DOCUMENT RESUME

ED 442 539 PS 027 748

AUTHOR Blake, Rebecca; Fairfield, Scott; Paxson, Lynne
TITLE Improving Student Motivation through the Use of Cooperative Learning and Multiple Intelligences.
PUB DATE 1999-05-00
NOTE 67p.; Master of Arts Action Research Project, Saint Xavier University and Skylight Professional Development.
PUB TYPE Dissertations/Theses (040)
EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Academic Achievement; Action Research; Behavior Change; Behavior Problems; Change Strategies; Classroom Techniques; Conflict Resolution; *Cooperative Learning; Elementary School Students; Elementary Secondary Education; High School Students; Interpersonal Competence; Middle School Students; *Multiple Intelligences; Student Attitudes; Student Behavior; *Student Motivation
IDENTIFIERS Conflict Management

ABSTRACT

This action research project implemented and evaluated a program to improve student motivation through the use of cooperative learning and multiple intelligences. The targeted population consisted of students in fourth, sixth, and tenth grade in a consolidated school district located in a rural area in the Midwest. The problems of low academic achievement and inappropriate behavior were documented by means of school records, structured observations, and student questionnaires. The seven-month intervention consisted of a cooperative learning curriculum and the adoption of a multiple intelligences approach, emphasizing the development of appropriate social skills and conflict management. Data on student progress were obtained on a pre-post basis by means of student surveys, teacher observation checklists, and teacher-made tests. The post-intervention data indicated that engaging students in cooperative learning, implementing multiple intelligences, and providing a variety of student activities improved academic achievement and resulted in a decrease of inappropriate behavior. (Sixteen appendices include data collection instruments and sample instructional materials. Contains 23 references.) (Author/KB)

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IMPROVING STUDENT MOTIVATION THROUGH THE USE OF COOPERATIVE LEARNING AND MULTIPLE INTELLIGENCES

Rebecca Blake
Scott Fairfield
Lynne Paxson

An Action Research Project Submitted to the Graduate Faculty of

the School of Education in Partial Fulfillment of the Requirements

for the Degree of Master of Arts in Teaching and Leadership

Saint Xavier University

Field-Based Masters Program

Chicago, Illinois

May 1999

SIGNATURE PAGE

This project was approved by

H. Nancy Frakes, Ph.D.
Advisor

Advisor

Beverly Gulley
Dean, School of Education

Authors: Rebecca Blake
Scott Fairfield
Lynne Paxson

Site: Kewanee

Date: April 10, 1999

Title: "Improving Student Motivation Through the Use of Cooperative Learning and Multiple Intelligences"

Abstract

This report described a program that improved student motivation through the use of cooperative learning and multiple intelligences. The targeted population included a fourth, sixth, and a tenth grade class in a consolidated school district located in a rural area in the Midwest. The problems of low academic achievement and inappropriate behavior were documented through school records, structured observations, and student questionnaires.

Analysis of the probable cause data indicated that the lack of parental involvement, low socioeconomic factors, and a lack of interest in academic matters had contributed to the problem.

A review of the solution strategies suggested by knowledgeable others, combined with an analysis of the problem setting, resulted in the implementation of cooperative learning curriculum and the adoption of multiple intelligences. These interventions emphasized the development of appropriate social skills and conflict management.

The results of the post intervention data indicated that engaging students in cooperative learning, implementing multiple intelligences, and providing a variety of student activities improved academic achievement and resulted in a decrease in inappropriate behavior.

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CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of the Problem

The students in targeted grade levels within the elementary, middle, and high schools exhibited a lack of motivation which interfered with academic achievement. Evidence for the existence of this problem included time spent on task, uncompleted homework, and in-appropriate student attitude. The evidence was collected through teacher observations, student homework documentation, and student surveys concerning attitudes.

Immediate Problem Context

The school district identified in the problem statement consisted of an elementary school, a middle school and a high school.

School A

The elementary school had an enrollment of 200 students. The racial make up of the school was 99.7% White and 0.3% Asian/Pacific Islander. The average yearly attendance based on 180 school days was 95.3%, with the student mobility rate at 12.3%.

In the school the average class size was 14.0 students. The grade levels taught were pre-kindergarten through fourth grade. The total number of staff included: a pre-kindergarten teacher, two full-time aides, two teachers in each grade level kindergarten through fourth grade, and two full-time aides in the kindergarten class.

Special education services were provided by one self-contained behavioral disorder classroom teacher, two learning resource teachers, a full-time Title I teacher and one part - time Title I math teacher.

Two teachers had earned masters degrees. The average teaching experience was about 13 years.

A breakfast program and a free lunch program were state funded. Drug Awareness Resistance Education, parents club, and Market Day were all programs established in the school. Student of the month, attendance awards, and the classroom treasure chest were all motivational programs for the students.

School B

The middle school contained grades six, seven and eight, with an enrollment of 248. The racial make up was 98.7% White, 0.4% Hispanic and 0.4% Asian/Pacific Islander. The average daily attendance based on 180 school days was 95.9% with the student mobility rate of 7.7%.

Class size was an average of 20 students. The grade levels taught were sixth, seventh and eighth. Special education services were available in one self-contained classroom. The total number of staff included four teachers at each of the grade levels, one full-time special education teacher with a full-time aide, two part-time teachers, a Title I teacher and a full-time guidance counselor.

Three teachers had earned masters degrees. The average teaching experience was eight years.

A breakfast program and a free lunch program were state funded. Start Smart, a positive peer group, student of the month, and teamwork tickets were all motivational programs for the students. Band and chorus were also offered to all students.

School C

The district's high school contained grades nine, ten, eleven, and twelve with an enrollment of 277. The ethnic make up was 97.6% White and 2.4% Hispanic. The average daily attendance based on 180 school days was 93.9% with the student mobility rate of 5.4%. The chronic truancy rate was 4.4% with nine chronic truants.

Class size was an average of 15.4 students. Grade levels taught were ninth, tenth, eleventh, and twelfth. The special education department contained a self-contained behavioral, learning disabilities classroom, a resource teacher, and two full - time aides. The faculty breakdown was: three math, three English, two science, two social studies, four vocational, two health and physical education, two drivers education, two music, an art, a librarian, a technology consultant, and a full - time guidance counselor.

Eight teachers had earned masters degrees. The average teaching experience was 15 years.

A breakfast program and a free lunch program were funded by the state. Honor roll, awards assemblies, sports banquets, FFA, athletic boosters, and music boosters were all motivational programs existing in the school.

The Surrounding Community

The school district was comprised of ten small towns ranging in sizes from 25 to 1400 people in the 242 square mile district. Of the school district represented, 42% of the households had children in school, with 68% of the school population bused to various schools.

Schools A, B, and C were consolidated in 1992-93. The new school board that was elected to serve the district appeared to be very regionally opinionated when voting on the issue concerning placement of the high school. Since the consolidation passed by 13 votes in one community, there was a discontented backlash when the placement of the high school was not in that community. A group of disgruntled parents wanted to secede from the consolidated district and annex to a neighboring school district. This action was disallowed. The consolidated communities are still as divided today. In the four years since the consolidation, there has been much discussion on building a new middle and high school complex, which would be placed in a neutral location. Those board members who appeared to be in favor of a new school, and were up for re-election, were defeated. Today the parents in the communities are still divided, but the students have become unified.

Although farming and agricultural businesses dominate the county, many workers commute to occupations outside the area for employment. There were two small manufacturing firms that were located in each of the communities that employed a number of residents.

The recreational activities included summer baseball, library reading programs, and swimming and golf at a private lake club. Many families travel up to an hour in all directions to enjoy additional recreational activities.

These communities were joined by a common school district, county organizations, many civic and fraternal.

Within this area there were twelve Christian churches. Volunteerism and community Involvement were widespread throughout the county as shown through local volunteer firemen, bands, scouts, choirs, plays, sport and music boosters, parades, and summer community celebration groups.

National document

The lack of student motivation interferes with academic achievement. Within the school, time spent on task, completion of homework, and appropriate student attitude are all troubled areas in the schools.

Unfortunately, as children grow, their desire for learning frequently shrinks. Learning often becomes associated with boredom instead of excitement. According to Lumsden (1994), a large number of today's students, more than one in four, leave school before graduating. Many more students were in classes physically but mentally absent; they failed to invest themselves fully in the learning experience.

Students are motivated both intrinsically and extrinsically. Intrinsic motivation is internal, and satisfies basic human needs. Extrinsic motivation is external and includes many things a classroom teacher can do including grading, providing encouragement and friendship (Lepper, 1988).

According to Brophy (1987), motivation is a learned competence that is instilled through modeling, communication of expectations and socialization by parents, teachers and peers.

The problem of motivation stems back further than the school classroom. A child's home environment shapes one's original attitude toward learning. According to Lumsden (1994), when parents nurtured their children's natural curiosity about the world and welcomed their questions, encouraged exploration, and familiarized them with resources that enlarged their world, they were giving their children the message that learning was worthwhile and frequently enjoyable and satisfying.

However; in the real world, families come in many different forms. With the breakdown of traditional family structure positive attitudes are harder to instill within children. The challenge of stimulating student motivation is ever present in homes, schools, and the work place. Successfully motivating students would ultimately promote positive transfer into their adult lives. Human beings derive positive gratification from doing things well (Lumsden, 1994).

Based on what the researchers noted, lack of motivation interferes with academic achievement. This problem was evidenced through the use of observation checklists, time spent on task, completion of homework and appropriate student attitudes.

CHAPTER 2

PROBLEM DOCUMENTATION

Problem Evidence

The students in fourth, sixth, and tenth grades of the targeded schools showed a lack of motivation which interfered with academic achievement, positive social attitudes, and time spent on task.

A student survey was administered between September 1 and September 15, 1998. The survey questions provided data on students' perceptions of school, classes, and homework. In the student survey (Appendix A) students were asked how important completing homework was. Of the total group surveyed only 68 % completed all of their homework while 32 % of the students surveyed admitted to not completing their homework.

Students were also asked to estimate the amount of time spent on completing assignments each night. Thirty - one percent of students spent more than one hour while 25 % spent less than half an hour on homework completion. The majority spent between one-half to one hour completing assignments each night.

