DESIGNING STRATEGIES THAT MEET THE VARIETY OF LEARNING STYLES
OF STUDENTS

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ABSTRACT

TITLE: DESIGNING STRATEGIES THAT MEET THE VARIETY OF LEARNING
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This action research project was designed to maximize learning for all students by addressing different learning styles and implementing various strategies. The students in the targeted school exhibited difficulty in experiencing academic success while exposed to conventional teaching strategies. The two target schools consisted of an intermediate school which serves students in third through fifth grades and a middle school which serves students in sixth through eighth grades. A student survey was administered to determine a preferred learning style and the researchers used observation checklists, formal assessment, and informal assessments.

Probable causes of students not responding to traditional methods are; technological advances and the desire to be entertained are eminent, various types family structure provide different levels of background or prior knowledge, learning has an extrinsic value to children, language barriers may cause a delay in learning, and since the No Child Left Behind Act, demands on teachers are rigorous and individualized instruction or learning types are not always addressed. Teachers are now teaching to the standardized test so that their schools can make AYP.

A review of professional literature and the teacher researchers' analysis concluded that students are taught as a whole class not as individuals. To teach students individually, the teacher researchers used the following strategies: varied multiple intelligence lessons, chunking, tiered assignments, differentiated instruction, and cooperative learning groups. Cooperative learning groups were used weekly and all instruction was delivered by chunking information.

Prior to the intervention, students were given direct instruction as a class and then they worked independently. After the interventions were executed, assessments revealed higher than average grades when the teaching methods were varied. The researchers recommend surveying the students on their preferred learning style at the beginning of the school year and structure lessons accordingly. Also obtainable goals should be set early in the school year, reviewed frequently, and updated when necessary. The researchers also advocate the use of cooperative learning groups whenever possible.

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CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of the Problem

Reaching all students with a variety of learning styles is necessary for full

academic growth in school. Traditional teaching methods often do not address each type

of learner. However, with the diverse needs of learners, matching instruction for diverse

learning styles can be difficult. The targeted groups were a fourth grade self-contained

class in an intermediate school and three sixth grade computer classes in a middle school.

Evidence of this problem consisted of assessment, teacher observation, and student

surveys.

Local Context of the Problem

School A

School A was located in a small suburban area in the Midwest. This intermediate

school served the village in which it was located, along with a small part of two other

towns. The racial/ethnic backgrounds of the students who attended School A were as

follows: 61% are White, 9% are Black, 27% are Hispanic, 3% are Asian or Pacific

Islander and there are no Native Americans or Multiracial students attending School A.

Twenty four percent of the students came from low income families which is

significantly lower than the state average of 40%. The students with Limited English

Proficiency were at a low of 1% while the state average is 7%. The most alarming

statistic this school provided is that of the 22% mobility rate. The state average was only 16%. Approximately 250 students are enrolled in this school.

There were four third grade classrooms, three fourth grade classrooms, three fifth grade classrooms, a self contained cross categorical classroom, and a resource classroom. The average class size in third grade was 19. The average class size in fourth grade was 24, and the average class size in fifth grade was 24. The self contained cross categorical room served 17 students for at least a half day and the resource room accommodated four to five students during each period of the day. This school has a gym, library, computer lab, and a music room. A full time social worker was also available.

The classroom in School A consists of 24 students. There were 13 girls and 11 boys. Three students attend a Reading Recovery program during the regular reading instruction time. Two students had individual education plans and were with the resource teacher for two hours each day. The resource teacher plans and delivers their reading instruction, while a modified version of the regular classroom's math is instructed at a slower pace. All subjects were taught in 40 minute increments. Students attended gym three days a week, music twice a week, and have one session each of library class and computer class. Art was taught by the classroom teacher once a week. Daily subjects include: reading, mathematics, English, social studies, spelling, and science. Students provide a report on a current event by using different media weekly.

School B

School B is a middle school located in the Midwestern United States near a major metropolitan area. The school has been in operation since the 2005-2006 school year and houses grades 6 through 8. Facilities include three grade levels of academic wings, an

elective wing, which includes foreign language, computers, drama, health, art, music, and communication arts classrooms, a large gym and additional multi-purpose room, and a cafeteria/auditorium with tiered levels.

The observed classrooms were two computer labs, one located on the first floor that houses eighth grade students and the other computer lab is located on the third floor that houses sixth grade students. Each computer lab has 32 computers, along with a teacher computer attached to a LCD projector that projects to a large screen.

Approximately 1,000 students are enrolled at Site B. Each class contains 24 to 29 students. Student demographics are as follows: 80.9% White, 15% Hispanic, 2.3% Black, 0.2% Native American, and 1.7% Asian. Approximately 8% of the school's students come from low income families. A small percentage of the students in the school have limited English proficiency, and approximately 8% have limited mobility.

Students in the 6th grade are exposed to four core curriculum subject areas (math, science, social studies, and language arts/literature) and visit a different teacher for each. The math curriculum is the Everyday Math program, which covers decimals, fractions, percentages, graphing, probability, and work with positive and negative integers. The science curriculum covers units in earth and space science, the study of matter and energy, and light, waves and sound. Social studies instructors are required to teach about ancient civilizations including the Incas, Egyptians, Mesopotamians, and Phoenicians. In language arts and literature, students are exposed to a variety of examples that involve suspense, mystery, love, and plays. Students are required to complete monthly book reports, and to complete narrative, persuasive, expository, and informative essays.

