordings of teachers were viewed only by MRL researchers involved in the study.

Design of Phase II

Overview

The same 61 schools from Phase I were involved in Phase II of the study. Of those 61 schools, 33 were Improvement status schools and 28 were Non-Improvement status schools according to their designation at the start of this study. There were 12 high schools (7 Improvement status and 5 Non-Improvement status), 28 middle schools (16 Improvement status and 12 Non-Improvement status), and 21 elementary school (10 Improvement status and 11 Non-Improvement status). Principals and/or assistant principals at all 61 schools were interviewed and on-site observations were conducted at all schools. Additionally, all 61 schools received video cameras and 56 video recordings were returned for analysis. Nine MRL trained Associates conducted the interviews/site visits between September 20 and October 15, 2010. These Associates were: Tina Boogren, Bev Clemens, Jane Doty-Fischer, Mitzi Hoback, Jan Hoegh, Edie Holcomb, Margaret McInteer, Salle Quackenboss, and Tom Roy.

Figure 1: Participating School Demographics

School Grade Level	Non-Improvement Status Schools	Improvement Status Schools	Total Number
Elementary School	11	10	21
Middle School	12	16	28
High School	5	7	12

Principal Interview

For all (61) schools, principals were interviewed for approximately 30 minutes and were asked the following questions by a trained MRL Associate:

(1) What do you see as the areas of greatest strength for your school? Did the findings in the report support this?

(2) What do you see as the areas of greatest weakness for your school? Did the finding in the report support this?

(3) What surprised you in the report? Why were these surprises?

(4) *What does your current plan/goal(s) for the year look like? Did the report push you to modify any of your plans/goals?*

(5) *What is your opinion about your school’s ability to make changes over the upcoming school year?*

The written notes from the MRL Associates were analyzed and compiled into themes for both Improvement status schools and Non-Improvement status schools. Results are reported below.

At three schools, an assistant principal provided the interview as the principal was not available.

On-Site Observations

On-site classroom observations were conducted in ten classrooms, at random, in each of the 61 schools. Trained MRL Associates collected data using Marzano’s Observational Protocol. This protocol is based on *The Art and Science of Teaching* (Marzano, 2007), which is a comprehensive framework for effective instruction. The basis of *The Art and Science of Teaching* is a set of design questions that are to be used by teachers to plan effective units and lessons within those units. The Observational Protocol groups the design questions into three categories as shown in Figure 2.

Figure 2: Observational Protocol for Effective Instruction

I. Lesson Segments Involving Routine Events	
Design Question 1	What will I do to establish and communicate learning goals, track student progress, and celebrate success?
Design Question 6	What will I do to establish or maintain classroom rules and procedures?
II. Lesson Segments Addressing Content	
Design Question 2	What will I do to help students effectively interact with new knowledge?
Design Question 3	What will I do to help students practice and deepen their understanding of new knowledge?
Design Question 4	What will I do to help students generate and test hypotheses about new knowledge?
III. Lesson Segments Enacted on the Spot	
Design Question 5	What will I do to engage students?
Design Question 7	What will I do to recognize and acknowledge adherence and lack of adherence to classroom rules and procedures?
Design Question 8	What will I do to establish and maintain effective relationships with students?
Design Question 9	What will I do to communicate high expectations for all students?

Under each of the nine categories of behaviors within the three general segments are more specific categories of behavior—41 in all. (For a detailed description of the categories/behaviors, see Figure 12.) For each of the 41 areas, the scale depicted in Figure 3 was used to evaluate teacher performance.

Figure 3: Scale for the Observational Protocol for Effective Instruction

Code	Descriptor	Definition
I	Innovating	Adapts and creates new strategies for unique student needs and situations
A	Applying	Uses the strategy and monitors student behavior to determine if strategy is having the desired effect
D	Developing	Uses the strategy but in a mechanistic way
B	Beginning	Uses the strategy but incorrectly or parts are missing
NU	Not Using	Strategy was called for but not exhibited

MRL Associates used this scale while observing in each classroom. In the classrooms, the focus was on Design Question 2, 3, and/or 4 but other areas were noted if appropriate.

Again, it is important to note that individual teachers were not identified and only MRL researchers had access to teacher information.

Video Recordings

Each of the 61 schools received a video camera and was asked to record five classrooms for approximately ten minutes each. Recording occurred separately from the on-site observation visit. Classrooms were to be selected at random.

All equipment was returned to MRL. Once again, teachers remained anonymous, and only MRL researchers had access to these video recordings.

Four general instruction topics were the focus of the analysis of the video clips. These four topics were as follows: clarity of subject, student interaction with each other about content, student processing of information, and student engagement. The rubric used for scoring the

topics included example behaviors indicative of meeting the target, or scoring either below or above the target. The rubric is depicted in Figure 4.

