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What effect will increased parental involvement in science/ biology at Woodrow Wilson High School have on the improvement of students academically?

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WHAT EFFECT WILL INCREASED PARENTAL INVOLVEMENT IN SCIENCE/BIOLOGY AT WOODROW WILSON HIGH SCHOOL HAVE ON THE IMPROVEMENT OF STUDENTS ACADEMICALLY?

by
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A Master' Thesis

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Approved by

Professor

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ABSTRACT

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What Effect Will Increased Parental Involvement In Science/Biology At Woodrow Wilson High School Have On The Improvement Of Students Academically?

1999

Dr. Theodore Johnson

Educational Leadership and Administration

Statement of Purpose of Study

The purpose of this study was to discover whether or not student achievement could be improved through the increased participation of parents/guardians for students enrolled in science classes.

High academic achievement in science courses has been rapidly declining for the past twenty or more years. With this decline in science has come a decline in the overall academic achievement of students.

To turn the tide of students failing to students excelling academically in the sciences, I believe that increasing the level and quality of parental involvement is "the solution" to this problem.

Students in my biology classes will participate in this study along with some of their parents. Approximately eighty students were divided into two groups, an experimental and a control. During the course of the first and second marking periods, grades that these students earned were compared to determine if, in fact, parental involvement could significantly improve student achievement.

After reviewing the work of the students who participated in this study, there was conclusive proof to support my original hypothesis, which was 'student achievement in the sciences is related to the presence of involved parents'.

MINI-ABSTRACT

LaSandra Watkins

What Effect Will Increased Parental Involvement In Science/Biology At Woodrow Wilson High School Have On The Improvement Of Students Academically?

1999

Dr. Theodore Johnson

Educational Leadership and Administration

Statement of the Problem

Can student achievement in science courses be improved by increasing the involvement of their parents/guardians?

Conclusions

The involvement of parents into their children's academic life does improve their

child's academic achievement. Students of involved parents showed significant growth in the quality of their work as well as in their grades.

Acknowledgments

After having spent eighteen years in the classroom as a teacher, I was finally inspired by Herb Factor, who was at that time my principal, to think seriously about becoming a principal. Mr. Factor showed me that a principal could lead with soul (Deal, T., & Bolman, L., 1994). Prior to Herb, as he was affectionately known, my experiences with principals had not been pleasant ones. Herb demonstrated as our principal, that the human quality of caring, nurturing and collegiality could be applied to students, faculty, staff, and parents/guardians and still remain an effective organizational leader.

I would like to thank Dr. Gail Brooks, former vice-principal at Woodrow Wilson High School for having the vision that our school could be something special. It was through her efforts that Woodrow Wilson High became the second Professional Development School in the city of Camden. It was during this time that I first took advantage of reintroducing myself to the rigors of the academic world as a student. Without Dr. Brooks' vision for our school, I might not have taken that very important step of enrolling into my first graduate class.

I would like to give special thanks to Dr. Marion Rilling and Mrs. Elizabeth Collins for their support during my tenure as a student at Rowan University. Their caring words of encouragement have meant a lot.

I would like to express gratitude and my sincere thanks to my colleagues in the science department at Woodrow Wilson High School. They offered support in many ways, especially when it came to proofreading the many papers, which I have written over the past three years. I would also like to posthumously thank Robert Joyner for his support and encouragement to pursue this master's degree in school administration.

I would like to thank my family for their support during these past three years. Their sacrifices have made it possible for me to reach this goal. I do appreciate their understanding and acknowledge their contribution to my success.

Finally, I would like to thank my mother, Willie Mae Fields and her father and my grandfather, Paul Neal for having instilled within me a love for knowledge. They always expected my best in every endeavor. I hope that I am still making them proud, as they share in my academic accomplishments from heaven.

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Chapter One

Introduction

In a report, which was published by TIMSS in the spring of 1991, data indicated that students taking courses in science and mathematics in American schools as compared to schools in other countries were academically deficient in these disciplines. Not since the early 1960s has American schools demonstrated an interest in science such as that which is taking place now in schools all across America. Prior to launching the first manned space ship carrying John Glenn into history, American schools were in a steady academic decline. Emphasis had shifted away from the sciences to other academic and non-academic areas.

As the world prepares to enter the new millennium, also known as "the 21st century" America's educational system is being forced to change. Students need to be better prepared to meet global changes, which have happened or will happen. Where will students learn the skills they will needed in order to survive? The answer to this question lies in the schools.

