

Everyday Mathematics School **Intervention Program**

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The Indiana Mathematics Initiative (IMI) has been at the forefront in providing resources, professional development, and technical assistance to the consortium school corporations for building district capacity to implement and sustain reform mathematics programming and mathematics leadership. Through the IMI Math and Science Partnership (MSP), member school districts have developed cadres of mentorship teachers who support building-level teachers in the implementation of reform mathematics curriculum, instruction, and assessment. Capitalizing on IMI resources and professional development model, Elkhart Community Schools has expanded the Indiana Mathematics Initiative's teacher/leader progression to incorporate building-level liaison teachers and district-level professional development trainers. Building-level liaison teachers provide technical assistance to building grade-level teams in the planning and implementation of standards-based mathematics, respond to the unique staff development needs of the school, and serve in an advisory capacity to the district mathematics council. The district-level professional trainers provide foundational mathematics training to all teachers new to the district as well as advanced seminars in mathematical topics and pedagogy.

During the 2007–08 school year, Elkhart Community Schools piloted a new phase of professional development, an *Everyday Mathematics School Intervention Program*. The intent of the intervention program focused upon the major IMI goal, district sustainability for the teaching and learning of standards-based mathematics. As with previous district efforts towards sustainability, Elkhart Community Schools needed to further expand the IMI teacher/leader continuum, this time to include mathematics coaches. Utilizing Title I resources, Elkhart Community Schools created the initial mathematics coaching position for the 2007–08 school year. District plans include the hiring and training of additional mathematics coaching positions in subsequent years. Fortunately, candidates for the mathematics coaching positions include the rich pool of highly trained IMI teachers and IMI Select Cadre members. Obviously, hiring priority has and will be afforded to these teachers.

The overall vision of the *Everyday Mathematics School Intervention Program* is to provide to both continuous and intensive professional development opportunities in high need schools. Mathematics coaches will collaborate with building principals to assess building-level staff development needs; provide relevant content, pedagogical and assessment in-service opportunities to building teachers and administrators, as well as conducting classroom observations along with providing feedback, modeling effective instructional strategies, and coaching teachers. Although the long-term vision of the *Everyday Mathematics School Intervention Program* utilizes district mathematics coaches, during the initial program pilot years, IMI *Everyday Mathematics* consultants were used to provide intervention program services as well as apprenticeship training for the district mathematics coaches. The rationale behind this approach was two-fold. First, the district wanted to establish the efficacy of the staff

development model and strategy. Utilizing the professional staff development trainers greatly reduced the probability that the level of trainer expertise would become a significant variable in the analysis. Second, the scaffolding strategy was designed to improve the confidence level of the math coaches for eventual delivery of intervention services through the mentorship process.

The realization that there was a need for the intervention program began with the restructuring of Roosevelt K–6 Elementary School into Roosevelt K–2 Primary School. As a result, there was a significant number of new teachers who were hired that had little staff development opportunities with the *Everyday Mathematics* Program. Furthermore, the restructuring eroded much of the Indiana Mathematics Initiative leadership at Roosevelt Primary School. Although the district provided all teachers who were not trained through the IMI project with the five-day foundational training in *Everyday Mathematics* as well as opportunities for advanced seminars in reform mathematics, there were several teachers who had little confidence or understanding of standards-based mathematics curriculum. The supposition behind the reform mathematics sustainability plan of Elkhart Community Schools assumed a gradual change in staffing. It quickly became evident to both building and central office administrators that a new sustainability strategy was needed to accommodate a rapid turn-over in building-level staffing. As such, Roosevelt Primary School became the initial pilot site for the *Everyday Mathematics* School Intervention Program.