Figure 4: Rubric Used in Analysis of Classroom Video Recordings

Topic	Below Target (Score - 1)	Target (Score - 2)	Above Target (Score - 3)
Clarity of subject	<ul style="list-style-type: none"> • Lack of focused questions by students • Lack of enthusiasm 	<ul style="list-style-type: none"> • Students know what to do • Teacher chunks information • New information related to prior knowledge • Objectives <u>referred to</u> by teacher 	<ul style="list-style-type: none"> • Students ask questions with specificity
Student interaction with each other about content	<ul style="list-style-type: none"> • Over-emphasis on whole group instruction • Teachers call on volunteer students only 	<ul style="list-style-type: none"> • Small group activity • Academic games • Partner/triad time to talk, question, make predictions and hypothesis 	<ul style="list-style-type: none"> • Student-led or student-directed activity
Student processing of information	<ul style="list-style-type: none"> • “Sit and get” • Individual worksheets • Copying of notes, vocabulary, definitions 	<ul style="list-style-type: none"> • Think, pair, share • Re-state, write, summarize • Numbered heads together • Non-linguistic representations 	<ul style="list-style-type: none"> • Role-playing • Socratic seminar • Reflection • Student self-evaluation
Engagement	<ul style="list-style-type: none"> • Ritualistic behavior only • Compliance • Off-task behavior 	<ul style="list-style-type: none"> • Students actively participating • Feeling of excitement, anticipation by students 	<ul style="list-style-type: none"> • Students making strong personal connections with academic subject

For each recording, all four topics were scored. Teachers were assigned either a whole score (1, 2, or 3), or a half score (1.5 or 2.5) for each of the topics.

Two MRL researchers analyzed each of the video recordings.

Findings

Principal Interviews

This section reports the findings from the principal interviews.

Figure 5 reports the school demographics for the principal interviews. All 61 schools participated in this portion of Phase II.

Figure 5: Principal Interview Demographics

# of Improvement Status Schools	33
# of Non-Improvement Status Schools	28
Total # of Schools	61

Strengths Question Results

Figure 6 reports the themes identified as strengths by both Non-Improvement status school principals as well as Improvement status school principals.

Figure 6: Strengths Question Results-Principal Interview

THEME	NI Status Schools # (n=28)	NI Status Schools %	I Status Schools # (n=33)	I Status Schools %
Teachers (+)	26	93%*	21	64%
School Culture	11	39%*	9	27%
Curriculum	10	36%*	1	3%
Principal/Admin Team	8	29%*	8	24%
Professional Development	4	14%	8	24%* **
Professional Learning Communities	5	18%	7	21%* **
Parent Community Support	9	32%*	5	15%

**=higher*

***=please see further analysis below*

The first column of Figure 6 identifies the theme. The second column of Figure 6 reports the number of Non-Improvement status schools that identified that particular theme as a strength during the principal interview while the third column converts that number to a percentage. The fourth and fifth columns are the same as the second and third column but are for the Improvement status schools.

There are a few significant areas to note in Figure 6. First, Non-Improvement status schools listed teachers as a strength in 93% of schools while Improvement status schools listed teachers as a strength in 64% of schools. This is a 29% difference.

Second, curriculum is listed as a strength in 36% of Non-Improvement status schools while only 3% of Improvement status schools listed curriculum as a strength. This is a 33% difference.

Third, professional development is listed as a strength in 24% of Improvement status schools while only 14% of Non-Improvement status schools listed professional development as a strength. This is a 10% difference. This appears counterintuitive in that one might logically conclude that the more professional development teachers in a school receive, the better would be student achievement.

Figure 7 provides descriptors gleaned from the principal interviews. These descriptors operationally define the themes in Figure 6.

Figure 7: Definitions of Themes Found in Strengths Question—Principal Interview

Theme	Teachers	School Culture	Curriculum	Principal/ Admin. Team
Descriptors	<ul style="list-style-type: none"> • Good attitudes • Capable • Hard-working • Innovative • Devoted • Caring • Skilled 	<ul style="list-style-type: none"> • Positive • Kid-friendly • Happy environment • Safe • Friendly • Collaborative • Success is celebrated 	<ul style="list-style-type: none"> • Strong • Aligned • Reading focus • Math focus • ‘Great Expectations’ • Focused 	<ul style="list-style-type: none"> • Supportive • Hands-on • Dedicated • High expectation • Positive role-models • Strong • Collaborative
Theme	PD		PLCs	Parent/Community Support
Descriptors	<ul style="list-style-type: none"> • Specific to student needs • Book study • Off-site • Focus on data • Funding is available • Marzano’s work • Staff-embedded 		<ul style="list-style-type: none"> • DuFour model • Weekly meetings • Meet by grade-level • Common planning 	<ul style="list-style-type: none"> • Involved • Interested • Strong • Tutoring • Volunteering

Weakness/Challenge Question Results

Figure 8 reports the themes identified as ‘weakness/challenges’ by both Non-Improvement status school principals as well as Improvement status school principals.

Figure 8: Weakness/Challenge Results—Principal Interview

THEME	NI Status Schools # (n=28)	NI Status Schools %	I Status Schools # (n=33)	I Status Schools %
Teachers (-)	13	46%*	13	39%
Parent Support	9	32%	14	42%*
Student Challenges	7	25%*	8	24%
School Culture	3	11%	6	18%*
Classroom Management	0	0%	3	9%*
Mobility (student)	3	11%*	2	6%
Discipline	2	7%*	1	3%

**=higher*

Figure 8 should be interpreted in the same fashion as Figure 7.

There are a few significant areas to note in this figure as well. First, both Non-Improvement and Improvement status schools list teachers as a weakness. For Non-Improvement status schools, 46% identified teachers as a weakness while 39% of Improvement status schools identified teachers as a weakness. It is interesting to note that teachers are identified as both a strength as well as a weakness/challenge for both Non-Improvement and Improvement status schools. However, the difference between Improvement status and Non-Improvement status schools is much more dramatic from the perspective of strengths (see Figure 6). There, 93% of Non-Improvement status schools identified teachers as a strength whereas 64% of Improvement status schools identified teachers as a strength.