All students in the building are eligible to participate in after school activities or clubs such as computer club, science club, drama, chorus, band, media production club, games club, knitting, club, newsletter club, foreign language club, publicity club, arts and crafts club, and Snowball and D.A.R.E. programs. Students are also allowed try out for sports. Teams available at the sixth grade level are track, softball, basketball, volleyball, and cheerleading for both boys and girls.

In addition to after school activities, students can be honored in several ways for meeting and/or exceeding expectations of teachers and staff. If students have averaged a grade point average of 3.0 to a 3.6 on a 4.0 scale, they become a part of the honor roll. Students with a grade point average of a 3.6 or above become members of the school's high honor roll. Monthly, students are eligible to be nominated by individual teachers for student of the month and on a trimester basis, a boy and a girl from each team in the school are nominated for the school spirit award. These students demonstrate characteristics such as consistent effort in academics and good citizenship. When students reach 7th and 8th grade, those who qualify can apply to become members of the National Junior Honor Society. Students with perfect attendance are also honored with certificates and a parent/student breakfast.

<div align="center">The District and its Surrounding Community</div>

School A

This district is comprised of three schools in three separate cities/villages. A primary school which serves preschool through 2nd grade, an intermediate school which is known as *School A* and hosts 3rd through 5th grades, and a middle school which serves 6^{th}through 8th grades. The district is currently experiencing financial trouble and recently

tried to pass a tax referendum. This was not successful however due to a ballot error and a recount is currently pending. It is important to note that the last referendum was requested over 20 years ago. The average teacher salary within the district is $44,700. This is significantly lower than the state average of $55,500. The average teaching experience is 16% which is slightly higher than the state average of 14%. However, only 16% of this district's teachers have graduate degrees compared to the state average of 49%.

This tiny village is home to approximately 2,050 people over the age of 16. The median resident age is approximately 39 years. The median income in for residents in the year 2000 was $36,278 and the average home value was $108,900. There are slightly less than 1,000 houses in this neighborhood of which approximately 700 are owner occupied and 200 are rented. The average rent in 2000 was between $550 -$600. The ethnic/racial background of the residents is as follows: 88% White, 7% Black, 4% Hispanic, and 1% of other races. For the population 25 years and older, 86% have a high school education or higher, 16% have a bachelor's degree or higher, and 3% have a graduate or professional degree.

The local government consists of part-time employees with a monthly salary range of $256 to $838. The crime rate of this area is relatively low. In 2003, there was 1 murder, 5 assaults, 7 burglaries, 105 thefts, and 7 auto thefts. This suburb hosts baseball fields that draw many of the surrounding areas. There is a public library which is shared by another city and not located in this town.

School B

School B belonged to a suburban district that educated approximately 3,500 students that ranged from grades K-12. Five K-5 schools fed into Site B. Each building in the district had undergone massive renovations over a five year period. Each school had air conditioning systems installed, floors, walls, and windows replaced, and restrooms updated. Schools were also in the process of updating all computer labs with current technology, teachers were supplied with sets of Internet ready laptops (to be shared by grade level), overhead and LCD projectors were purchased, and televisions were replaced. Each building had a large gymnasium for daily gym classes and Site B was equipped with a large cafeteria in which students may purchase hot lunches daily.

School B was part of a district that had a superintendent, two assistant superintendents, and business and maintenance managers. The school itself had a principal, an assistant and associate principal, each with individual responsibilities. Each individual team of teachers had a team leader. The team leaders were the first point of contact for individual issues concerning students and a point of contact between the building administrators and team teachers.

Staff demographics were as follows: 84.3% of teachers were White, 9.9% Black, 4.5% Hispanic, 1.2% Asian, and 0.2% are Native American. Three quarters of the district's teachers were female. Each teacher was required to obtain a K-9 Elementary Education degree or a 6-12 Content Area degree. All staff members at School B were required to be endorsed and/or "highly qualified" to teach their subject material. Average

teaching experience in the district was 11.4 years and 62.4% of teachers in the district had obtained a Graduate Degree. Average teacher salary in district was $51,333.

The total population for the community for School B was approximately 55,000 people. Two separate school districts operate in the community. Community demographics are as follows: 93.35% White, 1.22% Black, 5.33% Hispanic, 1.73% Asian, 0.01% Islander, 0.17% Native, and 1.64% other. Of the 22,220 family households in the community, 26% consisted of children under the age of 18. The median household income for a family was $60,057 with an average home value of $157,000.

The community provided a large number of opportunities to become actively involved in activities, clubs, and religious groups. Many sports leagues were available to join, service clubs, and approximately 40 churches were located within the boundaries of the town. The majority of the town's commercial business consisted of car dealership sales, but many shopping strips in the area were under renovations, and large retail shopping areas were under construction. Also, a hospital was located in the town serving both the local community and the metropolitan area as well.

A major metropolitan area was located within a 25 mile distance of School B. This highly populated city included major concert venues, small theater venues, several major league sports teams, museums, shopping areas, and many historical sites. A large number of clubs and associations were available for membership, and many sporting contests such as marathons and triathlons were available for entry as well.

Due to the fact that School B was located to a major metropolitan area, crime rates may have been significantly increased.