Of the activities surveyed in order from one to five, 77% of the students chose to eat, watch television, relax, and have fun as one of the first three things to do when home from school. A notable comparison between the first item on the survey, 60% of students listed homework as very important, but it was not one of the three activities chosen. According to the researchers, 18% of the students sometimes like their teachers, (Figure 2) and 14% thought their

classes were somewhat boring (Figure 3). A copy of the student survey is included in Appendix A.

The following figures represent the data collected from the student surveys in grades four, six, and ten. Overall, 67% of the students indicated that homework completion was very important with the highest percentages in the sixth grade results (Figure 1). On the average 47% of the students surveyed almost always liked their course instructors with higher results at the elementary level (Figure 2). Twenty percent of respondents found their courses interesting (Figure 3) and 68% completed all of their homework on a daily basis (Figure 4). When polled about the concept of working cooperatively in groups, 41% of the students strongly agreed with the idea (Figure 5).

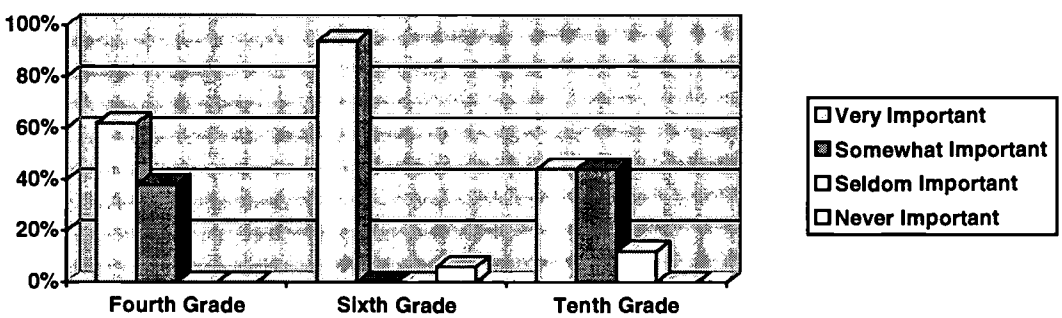

Figure 1. Student opinion of homework completion.

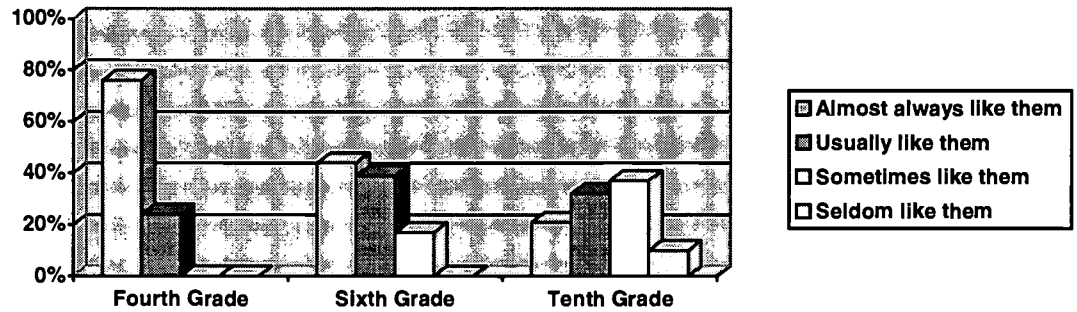

Figure 2 . Student opinion of course instructors.

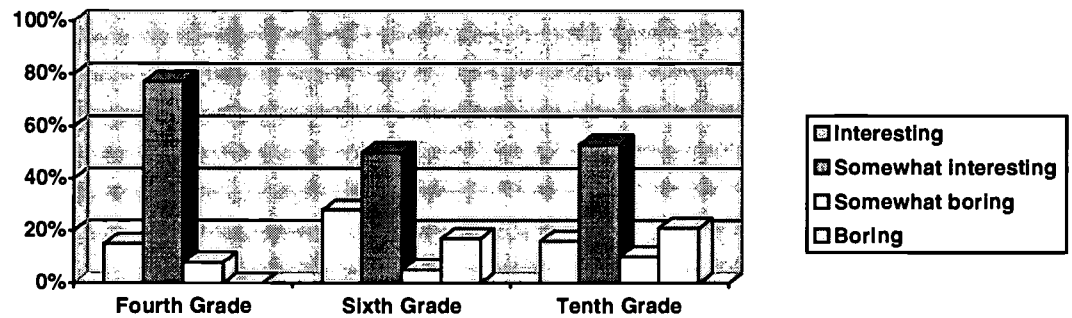

Figure 3. Student opinion of courses.

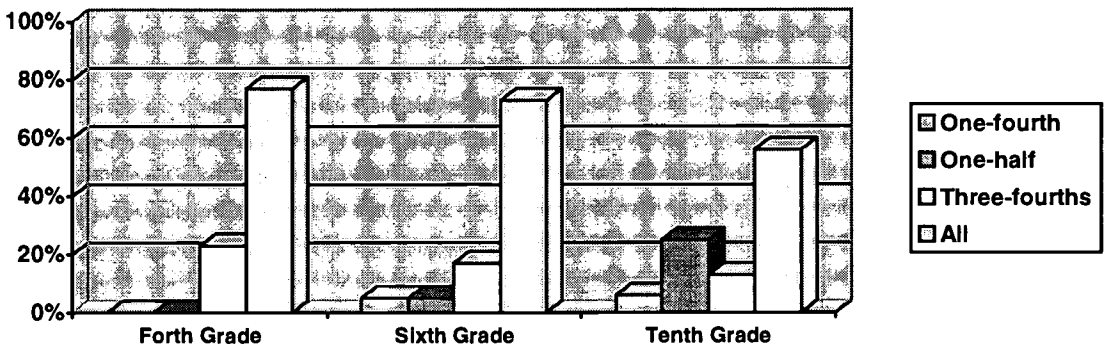

Figure 4. Student rating of daily homework completion.

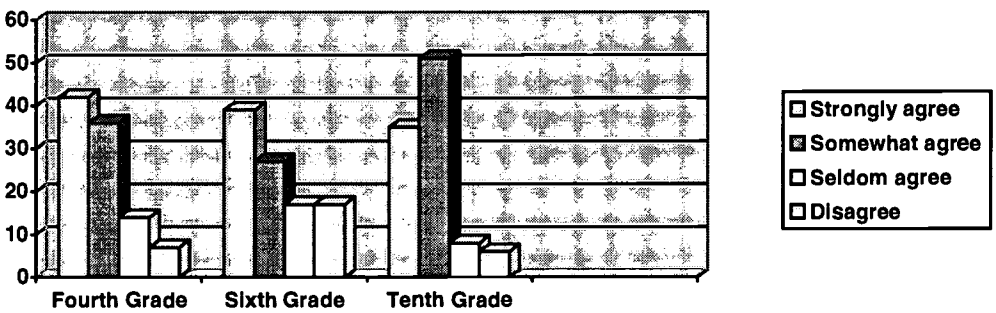

Figure 5. Student opinion of cooperative work.

The researchers' next step was to administer a questionnaire to assess students' motivation. The survey was designed using the Motivational Strategies for Learning Questionnaire (Pintrich, Smith, Garcia, & McKeachie, 1991). Item descriptions given in the

Motivational Strategies for Learning Questionnaire (MSLQ) were modified and used for the questionnaire (Appendix B). Questions were omitted or reworded to fit the researchers' needs.

Students were asked to choose a response that best fits a description of themselves. Each question was read aloud to ensure complete understanding. Questions were also scrambled so that no two questions on the same topic were next to one another. The following figures represent the results of the Motivational Strategies for Learning Questionnaire.

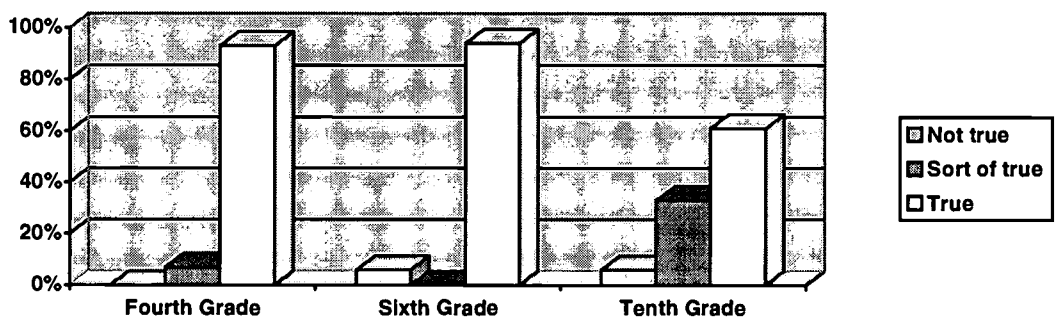

Figure 6. MSLQ Student opinion of importance of learning course content.

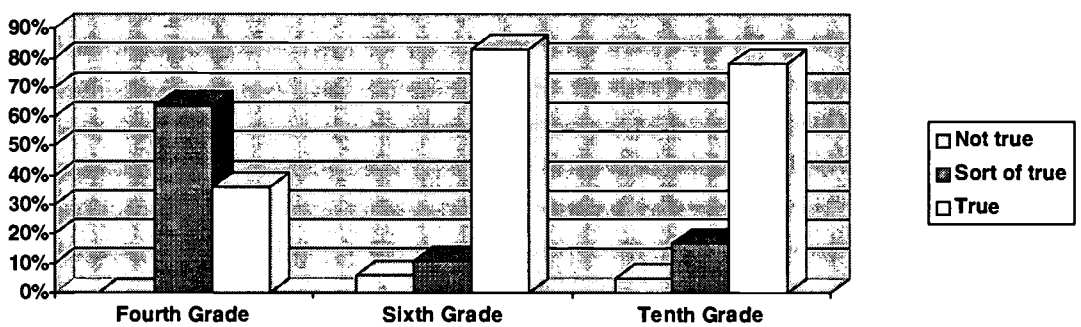

Figure 7. MSLQ Student expectations to perform well in course.