Second, the percentages for the theme of student challenges are nearly identical in Non-Improvement and Improvement status schools (Non-Improvement schools indicate 25% and Improvement status schools indicate 24%).

Third, classroom management was *not* identified as an area of weakness/challenge in Non-Improvement status schools while 9% of Improvement status schools did identify this area as a weakness.

Figure 9 provides descriptors gleaned from the principal interviews. These descriptors operationally define the themes in Figure 8.

Figure 9: Definitions of Themes Found in Weakness/Challenge Question—Principal Interview

Theme	Teachers	Parent Support	Student Challenges	
Descriptors	<ul style="list-style-type: none"> • New/need lots of support • Lazy • Inflate quality of work they do • Don't know how to use data • Lame ducks • High turn-over 	<ul style="list-style-type: none"> • Lacking • Minimal • Do not value education • No responsibility • Pitiful • Weak 	<ul style="list-style-type: none"> • Homeless or close • Wide diversity • Lack of confidence • Mental-health concerns • Emotionally needy • Low self-worth • No social norms 	
Theme	School Culture	Classroom Management	Mobility	Discipline
Descriptors	<ul style="list-style-type: none"> • Much work needs to be done • Not a culture of learning • Resistance to change 	<ul style="list-style-type: none"> • Big issue • Atrocious • Needs to be addressed 	<ul style="list-style-type: none"> • Challenging • High percentage • Concerning 	<ul style="list-style-type: none"> • Concerning

Schools Moving Out of Improvement Status (Principal Interview)

It is important to note that nine schools moved out of Improvement status and into Non-Improvement status between Phase I and Phase II of this study. These schools include the following: Daniel Webster High School, Douglass Middle School, Erick Elementary School, Hall-Halsell Elementary School, Jay Middle School, Northeast Academy, Rockwood Elementary School, Star Spencer High School, and Watts Elementary School.

MRL researchers analyzed the principal interviews of these schools to determine if there were any commonalities between these schools that may have contributed to their success in moving out of the Improvement school status. There are a few significant areas to note.

First, six of the nine principals were in their first, second, or third year at their school.

Second, seven of the nine principals were heavily involved with Professional Learning Communities (PLC) work and/or professional development that was focused on best practices/instruction.

Third, all nine schools that moved out of Improvement status had a school-wide focus on a specific area. For example, the entire school was focused on rules and rituals, goal-setting, and/or grading practices.

These areas are summarized in Figure 10.

Figure 10: Commonalities Between Schools Moving out of Improvement Status

Theme	NI Status Schools # (n=28)	NI Status Schools %	I Status Schools # (n=24)	I Status Schools %	I Status Schools Moving to NI Status Schools # (n=9)	I Status Schools Moving to NI Status Schools %
Professional Development	4	14%	4	17%	4	45%
Professional Learning Communities	5	18%	1	4%	7	78%

On-Site Observations

This section reports the findings for the on-site observations.

On-Site Observations, All Questions

During the on-site visits at the 61 sites, MRL Associates conducted classroom observations in 10 randomly chosen classrooms per school. For these observations, an observational protocol based on *The Art and Science of Teaching* (Marzano, 2007) was used to obtain data. In this observational protocol, 41 specific categories of behavior are listed within three general segments and nine design questions. The scale depicted in Figure 3 was used to assign scores in all 41 categories.

To analyze the data, this scale was converted from letters to numbers. In other words, ‘Innovating’ translated to a score of 5 and ‘Not Using’ translated to a score of 1.

Mean scores for each of the 41 elements were compared between Improvement status and Non-Improvement status schools. These comparisons are reported in Figure 11.

Figure 11: Average of Ratings for On-Site Observations by Question

Design Question	NI Status Schools <i>n</i>	NI Status Schools Mean	I Status Schools <i>n</i>	I Status Schools Mean	Significance (2-tailed)
I. Lesson Segments Involving Routine Events					
Design Question #1: What will I do to establish and communicate learning goals, track student progress, and celebrate success?					
Q1.1	25	2.88	29	2.51	0.170
Q1.2	19	2.82	19	2.63	0.643
Q1.3	18	3.03	14	3.19	0.737
Design Question #6: What will I do to establish and maintain classroom rules and procedures?					
Q6.4	26	3.58	31	3.32	0.213
Q6.5	28	3.66	28	3.52	0.451
II. Lesson Segments Addressing Content					
Design Question #2: What will I do to help students effectively interact with new knowledge?					
Q2.1	28	3.40	28	3.21	0.394
Q2.2	23	2.60	24	2.47	0.701
Q2.3	25	3.22	28	2.99	0.474
Q2.4	25	3.56	29	3.46	0.683
Q2.5	26	3.00	25	3.21	0.468
Q2.6	18	3.00	25	2.73	0.488
Q2.7	22	2.88	27	3.20	0.227
Q2.8	21	3.14	25	2.86	0.428
Design Question #3: What will I do to help students practice and deepen their understanding of new knowledge?					