National Context of the Problem

Tell me and I'll forget; show me and I remember; involve me and I'll understand. (Chinese Proverb) Involving all students in every lesson can be an uphill battle given the variety of learning styles. Learning styles can be described as the preferred way a student understands and learns (Forrest, 2004). Unfortunately, not all students learn by the same methods.

The No Child Left Behind Act (NCLB) requires all schools that receive federal funding to make adequate yearly progress (AYP). This places a tremendous amount pressure on schools, which in turn holds the teacher accountable. Teachers deal with a variety of learning abilities in the classroom which was not the case 10 years ago (VanSciver, 2005). In the past, students with the same ability were grouped together. Even in this situation, teachers might not reach every student. Teachers time and time again have well prepared and executed lessons that do not prove successful to every learner. This can be verified by both formal and informal assessment. A rote math lesson that reviews the multiplication tables might be successful to most students but may be ineffective to the student with a short term memory problem. A student with Attention Deficit Hyperactivity Disorder (ADHD) that is not medicated can find taking a test to be an insurmountable task. A student with processing problems can only handle one specific direction at a time. A student with visual-spatial deficit might not be able to effectively copy information from the textbooks or the board. Add to the classroom a plethora of behavior problems and even the veteran teacher can be challenged.

When developing lesson plans, teachers start with a standard and a goal that must reach every student. There is great difficulty with increased class sizes and inclusion to

reach every child. Yet, each lesson is structured to meet the state goal. If a lesson on sound is being developed, all students will benefit from using sound in the lesson. This does not mean that the auditory learner is addressed. Lessons should be structured with the basic concept in mind (Willingham, 2005). Variation in preparing lessons with the basic concept in mind just might address each different learning style without deliberately catering to each learning style.

Another important factor in developing lesson plans is to consider background knowledge (Olson, 2006).

To promote equity in the classroom, it is the responsibility as teachers and learning facilitators to reach every child regardless of ability and learning preference. Differentiated instructional strategies that accommodate the different learning styles have proven effective in both achievement and behavior (Searson & Dunn, 2001). Embracing the fact that all children learn differently and applying this knowledge might produce better teachers and students with higher order thinking skills.

CHAPTER 2

PROBLEM DOCUMENTATION

Evidence of the Problem

The students in the targeted intermediate and middle grades exhibited difficulty in experiencing academic success while exposed to conventional teaching strategies. All students should be able to achieve academic success. Each student comes with different backgrounds and has different levels of prior knowledge for any given subject. It is the teacher's responsibility to facilitate learning regardless of the student's ability. Subsequently, knowing the student's preferred learning style can be of value to the teacher when designing meaningful lesson plans.

The sources of evidence used in this project were student surveys, teacher observation checklists, and informal assessments/anecdotal records.

Both students in school A and students in school B were issued the same student learning survey. This survey was designed to determine the students' preferred learning styles. The results of the overall preferences are listed in the Table 1.

Students in school A completed 22 surveys and students in school B completed 80 surveys. The results of the surveys were tallied individually by school and then combined in Table 1. It is important to note that some students may have had more than one preferred learning style. In that case, each learning style was tallied.

Table 1

Preferred Learning Styles of Targeted Students

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Preferred Learning Style	Number of Students
Verbal/Linguistic	14
Logical/Mathematical	24
Visual/Spatial	40
Interpersonal	48
Intrapersonal	5
Bodily/Kinesthetic	40
Musical/Rhythmic	15
Naturalist	13

n=102

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The Interpersonal learning style was the preferred learning style for students in both school A and school B. This particular learning style is based on collaboration, team work, and sharing ideas. However, traditionally, school is intended for students as individuals. Teachers take individual grades, standardized testing indicates ability, and students are encouraged to "do your own work".

The least preferred learning style was the Intrapersonal. This learning style focuses on the individual. Only .05 % of the students preferred this style. Schools are developed and curriculums are planned with this learning style in mind; to focus on the individual. Yet, most students do not find the Intrapersonal style desirable. This learning style is likened to isolation, which is a punishment in prison. Why, then, do we continue to punish our future?

The second preferred learning style was a tie between the Visual/Spatial and Bodily/Kinesthetic styles. Traditional schooling, once again focuses on the individual, requiring that students stay in their seats all day and listening to lectures and directions. There should be very little movement. But the survey results in the Bodily/Kinesthetic style indicate that students prefer to move around and change positions throughout the day. Students are also stating that they prefer to see examples as indicated in the Visual Spatial learning style. With limited time and an enormous amount of curriculum to cover, many teachers simply tell the students to read the directions and do the work. This leaves students confused and often afraid to approach the teacher for clarification.

The third preferred learning style was the Logical/Mathematical Reasoning. This learning style focuses on organization, logic, and why things happen. Often teachers give assignments that are not specifically relevant to the student. Students often do not

understand why algebra is an important component of math. When a teacher explains that geometry can help each student to remodel their room, suddenly geometry is important. Students who understand why they must do things have an easier time with the task at hand. Often, teachers give commands such as "Complete the attached worksheet for tomorrow" and offer no reason for the work.

Probable Causes of the Problem

With a weakened economy and a change in family dynamic, parents are required to work extensive hours just to survive. Spending time with children is secondary to survival and day care is not affordable. We have a society of latch key kids that starts as early as elementary school. Since these children do not have sufficient supervision, they turn to technology in the form of computers, violent video games, and inappropriate television. As a result, academics are not a priority outside of the classroom and children must now be constantly entertained. Teachers often feel defeated with the limited attention spans of their students.