Unfortunately, many schools in America have been classified, as "inadequate" because students are leaving them lacking the minimum skills needed to adequately function within a global society. Schools, which are located in urban communities, are considered to be the worst when compared with suburban schools.

Schools have been known to produce magicians (the students) as well as employing magicians (teachers) to teach students who have little or no interest in education. So what is the answer to turning around our schools? Educational reformist have been working to develop, implement and test proposed strategies designed to get American students and schools back on track. Getting parents involved in the process is crucial if the program is to be a success.

Science is a subject, which is loved by a few and feared by the majority. Exactly why some students don't like science is not known. What is a known fact is that students must improve their understanding of science/mathematics. In order to help students overcome the barriers which impede their success in these academic areas educators and parents must unite and work together to help students improve academically. Parents are encouraged to take a more active role in their children's education by getting involved both at school and at home. This can only be accomplished if parents feel comfortable getting involved with the subject matter in question. It is therefore the objective of this project to develop a program which will help to remove the barriers that parents themselves may have regarding science and thus empower them with the basic information needed to help and support their child (ren) at home.

Purpose

The purpose of this study is to discover how increasing parental involvement at Woodrow Wilson High would help to improve the academic achievement of students in

science courses. Most educators in America agree that public schools are in need of some serious help in many areas. It seems that most of these educators also believe that parents hold the key to many of the problems that schools find themselves confronted with.

There is not an abundance of data to either support or dispel the idea of how parents taking an active role in their children's science classes will affect their child academically, especially once they reach high school. Parents and educators believe that there will be benefits for all. Regular students will benefit as well as students with special need students.

There are many parents who would welcome the opportunity to work directly with their child's teacher(s). One of the components of the Goals 2000 Educate America Act is that parents take an active role in the schools. Even though this policy specifically includes a section requiring parents to be involved in educating their children, parental involvement has been more passive than active (Turnbull & Turnbull, 1990). In findings involving parents of African America children, they were found to be even more passive than parents of other ethnic groups (Harry, Allen & McLaughlin, 1995). Parent power, in some cases is just the stimulus that some students need to be successful.

Leadership skills that the intern will acquire from this study include the ability to:

- Apply human relation's skills in interacting effectively with others.
- Initiate and effectively manage change as both leader and member of a leadership team.
- Communicate orally with students, staff, and the community in ways that motivate them to reflect upon and support the school's mission.

- Involve others in developing and assessing the scope, content and sequence of a balanced curriculum.

Changes in the organization will include:

- Teachers and parents will develop strategies and techniques to help students improve academically.
- Students will improve academically in science related classes.
- A sense of collegiality

Limitations

This study will deal specifically with Woodrow Wilson High school students and their parents. All grade levels will be included in the study, though the majority of students will come from the tenth grade.

The study is limited in its scope because even though it could be implemented in middle and elementary schools it will be limited to one of Camden's high schools. Elementary school parents tend to be more active in their children's school as compared to high school students.

Setting of the Study

This study will take place in a traditional comprehensive high school, which is located in an urban environment. This study will include mainstreamed and regular education students in grades 9-12. Most of the students attending this high school are from families in the mid to lower socio-economic groups. Parental involvement at this school has been minimal. Overall, parents are not very active in the school.

This study will ultimately affect the entire school family either directly or indirectly. A program of this caliber will call for teachers to establish strong lines of communication with their students' parents. It is this relationship that must be established between parents and the school that will probably be the greatest obstacle to overcome by all parties involved.

Significance of the Study

The intern believes this is an important topic to research because school districts across the United States are endeavoring to raise their students' academic levels in science. In the past, academic interest had been centered primarily on mathematics, reading and writing. Many of the more popular standardized tests are geared toward testing for competencies in these academic areas. Students have summarily been drilled and remediated in concepts related to reading, writing and mathematics, while science and social studies had both been designated as "non essential." In 1989 when President Bush assembled governors from across America to an educational summit in which the primary focus was to develop strategies for improving schools and students academically.

One of the seven original national goals included a segment specifically dealing with improving students in science. Due to a shift in educational priorities in Camden as well as in other townships, the science curriculum slowly but surely moved to the bottom of the list of important things to do for its students.

If this program is to be successful for the students and teachers school districts must invest financially into developing an educational program which will rekindle the "I want to learn science" flame. Science teachers have persevered and continued to teach their students even though they knew that many students, administrators and parents were not taking their subject serious.