Setting

Roosevelt Primary School is a primary school located in Elkhart, Indiana, a medium-size urban city located in northern Indiana. Roosevelt Primary services approximately 500 students, grades kindergarten through second grade. The demographical data of Roosevelt Primary School is similar to most urban schools. Roosevelt is a Title I funded school that services a low socio-economic status (SES) student population; ninety percent (90%) of students are on free or reduced lunch. Roosevelt Primary has a diverse student population ethnically, forty-nine percent (49%) are Hispanic, thirty-two percent (32%) are African-American, ten percent (10%) are Multi-Racial, eight percent (8%) are Caucasian, and one percent (1%) is Asian. Roosevelt also provides services to forty-eight percent (48%) of the student population through the English as a New Language (ENL) program.

In the fall of 2006, Roosevelt Primary School moved to a newly constructed facility. The move coincided with a school reorganization plan to meet compliance with No Child Left Behind (NCLB) sanctions. The reorganization plan converted Roosevelt from a K–6 elementary school to a K–2 primary school. As part of the reorganization plan, a new principal and a new assistant principal were hired. Furthermore, through a reposting and selection process, a new faculty was hired at Roosevelt. By the fall of 2007, only two of the twenty-nine (29) regular classroom teachers were trained through IMI and over forty (40%) of the faculty were first- or second-year teachers. As such, the building administrative team was concerned with the implementation of the *Everyday Mathematics* program at Roosevelt. The building administrative team scheduled a meeting with the Mathematics Supervisor of Elkhart Community Schools, who also serves as the District Coordinator for the IMI project, to discuss needs and concerns. From the initial meeting, the supervisor scheduled a series of planning sessions with relevant personnel from the Indiana Mathematics Initiative, *Everyday Mathematics*, and Elkhart Community Schools. From the needs and concerns articulated by the administrative team, the group was able to establish an intervention structure, plan, and goals as well as possible evidence of intervention efficacy.

Planning

The *Everyday Mathematics* School Intervention Program was a collaborative effort between the Indiana Mathematics Initiative, *Everyday Mathematics*, and Elkhart Community Schools. Established relationships and reciprocal influences between the three entities were clearly evident throughout all phases of the intervention program. Early in the planning process, *Everyday Mathematics* donated the services of the professional development specialists upon the request of the Indiana Mathematics Initiative. These services were a significant resource for the intervention project.

With the exception of building-level administrators, all of the individuals who attended the planning sessions were extensively involved with the Indiana Mathematics Initiative project. The *Everyday Mathematics* consultant previously served in an advisory capacity for the Indiana Mathematics Initiative consortium. The *Everyday Mathematics* professional development specialists had served as trainers for the IMI project. Personnel from Elkhart Community Schools included an IMI district coordinator and a member of the IMI special cadre. Also included in the planning process was an IMI mathematics consultant.

Since members of the planning committee had a well established relationship with the IMI project, the design of the intervention program was consistent with the goals, objectives, and practices of the Indiana Mathematics Initiative. The major focus of the project was on district leadership and sustainability. This included sustainability of teaching practices and sustainability of teacher support. The following three components of the intervention project addressed sustainability of teaching practices and sustainability of teacher support. It is important to note that the later two components also addressed the development of developing mathematical leadership. The first component was the continuous and progressive nature of the professional development program. Teacher observations, professional dialogue, and in-service sessions were periodic and continual. The progression of professional development will extend into subsequent years, with the frequency determined by individualized teacher learning needs. The second component included administrative awareness. This component included administrative attendance to teacher in-service sessions, administrative debriefing and dialogue sessions with the consultants, and administrative walk-through sessions. Since principals are the onsite supervisors, administrative awareness is critical to the maintenance of a standards-based mathematics program. The third component is the professional development of the mathematics coaches. The apprenticeship approach towards the professional development of the district mathematics coaches accommodates the natural transition from a contracted services support to a district-level teacher support system.

Professional Development Activities

The nature of the professional development activities was also congruous with the professional development approach of the Indiana Mathematics Initiative. The central theme of the professional development activities addressed teacher awareness and understanding of the school mathematics standards articulated by the National Council of Teachers of Mathematics (NCTM). This included teacher understanding of all of the content and process knowledge and skill sets necessary for students to become mathematically literate, teacher understanding of the pedagogical approach and prominent features of a standards-based curriculum and the relationship to the NCTM school mathematics standards, as well as the practical implications of

a standards-based curriculum for classroom structure and organization, curricular design and implementation, and instructional and assessment strategies and techniques.