Design Question.Question	NI Status Schools <i>n</i>	NI Status Schools Mean	I Status Schools <i>n</i>	I Status Schools Mean	Significance (2-tailed)
Q3.9	28	3.47	30	3.31	0.405
Q3.10	23	2.99	27	3.05	0.837
Q3.11	18	2.96	16	2.88	0.809
Q3.12	20	3.03	23	3.03	0.999
Q3.13	15	2.83	15	2.90	0.902
Q3.14	26	3.39	29	3.32	0.747
Q3.15	17	2.87	18	3.11	0.579
Design Question #4: What will I do to help students generate and test hypotheses about new knowledge?					
Q4.16	9	3.22	11	3.14	0.853
Q4.17	8	3.10	13	3.15	0.925
Q4.18	7	2.71	13	2.92	0.749
III. Lesson Segments Enacted on the Spot					
Design Question #5: What will I do to engage students?					
Q5.1	26	3.31	31	2.82	0.044
Q5.2	11	3.36	11	2.73	0.203
Q5.3	24	3.38	20	3.17	0.514
Q5.4	15	3.02	15	2.80	0.630
Q5.5	24	3.48	23	3.26	0.379
Q5.6	25	3.61	25	3.44	0.484
Q5.7	14	3.05	12	2.88	0.748

Design Question.Question	NI Status Schools <i>n</i>	NI Status Schools Mean	I Status Schools <i>n</i>	I Status Schools Mean	Significance (2-tailed)
Q5.8	14	3.12	15	3.24	0.794
Q5.9	17	3.28	13	3.24	0.936
Design Question #7: What will I do to recognize and acknowledge adherence or lack of adherence to rules and procedures?					
Q7.10	28	3.42	29	3.04	0.099
Q7.11	24	3.10	24	2.70	0.101
Q7.12	26	3.26	24	3.04	0.432
Design Question #8: What will I do to establish and maintain effective relationships with students?					
Q8.13	17	3.44	20	3.48	0.920
Q8.14	27	3.79	30	3.61	0.342
Q8.15	20	3.81	19	3.33	0.056
Design Question #9: What will I do to communicate high expectations for all students?					
Q9.16	17	3.43	17	3.21	0.529
Q9.17	15	3.44	17	2.84	0.149
Q9.18	12	3.70	16	2.99	0.126

In Figure 11, the first column identifies each of the 41 elements listed under the design question to which it refers. (See Figure 12 for a detailed description of each strategy/element.) The second column gives the number of responses as reported by MRL Associates from Non-Improvement status schools within the design question, and the third column reports the mean score for Non-Improvement status schools. The fourth column indicates the number of responses as reported by MRL Associates from Improvement status schools, and the fifth column reports the mean for Improvement status schools. Statistical significance is reported in the sixth column.

The highest mean score (3.81) occurred in the Non-Improvement status schools in Design Question 8.15 (Displaying objectivity and control, e.g., ‘The teacher behaves in ways that indicate he or she does not take infractions personally’).

On the other hand, the lowest mean score (2.47) occurred in Improvement status schools in Design Question 2.2 (Organizing students to interact with new knowledge, e.g. ‘The teacher organizes students into dyads or triads to discuss small chunks of content’).

For 32 of the 41 elements, Non-Improvement status schools earned higher mean scores than Improvement status schools. In other words, in only nine of the 41 strategies, Improvement status schools earned higher average scores than Non-Improvement status schools.

Figure 12: Description of Design Questions and Their Related Strategies

I. Lesson Segments Involving Routine Events	
Design Question #1: What will I do to establish and communicate learning goals, track student progress, and celebrate success?	
Q1.1	Providing clear learning goals and scales to measure those goals (e.g., the teacher provides or reminds students about a specific learning goal)
Q1.2	Tracking student progress (e.g., using formative assessment the teacher helps students chart their individual and group progress on a learning goal)
Q1.3	Celebrating student success (e.g., the teacher helps student acknowledge and celebrate current status on a learning goal as well as knowledge gain)
Design Question #6: What will I do to establish and maintain classroom rules and procedures?	
Q6.4	Establishing classroom routines (e.g., the teacher reminds students of a rule or procedure or establishes a new rule or procedure)
Q6.5	Organizing the physical layout of the classroom for learning (e.g., the teacher organizes materials, traffic patterns, and displays to enhance learning)
II. Lesson Segments Addressing Content	
Design Question #2: What will I do to help students effectively interact with new knowledge?	
Q2.1	Identifying critical information (e.g., the teacher provides cues as to which information is important)
Q2.2	Organizing students to interact with new knowledge (e.g., the teacher organizes students into dyads or triads to discuss small chunks of content)
Q2.3	Previewing new content (e.g., the teacher uses strategies such as: K-W-L, advance organizers, preview questions)
Q2.4	Chunking content into “digestible bites” (e.g., the teacher presents content in small portions that are tailored to students’ level of understanding)