Another factor, which has contributed to the decline of science, is the type of students that populate the various districts. Student behavior as well as their interest in science has steadily declined in schools located in urban districts. The remedy to this situation could be found in the student's parents. Getting the parents of students involved in their child's science class is an excellent way of helping to assure the program's success.

Organization of the Study

The thesis paper will open with an acknowledgement to persons who have had any impact on the positive implementation and completion of this project.

This thesis paper will encompass five specific areas which will each make up a chapter. Chapter one of the paper will focus on the reasons why the intern chose this

specific topic to study and how its findings will affect the school and district. Chapter two will include a review of the literature which was used to research and investigate the area chosen by the intern to study. It will include any and all sources, which have contributed to the writing of the thesis paper. Chapter three will explain how the research study was conducted and what type of research study it represented, quantitative or qualitative. Chapter four will focus on any prior research findings that deal specifically with the topic of research in the intern's thesis report. Finally, chapter five will represent the closing chapter of the thesis paper. All research data, which has been compiled both from a literature base source and from actual data gathered from participants, will be used to draw conclusions as to the validity/impact of this project.

Included in the organization of the thesis paper will be reference material that acted as benchmark when organizing ideas for the implementation of this project. If necessary appendices will be included where additional data will be placed in the form of charts, graphs and surveys.

The last part of the thesis paper will include biographical data about the intern.

Chapter 2

Review of the Literature

Secondary schools are faced with a multitude of problems, which did not exist years ago when the first high schools were organized. Then, most students took seriously the work that was expected of them from their teachers. This is not to say that they didn't have their share of problems. Times were different then and many of the freedoms that today's youth are privileged to have did not exist fifty years ago. Schools have become victims to an array of declining cultural values including the disintegration of the American family. The decline of the family structure has given rise to negative behaviors by students both in the home and in schools. One of the most devastating behaviors observed in students today is their obvious refusal to work hard in order to earn high academic grades as a means of maintaining their social position within their peer groups. If a student is African American or Hispanic, their friends who tease them "as trying to be White" ridicule them.

Low student achievement has become a concern of educators, parents, politicians (Goals 2000: Educate America Act, 1994), the business community, and the military. Practicing educators are faced daily with students, who, for unknown reasons, except to them, absolutely refuse to use their abilities and talents to be in the upper echelon of their classes academically. These behaviors are pervasive throughout the academic disciplines

but when it comes to the sciences it is critical. Some students absolutely refuse to assert themselves academically in their science classes, which leads to the high number of students failing yearly. To them science is too hard and takes too much of their valuable time, time which they would rather use "hanging out" as opposed to studying.

The Third International Mathematics and Science Study recently found that high school students in the United States rank far below other countries in the areas of mathematics and science (NEA Today, 1998). In mathematics and science literacy the United States ranked 18th out of the 24 countries which participated in the study. The report gave a further breakdown of the results in which each area was looked at separately. In mathematics the United States ranked 19th and in science, high school seniors in the United States ranked 16th. Students were also tested in physics and, again the United States seniors ranked far below the other countries that participated in the test. As a matter of fact the United States ranked 16th of the participating 16 nations.

Statistical data similar to the TIMSS report can be found in other such reports in which students were tested in the sciences. It is precisely because of these reports that American schools have found it necessary to reform their science curricula from pre-kindergarten to the 12th grade. It is to this reform in the area of science, that this project is focused.

One of the initiatives which has become an important part of the reform movement in education is increasing the level of parental involvement in schools at every level and most especially in urban middle and high schools. Suburban high schools tend to have a much higher rate of parental involvement than do schools located in urban districts where the population is usually overwhelmingly Black or Hispanic.

Getting parents involved in the education of their children is certainly one of the foremost educational ideas since educational reform became popular. Data can be found as far back as pre-headstart days to support the need for parental involvement in the education of their children. This idea is a very legitimate one if we are to turn the tide of American schools from producing low academically achieving students to students who are competitive globally.

Educational systems are not facing any startling new problems when it comes to looking at the causes of poor achievement of students in American schools. Many educators speak of the need of getting parents involved in their children's' education by becoming actively involved in the activities of the schools which their children attend. There should be a direct "connectiveness" (Warner et al., 1997) between home and school if students are to improve academically and socially.