A third feature of the IMI professional development design was documentation and communication. The Indiana Mathematics Initiative created two pages on the IMI website for the specific purposes of facilitating teacher documentation of planning and reflection as well as fostering two-way communication between trainers and trainees. The intervention program also utilized documentation and two-way communication. Teachers kept a written record of their lesson planning and reflection, which were reviewed and discussed during teacher debriefings. Also, two-way communication was facilitated through e-mail.

The final feature of the intensive intervention program design provided staff development interactions in the actual classrooms. Although the logistics precluded the extensive utilization of classroom staff development interactions by the Indiana Mathematics Initiative program, the philosophical belief was consistent with the IMI professional development approach of planning and action, feedback and reflection, and revision. A Certified *Everyday Mathematics* Staff Developer had five classroom interactions with each of the classroom teachers accompanied by a debriefing after each visitation. Classroom interactions included, but were not limited to, co-teaching, modeling, and observation. In addition, each and every teacher attended twelve one-hour in-service sessions focusing upon mathematical content and processes; national school mathematics standards; and the relationship to actual classroom lessons, routines, and instructional techniques of the program. Philosophical, pedagogical, and practical considerations of the program were addressed. Goals of the program were to:

- Improve teacher understanding of mathematical content and processes;
- Improve teacher understanding of national school mathematics standards and the relationship to the *Everyday Mathematics* curriculum;
- Improve teacher understanding, confidence, and fidelity in the teaching of the *Everyday Mathematics* curriculum;
- Increase the teachers' utilization of higher-order questioning strategies, mathematical language, and communication in teaching mathematics lessons;
- Improve teacher awareness of mathematical connections to real life and other curricular areas as well as increasing the frequency that teachers utilize these connections in their daily instruction.

Intervention

The intervention utilized three staff developers from the *Everyday Mathematics* program. Each of the trainers was assigned to one of the three grade levels; kindergarten, first grade, and second grade. The staff developers were responsible for providing twelve one-hour grade-level staff development sessions during school collaboration time, five classroom visitations, and five individual debriefing sessions to discuss the classroom visitations. Each of the staff developers conducted 20-minute interview sessions with each of the grade-level teachers prior to any of the training sessions to establish an initial relationship with the staff members, to ascertain the teacher's understanding of mathematical content, processes, and standards; to improve the teacher's confidence level and understanding of the *Everyday Mathematics* curriculum, instructional techniques, and assessment practices; and to provide clarity to teachers concerning the processes and procedures of the staff development project.

To coordinate and monitor the progress of the intensive intervention project, the three staff developers had regularly scheduled meetings with the building-level administrators, the district mathematics coordinator, and the mathematics coach. During the meetings, issues, concerns, and needs were addressed to provide better material and professional development support for the teachers. It provided an opportunity for the mathematics coach to observe and further participate in the intervention program. Also, the mathematics coach had regularly scheduled meetings with the *Everyday Mathematics* trainers to discuss the implementation of the staff development project as well as their participating in the in-service activities, classroom observations, and teacher debriefing sessions.

To meet the goals of the staff development project, staff development was centered upon three factors: mathematical content, processes, and standards; classroom structure and organization; and curricular and instructional practice. Mathematical content, processes, and standards were embedded throughout all phases of the project. Although all of the NCTM content strands were addressed, the focal points of the mathematical content were number and operation, geometry, and algebra. With number and operation, the emphasis was on whole number representation, ordering, and place value and the conceptual and procedural development of addition and subtraction. The emphasis for geometry included describing, composing, and decomposing two and three dimensional shapes. The focus of algebra was on pattern recognition, description, and extension. Utilizing a strand analysis approach, teachers studied the development of mathematical concepts within the national standards and the *Everyday Mathematics* curriculum. This approach provided teachers with a conceptual context and rationale for the teaching of mathematical content as well as a framework for differentiating instruction according to student knowledge and content needs.