Q2.5	Group processing of new information (e.g., after each chunk of information, the teacher asks students to summarize and clarify what they have experienced)
Q2.6	Elaborating on new information (e.g., the teacher asks questions that require students to make and defend inferences)
Q2.7	Recording and representing knowledge (e.g., the teacher ask students to summarize, take notes, or use nonlinguistic representations)
Q2.8	Reflecting on learning (e.g., the teacher asks students to reflect on what they understand or what they are still confused about)
Design Question #3: What will I do to help students practice and deepen their understanding of new knowledge?	
Q3.9	Reviewing content (e.g., the teacher briefly reviews related content addressed previously)
Q3.10	Organizing students to practice and deepen knowledge (e.g., the teacher organizes students into groups designed to review information or practice skills)
Q3.11	Using homework (e.g., the teacher uses homework for independent practice or to elaborate on information)
Q3.12	Examining similarities and differences (e.g., the teacher engages students in comparing , classifying, creating analogies and metaphors)
Q3.13	Examining errors in reasoning (e.g., the teacher asks students to examine informal fallacies, propaganda, bias)
Q3.14	Practicing skills, strategies, and processes (e.g., the teacher uses massed and distributed practice)
Q3.15	Revising knowledge (e.g., the teacher asks students to revise entries in notebooks to clarify and add to previous information)
Design Question #4: What will I do to help students generate and test hypotheses about new knowledge?	
Q4.16	Organizing students for cognitively complex tasks (e.g., the teachers organizes students into small groups to facilitate cognitively complex tasks)
Q4.17	Engaging students in cognitively complex tasks involving hypothesis generating and testing (e.g., the teacher engages students in decision making tasks, problem solving tasks, experimental inquiry tasks, investigation tasks)

Q4.18	Providing resources and guidance (e.g., the teacher makes resources available that are specific to cognitively complex tasks and helps students execute such tasks)
III. Lesson Segments Enacted on the Spot	
Design Question #5: What will I do to engage students?	
Q5.1	Noticing and reacting when students are not engaged (e.g., the teacher scans the classroom to monitor students' level of engagement)
Q5.2	Using academic games (e.g., when students are not engaged, the teachers uses adaptations of popular games to reengage them and focus their attention on academic content)
Q5.3	Managing response rates during questioning (e.g., the teacher uses strategies to ensure that multiple students respond to questions such as: response cards, response chaining, voting technologies)
Q5.4	Using physical movement (e.g., the teacher uses strategies that require students to move physically such as: vote with your feet, physical reenactments of content)
Q5.5	Maintaining a lively pace (e.g., the teacher slows and quickens the pace of instruction in such a way as to enhance engagement)
Q5.6	Demonstrating intensity and enthusiasm (e.g., the teacher uses verbal and nonverbal signals that he or she is enthusiastic about the content)
Q5.7	Using friendly controversy (e.g., the teacher uses techniques that require students to take and defend a position about content)
Q5.8	Providing opportunities for students to talk about themselves (e.g., the teacher uses techniques that allow students to relate content to their personal lives and interests)
Q5.9	Presenting unusual or intriguing information (e.g. the teacher provides or encourages the identification of intriguing information about the content)
Design Question #7: What will I do to recognize and acknowledge adherence or lack of adherence to rules and procedures?	
Q7.10	Demonstrating "withitness" (e.g., the teacher is aware of variations in student behavior that might indicate potential disruptions and attends to them immediately)
Q7.11	Applying consequences (e.g., the teacher applies consequences to lack of adherence to rules and procedures consistently and fairly)
Q7.12	Acknowledging adherence to rules and procedures (e.g., the teacher acknowledges adherence to rules and procedures consistently and fairly)

Design Question #8: What will I do to establish and maintain effective relationships with students?	
Q8.13	Understanding students' interests and backgrounds (e.g., the teacher seeks out knowledge about students and uses that knowledge to engage in informal, friendly discussions with students)
Q8.14	Using behaviors that indicate affection for students (e.g., the teacher uses humor and friendly banter appropriately with students)
Q8.15	Displaying objectivity and control (e.g., the teacher behaves in ways that indicate he or she does not take infractions personally)
Design Question #9: What will I do to communicate high expectations for all students?	
Q9.16	Demonstrating value and respect for low expectancy students (e.g., the teacher demonstrates the same positive affective tone with low expectancy students as with high expectancy students)
Q9.17	Asking questions of low expectancy students (e.g., the teacher asks questions of low expectancy students with the same frequency and level of difficulty as with high expectancy students)
Q9.18	Probing incorrect answers with low expectancy students (e.g., the teacher inquires into incorrect answers with low expectancy students with the same depth and rigor as with high expectancy students)

Scores on the 41 elements (strategies) were also collapsed into the nine design questions and aggregated means were computed for Non-Improvement and Improvement status schools. These results are reported in Figure 13.

Figure 13: On-Site Observations, Collapsed Elements (By Design Question)

Design Question	NI Status School <i>n</i>	NI Status School Mean	I Status School <i>n</i>	I Status School Mean	Significance (2-tailed)
Design Question 1	26	2.80	31	2.53	0.291
Design Question 6	28	3.57	32	3.35	0.208
Design Question 2	28	3.12	31	3.17	0.821
Design Question 3	28	3.27	33	3.22	0.763

Design Question	NI Status School <i>n</i>	NI Status School Mean	I Status School <i>n</i>	I Status School Mean	Significance (2-tailed)
Design Question 4	14	3.21	16	3.09	0.768
Design Question 5	28	3.37	33	3.12	0.180
Design Question 7	28	3.44	29	3.07	0.033*
Design Question 8	28	3.72	31	3.58	0.409
Design Question 9	18	3.48	20	3.03	0.204

* Significant at the .05 level

As indicated in Figure 13, the Non-Improvement status schools have higher means in all areas except Design Question #2: “What will I do to help students effectively interact with new knowledge?” However, the difference here was minimal.

The final way the data for on-site observations was analyzed was to compute the total average number of strategies used in each school and to compare the mean for Improvement status and Non-Improvement status schools. The findings are reported in Figure 14.