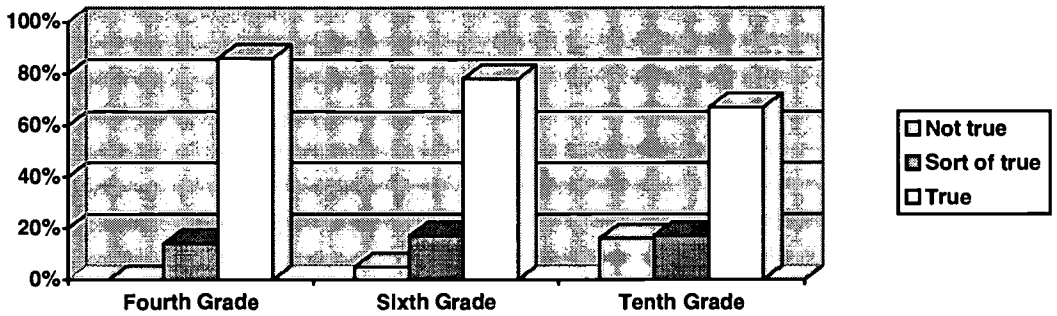

Figure 8. MSLQ Student opinion of importance of comprehending course content.

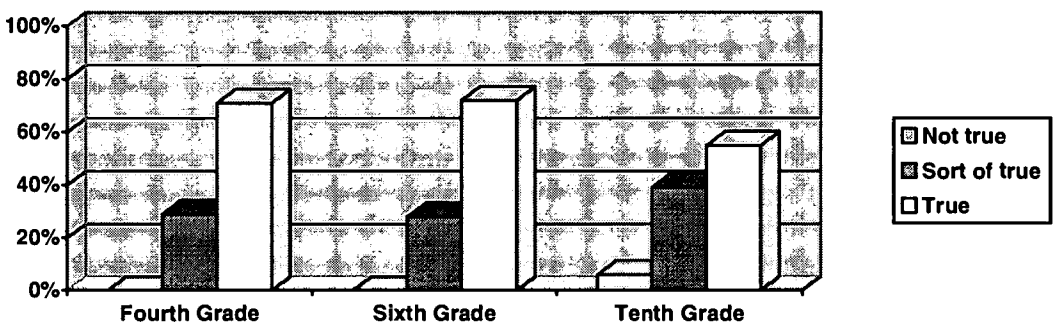

Figure 9. MSLQ Student opinion of beneficial aspects of course content.

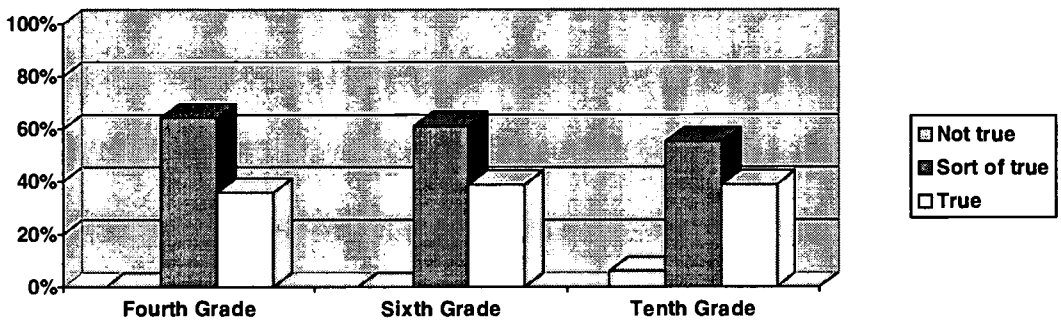

Figure 10. MSLQ Student opinion of interest in course content.

The Motivated Student Learning Questionnaire was administered at the beginning of the intervention to all students. Student opinion of the importance of learning course content showed 83% of the students answered that it was important to learn the course content (Figure 6). When concerning expectations about performance in the classroom 66% expected to perform well (Figure 7). On the topic of course comprehension 77% surveyed agreed that it was important to comprehend course content (Figure 8). When asked to consider the beneficial aspects of courses 66% responded favorably (Figure 9). According to the student survey 38% felt a high level of interest in learning the concepts taught within the course (Figure10).

Probable Cause

Problems facing the targeted fourth, sixth, and tenth grade students can be traced to a variety of site- based factors: lack of parental involvement, low socioeconomic factors, boredom in the classroom, and the number of nonacademic activities in which the children are involved.

The lack of parental involvement has changed. Many children live in a household where both parents are working. Many employed parents find it very difficult to balance work, home, and children. Single- parent homes are more prevalent in today's society.

Low socioeconomic factors also contribute to a lack of motivation. Students' beliefs and actions tend to mirror parents' beliefs and actions. In society today education is not valued as highly and children tend to be direct reflections of their parents. Non-academic activities sometimes take precedence over academic activities, thus sending the message that homework can be skipped (O'Neil, 1996).

Boredom is another symptom for lack of student motivation. Television and computers give children immediate satisfaction or gratification whereas education takes longer for benefits to appear.

Several probable causes for poor academic motivation in school have been suggested by professional researchers. According to O'Neil (1996), insufficient parental involvement and socioeconomic factors contribute to the lack of motivation in students. Childhood has changed as well as the economy.

Lumsden (1994) found that as children grow the excitement for learning lessens. Learning often becomes a chore instead of a pleasure. Many children are physically present in the classroom but mentally absent. The failure of not participating and enjoying learning affects motivation.

Williams and Woods (1994) suggested that a lack of interest in academic matters could be a cause for lack of student achievement. Boredom lowers achievement, lessens attention span, and reduces the value of what is being taught.

Still another cause could be educational programs with little adaptation made for the differences in learning styles. According to Gardner (1995) children all bring something different to the classroom. Students need to be encouraged to expand their strengths through the multiple intelligences. Chapman (1993) stated that if students are not encouraged to expand their strengths through the multiple intelligences, discouragement, lack of confidence, and fear of rejection may result.

A summary of the probable causes for the lack of student motivation at the site and from the professional literature includes the following:

1. lack of parental involvement
2. low socioeconomic factors
3. lack of interest in academic matters
4. the number of non-academic activities that children are involved in
5. childhood has changed
6. working parents

7. state of the economy has changed
8. parents have less time with children
9. unsafe neighborhoods
10. stressful home environments
11. negative influence of technology
12. lack of social interaction
13. positive and negative social experiences
14. lack of teachers understanding of child's home environment
15. lack of student understanding of what is being taught

CHAPTER 3

THE SOLUTION STATEGY

Literature Review

Researchers have numerous opinions on how to increase student responsibility for their own learning. Some of the methods include: increased parental support, creating a sense of being cared for, teaching respect and responsibility, restructuring teaching methods to include cooperative learning, and the applying of multiple intelligences in the classroom.

Many definitions of motivation were found in the literature. Lumsden (1994) believed that student motivation included the desire to participate in the learning process. McCombs (1994) stated that motivation was both a predisposition to learning and the perception of the value of that learning as cited in O'Neil, 1994. Learning was minimal when a student had inadequate motivation.

Motivation comes in two forms: intrinsic and extrinsic. Intrinsic motivation comes from within. Intrinsically motivated students will set their own goals and work to achieve those goals. These students do not need rewards to accomplish their tasks. Weinstein and Brown (1994) stated that these students are rewarded by their sense of accomplishment and pleasure from having done things well. Extrinsically motivated students will perform a task to earn a reward or to escape punishment. According to Brophy (1987) this understanding was not acquired but learned by general experience through modeling, communication of expectations and

socialization by parents and teachers. Hootstein (1994) connected extrinsic student motivation with a lack of interest in academic matters. This resulted in lower achievement and less attention which could ultimately lead to a higher student drop-out ratio.

The researchers stated several problems that affect motivation. Underachievement is the incongruity between a child's school performance and ability. A student not working to his or her ability is underachieving. Underachievers are often not competitive, lack an internal locus of control, and do not connect effort with the outcome (Rimm, 1997).

A poor learning environment can also be a cause of lack of motivation in students. If the classroom is unorganized and poorly managed, students will unlikely be motivated to learn what is being taught. If the classroom assignments are too easy or too difficult students may become bored and frustrated. Students cannot be expected to be enthusiastic and motivated if what is being taught is not meaningful because it has already been mastered or the skills are not relevant or needed (Brophy, 1987).

Students who do not complete work or pay attention and who are disruptive in class are doing so because they do not want to learn what is being taught (Brophy, 1997). The desire to learn must be present or learning cannot take place.

Many distractions diminish motivation such as movies, television, games and computers. These distractions offer immediate gratification which lessens the relevance of school (Rozycki, 1996). According to Rozycki, students have few incentives to study. Many educational policies have worked against the goal of high achievement. This policy is exploited in the school administrators' effort to increase graduation rates. Some students graduate by merely staying in

the course of study and accumulating credits. Cole and Schlechty (1992) feel that it is time for some education reform to take place. Teachers have to be innovators competing with the outside stimuli, trying to make learning enjoyable for all students. Cole and Schlechty believed that teachers need to incorporate the following nine human needs: recognition, intellectual variety, success, collegiality, power, fun, belonging, freedom, and power. Cole and Schlechty felt by incorporating these needs into the curriculum students would want to learn.

Swanson (1995) discussed the incorrect use of rewards in the classroom. Rewards given such as candy and parties send a poor message to students. Rewards used incorrectly have become less than perfect motivators for students to learn. Swanson's examples state that overuse of rewards is so common that students will not want to learn unless there is some type of reward attached to the completed task. Students do not see the value in education and will only produce if given a reward for their achievements.

To help children be successful in school, parents and teachers need to work together. Lickona (1992) believed that parents need to be involved in the student's education. Lickona (1992) and Kohn (1991) both believed that it is somewhat the school's responsibility to teach values, which include the value of education. Besides the school and parents working together Lickona believes that the community must also be involved. Schools have accomplished this by offering workshops and parent-teacher organizations. Goodman, Suttan, and Harkavy (1995) believed that through encouraging participation in parent teacher organizations and workshops, the communication between parents, community, and schools would be open.

Parents need to experience positive interaction with the school. Oftentimes parents themselves had negative school experiences so they may be defensive about their children's education. If all groups could come together students might realize their responsibility to learn.

The first solution strategy focused on utilizing cooperative learning strategies in the classroom. Cooperative learning was a successful strategy in which heterogeneous groups of students worked together, to complete a specific task. Teams worked together building trust and shared success. Research showed that cooperative learning, used correctly, could benefit everyone (Bellanca & Fogarty, 1997).

Social skills taught through group activities enable students to accept, understand and develop an interest in content (Williams, 1994). Model teachers become guides working on the side with students. Students will actively be participating in learning (Beane, 1997).

Cooperative learning teaches students how to work with others, learn from others, and be responsible. The social skills taught will help students function better within the classroom as well as outside the classroom.