The decline of the typical, two- parent, two and one-half children family has severe implications such as poverty, violence, and substance abuse. These unfortunate circumstances have led to a decrease in a child's prior knowledge which is essential to building new knowledge.

Teacher behavior can also contribute to the problem of students learning. Pre-service teachers are taught to carefully plan their lessons ahead of time. Often lessons are prepared on a general basis. Learning styles and special needs are not always addressed in the general lesson plans, yet they are always present in class. Teacher plans do not

always take into account what students wants or needs are let alone their interests when writing daily lesson plans (Whittington & Connors, 2005). Some lessons are not planned to let the students show what they have learned during a particular lesson. If students cannot demonstrate their learning during the lesson, how do you know if it is a successful lesson? One suggestion is to incorporate a minimum of two teaching methods in each lesson plan to maximize learning in the group. An example of this would be reading, offering a written response, and finally a discussion.

Standardized testing provides a standard that each child should maintain. This, in itself, is a problem because all children do not learn the same way. Teachers need to be aware that not every child will learn what the text book is telling them to teach. Teachers must make a decision to take advantage of the teachable moment and relate the concept that they are teaching to the children that they are teaching. Going beyond the textbook and incorporating real world information can be the difference between hearing the teacher talk and learning something new (Tomlinson, 2006).

Providing relevance to what is being learned sounds elementary, however it is not always incorporated into daily lesson plans. Sometimes teachers are so focused on teaching the standard that relevance is lost. With regard to literacy, the question is posed, would you rather your students read for enjoyment nightly or read just to finish their homework? For teachers it is a double edged sword. Optimally, students should read for enjoyment daily. This increases their knowledge and vocabulary and provides intrinsic value in reading. Alternatively, homework is essential for success in school. If we compromise with our students and offer more choices of reading material, success is eminent. Newbery Award winning books are the choices of teachers, but should all

students find these books interesting? We should let students chose something relevant or interesting, so long as they are reading and comprehending (Shellard, 2003)

Another challenge is the lack of desire to learn especially in middle school. The curriculum is so packed with standards, that the students' interests are not entertained. With hormonal and emotional states tenuous at best, life can be difficult without the strain of boring information. Constant lecturing might cover each standard, but it does not reach all students. Being an outgoing, aggressive source of inquiry can increase a child's desire to learn (Murphy Carson, Prather, & Mack, 2005).

The design of the classroom can also be a problem. Today's classrooms are designed similarly to those of 50 years ago. Each student has a desk they sit in rows, and stare at the front chalkboard. This set up alone does not support a cooperative environment. Making a smarter classroom that supports today's technology can increase learning. A video camera and projector can be great tools for both teaching and learning. Students also find technology intriguing. Keeping up with technology and showing children that change is a necessary part of life can be a skill that children learn in school that provides life benefits (Day, 2003).

With the No Child Left Behind Act, inclusion is a part of the typical classroom. Teachers now have to deal with many different social, emotional, and intelligence abilities on a daily basis across the curriculum (VanSciver, 2005). But NCLB leaves teachers with the same standards for all students in their classroom. The dilemma that the teacher has is that she must either teach to the test, or suffer funding loss and failure. Many teachers try the one size fits all instruction, but ultimately fail with that method.

The teachers should not be blamed. The NCLB is good in theory. In practice, we are

leaving many children behind and breaking the spirit of many highly qualified teachers.

CHAPTER 3

THE SOLUTION STRATEGY

A Review of the Literature

The students in the targeted intermediate and middle schools were taught as a whole class, even though each child is an individual with specific learning preferences. This research project will attempt to adapt to student's learning preferences so that they can experience full academic success through a variety of techniques.

Triangulated learning incorporates team teaching while including the student's quest for playing. This model of teaching stresses the importance of highly qualified teachers. Teachers work in teams of three. Each is a specialist in reading, writing, and mathematics, which are the focus on triangulated learning. Science and Social Studies are incorporated into the main core subjects (Butzin, 2004).

Teachers work with children across 3 grade levels. K-2, 3-5, and 6-8. This is a great benefit to both the students and the teachers. Students which grasp each lesson and desire to learn more, can. Teachers also benefit from this method of teaching because they do not have to worry the lessons they teach are ones that would be taught in the following year's curriculum. Teachers also have the freedom to take advantage of the children's interests and the teachable moments (Butzin, 2004).

Each core subject is taught in a block of 60-90 minutes. Students go to their specials such as art, gym, and music as regularly scheduled. The homeroom teacher is responsible for incorporating science and social studies into the lessons (Butzin, 2004)

Thematic teaching is quite similar to the triangulated learning theory. Thematic teaching opens dialogue among peers and contributes to civic learning. Students usually will find information that they can relate to and share for optimal learning. The "teachable moment" is optimized (Gaughan, 2003).

A second possible solution strategy includes scaffolding information. This model represents that catering to a specific learning style is ineffective. The suggestion is to carefully scaffold information between concrete and abstract learning. The teacher must also be sensitive to the needs of the students and teach the material as the student can relate to it. If teachers look through the students eyes, teaching can be more effective (Olson, 2006)

Curriculum compacting is another strategy that supports scaffolding. In this model of teaching, a student's prior knowledge must be activated and then reviewed. Students are then grouped according to their level of mastery, i.e., poor, partial, and full. In the proper groups, of which the poor mastery is the most common, students will receive the information to continue based on what they know. Students who start out in a mastery level will be challenged with an immediate individual project (Willard-Holt, 2003).