Figure 14: Total Number of Strategies Used

Design Question	NI Status School <i>n</i>	NI Status School Mean	NI School Standard Deviation	I School <i>n</i>	I School Mean	I School Standard Deviation	Significance (2-tailed)
Total Number of Strategies Observed	28	10.91	5.418	33	7.78	5.61	.032*

* Significant at the .05 level

Figure 14 indicates that on the average, teachers in Improvement status schools used 7.78 instructional strategies during classes that were observed whereas teachers in Non-Improvement status schools used 10.91 strategies.

A conclusion that may be drawn from Figures 11 and 14 is that, in general, teachers in Non-Improvement status schools use more strategies than teachers in Improvement status schools and use them more effectively.

**Correlations Between Instructional Strategies and Student Achievement for
On-Site Observations**

Correlations between the number of instructional strategies (i.e., the 41 elements) observed and student achievement scores for reading and math were also compiled. The findings are shown in Figure 15.

**Figure 15: Correlations Between Instructional Strategies and Student Achievement—
On-site Observations**

Element	<i>n</i>	Reading Proficiency Correlation	Significance (2-tailed)	Math Proficiency Correlation	Significance (2-tailed)
I. Lesson Segments Involving Routine Events					
Design Question #1: What will I do to establish and communicate learning goals, track student progress, and celebrate success?					
Question 1.1	51	.420	.002**	.257	.069
Question 1.2	35	.328	.054	.109	.533
Question 1.3	29	.173	.369	.121	.531
Design Question #6: What will I do to establish and maintain classroom rules and procedures?					
Question 6.4	53	.395	.003**	.284	.040*
Question 6.5	52	.290	.037*	.121	.391
II. Lesson Segments Addressing Content					
Design Question #2: What will I do to help students effectively interact with new knowledge?					
Question 2.1	52	.239	.087	.212	.131
Question 2.2	44	.188	.221	.089	.566
Question 2.3	49	.146	.315	.149	.305
Question 2.4	50	.226	.114	.199	.167

Element	<i>n</i>	Reading Proficiency Correlation	Significance (2-tailed)	Math Proficiency Correlation	Significance (2-tailed)
Question 2.5	49	.088	.550	.116	.427
Question 2.6	41	.195	.223	.140	.382
Question 2.7	47	.007	.965	-.071	.636
Question 2.8	43	.373	.014*	.329	.031*
Design Question #3: What will I do to help students practice and deepen their understanding of new knowledge?					
Question 3.9	54	.128	.357	.074	.593
Question 3.10	47	.245	.097	.185	.213
Question 3.11	33	.144	.425	.000	.999
Question 3.12	40	.198	.221	.092	.573
Question 3.13	25	-.031	.882	.035	.869
Question 3.14	51	.234	.098	.222	.117
Question 3.15	32	.030	.872	-.032	.861
Design Question #4: What will I do to help students generate and test hypotheses about new knowledge?					
Question 4.16	19	.071	.771	.020	.936
Question 4.17	20	.087	.715	.105	.658
Question 4.18	19	-.180	.460	-.209	.391
III. Lesson Segments Enacted on the Spot					
Design Question #5: What will I do to engage students?					
Question 5.1	54	.128	.356	.054	.696
Question 5.2	21	.389	.082	.318	.160

Element	<i>n</i>	Reading Proficiency Correlation	Significance (2-tailed)	Math Proficiency Correlation	Significance (2-tailed)
Question 5.3	42	.199	.206	.174	.271
Question 5.4	28	.298	.124	.327	.089
Question 5.5	44	.273	.073	.149	.208
Question 5.6	46	.249	.095	.201	.179
Question 5.7	26	.322	.108	.134	.515
Question 5.8	27	.201	.316	.201	.782
Question 5.9	30	.325	.080	.169	.372
Design Question #7: What will I do to recognize and acknowledge adherence or lack of adherence to rules and procedures?					
Question 7.10	54	.222	.107	.088	.528
Question 7.11	46	.363	.013*	.343	.020*
Question 7.12	47	.226	.127	.222	.133
Design Question #8: What will I do to establish and maintain effective relationships with students?					
Question 8.13	36	.156	.363	.211	.217
Question 8.14	55	.326	.015*	.190	.164
Question 8.15	37	.353	.032*	.332	.045*
Design Question #9: What will I do to communicate high expectations for all students?					
Question 9.16	33	.344	.050*	.388	.025*
Question 9.17	31	.360	.046*	.364	.044*
Question 9.18	27	.377	.053	.340	.083

In Figure 15 for reading, 39 of 41 correlations were positive. For mathematics, 41 of 41 correlations were positive. However, for reading, only 5 of 41 correlations were statistically significant at the .05 level ($p < .05$) and in mathematics only 6 of the 41 correlations were significant at the .01 level. This might be due to the fact that sample size was quite small in all situations.

Figure 16 reports the correlations between the nine aggregate design questions and reading and mathematics achievement.

Fig. 16: Correlations Between Combined Strategies Within Design Questions and Proficiency in Reading and Math

Element	<i>n</i>	Reading Proficiency Correlation	Significance (2-tailed)	Math Proficiency Correlation	Significance (2-tailed)
Design Q1	53	.332	.015*	.164	.241
Design Q6	56	.369	.005**	.229	.089
Design Q2	55	.185	.177	.155	.258
Design Q3	57	.185	.167	.132	.329
Design Q4	29	.109	.575	.043	.824
Design Q5	57	.316	.017*	.191	.154
Design Q7	54	.375	.005**	.253	.065
Design Q8	56	.301	.024*	.210	.120
Design Q9	36	.400	.016*	.398	.016*

* Significant at the .05 level

**Significant at the .01 level

All correlations in Figure 16 were positive for both reading and mathematics. Six of those correlations were significant at the .05 level for reading and only one was significant at the .05 level in mathematics.