Oftentimes, parents feel that their presence is not wanted in schools because of the cold and unfriendly attitudes of school personnel when they do have a need to come into the school. Parents also feel unwelcome when they feel intimidated by the educational environment, especially when they do not speak the common language or consider themselves under educated. It is these feelings of unwelcome that must come to an end. The school belongs to everyone within the community and everyone should take an active part in making it the best for students academically and socially.

Most teachers and administrators believe that most of their students' parents want them to do well academically in their science classes. Parents realize the impact that a strong background in science will have upon their children's future and usually will try to help them to the best of their ability. Science for some parents was difficult when they

were in school and consequently they are limited in their ability to help with homework, which may include special reports or studying for tests.

Improving student achievement in the sciences is reflected in many educational and governmental reports. The Goals 2000: Educate America Act (Public Law 103-227; 108 Statue. 125, 1994) which originally initiated during President Bush's administration speaks of the need to have parents play an integral role in the education of their children. Title IV of Goals 2000 specifically addresses parental assistance in education. The National Educational Goals, which are included in the Goals 2000: Educate America Act, call for parents to get involved in their children's education. It is through the execution of this goal that the intern hopes to develop and implement a program, which will allow parents to be able to assist their children in learning the processes of science.

Research indicates that most parents would like to get involved in their children's schoolwork. Unfortunately, when students reach the middle and high school grades they don't volunteer any information to their parents about what they are being taught or what they have to do for homework (Rich, 1987). Consequently parents are usually not aware of the work their children are currently studying. The major reasons that Dorothy Rich cites as to why there is such an obvious decline in parental involvement for students in the middle and high school grades includes (Rich, 1987):

a. "Teenagers are finding their own identity and asserting their independence of adults." Students look more to their peers for approval and friendship and they just don't want their parents hanging around "messing things up".

b. "Parents are baffled and frustrated by their adolescents-who are simultaneously grown up yet not really grown up".

c. "The structure of secondary education". Students no longer are in self-contained classrooms with the same teacher daily. Instead they circulate among several different teachers for each academic discipline.

Beginning in the spring of 2000 students in all Camden City schools will be tested in science. New curricula have been or are in the process of being rewritten to reflect science as a tested discipline. The Core Curriculum Standards (NJ Dept. of Ed., 1997) outline the information that New Jersey students are required to learn.

The New Jersey High School Proficiency Test (HSPT) covers reading, writing and mathematics. Students take this test for the first in the eleventh grade. Each student who desires to be awarded a high school diploma must pass all three areas tested. Eventually, science will be added, as well as social studies. It is imperative that students in high school be given a strong background in the science course they take in their ninth and tenth grade years. Many students do not elect to more sciences, since the state only requires two courses for graduation.

The question now becomes more and more provoking. How can such a task be accomplished? Will teachers co-teach? Will there be instructional assistants available to help students when necessary like they have in the mathematics, reading, writing and English departments? Unfortunately the answer to these questions would be on the negative side.

How can science teachers satisfactorly achieve their goals to teach and expose students to information which will effect their lives? The answer to this could be the parents of students enrolled in a particular class. Encourage parents to take an active role

in their child's education. For those parents whose knowledge of science is limited they can be called upon to fulfill another job. Have them work to help their child (ren) develop self-confidence, motivation, responsibility, initiative, perseverance, caring, a sense of teamwork, common sense and problem solving (Rich, 1987).

Parental involvement is an initiative which should involve all family members whenever possible. Utilizing community resources, a program can be planned such as the one which exist between universities in central Texas and southern California local public elementary schools. The program was called "Family Science Night" (McDonald et al, 1997). The objective of this activity was to create a program plan for getting parents involved with their children's school activities. A science educator from a local university facilitated the program sessions. Through the use of this "family science night" activity, parents, teacher and students were able to understand the importance of parental involvement in the education of their children.

In the past a home-school partnership might have been considered a luxury. According to one source, having a "home-school partnership is no longer a luxury but a necessity", (Swap, 1993). Today, more than ever before students are coming to school with problems that are more serious than educators have ever had to deal with before. It use to be simply trying to get students to learn their three R's (reading, 'riting, and 'rithmetic). Today teachers have to deal with everything from not being ready to learn at age six to some of societies' most serious social problems.

Student achievement is at an all time low in the sciences (TIMSS, 1998) in American schools. What can be done to reverse this trend of low achievement?