Since all learners work toward proficiency, varying degrees of abstractness and open ended questions can lead to higher abstract thinking (Van Schiver, 2005).

Cooperative learning is another strategy. Cooperative learning is a model of teaching which supports student success as a group. Cooperative learning provides an outlet for socialization and collaboration (Willis, 2007). A successfully planned group can also increase the level of learning by placing students in a smaller setting which

might make students more comfortable. Many students might not raise their hands or participate out of fear of being wrong in front of the whole class. Smaller cooperative learning groups can ease the fear and actually increase self esteem which is vital to both life and learning (Willis, 2007).

 Why cooperative learning? In a meta-analysis by Johnson and Johnson (1999b), cooperative learning groups had a higher academic achievement rating than an individualistic or competitive approach especially in problem solving, concepts, and predicting (Bellanca & Fogarty, 2003).

Cooperative learning groups have also been known to provide a positive effect on learning of all age levels in many subject areas (Bellanca & Fogarty, 2003). Through cooperative learning, students learn vital life skills such as being a part of a cohesive team, receiving and providing criticism, planning and assessing, and evaluating projects (Bellanca & Fogarty, 2003).

Another highly recognized strategy is teaching children through their preferred learning method. This is known as Gardner's Multiple Intelligences. The eight intelligences are: verbal/linguistic, visual/spatial, mathematical/logical, musical/rhythmic, kinesthetic, naturalist, interpersonal, and intrapersonal. Each intelligence has certain characteristics that a learner can identify with. The intelligence that a learner identifies with most is considered the preferred learning style. By identifying the preferred learning style, students can optimize learning (Nolen, 2003). Identifying how a child learns best can help teachers either provide an optimal environment for learning (Fine, 2003).

The teacher must recognize the learning style and help the student understand their choice of learning style can help optimize both instruction and learning (Lane, 1999).

Teachers and students should learn how to assess their learning styles. Both will then become more effective in their rolls as teachers and learners (Harr, Hall, Schoepp, & Smith, 2002).

Another widely accepted strategy is that of differentiated instruction. With the challenges of inclusion, students of different abilities including special needs all in one class, teachers struggle to meet the academic demands of each student. Differentiating instruction will help with mastery of content (Van Sciver, 2005).

Most public schools recommend that classes be diverse in achievement, race, and needs. It follows that differentiated instruction should be provided and implemented to reach all of these learners (Tomlinson, 2005).

To provide academic success, educators must provide two things: a safe, caring environment which is proven successful, and a classroom of diverse learners with differentiated instruction (George, 2005).

In order to have a successful school, standards and differentiated instruction must coexist (McTighe & Brown, 2005). This method embraces the differences in all learners. The four principles for the differentiated instruction approach are: 1. focus on the big ideas in curriculum, 2. relate the subjects to the students, i.e. make it purposeful, 3. assessment should show a transfer of knowledge, not just memorizing facts, and 4. instruction should fit the needs of the learners (McTighe & Brown, 2005).

Teachers need to value meaningful choice in order to fully agree and understand differentiated instruction (Benjamin, 2006). Having choices reinforces their commitment

to the lesson at hand. They take ownership in their choice which can also lead to an increased self esteem (Benjamin, 2006).

Thinking styles, or a way of organizing data, can be a strategy to help with a preferred learning style (Sadler-Smith, 2005). Students who understand how they learn best can optimize their learning.

Differentiation should be completed by the teachers and choices can be made by the students. This meets the needs of the diverse learners such as gifted and special needs students (Betts, 2004).

Professional Development on differentiated learning can also increase test scores by providing a positive attitude in the classroom (McBride, 2004). The teacher's attitude sets the tone for learning. If a teacher is excited about his/her lessons, it spills over onto the students.

After review of the literature, the teacher researchers determined to best serve the students, the following strategies be used: cooperative learning, differentiated instruction, chunking, and addressing all of the multiple intelligences.

<div align="center">Project Objective and Processes</div>

As a result of increasing instructional emphasis on multiple intelligences, and differentiated learning strategies during the period of September 4, 2007 through March 31, 2008, the targeted fourth and sixth grade students will improve their academic performance and attitude toward learning as measured by student surveys, teacher observation checklists, and assessments.

In order to accomplish this objective, the follow processes are necessary:

1. Develop lessons that focus on various multiple intelligences.

2. Provide Differentiated Instruction through several different instructional strategies.

3. Provide opportunities for cooperative learning groups.

Project Action Plan

Week 1

- Send parent letter and consent forms.

Week 2

- Administer student learning survey.

- Begin observation checklist.

- Teacher anecdotal record.

- Provide informal assessment via KWL chart or similar chart.

Weeks 3-4

- Provide differentiated instruction by means of chunking.

- Continue teacher observation checklist.

- Continue teacher anecdotal records.

- Weekly informal assessment. Provide formal assessment when appropriate.

Weeks 5-6

- Provide differentiated instruction by means of tiered assignments in cooperative learning groups.

- Teacher directed lessons in two of the eight multiple intelligences.

- Continue teacher anecdotal records.

- Continue teacher observation checklist.

- Continue weekly informal assessment. Provide formal assessment when appropriate.

