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ABSTRACT

This study describes a program designed to improve reading achievement. The targeted population consisted of primary and middle school students in two communities in northern Illinois. Both communities were suburbs of a major metropolitan area and the status of family incomes ranged from low to middle levels. Evidence for the existence of the problem included San Diego Quick Assessment, Nonsense Word Test, a reading strategy checklist, and a student survey. Analysis of probable cause data revealed that students lacked basic phonemic awareness and comprehension skills. Many students had difficulty choosing appropriate books and were not interested in reading. One of the causes of low interest could be the limited access to a variety of reading materials. Unsuccessful attempts in previous years caused some students to avoid the task of reading. These earlier struggles may have resulted from inadequate time to practice reading at their own level. A review of solution strategies suggested by the professional literature, combined with an analysis of the setting of the problem, resulted in the selection of differentiated instructional strategies to improve reading achievement. Strategies included flexible grouping, student choice on a variety of tasks, increased self-selected reading time, and access to a variety of reading materials. Based on the presentation and analysis of the data on student reading achievement and attitudes towards reading, the targeted students showed improvement. There was a rise in the instructional reading levels of students in all three targeted classrooms. The number of comprehension strategies used by students increased. Students demonstrated greater mastery of phonemic and decoding skills after the implementation process was complete. Student attitudes towards reading improved along with student perceptions about their own reading abilities. Appendixes contain a reading strategies form, a reading strategies checklist, and a reading survey. (Contains 25 references and 6 tables of data.) (Author/RS)

ED 479 203

INCREASING READING ACHIEVEMENT OF PRIMARY AND MIDDLE SCHOOL STUDENTS THROUGH DIFFERENTIATED INSTRUCTION

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Through Differentiated Instruction

AUTHORS: Traci Baumgartner, Mary Beth Lipowski, and Christy Rush

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A review of solution strategies suggested by the professional literature, combined with an analysis of the setting of the problem, resulted in the selection of differentiated instructional strategies to improve reading achievement. Strategies included flexible grouping, student choice on a variety of tasks, increased self-selected reading time, and access to a variety of reading materials.

Based on the presentation and analysis of the data on student reading achievement and attitudes towards reading, the targeted students showed improvement. There was a rise in the instructional reading levels of students in all three targeted classrooms. The number of comprehension strategies used by students increased. Students demonstrated greater mastery of phonemic and decoding skills after the implementation process was complete. Student attitudes towards reading improved along with student perceptions about their own reading abilities.

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CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of the Problem

The students in the targeted second, third, and seventh grade classrooms in a suburb of a major Midwestern city exhibited low level achievement in reading. This caused a lack of motivation and interfered with academic goals. Evidence for the existence of the problem included reading assessments that indicated student performance, checklists that documented student reading skills, and surveys that indicated student attitudes towards reading.

Immediate Problem Context

School A was an elementary school that housed early childhood, developmental kindergarten, kindergarten, and grades one through five. A primary and intermediate cross-categorical class for the special education students was also present. There were 26 classrooms, 4 resource rooms, a computer lab, art/music room, gymnasium, and cafeteria. A library was also located in the building. The rooms were arranged in wings. The yellow wing contained the early childhood, developmental kindergarten and kindergarten classes. The blue wing contained the primary cross-categorical class and first grade. The green wing contained both second and third grades. The burgundy wing contained the intermediate cross-categorical class along with fourth and fifth grades. The cafeteria and gymnasium were located at the opposite end of the classrooms.

The enrollment at School A was approximately 580 students, with the number steadily increasing due to the new housing developments in the area. Out of the 580 students, 63% were White, 24% were Black, 7% were Hispanic, and 6% were Asian/Pacific Islander.

The faculty and staff at School A was made up of 19 regular academic teachers, five special education teachers, a librarian, a physical education teacher, and a half-time music and art teacher. Administrators, secretaries, aides, resource teacher, psychologist, speech pathologist, and social worker made up the remainder of the staff. Approximately 70% of the teaching staff held a master's degree.

School A had a comprehensive articulated curriculum for kindergarten through fifth grade. The early childhood class was play-based. Core subjects in the curriculum were language arts (reading, spelling, English, and writing), mathematics, science, health, social studies, and technology. The classroom day consisted of six hours and twenty minutes. One hundred eighty minutes were either directly or indirectly related to language arts instruction. Students needed to be tested for either the challenge classes or special education programs. The challenge classes were held at other schools within the district.

Pullout programs offered at the school were speech, Reading Recovery for the primary students, resource, Rainbows, social work, English as a Second Language (ESL), vision/hearing, and occupational/physical therapy. After school programs included technology club, intramurals, a primary reading program, and child care.

School A received an architectural award for building design when the building was two years old. It was the first new school to be built in the district in 20 years.

Concerns or problems in the school were few. There was a slight overcrowding issue due to increased residential development.

School B was a middle school in the same district as school A, and housed grades six, seven, and eight. There were approximately 55 classrooms in the main building and 10 additional classrooms in a portable classroom unit, which was connected to the school by a covered walkway. The classrooms in the main building were arranged in four pods. The first was for eighth grade classes, the second pod was the gymnasium, the third housed the elective classes, and the fourth was for seventh grade classrooms. The cafeteria was located in the center of all four pods. The portable classroom unit housed sixth grade.

The enrollment at School B was nearly 1,300 students and the number was steadily increasing. Two years previous, the enrollment totaled only 900 students, but numbers had increased due to new housing developments in the area. Out of the 1,300 students, 76% were White, 9% were Black, 12% were Hispanic, and 3% were Asian/Pacific Islander.