Many school systems have been actively engaged in researching what they can do to turn the tide on students not performing at acceptable levels academically. The findings from various research projects dealing with this problem feel that the answer lies in the concept of improving parental involvement in schools. In studies done some of the nation's top research scientists such as Anne, Henderson (1981,1987), Sattes (1985) and Epstein (1990) all came to the same general conclusion regarding the state of America's schools today. They basically concur that the one factor, which is missing, that could turn this whole mess around is the parent. Other researchers have come to the same conclusion as these scientists have and that is educators and schools don't have a choice now, parental involvement in the schools is going to have to be stepped up tremendously.

Those once stoic and traditional barriers that schools used in order to protect their "educationally sterile" environment from those they considered "outsiders" which also included parents are as extinct as the ill-fated dinosaurs of yester-year. Gone is the time when parents were only needed in school to help with the "bake sale". Parents are needed to help in the classroom as aides, in the cafeteria and in other places where students congregate, as well as helping their children do their homework at home.

In her book, Swap (Swap, 1993) discusses three models which can be used to develop better home-school relationships. They are the protective model, the school-to-home transmission model and the curriculum enrichment model. Swap also advocates establishing better communication between home and school. Once these vehicles are put into operation, parental involvement should begin to improve.

Finally, it must be realized that the relationship between parents and schools is a partnership (Fuller, Olsen, 1998) (NEA, 1996). Each entity relies on the other for their

success. The ultimate product of such an association will be seen in the academic growth of students in science.

Chapter 3

The Design of the Study

This study involved students who were achieving below a satisfactory level in science related courses. The primary hypothesis surrounding this problem is that student achievement can be improved in the sciences, as well as, in other academic subjects if their parents/guardians would take a more active role in their education. There are multitudes of data, which support the intern's hypothesis that increased parental involvement is important to improving student's academic achievement.

General Description of the Research Design

In order to prove that student achievement is directly related to parental involvement, the intern developed a carefully thought out plan in which data would be collected from a select group of students. This group of students would become participants in a controlled experiment.

The students who were selected to participate in the experimental study were divided into two groups. One group of the students would have their parents actively involved in their schoolwork as early in the academic year as possible. The other group,

which is the control group, had only minimal involvement by their parents, as is normally the case for high school students. During the interim period between the project's inception and its conclusion the intern planned to compare the grades that the two groups of students would make on various class assignments, including test, homework and class work. At the end of the marking period the intern compared each groups grades for any obvious signs of change.

Description of Research Instruments Used

The research tools that the intern used in the collection of data consisted primarily of the graded work that the students' teachers had given to them as a part of their daily lessons on various concepts. The intern utilized student grades from assignments that were graded and recorded in the class' official roll book by the teacher.

In addition to using the graded assignments and report card grades to check for growth between the experimental groups and the controlled group. The intern used the district's approved quarterly topic tests which are administered at the beginning and end of each marking period as a method of determining academic growth.

Student attendance was also looked at as an indicator of student achievement. Students who come late to their classes show a definitive decrease in their academic achievement when compared to those students who come to class on time. Excessive absences and lateness to class cause students to miss work and information, which is crucial to doing well academically.

Students whose parents are directly involved in their academic affairs tend to have better than average attendance to school. It is obvious that the equation for student success is: **Student + Teacher + Involved Parent/Guardian = Successful Student.**

Description of the Sample and Sampling Technique Used

The methodology that the intern will employ in the collection of data relating to the experiment will be quantitative in scope. There were some aspects of the research procedure, which were qualitative in nature.

Teachers contacted parents/guardians of students in the experimental group at regular intervals. During these contacts teachers informed them of any newly discovered information regarding their child's progress in science. This was not only an occasion to share bad news about declining grades but also a time to share good news, such as an excellent grade on a test or special project.

Whenever there were problems, they were dealt with early so as to prevent them from having a negative impact on the student's marking period grade. Additionally, parents of the experimental group of students were briefed on the subject matter and concepts to be learned by their students during each marking period. Parents of the experimental group of students were asked to enter into an agreement between themselves, their child and their child's teacher, whereby each accepts and agrees to be responsible for helping the student to achieve academically. Parents of students in the controlled group did not participate in these activities. Contact with the teacher, by parents whose children were in the control group will be minimal. With the exception of

seeing their child's teacher at the district mandated parent conference, which is held once during the first and second marking periods, they will have little or no contact with the teacher, except for disciplinary reasons.

Periodically, during each marking period the intern will review the grades of students participating in this study. The intern will also look for changes in the attitudes of each group of students regarding school and their work.