Similarly, teachers received instruction on the mathematical processes. All of the NCTM process strands were addressed to include problem solving, reasoning and proof, communication, connections, and representation. Through the strand analysis approach, teachers studied the development of mathematical processes within the national standards and the *Everyday Mathematics* curriculum. A major emphasis was placed upon developing teacher awareness and utilization of mathematical processes for a few reasons. Teachers tend to be less familiar with the mathematical processes because the traditional approach to the teaching and learning of mathematics used in the United States does not emphasize them. Although these skills are difficult ones for teachers to teach, modern-day learning theory supports the efficacy of mastering mathematical process skills in order to develop a deep understanding of mathematical content. Finally, and most importantly, student development of mathematical process skills promotes student engagement and independent learning of mathematics.

The initial staff development sessions centered upon the second factor: classroom structure and organization. Classroom structure and organization are the foundations for student engagement of mathematics and student facilitation of learning mathematical concepts, skills, and processes. Classroom organization, planning, and establishment of routines were the emphasis of the beginning morning staff in-services, the initial observation, and the initial debriefing session. Classroom organization and structure included organizing student seating to facilitate student group work and discourse; clearly displaying *Everyday Mathematics* posters, unit goals and objectives in student terms, and mathematical vocabulary; and organizing student materials and manipulatives for easy accessibility. Evidence of teacher planning included notes concerning the mathematics lesson of the day, any thoughts on collective or individual student learning needs, any connections of the mathematical content of the day to previous mathematical

concepts or real world applications, and well-organized activities and discussions. Establishment and maintenance of daily classroom and mathematical routines was considered a critical element in quick transitions from one activity to another.

The third factor of the staff development was centered upon curricular and instructional practice. The staff developers addressed three elements of the curriculum. The first was establishing and articulating the daily objectives and purpose of the lesson. Establishing context and function of the lesson was an essential element for students to understand the mathematical content. Furthermore, there were clear expectations for students to articulate the rationale and purpose for the mathematics that they had learned each day.

A second element was pacing. The staff development team worked with the Roosevelt teachers to maintain an appropriate pace to complete the program within the year. Essential to the year-long pacing schedule was for teachers to trust the spiral. Instead of focusing on mastery during a small unit of time, the teachers were looking to develop mastery over an extended period of time. For most teachers, the paradigm shift is a difficult transition. The second aspect of pacing was the pacing of the lessons. Some teachers have a difficult time completing all of the components in a 60- to 75-minute session. Developing strategies, organizational techniques, and classroom management were addressed during both the morning in-service sessions and classroom visits.

The third element was teacher utilization of all the instructional components and resources of the *Everyday Mathematics* program. The initial objective was to make sure that the teachers had all of the resources of the program. With the turn over in staffing and the move to a new building, many teachers were missing some of the instructional resources of the *Everyday Mathematics* program. As such, the school district quickly addressed the situation. The second objective was to develop teacher understanding and utilize all of the components of the *Everyday Mathematics* curriculum. The components included the Math Messages, Mental Math & Math Reflexes, Lesson 1, Lesson 2, Lesson 3, Math Games, and Home Links. The various components provide balance to the mathematics curriculum. Each of these components addressed some aspect in student development of procedural fluency, conceptual understanding, and problem solving.

The main emphasis of instructional practice was fostering student discourse and reasoning. Many of the activities encouraged students to share strategies, explain reasoning, and justify procedures. Students were expected to work cooperatively, solve problems, and investigate mathematics in real-world applications. Furthermore, students were expected to communicate their thinking in writing. Strategies for ascertaining qualitative student data from the writing and incorporating the information to address individual and collective student learning needs were shared with the teachers.