The faculty and staff at School B was made up of approximately 70 certified staff members and 25 non-certified staff members. Of the 70 certified staff members, 60 were teachers. The others were administrative and support staff, including a counselor, psychologist, and social worker. The average amount of teaching experience for the teachers was 19 years, and approximately 25 teachers out of the 60 had a master's degree.

The curriculum at School B included a 90-minute block for language arts, as opposed to the 45-minutes allotted for other subjects. This meant that reading, writing, and grammar were integrated within the 90-minutes. School B also offered honors and special education classes. Students had to be tested to qualify for either alternative program. Students in special education reading classes were taught using Read 180.

Overcrowding was a major concern for School B. Because of the overcrowding, a portable classroom unit was necessary. However, the portable classroom unit compromised building security. Students needed to travel outside of the building to get to lunch, elective classes, and

lockers. Safety was also an issue inside of the main building as a result of overcrowding. Students were only allowed to walk in one direction in the main hallway to avoid collisions. Students were allowed to go to lockers only before and after school, and before and after lunch. The gymnasium housed up to seven classes of up to 38 students each during one 45-minute period. As school enrollment increased, safety concerns continued to grow.

The Surrounding Community

The district in which Schools A and B were located was a unit district serving kindergarten through high school and containing 19 buildings: 2 high schools, an alternative school, 4 middle schools, and 12 elementary schools. There were 760 professional staff members employed by the district. District enrollment was approximately 14,000 students. Fifty-seven percent of the students in the district were White, 24% Black, 13% Hispanic, and 5% Asian/Pacific Islander. The superintendent of the district required that all new staff members be trained in the Baldrige Program for Performance Excellence. The Baldrige approach was a means for district-wide school improvement.

Because the unit district serviced two communities, School A and School B were located in similar, but separate communities. The community in which School A was located had a population of approximately 56,000, while School B's community had a total population of around 21,000. The demographics were similar in both communities. Approximately 77% of the population was White, 13% Hispanic, 6% Black, and 4% Asian. The median age in both communities was around 30 years.

According to the most current census reports, out of approximately 28,000 people in the labor force, 1,000 were unemployed in the community in which School A was located. In School B's community, out of approximately 10,000 people in the labor force, 500 were unemployed. The most common type of employment in both communities was administrative support. The

second most common employment in the community in which School A was located was executive, administrative, and managerial occupations. The second most common occupations in School B's community were precision production, craft, and repair. The median household income was around \$46,000 in School A's community and \$42,000 in the community in which School B was located.

Both communities had rapidly developing residential subdivisions. The community in which School A was located, being the larger community, had a wider variety of industry. However, the economic emphasis in both communities was on manufacturing and retail trade.

Issues in both communities included a referendum concerning overcrowding in schools. There were plans to build a new high school in one community and to shift students from overcrowded middle schools into the old high school building.

There were numerous benefits of living in either community. These benefits included nearby aquatic center, new recreation center, numerous neighborhood parks, and both residential and commercial growth.

National Context of the Problem

The issue of reading achievement has generated concern on local, state, and national levels. Initiatives to increase reading achievement have been included in school improvement plans, state education plans, and national education reform proposals. Although there have been debates over how to go about improving reading achievement, most people have agreed that reading achievement must be improved.

According to the national government's "No Child Left Behind, 2001" plan for education reform, children in the United States have a reading deficit. National attention on the issue of reading has caused states like Maryland to create reading task forces that implement strategies to improve reading achievement (Guthrie, 2001). California increased spending for education as a

result of poor reading test scores (Diegmüller, 1996). Virginia, Texas, and California have supported early intervention techniques to prevent students from having future problems in reading (Moats, 2001).

The extent of the problem of low reading achievement is measured in many ways. The National Assessment of Educational Progress (NAEP) has measured reading achievement of children ages 8, 12, and 18 for the past 30 years (Moats, 2001). Moats reported that approximately 42% of fourth graders scored below the basic level in overall reading skill on the NAEP. Maryland's results on the NAEP indicated that improvement of student achievement in other content areas surpassed improvement in reading (Guthrie, 2001). The national illiteracy rate is 25%, when literacy is defined as the number of adults in the United States who read above the fourth grade level (Moats, 2001).

Effects of low level reading achievement are far-reaching. Many students who lack reading skills may have difficulty in other content areas, are less likely to complete high school, and may experience difficulty competing in higher education (Moats, 2001). Government news reports have claimed that students with problems in reading will be unable to meet increasing demands of the workplace.

Reading achievement is an issue that is being addressed on many levels. Arguments about how to address the problem take place at school, local, state, and national levels. However, people on all sides of the issue agree that something must be done to increase reading achievement across the nation.

CHAPTER 2

PROBLEM DOCUMENTATION

Students in the targeted second, third, and seventh grade classrooms had low levels of achievement in reading. Evidence consisted of an assessment, a checklist, and a survey. Probable causes included a lack of interest in reading, limited access to a variety of reading materials, and weaknesses in basic phonemic awareness and comprehension skills.

Problem Evidence

In order to document the use of specific comprehension strategies by individual students, a checklist was developed. Teachers completed the checklist based on open-ended forms filled out by students. Students filled in the forms by writing what they did before, during, and after reading. Student responses were then interpreted by teachers, who decided what strategies were being used and documented the results in the checklist. The second, third, and seventh grade classes were involved in this process. The average number of strategies used per student is presented in Table 1.

According to Table 1, the second and seventh grade students used the greatest number of strategies before reading and the least number of strategies after reading. However, the third grade students seemed to focus on reading strategies while they read. Overall, the seventh grade students used the most strategies.