Weeks 7-8

- Provide teacher directed lessons using two multiple intelligences.

- Provide differentiated instruction by means of flexible grouping in cooperative learning groups.

- Continue teacher anecdotal records.

- Continue teacher observation checklist.

- Continue weekly informal assessment. Provide formal assessment when appropriate.

Weeks 9-10

- Provide teacher directed lessons using two multiple intelligences.

- Provide differentiated instruction by means of adjusting questions in cooperative learning groups.

- Continue teacher anecdotal records

- Continue teacher observation checklist.

- Continue weekly informal assessment. Provide formal assessment when appropriate.

Weeks 11-12

- Provide teacher directed lessons using the final two multiple intelligences.

- Provide differentiated instruction by means of problem based learning in cooperative learning groups.

- Continue teacher anecdotal records

- Continue teacher observation checklist.

- Continue weekly informal assessment. Provide formal assessment when appropriate.

Weeks 13-16

- Offer choices of multiple intelligence learning, differentiated instruction, cooperative learning, and individualized instruction.

- Continue teacher anecdotal records

- Continue teacher observation checklist.

- Continue weekly informal assessment. Provide formal assessment of choice when appropriate.

- Repeat original student survey.

Assessment Plan

In order to access the outcomes of the intervention, observation checklists for learning success have been developed and administered every week throughout the project. In addition, student surveys were conducted prior to the intervention period and immediately following. Both formal and informal assessments have been conducted throughout the intervention. Informal assessment was conducted each week and formal assessments at the end of each unit or when appropriate.

CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

The objective of this project was to attempt to reach each student's learning preference so that they can experience full academic success. The strategies that the teacher researchers used to maximize learning were: chunking varied multiple intelligence lessons, tiered assignments, differentiated instruction, and cooperative learning groups. The data collection tools used by the teacher researchers consisted of student surveys, teacher observations, and various informal and formal assessments.

Week one consisted of distributing parental consent forms that allowed the students to participate in the action research project. The students were excited and interested to be involved in research. The parents were also supportive of the project.

During week two, a survey was administered to the students to help identify their preferred learning style. The survey consisted of the seven multiple intelligences with several statements that would relate to that intelligence. Students were to check the statements that they agreed with. The teacher researchers then reviewed each survey and counted the check marks in each area. The intelligence that had the most check marks indicated the students' preferred learning style. The students found this interesting and enjoyed learning a bit about themselves.

Over the course of twelve weeks, the teacher researchers developed lessons that incorporated chunking, differentiated instruction, cooperative learning, and addressed the multiple intelligences.

The first multiple intelligence that was addressed was the Intrapersonal intelligence. Students completed a KWL chart on Rocks after direct instruction. They were then directed to independently answer questions in their science logs and use their books for reference. The assessment of the log indicated substandard grades and the students clearly lacked comprehension although they were able to use their textbooks.

One specific lesson incorporated the verbal linguistic, logical mathematical and visual spatial intelligences. Students were learning about the Underground Railroad and slavery. Students were to pretend that they were slaves who escaped and traveled on the Underground Railroad. They wrote four paragraph essays in which their escape was described in detail. In paragraph one, students were asked to state their name and age, where they lived, what kind of work they did for their master or mistress, how they were treated, and discuss their living conditions. Paragraph two consisted of explaining how they first heard of the Underground Railroad and why they wanted to travel on it. Paragraph three required that they describe what the journey was like, the route that was taken, and any dangers or obstacles that occurred. The final paragraph gave the results of the trip. The students wrote one paragraph daily. They then did a peer review and revised their paragraphs. Once all four paragraphs were written and revised, the final product was published on a lantern made of construction paper. The lantern was divided into four quadrants in which each paragraph was to be written. To make this lantern,

students needed to make several measurements, which address the mathematical logical intelligence.

The verbal linguistic intelligence was addressed by writing the paragraphs. The visual spatial intelligence was addressed by writing on the lantern in the space provided.

The kinesthetic intelligence was approached with a bartering experience. Students were exploring colonial life and the art of bartering.   Each student had a permission slip signed to participate in the experience. They then chose one article that they either no longer needed or no longer wanted to barter in class. Students were required to follow the law of the land that stated all bartering was to take place when the sun was up and was conducted in a gentlemanly fashion.   Only two people were allowed to barter at one time. Any violators were sent to jail and could not participate. They physically walked around the room and requested a trade. The entire experience lasted for approximately thirty minutes. Students were then asked to write about their experience. They then received a short lesson on supply and demand.

One lesson that addressed the musical rhythmic intelligence was entitled Ludwig can Beethoven. In this lesson students had to create song lyrics and then create the music on the computer. This was great fun for the kids!

The naturalist learner was addressed through a lesson on rocks. Students were asked to bring in a Ziploc baggie full of rocks that they had collected in their neighborhoods. Students then examined their rocks and tried to identify each as igneous, sedimentary, or metamorphic.

Tiered assignments included leveling groups based on the assessment of prior knowledge. The groups were then given a variety of activities on different types of

currency. Tier one had to choose a country, find the name of the currency, what it looks like, and what it is worth. Tier two had to choose two countries from two different continents and also find the name of the currency, its value, and its appearance. Tier three had to choose three different countries, one a wealthy first world country, and a third world impoverished country. They were also to find out its value, appearance, and name. The whole group activity was to present the results to the class.