The debriefing sessions were organized into three parts. On the first part, teachers received feedback on their lesson planning. Teachers submitted their plans prior to the classroom observation and the staff developers provided organizational and structural advice. During the second part, teachers had an opportunity to reflect upon the observed lesson. Development of teacher self-awareness is a valuable learning tool. Teachers have the opportunity to consider the mathematical concepts and skills in relationship to the curriculum, think about lesson revisions, and consider evidence of student needs. On the third part, teachers reviewed the goals of the visitation. Prior to the observation, the teacher establishes one or two specific teaching goals for the day. For example, lesson pacing or question strategies might be a focal point of the lesson. At this point in time, teachers receive feedback on how well they accomplished the goal or goals.

Results

Upon completion of the *Everyday Mathematics* School Intervention Program, the school principal and the district mathematics supervisor had several questions concerning the effectiveness of the intervention on the school and, more specifically, on the mathematics program at the school. Did the intervention program have a positive influence upon student achievement? What evidence could be gathered to analyze the impact upon student achievement?

The school district administers a district-wide mathematics benchmark assessment towards the end of each quarter in second through sixth grade known as the “Mathematics Quarterly Assessment” (MQA). In addition to providing building principals and classroom teachers with timely reports on individual and collective student performance information, the district maintains an electronic database, complete with student demographic and performance data for analysis and evaluative purposes. The MQA has a Pearson Product-Moment correlation coefficient of between 0.75 and 0.80 with the state mathematics accountability assessment (ISTEP+) at each grade level. Although the MQA would only provide student performance information at second grade, the second grade student performance data would provide evidence of the influence that the program had on student achievement and arguably have value for the other grades. In analyzing the student performance data, the current Roosevelt students’ performance results were compared to Roosevelt student results from last year and to the results of current district-wide students this year. A second analysis compared the results of the current Roosevelt second graders to the results of the current district second graders.

In analyzing mathematics performance data of the current second grade Roosevelt students and the second grade Roosevelt student from last year, two data points were selected, the first quarter MQA and the third quarter MQA. The rationale behind the selection of the two data points was simple, the first quarter MQA assessment was administered prior to the staff development intervention and the third quarter MQA was administered after the staff development intervention.

Table 1 contains the mean and standard deviation for each of the subscale and the composite scores for the first quarter MQA for Roosevelt second grade students during the 2006–2007 and 2007–2008 school years. With respect to composite score, no significant differences were found between the two groups using a t-test. Furthermore, with respect to the subscales, significant differences were only found in Number Sense ($t=2.511$, $p<0.05$), with the 2007–2008 Roosevelt second grade having a mean score of 3.78, while the 2006–2007 Roosevelt second grade having a mean score of 3.30; in Problem Solving ($t=2.60$, $p<0.01$), with the 2006–2007 Roosevelt second grade having a mean score of 6.23, while the 2007–2008 Roosevelt second grade having a mean score of 5.69.

Table 1
Mathematics Quarterly Assessment
Roosevelt Elementary Grade 2 Quarter 1 Scores
School Year 2006–07 and School Year 2007–08
t-test

	Mean (Standard Deviation) 2006–07 (N=158)	Mean (Standard Deviation) 2007–08 (N=156)
Number Sense	3.30 (1.706)	3.78* (1.668)
Computation	4.87 (1.552)	5.06 (1.475)
Algebra & Functions	2.95 (1.110)	3.08 (1.009)
Geometry	2.87 (1.216)	3.10 (1.030)
Measurement	3.51 (1.726)	3.52 (1.616)
Data Analysis, Probability, & Statistics	1.60 (0.638)	1.63 (0.633)
Problem Solving	6.23** (1.803)	5.69 (1.893)
Total Score	25.32 (7.184)	25.87 (6.577)

* $p \leq 0.05$, ** $p \leq 0.01$

Table 2 contains the mean and standard deviation for each of the subscales and the composite scores for the third quarter MQA for Roosevelt second grade students during the 2006–2007 and 2007–2008 school years. Significant differences were found on the Geometry subscale ($t=3.60$, $p<0.001$), the Data Analysis, Probability, & Statistics subscale ($t=2.09$, $p<0.05$), the Problem Solving subscale ($t=2.72$, $p<0.01$), and the Total Score ($t=2.47$, $p<0.05$). The mean scores for Geometry; Data Analysis, Probability, & Statistics; Problem Solving; and Total Score for the 2007–2008 second grade Roosevelt students were 2.74, 1.26, 1.99, and 21.21 respectively, which was significantly greater than the corresponding scores for the 2006–2007 second grade Roosevelt students of 2.33, 1.10, 1.46, and 19.52.