Table 1

Average Number of Reading Strategies Used by Students in September

Use of Strategy	Second Grade	Third Grade	Seventh Grade
Before Reading	.64	.19	.84
While Reading	.32	.48	.56
After Reading	.16	.19	.32
Total	1.12	.86	1.72

In addition to student use of comprehension strategies, phonemic awareness of students was also measured. The Nonsense Word Test was administered one-on-one to the second, third, and seventh grade students. The test consisted of a list of 50 nonsense words, organized into five categories: short vowels, diagraphs and blends, long vowels, other vowels, and multisyllabic words. The fact that the words were all nonsense words and were likely to sound silly was pointed out before beginning the test. Students were asked to read the 10 words in each category out loud. As students read, teachers tallied the total number of words read correctly. A summary of the results is shown in Table 2.

The percentage of students who read more than 31 words correctly increased by grade level. 32% of the second grade students, 45% of the third grade students, and 96% of the seventh grade students read more than 31 words correctly. In addition, the percentage of students who read less than 20 words correctly was less as the grade level increased. Further analyzation of results showed that most seventh grade students had difficulty only in the category containing multi-syllabic words, while many second and third grade students had difficulty in the categories focusing on vowel sounds.

Table 2

Percentage of Students Reading Words Correctly on Nonsense Word Pretest

Number of Words Read Correctly	Second Grade	Third Grade	Seventh Grade
0-10	28	15	0
11-20	32	10	0
21-30	8	30	4
31-40	24	30	36
41-50	8	15	60

To determine the grade level at which students were reading, the San Diego Quick Assessment was used. The test consisted of a list of 10 words for each reading level. Students were asked to read the lists of words out loud, stopping when three or more errors were made on a single list. As students read, teachers noted the number of words that were correctly pronounced in each list. The test determined the base reading level, independent reading level, instructional reading level, and frustration reading level of each student. The base reading level was the level at which a student could read with no errors. The independent reading level was the level at which a student made no more than one error. The instructional reading level, or the level at which the student should be reading with teacher guidance, was the level at which the student misread two words on the list. The frustration reading level was the level at which a student made three or more errors in pronunciation. Teachers focused on determining the instructional reading level of students because this information is most useful in the classroom. The instructional reading levels of the second, third, and seventh grade students are summarized in Table 3.

Table 3

Percentage of Students at Each Instructional Reading Level

Reading Level	Second Grade	Third Grade	Seventh Grade
Below Pre primer	4	0	0
Pre primer	0	0	0
Primer	12	0	0
1	20	26	0
2	20	26	0
3	40	22	0
4	4	19	8
5	0	7	24
6	0	0	52
7	0	0	12
8	0	0	4

Of the second, third, and seventh grade students, the majority of second grade students had instructional reading levels at or above their grade level, while the majority of third and seventh grade students had instructional reading levels below their grade levels. In addition, the instructional reading levels of the second grade students were spread out across seven grade levels, while the third and seventh grade students had instructional reading levels spread out across only five grade levels. The instructional reading levels of the third grade students were close to being evenly distributed amongst grades one to five, yet the instructional reading levels of the second and seventh grade students seemed to be more concentrated at grades three and six.

Along with the formal reading assessments, teachers used an informal reading survey to document student attitudes towards reading. The survey was composed of both open-ended questions and multiple choice. Second, third, and seventh grade students completed the survey. Some teacher guidance was given as a whole class to the primary students.

When asked to write down a word that came to mind when thinking of reading a book, the majority of second grade students responded positively, while only 41% of the third grade students and 16% of the seventh grade students gave a positive response. Most seventh grade students answered with a clearly negative statement, though more second and third grade students gave a neutral response than a negative response.

Most of the second grade students claimed to read at home for fun every day. The majority of third and seventh grade students reported that they only read at home for fun once in awhile. When answering how many books they thought were in their house, the primary students tended to choose the greatest amount, but less than half of the middle school students circled that option.

Students were asked to assess their own skill in reading by marking a continuum. The range went from "I am not good at reading" to "I am good at reading," with "I am OK at reading" in the center. Sixty-four percent of second grade students thought themselves to be good readers, while only 46% of third grade students and 36% of seventh grade students believed themselves to be good at reading.

Approximately two-thirds of all the students in second, third, and seventh grades reported that they have a public library card and visit the library at least occasionally. This seemed to be the only area in which all three grade levels gave a similar response. Overall, the survey seemed to show that attitudes towards reading tended to be most positive amongst the second grade students and most negative amongst the seventh grade students.

Probable Causes

Teachers observed that many students were not interested in reading. Time spent reading in school seemed to be viewed as boring, pointless, or difficult. These views were also carried beyond the classroom so that time spent reading outside of school was often nonexistent. Lack of interest in reading was heavily overshadowed by high interest in video games, television, sports, and recreational activities. When students began viewing reading in a negative light, they ceased reading for pleasure. If students are not interested in reading, there is little hope that their skill in reading will improve.

In addition to lacking interest in reading, students lacked access to a variety of reading materials. Teachers observed that visits to the school library were rare and that the selection of books within the library was limited. Most classroom libraries were also unable to provide a wide selection of genres, reading levels, and topics. Many students did not have public library cards, so access to reading materials outside of school was limited. Without access to a variety of books, students were not likely to find books they were interested in.

Given the selection of texts that were readily available to them, most students did not know how to choose a book to fit their needs. Teachers observed students wandering aimlessly around the school library, randomly pulling books from the shelves. Students would often choose a book based on the length or the amount of illustrations inside. These students attempted to choose a book based on the level of difficulty, but completely ignored the actual reading level of the book. Other students would type a topic into the computer database and automatically check out the books that came up, without taking notice of whether the books were fiction or nonfiction. These students intended to choose a book based on a particular topic of interest to them, but completely ignored whether the format of the book would be of interest. If students implemented faulty strategies in choosing a book, it was likely that they would lose

interest in reading it.