The second solution strategy is the identification of various intelligences students may exhibit and the modification of teaching methods to nurture those intelligences.

Chapman (1993) stated that students learned in a variety of ways. Gardner's eight multiple intelligences help to reach every student and his or her own specific learning style.

Teachers also need to modify their personal understanding of the importance of the multiple intelligences (Emig, 1997). Teachers need to recognize that each student has a different set of strengths and talents. Through the identification of multiple intelligences students recognize their abilities, use strengths to improve weaknesses, build confidence, allow risk taking, and become engaged in the learning process (Greenhawk, 1997).

Research in the multiple intelligences theory has attracted the attention of many education professionals because of the positive results noted. Students are not the same in body or mind. Education becomes most effective if these differences are addressed rather than ignored. When a topic within the classroom is addressed in many different perspectives, the number of children reached increases dramatically. Students suddenly become more comfortable and more successful, which increases in the learning process (Gardner, 1995).

There are many keys to the power of motivation. Teachers must show excitement and enthusiasm in the learning environment. Enlisting the help of parents can form a partnership between school and home which promotes a positive attitude towards school. Learning needs to be meaningful and relevant. Students need to see the transfer of learning into the real world (Rozycki, 1996).

There are many differing opinions as to what increases the motivation of students within our public schools. Some of these opinions include increasing parental involvement in students' education, creating a classroom climate in which the learner feels cared for, increasing the responsibility of the learner, utilizing hands-on learning, and implementing lesson plans with activities based upon cooperative learning and multiple intelligences.

OBJECTIVES AND PROCESS STATEMENTS

Solutions suggested by researchers combined with an analysis of the site resulted in the following objective:

As a result of the use of cooperative learning instruction during the period of September 1998 and March 1999, the students in the targeted fourth, sixth, and tenth grade levels will increase through academic performance and motivational levels as measured by student surveys, student questionnaires, teacher observation checklists (Appendix C), and teacher-made tests.

Processes to be used to implement this objective include the following:

1. Collect and organize materials for cooperative learning for each of the targeted grade levels.
2. Establish base groups and guidelines for each classroom in each grade level.
3. Prepare lesson plans using cooperative learning for each grade level.

Solutions suggested by researchers combined with an analysis of the site resulted in the following objective:

As a result of the use of multiple intelligence activities during the period of September 1998 and March 1999, the students in the targeted fourth, sixth, and tenth grade classes will increase academic performance and motivational levels as measured by student surveys, student questionnaires, teacher observational checklists, and teacher-made tests.

Processes to be used to implement this objective include the following:

1. Collect and organize materials concerning multiple intelligence activities for each grade level.
2. Provide direct instruction and models of multiple intelligences to students in each targeted grade level.
3. Create and teach lesson plans incorporating multiple intelligences for each grade level.

ACTION PLAN

The action plan for the research project was designed to include the use of cooperative learning and multiple intelligence units integrated into the targeted grade levels. These units increased the levels of academic performance and student motivation. The first three weeks of the school year were used to acquaint the researchers with each of their targeted groups. The intervention period was begun on September 14, 1998 and continued for fourteen weeks until December 18, 1998. Each targeted grade level followed the general action plan outline listed below. See Appendices for specific grade lesson plans. Examples of cooperative lessons are Appendices D-I. Multiple intelligence lessons are found in Appendices J-O.

WEEK 1

A. Administer pre-intervention student surveys and motivational questionnaires to targeted groups.

B. Provide classroom instruction on cooperative learning.

C. Establish base groups of 3 or 4 students and discuss roles, responsibilities, and the value of team bonding.

WEEK 2-6

A. Specific subject matter lesson plans incorporating cooperative learning strategies will be taught at each grade level.

B. Cooperative learning will be utilized 2-3 times per week during this period for approximately 40 minutes per class.

C. The researchers will use observation checklists to assess student performance within the groups.

WEEK 7

A. Researchers will introduce the theory of multiple intelligences.

B. Researchers will use the multiple intelligence inventory to determine each students strength(s).

C. Teacher and students will model the different intelligences to the class.

WEEK 8

A. Teachers will incorporate lessons at each grade level implementing the verbal/ linguistic intelligence.

B. Students will complete a PMI on the intelligence introduced.

WEEK 9

A. Incorporate lesson plans at each level concentrating on the musical/rhythmic intelligence.

B. Student PMI

WEEK 10

A. Implement lesson plans at each targeted grade level incorporating the logical/ mathematical intelligence.

B. Student PMI

WEEK 11

A. Researchers will use lesson plans with visual/spatial intelligence activities.

C. Student PMI

WEEK 12

A. Instructional units focus this week on the bodily/kinesthetic intelligence.

B. Student PMI

WEEK 13

A. Implement curriculum lesson plans with intrapersonal intelligence examples.

B. Student PMI

WEEK 14

A. Lessons at each grade level are presented utilizing the interpersonal intelligence.

B. Student PMI

Methods of Assessment

Academic performance will be assessed by administering a teacher made pretest at the beginning of the unit with a follow-up posttest at the end of each unit, Each targeted grade level will focus on their curriculum. Student motivation will be assessed by the use of student surveys, motivational questionnaires, and teacher observation checklists.

CHAPTER 4

PROJECT RESULTS

Historical Description of the Problem

The objective of this project was to improve motivation with the use of cooperative learning and multiple intelligences in the fourth, sixth, and tenth grades. Pre-intervention and post-intervention surveys were administered to provide data on students' perceptions of school, classes, and homework. Observation checklists measured assignment completion, student achievement, and late assignments. Multiple Intelligence Inventories were given with complete explanation of each intelligence. The inventories were used to assess students' learning strengths.

Students were introduced to the concepts of cooperative learning and the roles of base groups. Informal task groups were formed by heterogeneous groupings, playing card match up, and by birthdays closest to the day of the activity.

Specific social skills were identified and taught as needed to prepare for cooperative learning. These skills included: basic interaction, respect for others, appropriate response, communication, and conflict resolution. The desirable social skills were modeled through role playing by students and teachers. Specific roles such as materials manager, recorder, time keeper, and encourager were explained, modeled, and observed during cooperative learning activities. At the tenth grade level time was allotted for written evaluation of student and group

performance. At the fourth and sixth grade levels oral feedback and classroom discussions were utilized.

Also during the early stages of this period the multiple intelligences theory was introduced. Observed at each grade level during the first week of multiple intelligences noticeable strengths and weaknesses were noted. The Multiple Intelligence Inventory was administered, reviewed, and tallied by the researchers. Each of seven intelligences was introduced into the classroom followed by specific weekly intelligence lessons focusing on the featured intelligence.

A variety of teaching strategies were used to assist the students in improving motivation in each phase of the plan. One researcher designed questions for student reflection. Continual teacher circulation throughout the cooperative groups provided immediate feedback and the researchers handled group concerns that could not be worked out within the group themselves.

Presentation and Analysis of Results

The results of the interventions were monitored in three ways: observed student behaviors included late and incomplete assignments, low daily grades, and low achievement. The post-intervention student survey was administered to measure how students felt about homework completion, courses and instructors. The MSLQ questionnaire was administered to gauge levels of student motivation.

Figure 11 shows the student opinion of completing homework at the three grade levels. This figure demonstrates an improvement in homework completion during September through

December. This improvement may have been due to the interventions implemented into the targeted classroom.

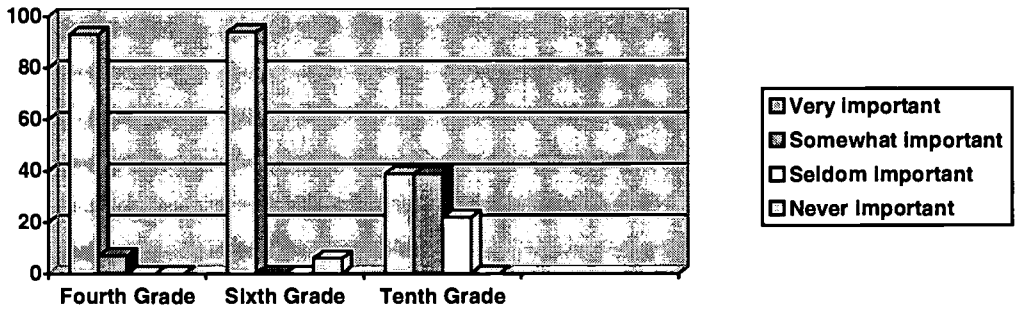

Figure 11.Student opinion of homework completion.

According to the checklist results there was an increase in completed work during the intervention period. This could be because of the use of cooperative learning and multiple intelligences throughout the period of the intervention. Student opinion regarding attitude toward their instructors, improved as illustrated in Figure 12. The researchers implemented new teaching strategies in presenting curriculum. These strategies included cooperative learning and multiple intelligences. Students' responsibilities for their learning were notably improved. The instructors stood back and let the students function on their own.

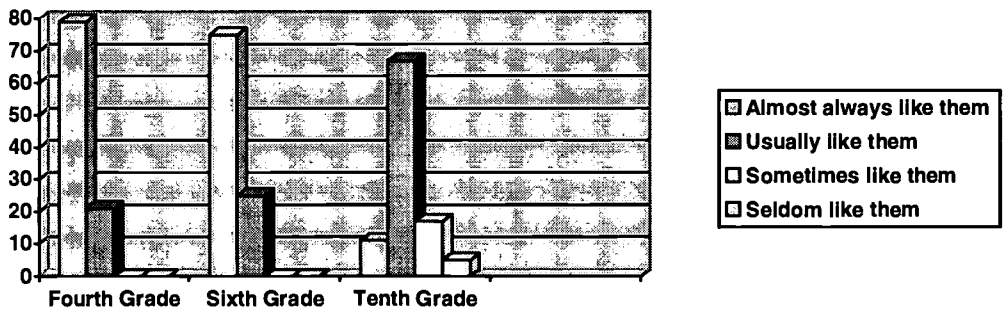

Figure 12. Student Opinion of course instructors.