In evaluating first and third quarter MQA results for both the 2006–2007 second grade Roosevelt students and the 2007–2008 second grade Roosevelt students, with respect to mathematical achievement, both groups had comparable performances on the first quarter assessment. Again, both groups had statistically similar scores on the Total Score as well as the Computation; Algebra & Functions; Geometry; Measurement; and Data Analysis, Probability, & Statistics subscales in the first quarter. Although statistically significant differences were found on the Numbers Sense and Problem Solving subscales, the 2007–2008 second graders were stronger in Number Sense, while the 2006–2007 second graders were stronger in Problem Solving. However, the results from the third quarter assessment definitely favored the 2007–2008 second graders. Again, the 2007–2008 second grade students scored significantly higher on Total Score as well as on the Geometry; Data Analysis, Probability, & Statistics; and Problem Solving subscales. Interestingly, the 2007–2008 group scored significantly lower than the 2006–2007 group on Problem Solving in the first quarter, but scored significantly higher on Problem Solving in the third quarter. Although it is important to recognize that there are several factors that may have influenced these results, a major factor was the staff development intervention provided during the 2007–2008 school year. As such, these results provide evidence for the efficacy of the staff development program that was implemented.

Table 2
Mathematics Quarterly Assessment
Roosevelt Elementary Grade 2 Quarter 3 Scores
School Year 2006-07 and School Year 2007-08
t-test

	Mean (Standard Deviation) 2006-07 (N=153)	Mean (Standard Deviation) 2007-08 (N=164)
Number Sense	4.22 (1.319)	4.07 (1.368)
Computation	3.78 (1.658)	4.13 (1.651)
Algebra & Functions	2.94 (1.119)	3.06 (1.089)
Geometry	2.33 (1.050)	2.74*** (1.013)
Measurement	3.68 (1.234)	3.95 (1.448)
Data Analysis, Probability, & Statistics	1.10 (0.696)	1.26* (0.699)
Problem Solving	1.46 (1.585)	1.99** (1.827)
Total Score	19.52 (5.822)	21.21* (6.318)

$p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

An analysis of co-variance (ANCOVA) was conducted comparing student third quarter MQA scores based upon the first quarter MQA scores. Table 3 lists the estimated marginal means from the third quarter MQA for both Roosevelt second grade students and district second grade students (other than Roosevelt). It is important to note that statistically significant differences were found in Total Score ($p < 0.001$) and the Computation ($p < 0.01$); Measurement ($p < 0.05$); and Data Analysis, Probability, & Statistics ($p < 0.01$) subscales. The estimated marginal means for Computation; Geometry; Measurement; Data Analysis, Probability, & Statistics; and Total Score for the 2007–2008 second grade Roosevelt students were 4.273, 2.778, 4.013, 1.308, and 22.278 respectively, which was significantly greater than the corresponding scores for the 2007–2008 second grade district students of 3.985, 2.606, 3.763, 1.122, and 20.615.

Table 4 compares the mean total score for the first quarter second grade MQA, the mean total score of the third quarter second grade MQA, and the estimated marginal mean total score for the third quarter second grade MQA for each of the schools in the district. On the first quarter MQA, only three of the schools in the district had a mean total score on the second grade MQA less than Roosevelt and nine of the district schools had a mean score greater than Roosevelt. By the third quarter, eight schools in the district had a mean total score on the second grade MQA while only four had a mean score greater than Roosevelt. Furthermore, from the analysis of co-variance (ANCOVA), ten schools had an estimated marginal mean total score on the second grade MQA less than Roosevelt and only two schools had an estimated marginal mean total score greater than Roosevelt.