Cambourne (2001) suggested that insufficient feedback on student performance in reading often contributed to low level achievement in reading. Many teachers fail to provide students with feedback directly related to individual weaknesses in reading. Often feedback given is vague and lacks direction. Therefore, students do not have the information needed to make improvements.

According to Joyce, Hrycauk, and Calhoun (2001), student resistance to instruction in reading contributes to a lack of achievement. Negative attitudes towards reading and instruction fuels student resistance. Students need to be taught how to learn in order to create opportunities for success in learning, which allow students to enjoy the process.

Students who are struggling readers are given less time to read text at their own reading level, concluded Rossow and Hess (2001). Because whole class instruction often focuses on text at grade level, struggling readers do not benefit the same as students who read at their grade level. Strategies used by many students who read at grade level do not work the same for the struggling readers when used on the same text. Even when given independent reading time, struggling readers are able to read less than proficient readers in the same amount of time.

Moats (2001) observed that students lack basic phonological processing and word recognition skills. These deficits, exhibited by struggling readers, interfere with comprehension strategy instruction. Students who do not have basic decoding skills fail to master comprehension skills when provided with text above their reading level. Students need to be directly taught basic phonological processing and word recognition skills that match their developmental stage of growth rather than being expected to catch up.

Many factors contribute to low level achievement in reading. Teachers observed a lack of interest in reading, student inability to choose appropriate books, and limited access to a variety

of reading materials. Other important causes include inadequate feedback from teachers, student resistance to instruction, deficits in the amount of time spent reading at independent reading levels, and lack of basic skills.

CHAPTER 3

THE SOLUTION STRATEGY

To become better readers, students must have access to texts at a variety of reading levels and interests for self-selected reading. Students also need to strengthen phonemic awareness, decoding, and comprehension strategies. Individual growth should be demonstrated through a variety of means, and a student-centered classroom environment is essential. By meeting these student needs through differentiated instruction, reading achievement may be improved.

Literature Review

According to Tomlinson (2002), it is up to teachers to make an effort to respond to the many differences in learners. This includes providing students with a variety of materials to meet their needs. Tomlinson pointed out that one way to differentiate content is to use reading materials at a variety of readability levels, including books accompanied by audio tapes of the text. It is not only important to differentiate content according to ability, but also to differentiate according to cultural background and home setting. By taking culture and home life into account, teachers can select books that contain characters and situations to which students can connect.

As a result of research, Guthrie, Schaefer, and Huang (2001) asserted that student achievement is likely to increase if teachers make time available for self-selected reading from a variety of genre and levels. High achieving students have access to a rich array of books and are

more engaged in reading. Guthrie, Schaefer, and Huang concluded that the amount of time students spent engaged in reading is correlated with test achievement. Students are not likely to be engaged in reading if they lack access to an abundance of diverse texts.

Blum, Lipsett, and Yocom (2002) defined literature circles as a method of teaching reading that allows students to become involved in making decisions about what they read. Students are organized into groups, each group reading a different book. The teacher provides choices by allowing students to choose the books they would like to study and letting students form their own groups. The teacher is able to facilitate multiple groups at one time, so a variety of books may be read within one classroom. Teachers should provide choices for literature circles that encompass a broad range of genres, reading levels, and topics. Students are more likely to become invested in their education when given an active role in choosing what they are reading.

Carter (2000) stated that students need access to a variety of books and instruction on how to select them in order to become lifelong readers. Students are most likely to return to the task of reading if they have previously found pleasure in it. In order for students to find pleasure in reading, they must have the opportunities and skills to select books that suit their own needs, abilities, and interests. By providing students with access to a wide variety of reading materials and teaching them how to select a book they are likely to enjoy, teachers help students become lifelong readers.

Ivey (2000) observed that classrooms today are very diverse, more so than ever before. To meet their diverse needs, students must be given the opportunity to choose books to meet their interest and reading level abilities. Students get better at reading when they are given books that they can read almost effortlessly. The same book may be challenging to one student, but easy to another. Therefore, Ivey pointed out, teachers must provide a wide variety of books in order to meet the needs of all readers.

Reis (1998) reported that when advanced readers are supplied with identical materials as the rest of the class, they are not given the chance to increase their reading levels. Reis asserted that students should be provided with a curriculum and materials appropriate to their own abilities rather than their grade levels. If students are all given identical materials and instruction, Reis warned, advanced students will not be allowed to progress and develop their own talents to the fullest.

Robb (2002) described the need for students to work on decoding skills and comprehension strategies throughout all grades. Students need to work on comprehension skills while learning to read as well as to focus on decoding strategies in the upper grades, where comprehension skills are usually emphasized. Often, beginning readers focus on decoding so much that they miss the basic comprehension skills and advanced readers concentrate so much on comprehension that they often fail to progress to decoding multi-syllabic words. Teachers must provide a balance of both in all grades.

Sternberg (2001) also mentioned that students need a combination of decoding and comprehension skills. However, Sternberg asserted that the skills need to be taught through an approach that integrates elements of phonics instruction with whole language instruction. Phonics instruction provides the avenue for word study, spelling, and decoding skills, while whole language builds comprehension by looking at the entire text rather than individual words and syllables.

Nicholson-Nelson (1998) offered yet another way to address phonemic awareness, decoding skills, and comprehension strategies. Through the identification and utilization of students' multiple intelligences, Nicholson-Nelson suggested teachers can target specific areas where students have deficits. Not all students learn these skills the same way at the same time. Teachers should address the needs of individual students by activating each student's

intelligences.

Gersten (2001) found that oral reading techniques and reading comprehension performance are directly related to one another. This means that students need to strengthen their phonemic awareness and decoding skills, which aid in oral reading, in order to improve their reading comprehension. Students must also work on reading comprehension strategies to help improve their oral reading. Gersten's findings showed that phonemic awareness, decoding skills, and comprehension strategies should be part of the reading curriculum at every grade level.