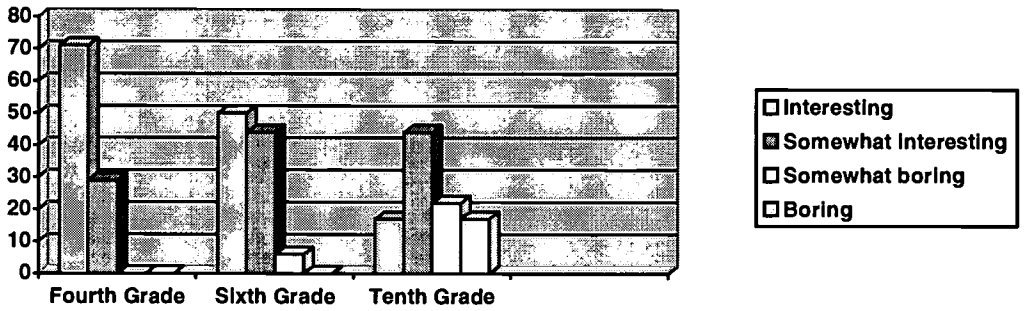

Figure 13. Student opinion of courses.

Student opinion of courses in Figure 13 showed a general improvement overall with an increase in the categories of "interesting" or "somewhat interesting." The incorporation of these new teaching strategies enabled students to take ownership in the learning process. The use of cooperative learning and multiple intelligences instilled a positive interest in learning.

At the beginning of the observation period, 68% of the targeted students completed assignments. Fourteen weeks later this number increased by 7 %. The researchers attributed this increase to the constant monitoring and recording of the students' behaviors. As teacher interest was displayed through this monitoring process, students also became more interested in the course content. The students' increased interest in course content is also attributed to their ability to work cooperatively with peers as evidenced in Figure 14.

As documented in Figure 15, the student opinion of the importance of the completion of homework improved. As evidenced by the 8% increase the intervention had a positive effect on the number of students responsible for incomplete and late work. Upon further analysis of the observation checklists the researchers noted an overall improvement from the beginning of the intervention to the end.

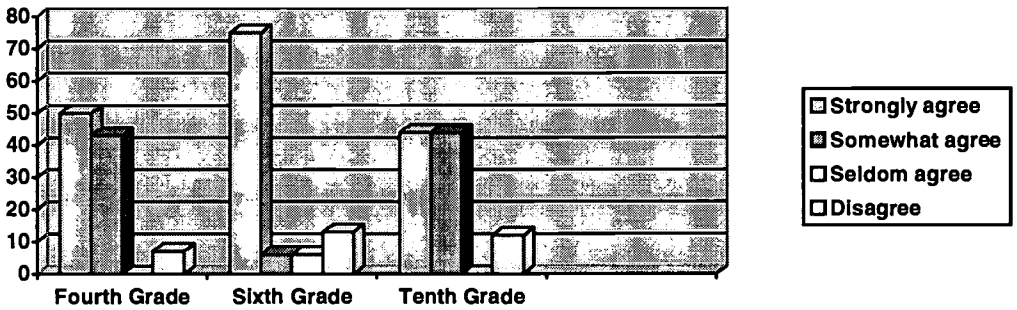

Figure 14. Student opinion of ability to work better with others.

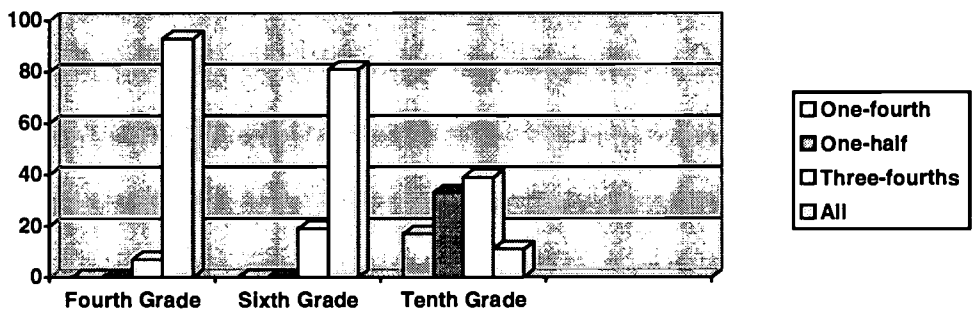

Figure 15. Student opinion on the amount of daily homework completed.

According to the student survey an overall increase of 8 % was noted in the category of the importance of completing homework. An increase of 8 % in the students' attitude regarding their instructors was noted. Forty-six percent indicated that classes were interesting, and 49 % enjoyed working with others.

Overall 49% indicated the highest motivational response questions on the pre-intervention student survey. This number increased to 58% of the students who indicated the highest motivational answers on the post-intervention survey.

During the fourteen-week intervention overall homework completion decreased from 68% to 62%. This decrease was due to a significant drop at the tenth grade level, which dropped from 56% to 11%. The researchers felt that the tenth grade class, which is comprised of 50% learning challenged, contributed to this large decrease. Learning challenged students are main-streamed from the special education classroom into the regular classroom. Both fourth and sixth grades experienced an overall increase of 13% in their daily homework completion.

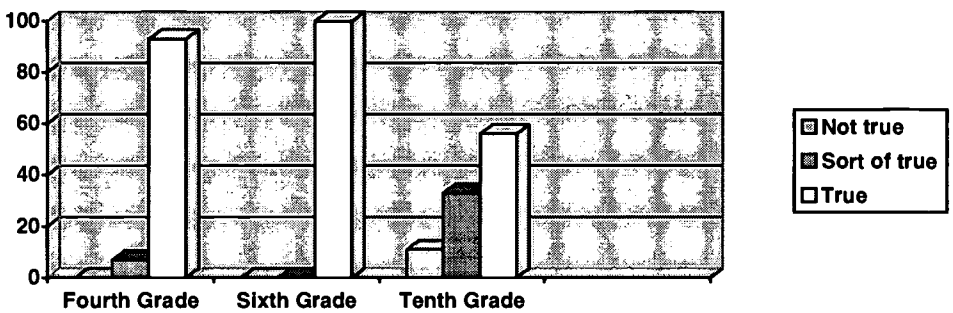

Figure 16. Student opinion on importance of learning course content.

Figure 16 showed that student opinion on the importance of course content was high at all grade levels. However, the tenth grade level was more divided. This deviation was attributed to the make up of the class in that 50% were learning challenged.

As documented in Figures 17-19 student expectations and opinions of course performance, comprehension, and beneficial aspects of the course were ranked highest. The tenth grade was again more divided in their opinions and expectations. This division was attributed to the learning challenged students.

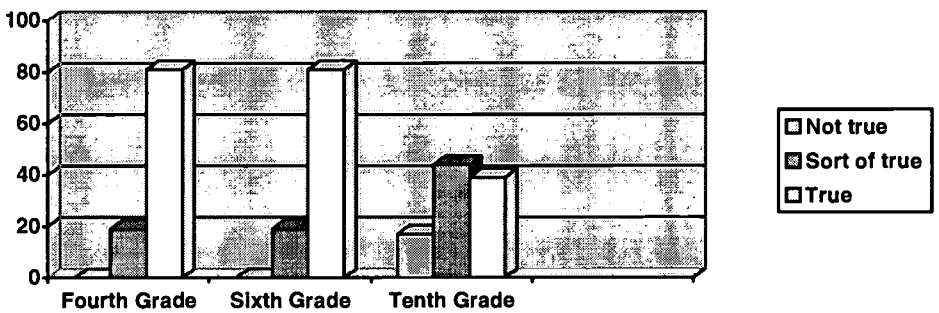

Figure 17. Student expectations to perform well in the course.

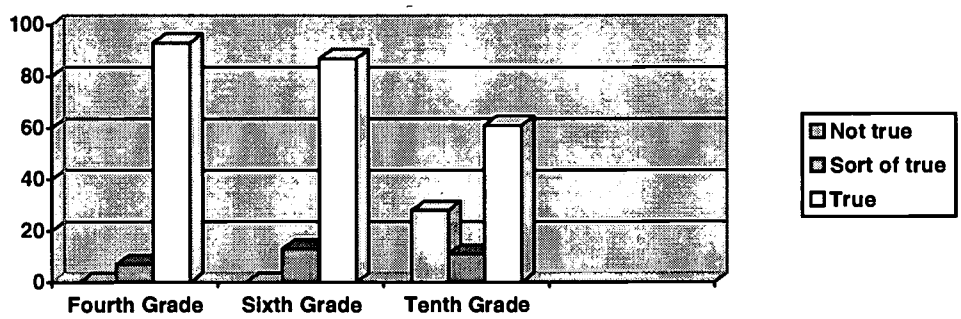

Figure 18. Student opinion of importance of comprehending course content.

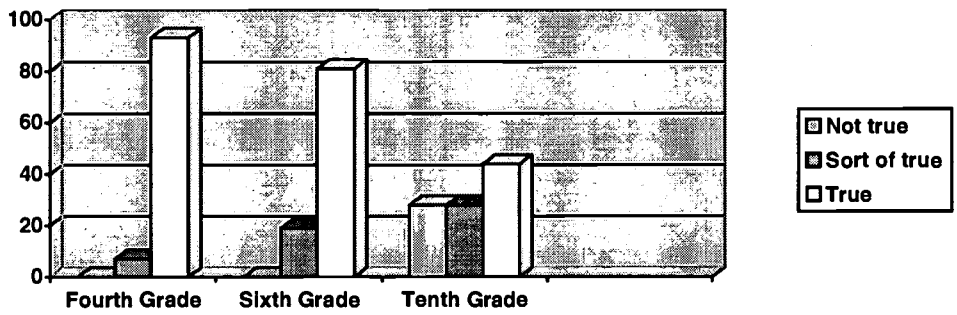

Figure 19. Student opinion of beneficial aspects of course content.

The interest in course content as noted in Figure 20 was varied. The fourth grade was divided with 50 % expressing an interest in course content and 50 % somewhat interested in course content. In the sixth grade 68 % were interested in the course content and 32% were somewhat interested. However, the tenth grade again showed a divided response with 28% interested in the course content.

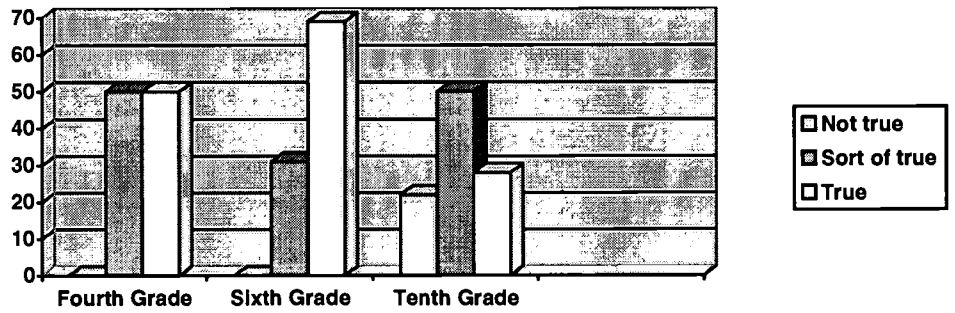

Figure 20. MSLQ Student opinion of interest in course content.