In evaluating the data from Table 3 and Table 4, collectively, Roosevelt second grade students made substantial gains in mathematical achievement relative to the other schools in the district. Again, it is important to acknowledge the existence of other factors which might

influence the results; however, the trend from the data provides additional supportive evidence to the efficacy of the staff development program.

Table 3
Mathematics Quarterly Assessment
Grade 2 Quarter 3 Scores for School Year 2007-08
ANCOVA

	Roosevelt Elementary Estimated Marginal Mean N=137	Elkhart Community Schools Estimated Marginal Mean N=826
Number Sense	4.164	4.117
Computation	4.273**	3.985
Algebra & Functions	3.129	2.994
Geometry	2.778	2.606
Measurement	4.013*	3.763
Data Analysis, Probability, & Statistics	1.308**	1.122
Problem Solving	2.315	2.077
Total Score	22.278***	20.615

$p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Conclusion

At the beginning of the *Everyday Mathematics* School Intervention Program, district and building administrators made the assumption that improving teacher fidelity to the teaching of standards-based curricula would translate into greater student learning of mathematical concepts and skills. To improve teacher fidelity to the program, the administrators envisioned a staff development program that utilized short in-service sessions along with individualized classroom professional development interactions and debriefings. Working with the Indiana Mathematic Initiative and *Everyday Mathematics*, Elkhart Community Schools developed a professional development program congruous to the vision. The focal points of the program included the improvement of teacher understanding of mathematical content, processes, and standards; confidence and fidelity to the teaching of a standards-based curriculum; utilization of higher order questioning strategies, and making mathematical connections to real life and other curricular areas.

Student achievement data supports the assumption made by the school administrators. Comparisons of 2007–2008 and 2006–2007 Roosevelt student second grade quarterly assessment data indicate that both groups began the year with a similar level of mathematical achievement; however, the intervention group (2007–2008 school year) scored significantly higher on the third quarter assessment than the control group (2006–2007 school year). Comparisons of the 2007–2008 Roosevelt and 2007-2008 district second grade quarterly assessment data provide a similar indication. Using an Analysis of Co-Variance (ANCOVA), the achievement level of Roosevelt second grade students on the third quarter mathematics assessment was significantly greater than

the achievement level of district second grade students. The data indicates that there was significantly more growth in achievement of the Roosevelt second grade students between the first and third quarter administration of the mathematics assessment than the district second grade students.

Table 4
Mathematics Quarterly Assessment
Grade 2 Scores for School Year 2007-08
School Comparisons

School	Quarter 1 Mean	Quarter 3 Mean	Quarter 3 Estimated Marginal Mean
School 1 (N=60)	24.33	19.43	21.355
School 2 (N=57)	22.42	17.29	19.968
School 3 (N=66)	25.91	22.74	23.454
School 4 (N=80)	27.81	19.55	18.747
School 5 (N=55)	25.67	20.11	21.135
School 6 (N=73)	29.20	23.84	22.473
School 7 (N=80)	27.90	21.51	20.648
School 8 (N=67)	27.22	22.27	21.901
School 9 (N=90)	27.70	19.85	19.282
School 10 (N=103)	27.79	20.30	19.610
School 11 (N=50)	27.54	20.89	20.549
Roosevelt (N=137)	25.87	21.21	22.283
School 12 (N=45)	26.35	18.08	19.005
Elkhart Community Schools	26.66	20.66	–

Although student achievement data is supportive of the efficacy of the staff development design, there are other questions that were not answered. Was there an increase in teacher awareness, understanding, and knowledge of mathematical concepts, processes, and standards? Was there an increase in teacher understanding of standards-based curricula? Were teachers more confident in the implementation of the *Everyday Mathematics* program? Was there an increase in teacher fidelity to the teaching of a standards-based curriculum? What impact did the staff development project have on the mathematics coaches? Would the mathematics coaches be able to replicate the results at another venue or sustain the efforts at Roosevelt Primary School? The aforementioned questions are foundational in linking staff development efforts to student achievement. These questions will be the center of any future studies of district schools implementing the *Everyday Mathematics* School Intervention Program.

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