According to Ediger (2001), the theory of multiple intelligences is based on the idea that students have a variety of strengths in different types of intelligences. Students who have a weakness in the verbal/linguistic intelligence are likely to score lower on a verbal/linguistic task, whether or not they have knowledge of the actual content covered in the task. By allowing students to utilize their individual strengths when demonstrating their learning, teachers are more likely to get an accurate measure of student knowledge.

Hess (1999) concluded that students not only have strengths in different types of intelligences, but they also vary in reading readiness, interests, and learning profiles. Therefore, students should not be expected to learn using the same content, processes, and products. Students in a mixed-ability classroom need opportunities to work on different tasks rather than simply performing the same task at different levels. Differentiated instruction includes different learning products to fit individual needs.

Heacox (2002) suggested that meeting the needs of all learners requires modification of assessment methods to accommodate student differences. Some students may be challenged by a task that requires they work with others, while other students may complete the same task with little effort. By differentiating methods of assessing student learning, the teacher has the opportunity to ensure that each student is working on a task that is challenging to him.

Pencil-and-paper tests are not the only way for students to express what they know. Franklin (2002) found that students are more likely to share knowledge in a deeper, more meaningful way when given a choice of formats in which to present their knowledge. For instance, a student who had not been performing well on formal tests chose to present his knowledge through a song instead. The same concepts were covered in the song and the teacher could clearly see that the student understood the content of the unit. By providing choice in the format of work, teachers may be able to differentiate without compromising their standards.

Tomlinson (2002) determined that students learn more efficiently if allowed to acquire knowledge and express their understanding through a mode of their choice. Students are more likely to be enthusiastic about demonstrating their learning if allowed to choose a method in which they are interested. Therefore, teachers should not always use the same method to assess students and should provide the opportunity for students to be involved in choosing the method of assessment.

According to Brimfield (2002), mixed-ability classrooms, where the needs of students at all levels are being met, send the message that all students are expected to work at their highest potential. Students should be placed in heterogeneous groups that focus on individual students' needs. Heterogeneous grouping provides access to greater learning opportunities for students at all levels because the activities are designed to fit the needs of each group. This way, teachers are no longer only concentrating on the needs of the average student.

Tomlinson (2000) defined differentiated classrooms as places where teachers establish learning goals for individual learners. Tomlinson stated that teachers in differentiated classrooms must also invite learners to actively participate in setting up classroom procedures. So, teachers who shape their curriculum and methods to fit the individuality of each student have only partly created a student-centered environment. In order for the environment to be fully student-

centered, students must be allowed to play prominent roles in giving input and in decision making.

Farmer (1996) further developed the idea of a student-centered classroom environment by asserting that the content must be driven by the interests of the students, not the interests of the teacher. Pacing of the curriculum should also be determined by student interest and proficiency. Student independence within the classroom is encouraged, as well as acceptance of other people's ideas and opinions. Students must feel safe in order to want to take risks.

Tomlinson (2000) determined that students must take risks and be pushed slightly beyond their comfort zones in order to achieve their highest potential. The level of support needed from the teacher as each student is pushed towards his full potential differs from student to student. Tomlinson stated that making the classroom a community where students feel respected and significant encourages effective learning because it makes risk-taking safe for all students, regardless of their ability levels.

Reading achievement can be improved through differentiated instruction. A differentiated classroom provides access to reading materials at a variety of reading levels and interests. Students should also be given individualized instruction in the basic skills they are lacking and should be allowed to demonstrate their academic growth through various means. A differentiated classroom is student-centered and is an environment in which it is likely that student reading achievement will improve.

Project Objectives and Processes

As a result of using differentiated instruction in second, third, and seventh grade classrooms from September 2001 to January 2003, the targeted students will increase reading achievement as measured by checklists and formal assessments.

In order to accomplish this objective the following processes are necessary:

1. Design lesson plans that provide task choices for students.

2. Develop a schedule that allows time for student self-selected reading.
3. Select assessment techniques to determine student reading levels.
4. Create mini-lessons focusing on phonemic awareness, decoding, and comprehension skills.
5. Devise a plan for flexible grouping in reading.
6. Formulate checklists to document reading strategies.

Project Action Plan

Sept. 2-6	Administer San Diego Quick Assessment individually Administer Nonsense Word Test individually Complete running record for each student Complete reading strategy checklist as a class Give student survey to whole class
Sept. 9-13	Introduce flexible grouping procedures Teach how to find appropriate book 60 minutes of self-selected reading Second and third grades visit school library
Sept. 16-20	Work in flexible groups and workshops or centers 3-5 times 60 minutes of self-selected reading Second and third grades visit school library Seventh grade visits school library
Sept. 23-27	Work in flexible groups and workshops or centers 3-5 times 60 minutes of self-selected reading Second and third grades visit school library
Sept. 30- Oct. 4	Work in flexible groups and workshops or centers 3-5 times 60 minutes of self-selected reading Second and third grades visit school library Seventh grade visits school library
Oct. 7-11	Work in flexible groups and workshops or centers 3-5 times 60 minutes of self-selected reading Second and third grades visit school library