Description of the Data Collection Approach.

To determine if the hypothesis was correct regarding strategies to improve student achievement in science courses at Woodrow Wilson High School through increased parental involvement, the intern reviewed the grades of each participating student. The grades which the intern reviewed included homework and class work assignments, test grades, laboratory grades and notebook grades. Any special projects were also considered for each student.

After all grades had been reviewed for the first and second marking periods, students were given a survey to complete. The survey's primary purpose was to determine whether or not students felt their parents/guardians had played a positive or negative role in their overall academic achievement. A similar survey was given to the parents/guardians.

Finally, several students from each group were interviewed and they were asked to elaborate on the topic "Does parental involvement really make a difference in a student's academic achievement?"

Description of the Data Analysis Plan

Was the experiment a success? Did the intern validate and prove the original hypothesis? How can the intern be sure that the improvements in the students' academic grades are directly attributable to their parents/guardians getting involved in the educational processes? Well, as the saying goes, "the proof is in the pudding." In this case, the proof can be observed in the improved homework and class work grades, improved test and laboratory grades and in the overall marking period grades.

Finally, the intern will compare the overall academic growth of students whose parents became and remained involved to those students whose parents/guardians continued to display an apathetic attitude toward education.

Chapter 4

Research Findings

During the past two marking periods the intern observed two different groups of students for their academic performance in their assigned science classes at Woodrow Wilson High School. Demographically, each group had many things in common. They came from families with similar makeup economically, politically and educationally. Some of the students in each group are from single parent homes. Most of the parents work outside of the home. Most of the parent's education has at least a high school education. There were a few parents who had some high school education but did not graduate. As a result, many of the parents of students in both groups are limited by their own educational background and are thus, not equipped to give homework assistance to their child (ren).

What Information Was Found?

A careful review of grades which students earned for the first and second marking periods clearly indicated that students were having a difficult time trying to master science concepts. Through discussions with various science teachers at Woodrow Wilson High School the intern discovered that the poor performance which students were exhibiting in one class was also happening in other science classes.

The majority of students involved in this study were sophomores. As ninth graders during the 1997-98 academic year, they were given the CAT-5 (California Achievement Test-5). All ninth and tenth grade students were tested in reading, language, science, mathematics, and social studies. The intern reviewed the scores, which the students received on the test, paying particular attention to the scores in reading, language and science. The average grade equivalent scores for students who were part of the study in reading was 6.7, the total language average score was 7.4 and the total science average grade equivalent was 6.5. It is clearly indicated in these scores, that these students need assistance if they are to improve academically in a subject, which is designed to prepare them for college or to enter the workforce. Many of these students lack the necessary academic skills, which they need to be successful in an educational setting.

It is also apparent to the intern that some to the negative behavior, which many of the students have displayed while in class, is very possibly tied to their poor academic standing.

The question that the intern must answer is, "What can be done to help these students improve their basic academic skills, in order to prepare them to be competitive, whether they matriculate into a college/university or enter the workforce?"

After having had the opportunity to observe each group of students who participated in this experimental study the intern was able to draw the following conclusions. It was clearly shown in the improvement of student grades and overall behavior that increasing the involvement of the students' parents was the key factor.

Student's Biology Grades for 1998-99

Table 1 **Experimental Group: Parents were more involved**

Students	Grade Level	1st Marking Period Grade	2nd Marking Period Grade	3rd Marking Period Grade	CAT-5 Grade Equivalent
1. KH	10	76-C	72-C	74-C	11.6
2. BS	10	55-F	37-F	76-C	7.6
3. HT	10	71-C	60-D	71-C	1.2
4. AT	10	75-C	42-F	73-C	11.2
5. LR	10	46-F	70-C	86-B	NA
6. MR	10	28-F	50-F	81-B	6.3
7. DD	10	47-F	67-D	85-B	7.6
8. JG	11	42-F	39-F	73-C	NA
9. TW	10	56-F	41-F	81-B	7.6
10. JS	10	82-B	53-F	80-B	NA
11. SA	10	53-F	70-C	67-D	5.7
12. JA	10	48-F	60-D	60-D	9.5
13. DB	10	60-D	77-C	89-B	11.2
14. JB	10	71-C	72-C	91-A	NA
15. JJ	10	67-D	66-D	78-C	8.5
16. MR	10	72-C	54-F	76-C	7.0
17. KS	10	40-F	65-D	85-B	4.9
18. SS	10	72-C	84-B	94-A	7.0
19. KH	10	60-D	50-F	70-C	13.0
20. MM	10	83-B	99-A	99-A	10.2
21. AS	10	72-C	60-D	70-C	4.9
22. HD	10	71-C	51-F	82-B	1.2
23. SM	10	62-D	76-C	86-B	NA
24. TM	10	70-C	60-D	83-B	10.2
25. BM	10	70-C	60-D	70-C	7.5