Finally, Figure 17 reports the correlations between reading and mathematics proficiency and the average number of strategies used in classrooms per school. Both correlations were positive and significant at the .05 level.

Figure 17: Correlations Between Total Number of Strategies Used and Proficiency in Reading and Math

Element	<i>n</i>	Reading Proficiency Correlation	Significance (2-tailed)	Math Proficiency Correlation	Significance (2-tailed)
Total Number of Strategies Used	57	.345	.009**	.263	.048*

*Significant at the .05 level

**Significant at the .01 level

A conclusion that might be drawn from Figures 15, 16, and 17 is that the 41 strategies, the nine design questions, and the number of strategies used by the teachers all have a positive relationship with mathematics and reading proficiency measured at the school level.

MRL Associate Anecdotal Notes

This section reports the findings from anecdotal notes made by the MRL Associates after completing their on-site visits. Associates summarized information gathered during classroom observations, the principal interview, and other interactions with students and staff. The notes were analyzed for frequency of terms describing areas of concern. The two categories with the highest frequency of occurrence are depicted in Figure 18.

Figure 18: Areas of Concern Identified From MRL Associate Anecdotal Notes

Category of Concern	NI Status Schools	NI Status Schools	I Status Schools	I Status Schools
	<i>n</i>	%	<i>n</i>	%
Literacy, Reading and Vocabulary Support Needed or Requested	13	46%	18	55%
Teaching Strategies and Student Engagement	16	57%	23	70%

As indicated in Figure 18, concerns about teaching strategies and student engagement were expressed for 70% of the Improvement status schools and for 57% of the Non-Improvement status schools. Concerns regarding literacy, reading, and vocabulary were expressed in 55% of the Improvement status schools and in 46% of the Non-Improvement status schools.

Video Recordings

This section reports the findings from the analysis of the video recordings.

In addition to the on-site observations, all 61 schools were asked to record approximately 10 minutes of instruction in five randomly selected classrooms. Out of the 61 schools, 56 completed this task. Behavior in four general categories was analyzed in the video recording: clarity of subject, student interaction with each other about content, student processing of information, and engagement. A rubric was created by MRL researchers that ranged from a beginning score of 1.0, indicating below target, to an advanced score of 3.0, indicating above target (See Figure 4).

Two or more MRL researchers independently watched each video recording. Results were averaged to obtain a composite score for each teacher. These scores were then averaged within schools. Figure 19 reports the results for Improvement versus Non-Improvement status schools.

Figure 19: Average of Ratings for Video Observations by Topic/Category

Topic	NI Status Schools <i>n</i>	NI Status Schools Mean	NI Std. Deviation	I Status Schools <i>n</i>	I Status Schools Mean	I Std. Deviation	Significance (2-tailed)
Q1: Clarity of Subject	26	1.88	.179	26	1.80	.233	.150
Q2: Student Interaction About Content	26	1.55	.230	26	1.50	.302	.507
Q3: Student Processing of Information	26	1.62	.237	26	1.54	.293	.281
Q4: Student Engagement	26	1.60	.226	26	1.50	.281	.192

For each of the four areas of observation, Non-Improvement status schools earned higher average ratings than Improvement status schools. However, all schools (both Non-Improvement and Improvement) scored below the target (a score of 2.0) in each of the four areas. ‘Clarity of Subject,’ (Question One) showed the highest average ratings for both Non-Improvement and Improvement status schools. The lowest area for Non-Improvement status schools was ‘Student Interaction with Each Other About Content’ (Question 2). Question 2 and Question 4, ‘Engagement,’ were both equally low areas for Improvement status schools. It also should be

noted that even though Non-Improvement status schools had higher mean scores than Improvement status schools in all cases, the differences in means were not statistically significant at the .05 level. Again, this might be a function of small sample sizes.

Correlations between the four general categories of teacher behaviors and proficiency in reading and mathematics were also compiled. These are reported in Figure 20.

Figure 20: Correlation Between Instructional Strategies and Student Achievement for Video Observations

Topic	<i>n</i>	Reading Proficiency Correlation	Significance (2-tailed)	Math Proficiency Correlation	Significance (2-tailed)
Q1: Clarity of Subject	48	.094	.525	.292	.044*
Q2: Student Interaction About Content	48	.162	.272	.261	.073
Q3: Student Processing of Information	48	.245	.094	.324	.025*
Q4: Student Engagement	48	.230	.116	.340	.018*

* Significant at the .05 level

In Figure 20, all correlations were positive but only three of the eight correlations were significant at the .05 level, and those correlations were all in mathematics.

Student Survey Comments

The final type of data analyzed for the Phase II report was student survey comments. Students were asked to respond to the following question: “What do you dislike about your school?” Student responses to the questions were analyzed by two or more MRL researchers and organized into 10 categories. (See Technical Note 1 for a description of the coding process.)

Figure 21: Results from Student Surveys—“What do you Dislike About Your School?”