- Oct. 14-18 Work in flexible groups and workshops or centers 3-5 times
60 minutes of self-selected reading
Second and third grades visit school library
Seventh grade visits school library
- Oct. 21-25 Work in flexible groups and workshops or centers 3-5 times
60 minutes of self-selected reading
Second and third grades visit school library
- Oct. 28- Nov. 1 Work in flexible groups and workshops or centers 3-5 times
60 minutes of self-selected reading
Second and third grades visit school library
Seventh grade visits school library
- Nov. 4-8 Administer Nonsense Word Test individually
Complete running record for each student
60 minutes of self-selected reading
Second and third grades visit school library
- Nov. 11-15 Work in flexible groups and workshops or centers 3-5 times
60 minutes of self-selected reading
Second and third grades visit school library
Seventh grade visits school library
- Nov. 18 - 22 Work in flexible groups and workshops or centers 3-5 times
60 minutes of self-selected reading
Second and third grades visit school library
- Fall Break
- Dec. 2-6 Work in flexible groups and workshops or centers 3-5 times
60 minutes of self-selected reading
Second and third grades visit school library
Seventh grade visits school library
- Dec. 9-13 Work in flexible groups and workshops or centers 3-5 times
60 minutes of self-selected reading
Second and third grades visit school library
- Dec. 16-20 Work in flexible groups and workshops or centers 3-5 times
60 minutes of self-selected reading
Second, third, and seventh grades visit school library

Winter Break

- Jan. 6-10 Work in flexible groups and workshops or centers 3-5 times
60 minutes of self-selected reading
Second and third grades visit school library
- Jan. 13-17 Work in flexible groups and workshops or centers 3-5 times
60 minutes of self-selected reading
Second and third grades visit school library
Seventh grade visits school library
- Jan. 20-24 Work in flexible groups and workshops or centers 3-5 times
60 minutes of self-selected reading
Second and third grades visit school library
- Jan. 27-31 Administer San Diego Quick Assessment individually
Administer Nonsense Word Test individually
Complete running record for each student
Complete reading strategy checklist as a class
Give student survey to whole class

Methods of Assessment

In order to assess the effects of the intervention, two formal assessments, San Diego Quick Assessment and Nonsense Word Test, will be used. In addition to formal measures, teacher researchers will develop running records and a reading strategies checklist.

CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

The objective of this project was to improve reading achievement. The implementation of differentiated instruction strategies, including flexible grouping, was selected to achieve the desired result.

Evidence for a low level of achievement in reading included reading assessments that indicated student performance, checklists that documented student reading skills, and surveys that indicated student attitudes towards reading. The reading assessments used to determine student performance were the Nonsense Word Test and the San Diego Quick Assessment. Students reported reading strategies they used before, while, and after reading on a reading strategy form (Appendix A) that was used to create a checklist of reading strategies (Appendix B). Information about student attitudes towards reading was gained through a survey (Appendix C) that consisted of multiple choice responses as well as open-ended responses.

The interventions were implemented in two primary classrooms and one middle school classroom in the same school district. Twenty-five second grade students, 27 third grade students, and 25 middle school student were involved in the implementation process. The school communities were made up of students from a variety of ethnic backgrounds. The district served

two communities which were primarily middle class. Both communities were rapidly growing in population and school overcrowding was becoming a concern.

The purpose of using differentiated instruction in the second, third, and seventh grade classrooms was to increase the reading achievement of targeted students as measured by checklists, formal assessments, and surveys. In order to accomplish this goal, lesson plans that provided task choices for students were developed, schedules were designed to include time for self-selected reading, assessment techniques were chosen to determine student reading levels, mini-lessons focusing on phonemic awareness, decoding, and comprehension skills were created, plans for flexible grouping in reading were devised, and checklists were formulated to document reading strategies.

During week one of the implementation process, teachers administered pretests. The San Diego Quick Assessment was given to determine individual students' reading levels. The Nonsense Word Test was used to indicate areas of strength and weakness in student phonemic awareness. Running records to show reading fluency were completed for each student. Students filled out a reading strategy form which teachers used to create a checklist of reading strategies used by each student before, while, and after reading. A survey to document student attitudes towards reading was also administered.

The Nonsense Word Test and running records were repeated during week 10 of the implementation process. The results were used to inform placement of students in flexible groups. Adjustments were made to best meet the needs of individual students.

At the conclusion of implementation, posttests included the San Diego Quick Assessment, Nonsense Word Test, running records, strategy checklist, and reading survey. Outcomes indicated whether or not the objective was met.

Throughout weeks two to eighteen, students participated in flexible groups. Placement was determined by pretest and mid-implementation test data. After groups were formed, they met once to complete a mini-lesson on phonics, decoding, or comprehension skills. Upon completing mini-lessons, students were regrouped based on additional needs.

In addition to flexible grouping, schedules were adjusted to include at least 60 minutes per week of self-selected reading time. Initially, students received instruction on how to best select an appropriate book. Both interest and reading level of the student were taken into account.

Regular library visits were an integral part of the implementation process. Self-selected reading time was directly dependent on access to books, which was provided by frequent and consistent library visits.

Upon actually implementing week one of the outlined plan, it was determined that the benefit of completing running records for each student did not justify the expenditure of time it required. Therefore, the only pretests given were the San Diego Quick Assessment, Nonsense Word Test, reading strategies checklist, and reading survey. Teachers administered the San Diego Quick Assessment and Nonsense Word Test to second, third, and seventh grade students on a one-on-one basis. Second grade students also completed the reading strategies form and survey with one-on-one teacher assistance; however, the third and seventh grade students filled them out independently.

Even after abandoning the use of running records, time did not permit for the completion of testing and assessments were not completed until the end of week two. Therefore, plans for creating and implementing flexible groups during week two were also pushed back. Library visits were begun on a regular schedule for primary students. Seventh grade library visits were scheduled to begin week three. All grades were given instruction on choosing a book appropriate to individual interest and reading level. Second grade student self-selected reading was scheduled

for 20 minutes a day, three days per week. Third grade student self-selected reading occurred daily for 20 minutes. Seventh grade self-selected reading was planned to begin after the first library visit and would take place four days per week for 20 minutes.