Both the pretest and posttest of the Motivated Strategies for Learning Questionnaires indicated a percentage of very motivated students increased 5%. Those students who were somewhat motivated decreased 8%, and the percent of unmotivated students remained stable at 6% (Figure 21).

During the fourteen-week intervention period the number of incomplete and missing assignments decreased by 50%. In order to document the extent of incomplete and missing assignments, a monthly tally of overall results is displayed in Figure 22.

The percentage increases in both the MSLQ and the Student Survey were noticeable. This

increase, according to the researchers opinion, was due to the implementation of cooperative learning and multiple intelligences into the classroom curriculum.

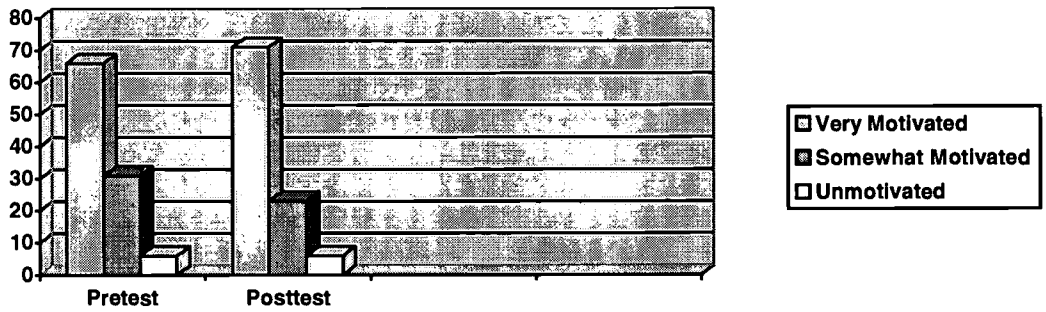

Figure 21. Pretest and posttest overall motivation responses from Motivated Strategies for Learning Questionnaire.

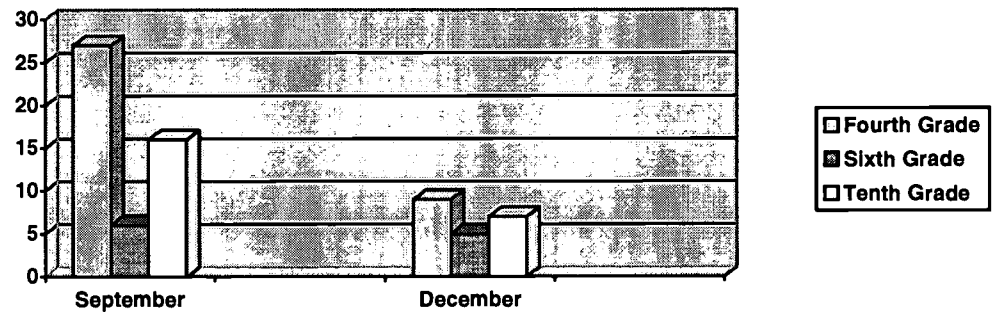

Figure 22. Comparison of incomplete, missing, and late assignments between pre- intervention and post-intervention periods.

Conclusions and Recommendations

Based on the presentation and analysis of the data on completion of homework, feelings about instructors, interest in class content, and working with others, students showed an overall improvement. The researchers concluded that the incorporation of cooperative learning and multiple intelligences strengthened the students' academic achievement.

Developing and strengthening students' social skills through cooperative learning required a great deal of time and reinforcement. The time needed was well worth the investment when positive behavior and social interaction increased. As students saw the benefit of working with others, behavior improved in a positive way. Those students with negative attitudes reaped many benefits from seeing that two students working together could be more productive than one student working alone. With more time spent in cooperative roles there was less time to be acting out in class.

The targeted fourth, sixth, and tenth grades did benefit from the intervention period. The time required and spent had a positive impact on all those involved. The tenth grade level was much more difficult to keep motivated due to the fact that 50% of the class were learning challenged. Fourth and sixth grades were enthusiastic to try the new things introduced into the classroom.

In reviewing the action research, the researchers concluded that the integration of cooperative learning and multiple intelligences was beneficial, although time consuming, for the classroom teacher. Ideally in the elementary, middle and high schools, the intervention would benefit all students and teachers if it were incorporated in all classes. Although the researchers

saw an increase in overall motivation, they felt that the time of the intervention was ideal and student motivation was generally higher in the beginning of the school year. Students tend to be more motivated in early September than in late March. While not showing drastic change there was measurable growth overall. There is an inconsistent application of the use of cooperative learning and multiple intelligences at every level. Cooperative learning and multiple intelligences applied at every level would enhance the learning process.

References Cited

Beane, A. (1997). A teaching model that promotes commitment, accountability, and responsibility. Educational Horizons,76 (1), 45-52.

Bellanca, J. & Fogarty, R. (1991). Blueprints for thinking in the cooperative classroom. Arlington Heights, IL: IRI SkyLight Training and Publishing, Inc.

Brophy, J. (1987). Synthesis of research on strategies for motivating students to learn. Educational Leadership,45 (2), 40-48.

Chapman, C. (1993). If the shoe fits... Palatine, IL: IRI/SkyLight Publishing, Inc.

Cole, R., & Schlechty, P. (1992). Teachers as trailblazers. Educational Horizons, 70, 135-137.

Emig, V. (1997). A multiple intelligence inventory. Educational Leadership,55 (1), 47-50.

Gardner, H. (1995). Reflections on multiple intelligences: Myths and messages. Phi Delta Kappan, 77 (3), 200-208.

Goodman, J., Sutton, V., & Harkavy, 1. (1995). The effectiveness of family workshops in a middle school setting: Respect and caring make the difference. Phi Delta Kappan,76 (9), 694-700.

Greenhawk, J. (1997). Multiple intelligences meet standards. Educational Leadership,55, (1), 62-64.

Hootstein, E. (1994). Enhancing student motivation: Make learning interesting and relevant. Education, 11 (3), 475-479.

Kohn, A. (1993). Punished by rewards, Boston: Houghton-Mifflin.

Lepper, M. (1988). Motivational considerations in the study of instruction. Cognition and Instruction, 5, 289-309.

Lickona, T. (1992). Education for character. New York: A Bantam Trade Paperback.

Lumsden, L. (1994). Student motivation to learn (Report No. 92). Eugene, OR: Eric Clearinghouse on Educational Management. (ERIC Document Reproduction Service No. ED 370200).

McCombs, B.L. (1994). Strategies for assessing and enhancing motivation: Keys to promoting self-regulated learning and performance. In H.F. ONeil, Jr., & M. Drillings (Eds), Motivation: Theory and Research (pp49-69). Hillsdale, NJ: Erlbaum.

O'Neil, J. (1996). On emotional intelligence: A conversation with daniel goleman. Educational Leadership,54 (1), 6-1 1.

Pintrich, P.R., Smith, D. A. F., Garcia T., & McKeachie, W.J. (1991). A manual for the use of the motivated strategies for learning questionnaire (mslq). Ann Arbor, MI: National Center for Research to Improve Postsecondary Teaching and Learning.

Rimm, S. (1997), An underachievement epidemic. Educational Leadership,54 (7), 18-22.

Rozycki, E. (1996). Dragons, sea monsters, and kids who don't want to learn. Educational Horizons,74 (2), 56-57.

Swanson, R.L. (1995). Toward the ethical motivation of learning. Education Chula Vista, 116, 43-51.

Weinstein, C.E., & Brown, D.R. (1994). McKeachie, W.J. (Ed) Student Motivation, Cognition, and Learning: Essays in Honor of Wilbert J. McKeachie, Mahwah, New Jersey: Lawrence Erlbaum Assoc.

Williams, K. (1996). Cooperative learning: A new direction. Education, 7 (1), 39-42.

Williams, B., & Woods, M. (1997). Building on urban learners' experiences. Educational Leadership, 54 (7), 29-32.

Appendix A
Student Survey

1. Completing my homework is :

Very important Somewhat important Seldom important Never important

2. Concerning my instructors, I:

Almost always like them Usually like them Sometimes like them Seldom like them

3. My classes are usually:

Interesting Somewhat interesting Somewhat boring Boring

4. I enjoy having choices.

Yes_____ No_____

5. My favorite subject in school is (choose one):

Science Mathematics Social Studies Language Arts Other_____

6. My parents feel that school is:

Very important Somewhat important Seldom important Never important

7. I believe I can do well in school.

Yes_____ No_____

8. I do better when I work with others.

Strongly agree Somewhat agree Seldom agree Disagree

9. I have a specific place to do my homework.

Always Most of the time Seldom Never

10. The amount of time I spend on schoolwork each night is:

Less than ½ hour ½ - 1 hour More than 1 hour

11. Rate yourself in terms of how much of your homework you complete on a daily basis.

¼ ½ ¾ All

12. My grade is :

Very important to me Usually important to me Somewhat important to me

13. On a scale of 1 to 5, with 1 being the first thing you do after school and 5 being the last you do, number the following items in the order in which you do them after school.

_____ Eat

_____ Relax and have fun

_____ Watch television

_____ Do homework

_____ Read

14. Are you involved in organized activities after school ?

Yes_____ No_____

If answer is yes, list activities.

Scouting	Football	Soccer	Baseball/Softball
Swimming	Wrestling	Basketball	Church

Other_____

15. List chores and responsibilities you have at home.

Dishes	Garbage	Feeding pets	Cleaning room
Making bed	Cooking	Babysitting	Watering plants

Other_____

Appendix B

Motivated Strategies for Learning Questionnaire

Student ID # _____

The following questions ask about your motivation in this class. There are no right or wrong answers. Please circle the answer that describes you the best.