Theme from Student Surveys	NI Status Schools %	I Status Schools %	Significance
Classroom Management	32%	32%	0.849
Boring Class	10%	8%	0.322
Pacing/Pedagogy	39%	38%	0.610
Student Feedback	1%	2%	0.610
Low Expectations	1%	2%	0.074
Bullying	7%	8%	0.587
Student Self-Esteem	1%	2%	0.088
Teacher/Student Relationship	7%	10%	0.115
Racial Harassment	1%	1%	0.989
Condition of Facility	7%	5%	0.054
Student Supplies	1%	2%	0.251

The first column in Figure 21 reports the category of student responses. The second column reports the average percentage of responses for Non-Improvement status schools. The third column reports the average percentage for the Improvement status schools. The fourth column reports the significance level for the differences between the Non-Improvement status schools and the Improvement status schools.

Of note in Figure 21 is the fact that the categories of most dislike for Non-Improvement and Improvement status schools were classroom management, pacing of instruction, and the pedagogy used during instruction. For both Non-Improvement and Improvement status schools, 32% of students mentioned classroom management as a dislike. For pacing and pedagogy, 39% of Non-Improvement status school students and 38% of Improvement status school students mentioned this as a dislike. From this, one might conclude that these are areas all Oklahoma schools might address even though the survey results do not discriminate between Non-Improvement and Improvement status schools.

Another element of note in Figure 21 is how similar the responses are for Non-Improvement and Improvement status school students in all categories. The only category of response that

approaches statistical significance ($p < .05$) was Condition of Facility. Here, 7% of Non-Improvement status schools mention it as a dislike and 5% of Improvement status schools mention it as a dislike.

General Conclusions

As was the case with the Phase I report, the Phase II report should be carefully scrutinized by the OSDE to determine the areas on which to focus to best serve Oklahoma schools. That noted, a few generalizations seem supported by findings in this report:

- **Instructional strategies matter:** Non-Improvement status schools consistently scored higher on the 41 elements (i.e., instructional strategies) from the *Art and Science of Teaching*. Additionally, the more strategies that were typically used in a school, the better the achievement in mathematics and reading. It appears that those schools in Improvement status might benefit from a concerted effort to enhance the effectiveness of their instructional strategies and to expand their repertoire of instructional strategies.
- **Have a school-wide focus:** Given the fact that schools that moved out of Improvement status during the course of this study tended to have a school-wide focus on some common intervention it seems that Improvement status schools in Oklahoma should follow in suit. Combining this generalization with the first generalization, that area of focus might be the enhancement of teachers' pedagogical skills. Additionally, some formal structure for teacher and administrator interaction such as PLCs (Professional Learning Communities) should be considered to facilitate collaboration.
- **Make student engagement a priority and revisit the techniques for vocabulary instruction:** Based on the anecdotal comments from MRL Associates regarding their site visits, it appears that Improvement status schools could benefit by making a concerted effort to increase the levels of student engagement in their schools. Additionally, even though the associates observed vocabulary instruction in many schools, the techniques that were employed often did not follow the Oklahoma recommended model. Specifically, there is still too much reliance on copying definitions from the dictionary. This practice does not allow for student construction of meaning or long-term retention of information.

Technical Notes

Technical Note 1: During Phase I of this study, students were surveyed regarding the use of the nine essential elements in their respective schools. Results of the quantitative (multiple-choice) questions were reported in Phase I. There were two written (qualitative) questions found at the end of the survey. Student responses to the question, “What do you dislike about your school?” were reviewed and placed into one of the following theme categories: classroom management, boring class, pacing/pedagogy, student feedback, low expectations, bullying, student self-esteem, teacher/student relationship, racial harassment, condition of facility, or student supplies.

Inter-rater reliability was established between three researchers at MRL, and eleven themes were identified from all of the student comments.

The student survey responses were initially coded by two raters, R1 and R2. The theme codes assigned by R1 and R2 for the third through fifth grade student survey were compared for agreement. A third rater, R3, was used to reconcile differences between R1 and R2. A random sample of 20% of the survey responses in which R1 and R2 disagreed was identified. Then, after meeting to discuss the coding categories and criteria for reconciliation all three raters re-coded the random sample independently. Figure TN1 shows the inter-rater reliability percentages that were calculated after the random sample was re-coded.

Figure TN1: Inter-Rater Reliability Percentages

	R1	R2	R3
R1	--	59.8%	64.6%
R2	59.8%	--	63.0%
R3	64.6%	63.0%	--
R1R2R3			47.2%
2 of 3			74.8%

Figure TN1 indicates that all three raters were in agreement on their theme coding for 47.2% of the student survey responses from the random sample. Agreement between each of the raters ranged from 59.8% and 64.6%. R3 visually compared disagreement for the random sample and coded a variable to indicate majority agreement. The variable was coded with a 1 when two of three raters agreed and 0 for all other cases. It should be noted that student responses with a single rater coding (i.e., only one rater assigned a theme code) were not treated as majority agreement and were coded with a 0. Two of three raters were in agreement on their theme coding for 74.8% of the student responses.

The responses from all three student surveys in which R1 and R2 disagreed were then reconciled and coded by R3. It is worth noting that some of the disagreement resulted when student

responses reflected more than one theme. In those cases, the responses were coded with the category that represented the dominant theme in the response.

In order to analyze these themes quantitatively, the percentage of student survey responses for each theme was calculated for each school. To calculate the percentages, the total number of valid student survey responses for each theme was divided by the total number of valid student survey responses for each school. Student responses indicating “no dislikes” and blank responses were treated as missing data and excluded from the calculations.