Regular library visits began for seventh grade students during week three. Second, third, and seventh grade students were placed in flexible groups based on pretest data. Primary student groups were determined by the Nonsense Words Test results and addressed student needs in the area of phonemic awareness. Seventh grade students were placed according to the San Diego Quick Assessment and focused on self-monitoring techniques.

Throughout weeks three to nine library visits continued on a regular basis and were supplemented by monthly visits from the public librarian who provided book recommendations. Student self-selected reading time remained part of the regular schedule as well, with few minor interruptions including assemblies and shortened weeks. Flexible groups continued to be used as part of reading instruction. Groups consisted of four to eight students who shared a similar instructional need. Second and third grade groups focused on phonemic awareness and decoding skills such as short vowels, long vowels, diagraphs, and blends, and pre-reading strategies such as activating background knowledge, predicting, and text structure. Seventh grade groups discussed reading comprehension strategies such as activating background knowledge, using text structure, making predictions, setting a purpose for reading, posing questions, adjusting rate, and using context clues.

In the middle of the implementation process, which was week 10, the Nonsense Word Test and San Diego Quick Assessment were re-administered to students. The San Diego Quick Assessment was chosen instead of running records due to time constraints and usefulness of the data.

Weeks 11 through 19 consisted of a continuation of library and self-selected reading schedules. Students were regrouped into new flexible reading groups based on individual instructional needs as determined by the latest data. Second and third grade groups studied phonemic awareness and decoding skills such as vowel patterns and syllables, and reading comprehension strategies such as clarifying, questioning, predicting, using context clues, and adjusting rate. Seventh grade groups looked at comprehension strategies like visualizing, supporting predictions, synthesizing, clarifying, evaluating, skimming, and summarizing.

Posttests were given during week 19. Assessments included the San Diego Quick Assessment, Nonsense Word Test, reading strategies checklist, and reading survey. As previously stated, running records were omitted.

Presentation and Analysis of Results

In order to document the use of specific comprehension strategies by individual students, a checklist was developed. Teachers completed the checklist based on open-ended forms filled out by students. Students completed the forms by writing what they did before, during, and after reading. Student responses were then interpreted by teachers, who decided what strategies were being used and documented the the results on the checklist.

According to Table 4, the number of reading comprehension strategies used by targeted students before, while, and after reading was greater after the implementation process. Seventh grade students showed the largest increase in the number of strategies used. Second grade increased by an average of .96 strategies per student, third grade increased by 3.24, and seventh grade by 5.32. Third and seventh grade students tended to use more reading comprehension strategies while reading than before or after. However, second grade students used more strategies before reading than at any other time. Overall, the implementation process appears to have been successful based on the increase in the number of strategies used by students.

Table 4

Average Number of Reading Strategies Used by Students Before and After Implementation

Use of Strategy	Second Grade		Third Grade		Seventh Grade	
	Before	After	Before	After	Before	After
Before Reading	.64	.92	.19	1.41	.84	2.64
While Reading	.32	.88	.48	1.81	.56	2.72
After Reading	.16	.28	.19	.89	.32	1.68
Total	1.12	2.08	.86	4.10	1.72	7.04

The Nonsense Word Test was used to measure phonemic awareness and decoding skills of the targeted second, third, and seventh grade students. The test was administered one-on-one to all students and consisted of a list of 50 nonsense words, organized into five categories: short vowels, diagraphs and blends, long vowels, other vowels, and multisyllabic words. The fact that the words were all nonsense words and were likely to sound silly was pointed out to students before the start of the test. Students were asked to read the words in each category out loud. As students read, teachers tallied the total number of words read correctly. A summary of the pretest and post test results is shown in Table 5.

The percentage of students who read more than 31 words correctly increased for each grade level. Thirty-one percent of second grade students read more than 31 words correctly for the pretest and 40% of second grade students read more than 31 words correctly for the post test. The number of third grade students who read more than 31 words correctly increased by 41% from the pretest to the posttest and the percentage of seventh graders moved from 96% to 100% by the posttest.

Table 5

Percentage of Students Reading Words Correctly on Nonsense Word Pretest and Post Test

Number of Words Read Correctly	Second Grade		Third Grade		Seventh Grade	
	Pre	Post	Pre	Post	Pre	Post
0-10	28	12	15	0	0	0
11-20	32	20	10	0	0	0
21-30	8	28	30	14	4	0
31-40	24	16	30	11	36	40
41-50	8	24	15	75	60	60

To determine the grade level at which students were reading, the San Diego Quick Assessment was used. The test consisted of a list of 10 words for each reading level. Students were asked to read the lists of words out loud, stopping when three or more errors were made on a single list. As students read, teachers noted the number of words that were correctly pronounced in each list. The test determined the base, independent, instructional, and frustration reading level of each student. The instructional level, the level at which a student misread two words on a single list, was the level focused on for the purposes of this project. A summary of the instructional levels of the targeted second, third, and seventh grade students appears in Table 6.

Although the second grade students were the only grade level with a majority of students reading with guidance at or above their grade level before implementation, all targeted grade levels had a majority of students reading at an instructional level at or above their grade level after implementation.

Table 6

Percentage of Students at Each Instructional Reading Level Before and After Implementation

Reading Level	Second Grade		Third Grade		Seventh Grade	
	Before	After	Before	After	Before	After
Below Pre primer	4	0	0	0	0	0
Pre primer	0	0	0	0	0	0
Primer	12	0	0	0	0	0
1	20	12	26	0	0	0
2	20	24	26	11	0	0
3	40	30	22	15	0	0
4	4	28	19	26	8	0
5	0	6	7	26	24	12
6	0	0	0	19	52	24
7	0	0	0	3	12	28
8	0	0	0	0	4	24
9	0	0	0	0	0	8
10	0	0	0	0	0	4

Along with the formal reading assessments, teachers used an informal reading survey to document student attitudes towards reading. The survey was composed of open-ended and multiple choice responses. Overall, students in the targeted second, third, and seventh grade classrooms showed an improved attitude towards reading.