1. It is important for me to learn the things taught in this class.

   Not true Sort of true True

2. I believe I will earn an excellent grade in this class.

   Not true Sort of true True

3. It is my own fault if I don't learn what's being taught in this class.

   Not true Sort of true True

4. In this class I prefer to learn things that really challenge me so I can learn new things.

   Not true Sort of true True

5. I expect to do well in this class.

   Not true Sort of true True

6. I like the things we study in this class.

   Not true Sort of true True

7. Understanding the things we study in this class is very important to me.

   Not true Sort of true True

8. If I don't understand things in class, it is because I didn't try hard enough.

   Not true Sort of true True

9. I am sure I can understand even the most difficult things taught by my instructor in this class.

Not true Sort or true True

10. If I try hard enough, then I will understand what we study in this class.

Not true Sort of true True

11. I think the things we learn in this class are useful for me to learn.

Not true Sort of true True

12. The most important thing for me right now is improving my grades, so my main concern in this class is getting a good grade.

Not true Sort of true True

13. When I have the chance in this class, I choose assignments that I can learn from even if I know I might not get a good grade.

Not true Sort of true True

14. I am certain I can learn the things being taught in this class.

Not true Sort of true True

15. I want to do well in this class because it is important to show how well I can do to my parents, my family, or my friends.

Not true Sort of true True

16. I am sure I can learn the basic things taught in this class.

Not true Sort of true True

17. I am sure I can do an excellent job on the assignments and tests in this class.

Not true Sort of true True

18. In this class, I would rather study things that I am curious about, even if they are difficult to learn.

Not true Sort of true True

19. If I can, I want to get better grades in this class than most of the other students.

Not true Sort of true True

20. I am very interested in the things that we learn in this class.

Not true Sort of true True

21. The most important thing for me to do in this class is to try to understand what we study as completely as possible.

Not true Sort of true True

22. If I study the way I'm supposed to, then I will be able to learn things in this class.

Not true Sort of true True

23. Getting a good grade in this class would be a really good thing for me right now.

Not true Sort of true True

24. I think I will be able to use what I learn in this class in other classes.

Not true Sort of true True

25. I am certain I can understand the most difficult things presented in this class.

Not true Sort of true True

Adapted from Motivated Strategies for Learning Questionnaire manual.

Appendix C

Observation Checklist

Week_____

Student ID #	Incomplete Assignment	Missing Assignment	D Grade	F Grade	Late Assignment	

Appendix D

Agriculture Science
"Leaving the Leftovers" Lab

Problem: How to listen to instructions and offer input on properly completing lab procedures to determine the solution(s) to the proposed lab problem and student hypothesis.

Activity:

1) Students are divided into groups of three or four and are given the lab research problem to look over prior to the beginning of the experiment.

2) Groups are given roles and the following materials: six plastic two liter soda bottles, 1500 ml of soil, 600 ml beaker, scissors, corn leaves, and marker. Students must propose possible solutions and methods of testing using the materials they are given to find the answer.

3) The groups prepare their bottle set-ups according to the provided instructions and fill each bottle with 500 ml of soil.

4) In bottle #1, the soil is left unprotected. In bottle #2, the corn leaves are cut up into smaller pieces and 200 ml of material is placed on the surface of the soil. In bottle #3, two hundred milliliters of the chopped corn leaves are mixed into the soil surface.

5) Four hundred milliliters of water (rain) are added to each bottle at approximately 100 ml intervals to simulate rainfall. The bottles are allowed to drip for fifteen minutes.

6) The amount of water in each bottle reservoir is collected and measured to determine the amount of water that infiltrated the soil. Students determine that surface residue mixed in with the soil allows better water percolation, thus reducing the potential for erosion to occur.

7) Students cooperatively complete the data charts, clean up areas, and draw conclusions based upon reflective summary questions, hypotheses, and collected data.

Reflections:

1) Hoe important is surface residue to the reduction of water erosion?

2) What advantages and disadvantages may exist by leaving plant residues on fields?

Appendix E

Agriculture Science
"Determining Soil Water Content" Lab Activity
Social Skills Implementation

On the average soil contains 25% water, 25% air, 45% mineral matter, and 5% organic matter. The students are presented with the problem of designing an experiment that will determine the water content of a particular soil sample.

Students are grouped into six groups of four. Each group is given fifteen minutes to develop the proposal and they elect a recorder for the paper and a spokesperson to present their ideas to the class. The social skills I stress at the beginning are the set of DOVE guidelines. We discuss the deferral of judgement, the original ideas, vast number of ideas, and the expansion of the list by piggybacking of ideas. Groups presenting toward the end do have the opportunity to revise their plan by listening to previous groups.

A data table is developed from the group presentations:

A) weight of empty beaker _____ g

B) weight of soil and beaker _____ g

C) weight of soil _____ g (B-A)

D) weight of dry soil and beaker After heating _____ g

E) weight of dry soil _____ g (D-A)

F) weight of water _____ g (C-E)

G) percent water _____ %

Mass of water/mass of soil x 100 = % water

The groups are evaluated on the use of social skills in dealing with each other within groups and within the classroom. The lab reports include Mrs. Potter's questions to provide additional reflection on behalf of the cooperative groups.

Appendix F

COOPERATIVE LEARNING ACTIVITY

SIXTH GRADE

WRITING – LANGUAGE ARTS

30-40 MINUTE LESSON

PRODUCT STORIES

1. In each cooperative base groups students will brainstorm a complete list of products.

5 categories:
*cereals
*detergents
*soaps
*candy bars
*magazines

2. After each cooperative group has a list of products they can begin writing.

These stories are a lot of fun and the students enjoy sharing!

Appendix G

COOPERATIVE LEARNING ACTIVITY

SIXTH GRADE

LANGUAGE ARTS

30 MINUTE LESSON

THE FOUR KINDS OF SENTENCES

This lesson focuses on the four kinds of sentences, declarative, interrogative, exclamatory, and imperative. Before this lesson begins discuss and review the concept.

1. Place students in a cooperative groups.

2. Give each cooperative group a folder containing cut up sentence strips which will make up the four kinds of sentences.

3. Together the groups work to create the four kinds of sentences.

COOPERATIVE GROUP ROLES:

1. Manager: hands out the materials and keeps everyone on task
2. Time Keeper: watches the time to be sure the group finishes
3. Recorder: writes the correct sentences on the board as the group completes each one
4. Helper: uses the textbook to locate information if needed to clarify for the group

Appendix H

COOPERATIVE LEARNING LESSON

Cooperative Lesson

Topic: The examination and interpretation of a whole into its parts

Fourth Grade Level

Easily adapted to other levels

Targeted Intelligence: Visual/Spatial

Assessment: Journal entry and teacher observation of the cooperative groups

Time: 30 minutes

Activities of the lesson:

In cooperative groups students will observe a plant that has been in the classroom since October. This plant has been in the west window throughout the school year. The new leaves on the trees filter the sunlight. The plant has received adequate water and fertilizer. This plant's leaves turned yellow and appeared dead. Four weeks ago the plant was moved from the window and now only receives limited filtered light. Small leaves are developing from the base of the plant.

Students will decide why the leaves on the plant suddenly turned yellow four or five weeks previously. Based on the observations of the plant, students will determine the sunlight needs of the plant and where it would thrive in its native habitat.

Appendix I

COOPERATIVE LEARNING LESSON

Cooperative Learning Lesson

Lesson Name: Climate and Crop Concept Map

Fourth Grade Level

Assigned Roles: Reader
Recorder
Time Keeper

Targeted Intelligence: Verbal/Linguistic, Interpersonal, Intrapersonal

Thinking Skills: Listening and Cooperation

Content Focus: Reading Comprehension

Materials: Social Studies Text, Paper, and Pencil

Time Needed: Time will vary depending on the amount of information

Activity:

The student will determine important content and how it relates to the chapter.

Assign the reader, recorder, and time roles to each group.

1. In cooperative groups, the reader will read the lesson.
2. Each student will help decide the important ideas.
3. The recorder will write ideas on the concept map.
4. The timer will keep track of the time and encourage the group to stay on task.

When each group is finished they will then share the ideas and important information with all of the groups.

This activity is also a great way to review information for tested material.

Appendix J

AGRICULTURE SCIENCE
"DENSITY OF TYPES OF WOOD" LAB

TARGETED INTELLIGENCE: Bodily/Kinesthetic
SUPPORTING INTELLIGENCES: Verbal / Linguistic ; Interpersonal, Logical/Mathematical
THINKING SKILLS: Applying knowledge; Problem Solving ; Drawing conclusions
SOCIAL SKILLS: Listening to others ; Working with classmates in groups
CONTENT FOCUS: Applied scientific principles of mass, volume, and density and how to use these in a problem solving situation.
MATERIALS: Supplied wooden blocks of various species, balances, metric rulers, lab worksheets.
TASK FOCUS: Students understand the concepts of mass, volume, and density and their applications in actual situations.
PRODUCT: Student data charts and lab analysis worksheets including reflective questions.
PROBLEM: How to listen to instructions and offer input on using mass, volume, and density to be ton identify different species of wood.

ACTIVITY:

1) Within this unit we had been discussing the scientific concepts of mass, volume, and density. The students are presented with painted blocks of wood and told they are different species and are asked how we can identify them.

2) The discussions eventually lead to physical properties such as mass and density which should be different amongst the various species.

3) The groups are given five anonymous blocks and a list of densities for various woods.

4) The students first determine the mass of each block and record data on their charts.

5) The volume of each block is determined by measuring the length, width, and height of each block and multiplying the measurements together to calculate the volume in cubic units such as cubic centimeters.

6) The density of each block can be calculated by dividing mass by volume to determine the density of the matter in grams per cubic centimeter.

7) The blocks are dropped into the container of water to demonstrate their lightness compared to the density of water which is 1.0 g/cc.

REFLECTIONS:

1) What were we trying to accomplish in the experiment?

2) What items worked well in the experiment?

3) How could we apply these problem-solving techniques to actual situations?

Appendix K

AGRICULTURE SCIENCE
"ENERGY TRANSFORMATION: PHOTOSYNTHESIS" LAB

TARGETED INTELLIGENCE: Visual / Spatial
SUPPORTING INTELLIGENCES: Verbal / Linguistic, Interpersonal
THINKING SKILLS: Applying knowledge, problem solving, drawing conclusions.
SOCIAL SKILLS: Listening to others, working with classmates in groups.
CONTENT FOCUS: Applied scientific principles of photosynthetic reactions and products that occur in the plant leaf.
MATERIALS: Supplied plant materials, glassware, ethanol, iodine, lab worksheets, and data charts.
TASK FOCUS: Students understand the essential inputs necessary and products resulting from the photosynthesis reaction.
PRODUCT: Student data charts and lab analysis worksheets
PROBLEM: How to listen to instructions and offer input on properly completing lab procedures to determine the solution to the research problem and proposed student hypotheses. How to properly extract plant chlorophyll and visually determine starch presence in the plant leaf.