Throughout all of the lessons administered by the teacher researchers during the twelve weeks, chunking and cooperative learning were prevalent during instruction.

Week sixteen's assessment consisted of allowing the students to select their assignment from a list of ten choices. Each of the multiple intelligences was addressed in the choices. The teacher researchers also continued their observations.

Presentation and Analysis of Results

The three methods of assessment that were used were student survey, observation checklists, and various types of assessment. The student survey was issued at the start of the research to provide the researchers and the students with learning style preferences. The results of the survey were illustrated in Table 1.

The second evaluation method used was an observation checklist. This checklist was used by the teacher researchers on a daily basis throughout the sixteen week period. The teacher researchers noted who had comprehension of the lesson by checking for understanding. Prior to the intervention, the observation checklists indicated that five to six students did not indicate a clear understanding of the task at hand. During the interventions, the number of students who did not comprehend the lesson being taught

fluctuated from two to six. After the intervention, fewer than five students were not on task and did not understand the material. The students who did not understand the material were provided with additional instructional methods.

The third method of evaluation was various assessments that were used to guide future instruction. The teacher researchers provided a variety of assessment methods throughout the research period. Rubrics and checklists that addressed the specific requirements of each lesson were distributed to the students. These documents allowed students to view the requirements necessary to complete each task.   As a result of effectively planned assessments, students were able focus on the specifics of their learning. Subsequently, the teacher researchers noted that students understood the expectations and greeted assignments with enthusiasm as a result of tiered assignment, cooperative learning, and the knowledge of their preferred learning style. Approximately 95% of the students turned in their work on time and achieved better than average grades. As the intervention continued to progress, students exhibited a greater interest in learning and grades continued to increase.
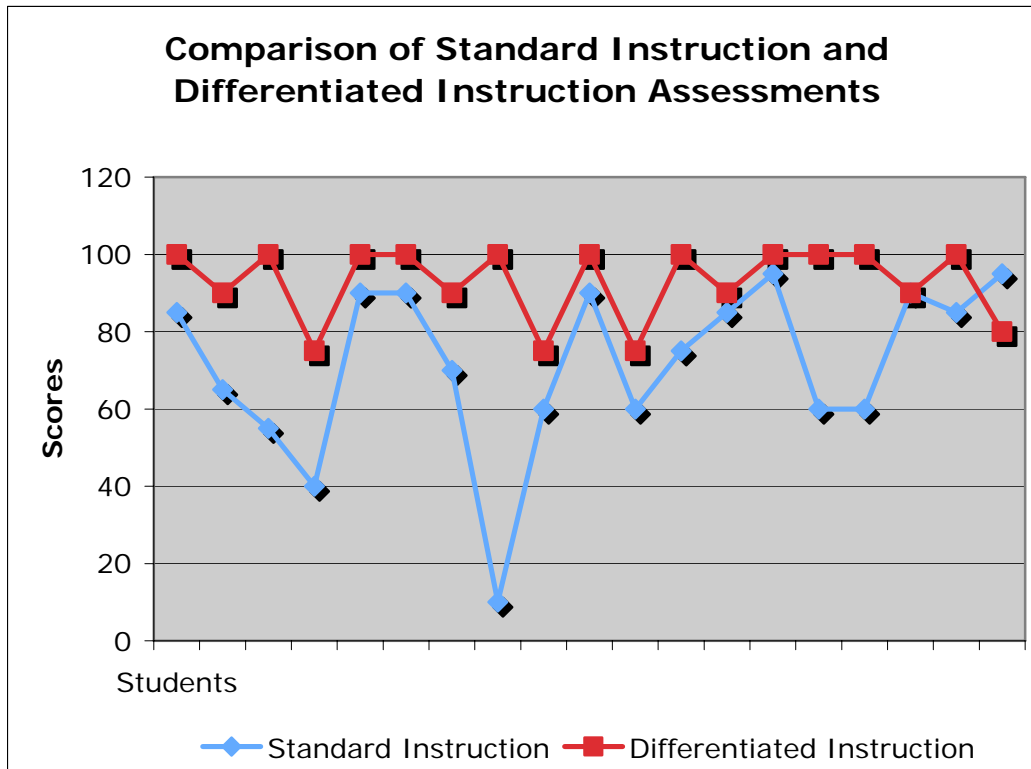
Figure 1. Comparison of standard instruction and differentiated instruction assessment

during the intervention period for school A.

The students in fourth grade showed dramatic improvement when the instruction

was differentiated. When standard instruction was delivered, the grades were average

and significantly below average. When instruction was differentiated, all of the students