Before implementation of the interventions, less than half of third grade students gave positive responses when asked what word came to mind when thinking about reading. After implementation of the interventions, 63% of the third grade students gave positive responses. Positive responses amongst the second grade students, which were already more than half, increased by 8% and positive responses of the seventh grade students doubled from 16% to 32% of the students.

Student perceptions about their own abilities as readers increased as indicated by the survey. The percentage of students who thought themselves to be good readers moved from 64% to 72% amongst the second grade students, from 46% to 56% amongst the third grade students, and from 36% to 48% amongst the seventh grade students.

A small increase was seen in the number of students who had public library cards. An increase in the percentage of students who visit the library at least sometimes increased in targeted second and third grade classrooms, but slightly decreased in the targeted seventh grade classroom. However, even though public library visitation experienced a small decline, the percentage of students who claim to read at home for fun at least once in a while was high in all three targeted grade levels: 100% of the second grade students, 92% of the third grade students, and 84% of the seventh grade students.

Conclusions and Recommendations

Based on the presentation and analysis of the data on student reading achievement and attitudes towards reading, the targeted students showed improvement. Mini-lessons on decoding and phonemic awareness may have had an impact on student achievement as measured by the Nonsense Word Test and San Diego Quick Assessment. Student awareness of vowel sounds and pronunciation of multisyllabic words improved according to test results. Small group instruction focusing on these skills might have caused the increase in student achievement.

In addition to improvements in decoding, students exhibited marked improvement in use of reading comprehension strategies. Mini-lessons dedicated to the teaching of before, while, and after reading comprehension strategies perhaps had some influence on the increase in usage of those strategies. A rise in the number of strategies used may indicate improved student comprehension.

There may have been a link between the melioration in student attitudes towards reading and the increase in access to the school library and self-selected reading time. In addition to access to books and time to read, students were given the tools needed to select reading material to fit their individual interests and abilities. Perhaps, because of the success experienced when reading a book at their own level, students expressed more positive feelings towards their own reading abilities. More students claimed they were good at reading after the implementation process than before.

Upon reflection of the entire implementation process, it is recommended that specific areas receive more attention. While working with flexible groups, it became apparent that whole class lessons on group behavior were a necessity. In addition, classroom management techniques needed to be reviewed in order to maximize on-task behavior of the rest of the class while teachers worked with small groups.

As part of the implementation process, students gained increased access to a variety of books through classroom and school libraries. It is recommended that an effort be made to provide additional access through the public library. A connection between the school and public library should be made to ensure students have public library cards and are aware of the public library's resources. Involvement of parents is an integral aspect of the increase in student access to books on a regular basis.

As the individual academic needs of students were addressed through differentiated instruction, it became apparent that student motivation played an important role. More could have been done to boost student motivation in regards to reading. As students experienced success in reading, motivation seemed to improve, which may have led to the increase in reading achievement.

Reading is an essential skill for success in school and in life. The needs of individual students must not be overlooked when nurturing growth in reading. Varying methods of instruction are one way to meet these needs. Further investigation into additional ways of reaching every student is imperative. Every child is gifted, some simply have not yet opened their packages. Only when students are allowed to unwrap their packages and see what they hold inside can their full potential be reached.

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Appendix A
Reading Strategies Form

Student Reading Strategy Record	Name:	Date:	<input type="checkbox"/> Fiction <input type="checkbox"/> Nonfiction
Before I Read	While I Read	After I Read	

Appendix B Reading Strategies Checklist

Reading Strategy Record	Before Reading					While Reading					After Reading			Change															
	Text Structure	Prior Knowledge/Awareness	Print Awareness	Record		pretest scores in left column; posttest scores in right column.					Retest	Posttest																	
				Sets Purpose	Predicts	Questions	Predicts	Clarifies	Visualizes	Adjusts Rate			Uses Context		Questions	Clarifies	Evaluates												
Student Names																													
Class Totals																													
Teacher:																													
Pretest Date:																													
Posttest Date:																													



Appendix C

Reading Survey

11. How did you learn to read?

12. Why do you read?

13. How do you decide which books you'll read?

14. Who are your favorite authors? (List as many or as few as you'd like.)

15. What do you do well as a reader?

16. What would you like to learn how to do better as a reader?

17. How can I help you become a better reader?

18. What is the best thing you have ever read?

19. What advice would you give students in this room to help them read well?

20. Comments:

Date _____

Reading Survey

Answer the following questions about your experiences and attitudes regarding reading. Please be honest. This information will help me teach you better.

1. What word pops into your mind when you think of reading a book?

2. How often do you read at home for fun? (circle one)

never once in awhile once a week a couple times a week every day

3. How many books would you say are in your house? (circle one)

none a few some many tons

4. Do you have a Fountaindale Library card? (circle one)

yes no

5. How often do you visit Fountaindale Library? (circle one)

never sometimes often

6. What kind of books do you like? (check all that apply)

historical fiction realistic fiction
 fantasy fairy tales/folk tales
 biography and autobiography information books
 poetry science fiction
 adventure/survival mysteries
 sports animal stories
 travel/other places humorous stories

7. Look at the line below and put an X where you think you belong.

I am not good at reading	1	2	3	4	5	6	7	8	9	10	I am good at reading
--------------------------	---	---	---	---	---	---	---	---	---	----	----------------------

8. Have you ever reread a book? (circle one)

yes no

9. If you circled yes for number eight, can you name the book or books here?

10. Besides books, what other things do you read?



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