ACTIVITY:

1) Divide the class into groups of four and hand out the lab information sheets and lab analysis worksheets to each group.

2) Experiment is divided into the following areas:

   a) Necessity of light – a leaf is wrapped with a piece of black paper that has a hole cut in the center of the paper. The leaf is placed in sunlight for 24 hours. A sketch of the leaf is drawn shading in the portion of the leaf not covered by the paper. The leaf is removed from the plant, boiled in water first and then in ethanol in a hot water bath to extract the chlorophyll. The leaf is then immersed in iodine which will identify the starch areas as dark patches. A sketch is made shading in the dark areas of the leaf. The two sketches of the leaf should show there was starch produced only where the leaf was exposed to light and not where it was covered.

   b) Necessity of carbon dioxide – a leaf is coated with petroleum jelly lengthwise on one side of the midrib only, leaving the opposite side uncovered. The underside of the leaf is also coated in a similar method. A sketch is drawn of the leaf shading in the side of the leaf not covered by the petroleum jelly. The leaf goes through the chlorophyll extraction procedure described previously. After immersion in iodine, a sketch is made shading in the leaf areas showing the presence of starch. The area of the leaf uncovered by petroleum jelly should be the area that has starch present.

c) Necessity of chlorophyll – a leaf is selected that contains green and non-green areas. The students sketch the leaf prior to the test and shade in the areas that contain the chlorophyll pigment. The leaf is removed from the plant, run through the chlorophyll extraction process, and immersed in iodine. A sketch is drawn of the of the areas that show evidence of starch by shading them dark in the drawing. Sketches should match fairly similar to each other in results.

d) Necessity of water – a leaf is removed from the plant and allowed to show signs of stress due to wilting. The leaf is run through the chlorophyll extraction process and immersed in iodine. The students draw the areas of starch and compare it to a sketch of a healthy leaf to show what happens to photosynthesis when water is not available.

3) Students complete lab reports using collected drawings, and draw conclusions concerning their hypotheses and the research problem.

REFLECTIONS:

1) What were we trying to accomplish in the experiment?
2) What items worked well in the experiment?
3) What things could we have done better in the experiment?

Appendix L

Lesson Name: Puzzle Graph

Targeted Intelligence: Logical/ Mathematical

Supporting Intelligence: Intrapersonal and Visual/Spatial

Thinking Skills: Analysis, Problem Solving, Following Directions

Social Skills: Listening, Following Directions

Content Focus: Social Studies

Materials: Vocabulary Terms and Graph Paper

Task Focus: Using careful observation skills, students will write the chapter title "Regions of the Southeast" down the center of the graph paper using a graph square per letter. The vocabulary words are written off of the chapter title in a crossword fashion. After all of the vocabulary words have been written, students will sketch pictures that relate to the chapter. Examples include drawing state outlines, products produced, points of interest, and a geographical region such as a coastline or plateau.

Product: Graph Puzzle

Problem: How to spatially arrange each vocabulary term in the crossword puzzle.

Activity:

1. Ask students to make a list of vocabulary words from Chapter 3
2. Give each student a piece of graph paper and estimate the center of the paper.
3. Using each letter of word in separate square, write the chapter title vertically on the paper.
4. Attach each vocabulary word off of one of the letters in the chapter title in crossword fashion.
5. All words must read from right to left and vertically with the first letter of the word placed at the top.

6. There must be spaces between each vocabulary word.

7. In the spaces not used for vocabulary, make at least three sketches from the chapter or one large picture that covers the entire puzzle. State outlines, geographic regions, natural resources, products that are produced in the region can be sketched.

8. The sketches must be colored with colored pencils.

9. Neatness is of utmost importance.

Appendix M

MULTILPLE INTELLIGENCE LESSON

Targeted Intelligence: Musical/Rhythmic

Supporting Intelligences: Verbal/Linguistic and Interpersonal

Thinking Skills: Synthesis, Decision Making, and Creative Recall

Social Skills: Consensus, Interdependence, and Pride

Content Focus: Using songs to learn content of states and capitals

Materials: Paper, pencil, and social studies text

Task Focus: In cooperative groups students will create lyrics using states, capitals, and Abbreviations and apply them to a familiar tune of their choice.

Product: A song that teaches capitals, states, and abbreviations

Problem: How to apply lyrics to a familiar song that will teach social studies content.

Activity:

1. Students will listen to a states and capitals rap song.
2. Discuss how sound and beat help one to remember content.
3. Play the rap song several times.
4. Assign roles in the cooperative groups:
   Checker: Keeps track of time and helps the group stay on task.
   Recorder: Writes down the content of the song.
5. Give the following instructions:
   Each group will create lyrics using states, capitals, and abbreviations.
   Apply them then to a familiar tune of their choice.
   This song will teach social studies content.
   Each student will have in`ut and a part in the final presentation
   to the class.
6. Give examples of the songs "Vowels" and "Colors" by singing to the class.
7. Allow 35 minutes for the creation and practice of their song.
8. Each group will present their song.

Appendix N

MULTIPLE INTELLIGENCES LESSON

VISUAL SPATIAL

INTRAPERSONAL

SIXTH GRADE

LANGUAGE ARTS

CREATING A GLOPSNERCH

1. Students will work on their own.
2. Discuss all of the possibilities of what a Glopsnerch could be.
3. Students will write a description of their Glopsnerch, and draw a picture.
4. In the students written description each of the four kinds of students must be used.

What to Do With a Glopsnerch

You have just given someone a glopsnerch. This person is not familiar with glopsnerches. Only you are.

Write instructions to go with your gift. Describe what to do with a glopsnerch, explaining very carefully everything that is important to know.

Remember: Only you know what a glopsnerch is!

Getting Started

1. Think about the following questions:
   - Is a glopsnerch large or small?
   - Is it an animal, a plant, a machine, an object or what?
   - To whom are you giving this glopsnerch – a friend, a relative, an enemy, an aquaintance? Why are you giving it to this person?
   - What special characteristics does your glopsnerch have? Does it have special capabilities or needs?

Appendix O

MULTIPLE INTELLIGENCES LESSON

BODILY KINESTHETIC/VISUAL

COOPERATIVE LEARNING

SIXTH GRADE

LANGUAGE ARTS

30 MINUTE TIME LIMIT

SEE – RUN – DO POSTERS

The students will work together in their cooperative base groups to create a verb poster. This activity requires background knowledge of verbs, the integration of visual/kinesthetic thinking with strong communication skills.

- The students will be divided into groups of six or seven members.
- The two very verbal students within the group will be given the role of the describer and runner.
- Materials for each group will be handed out.
- The describer will hang a sample poster outside of the classrom.
- Describers remain outside of the classroom at all times. Only the describers may look at the sample poster. After the describer studies the poster, he moves away from the poster to a pre-determined spot outside of the classroom to talk to his runner. He describes the poster to the runner. The describers may look at the poster as many times as needed. The describers may not see the poster the group is constructing until the end of the activity.
- The runner returns to the classroom and communicates the describers description of the poster to his/her group. The runner may take as many trips as needed. The runner may not touch any of the materials or use his/her hands in anyway. Each group of poster makers may ask their runners as many questions as they want.

Appendix P

Multiple Intelligence Inventory

This test will help you identify your areas of strongest intelligence. Read each statement. If it expresses some characteristic of yours and sounds true for the most part, please a "T" in the blank next to the statement. If it does not describe you, mark an "F" in the blank. If the statement is partially true and partially false, leave the question blank.

1._____ I am usually aware of the expression on my face.
2._____ I like to work puzzles and play games.
3._____ I often connect a piece of music with some event in my life.
4._____ I have a good sense of what others think of me.
5._____ I am sensitive to the expressions on other people's faces.
6._____ I am good at athletics.
7._____ I would rather draw a map than give someone verbal directions.
8._____ It is easy for me to say what I think in an argument or debate.
9._____ I enjoy building models (or sculpting).
10._____ I can associate music with my moods.
11._____ I am sensitive to the moods of others.
12._____ I like to work with numbers and figures.
13._____ If I am angry or happy, I usually know exactly why.
14._____ I am good at finding the fine points of word meanings.
15._____ Just looking at shapes of buildings and structures is pleasurable to me.
16._____ I stay in touch with my moods. I have no trouble identifying them.
17._____ I enjoy writing detailed letters to friends.
18._____ I like to hum, whistle, and sing in the shower or when I am alone.
19._____ I like to sit quietly and reflect on my inner feelings.
20._____ I can play (or used to play) a musical instrument.
21._____ Learning to ride a bike (or skates) was easy.
22._____ I can look at an object one way and see it turned sideways or backwards just as easily.
23._____ I can add or multiply quickly in my head.
24._____ I often see patterns and relationships between numbers faster and easier than others.
25._____ I can help a friend sort out strong feelings because I successfully deal with similar feelings myself.
26._____ My sense of balance and coordination are good.
27._____ I like to work with calculators and computers.
28._____ I can convince other people to follow my plans.
29._____ I pick up new dance steps quickly.
30._____ I am irritated when I hear an argument or statement that sounds illogical.
31._____ I enjoy a good lecture, speech, or sermon.
32._____ I always know north from south no matter where I am.

33._____ I like to gather together groups of people for parties or special events.
34._____ Life seems empty without music.
35._____ I always understand the drawings that come with new gadgets or appliances.

Scoring Sheet

Circle each item which you marked as "True". Add your totals. A total of four in any of the categories indicates strong ability.

A	B	C	D	E	F	G
8	23	7	29	20	13	33
31	27	32	21	10	25	28
30	2	35	26	34	19	5
14	24	22	9	3	1	11
17	12	15	6	18	16	4
Totals	___	___	___	___	___	___	___

A = Verbal/Linguistic intelligence

B = Logical/Mathematical intelligence

C = Visual/Spatial intelligence

D = Bodily/Kinesthetic intelligence

E = Musical/Rhythmic intelligence

F = Intrapersonal intelligence

G = Interpersonal intelligence

Adapted from If the Shoe Fits by C. Chapman.

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