shared average and above average grades. Clearly differentiated instruction was
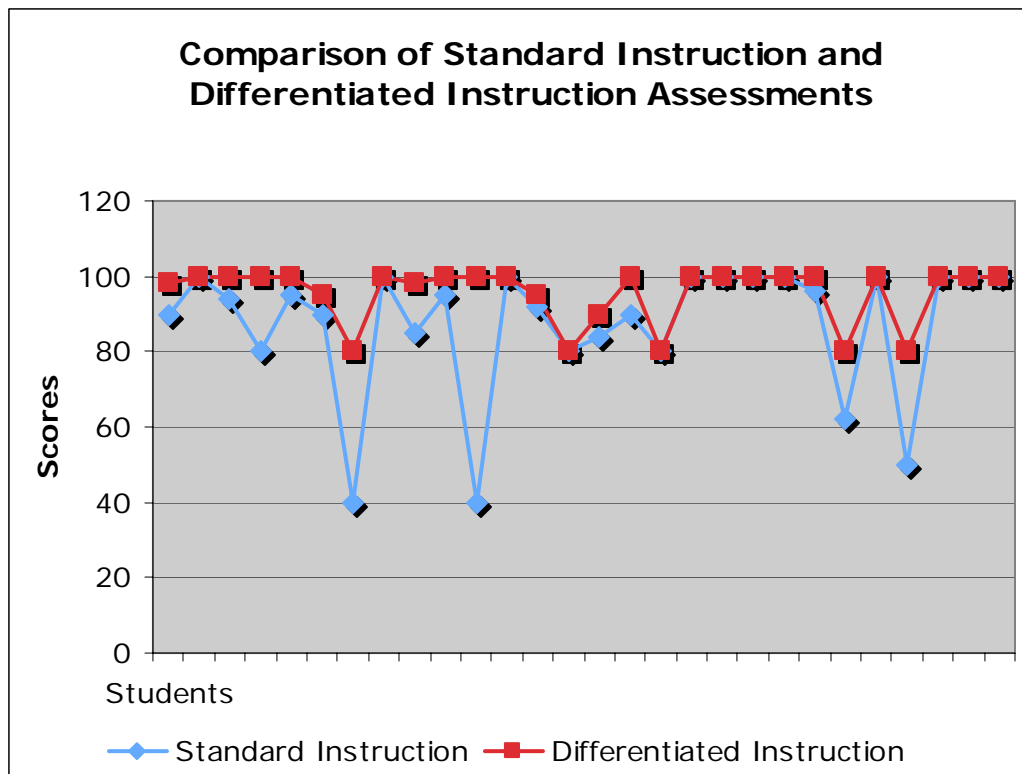
successful in this study.

Comparison of Standard Instruction and Differentiated Instruction Assessments

Figure 2. Comparison of standard instruction and differentiated instruction assessment during the intervention period for school B.

  Students in middle school were able to achieve higher grades with differentiated instruction. The lowest performing students received higher than average grades when differentiated instruction was implemented.

Conclusion and Recommendations

  Upon review of the data collected in the area of reaching all students, the teacher researchers conclude that the academic success through the various interventions used increased both interest in learning and test scores. This conclusion was derived by examining the student survey, reviewing the observation checklists, and analyzing the results of the various assessments. The implementation of addressing multiple intelligences, tiered learning, chunking, and cooperative learning groups appeared to

positively impact learning and interest in learning. Our data indicated a significant increase in understanding and positive assessment results.

The teacher researchers encourage surveying students to identify their preferred learning style. Using differentiated instruction can also insure student success. Tasks should be delivered based on ability. A lesson that is too difficult may cause frustration, hinder learning and encourage behavior problems. Likewise, a remedial assignment can lead to behavior problems. Using differentiated instruction requires a great deal of time in planning. The plan time increases in differentiated instruction due to the accommodations and modifications of each assignment. The interventions used encouraged the researchers to be more adept in the interests of the students. This did however create more engaged learners. A slightly altered schedule was necessary to accommodate the interventions. The use of differentiated instruction encourages the teacher to seek the needs of the individual learner.

Another recommendation by the teacher researchers is to promote a positive atmosphere in the classroom. Teachers can make the classroom environment inviting by encouraging risk taking and offering support. Activities that include sharing information about each student are welcomed. This should be established early in the school year and consistently maintained.

The teacher researchers advocate cooperative learning groups. Cooperative learning groups support positive interdependence, interpersonal skills, and develop social competence. Individual accountability within the group is also developed while completing such jobs as: illustrator, director, explorer, researcher, puzzler, time keeper, and noise monitor. A variety of media should be incorporated within the group and

students should be allowed to make choices. Activities and groups should be varied and evaluated on success.

Lastly, setting goals in the beginning of the school year is a recommendation by the teacher researchers. Both long and short term obtainable goals should be written and reviewed with the students throughout the year. Any goal that appears to be unattainable should be reconstructed.

Research indicates that each student has their own preferred learning style. Students learn at different rates and posses different background knowledge. Traditional teaching methods do not always address the various types of learners and their different abilities which creates a predicament for teachers trying to reach all of his/her students. To increase students' academics, all levels of learning must be tackled with modifications. Differentiated instruction, chunking, tiered learning, addressing the multiple intelligences, and cooperative learning groups are all strategies that successfully increase student interest and academic success, which was the goal of this research activity.

The teacher researchers were pleased with the results of this study. The students also appeared to respond positively to the cooperative learning groups and tiered learning assignments. Likewise, both the researchers and students were exceptionally pleased with the above average grades that were related to the research.

Reflection

This action research provided an avenue to deliver different means of instruction. As a result, a greater understanding of using different strategies can bring forth positive results to all students and also address specific learning needs simultaneously. Through differentiated instruction, cooperative learning groups, and tiered instruction, students achieved great success. We were especially pleased to reach the struggling learners. When the students achieved higher grades, self esteem increased and the overall classroom atmosphere was positive. Once the students identified their preferred learning style, they were able to transfer their learning style to other situations. They then felt empowered and learning became intrinsic. We felt quite accomplished with the promising results. The needs of the children will always be addressed in our future.

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