Student's Biology Grades for 1998-99

Table 2 **Control Group: Parents were less involved**

Students	Grade Level	1st Marking Period Grade	2nd Marking Period Grade	3rd Marking Period Grade	CAT-5 Grade Equivalent
1. LL	10	11-F	19-F	12-F	4.1
2. SB	10	12-F	10-F	13-F	5.7
3. TC	10	52-F	47-F	47-F	8.5
4. LF	10	50-F	32-F	70-C	6.3
5. AR	10	61-D	43-F	43-F	9.5
6. MC	09	16-F	10-F	19-F	7.0
7. JL	10	32-F	33-F	38-F	4.9
8. JM	10	25-F	20-F	50-F	4.1
9. NB	10	19-F	18-F	15-F	7.6
10. SB	10	35-F	25-F	14-F	7.0
11. TC	11	53-F	25-F	55-F	8.5
12. DF	10	42-F	31-F	28-F	4.9
13. HG	10	41-F	21-F	45-F	1.2
14. KS	10	44-F	50-F	43-F	5.7
15. TA	10	26-F	33-F	28-F	4.1
16. SM	10	10-F	34-F	43-F	8.5
17. AB	09	08-F	11-F	08-F	5.3
18. MH	10	12-F	17-F	11-F	7.0
19. KB	10	56-F	33-F	36-F	9.5
20. EC	10	34-F	32-F	40-F	2.5
21. KC	10	60-D	26-F	32-F	7.0
22. DB	09	10-F	02-F	04-F	2.5
23. LT	10	20-F	15-F	01-F	7.0
24. SH	09	15-F	04-F	04-F	5.3
25. AJ	10	27-F	21-F	08-F	5.7

Students who participated in the control group did not show the same level of academic growth as their peers who were participants in the experimental group. When comparing class work and test grades, which were made by students during the first and second marking periods, students from the experimental group had a definitive edge over the control group (Table 1 and 2).

Educational scientists have spent an enormous amount of time researching the impact of increased parental involvement on student academic achievement. They concur that in order to help some students improve both behaviorally and academically in grades kindergarten through senior high school, parents must be included in all school related activities.

Joyce Epstein of Johns Hopkins University proposes that parents must become partners in education, not spectators. Dr. James Comer of the Comer Project, Yale University also supports the idea of increased parental involvement in grades K-12.

What Did the Project Mean?

This experiment proved that parental involvement is important to the successful academic achievement of students.

Parents are partners in education. They must team up with their children's teachers and building administrators to help in the education of their sons and daughters. It is, therefore, important and absolutely necessary that as educators we embrace anyone who can give assistance to help improve student achievement.

Many of America's urban public school districts are plagued with academically low performing students. Some of these students are victims of educational genocide. On standardized test, low performing students have consistently scored below other school districts in the areas of mathematics and science.

TIMSS (Third International Mathematics and Science Study) recently found that American students rank far beneath other countries in the areas of mathematics and science (NEA Today, 1998). Of the 24 countries, which participated in the study, the United States ranked 18th.

Increasing the level of parental involvement is one of the school reform initiatives, which is supported by the President of the United States, as well as, distinguished educators.

The National PTA and the federal government both recognize the importance of getting parents involved in the education of their children. Title I, a federally funded educational program, specifically addresses establishing programs to improve parental involvement, as well as the Educate America Act (The National Goals/Goals 2000).

Chapter 5

Conclusions

The intern's original hypothesis stated that in order to improve the academic performance of students taking science related subjects in high school, parents would have to take a more active role in the education of their children.

For too long schools have been called on to educate children in grades K-12 without the inclusion of a strong parental involvement program. They have become the "all encompassing guru" when it comes to dispensing out the perfect education, which one would need to continue their education at the post secondary level or to enter the work force. Those days are gone, like smoke in the wind and not likely to ever come again. If this is true, what will become of today's youth? Are they destined to become a generation of illiterates? Is there any hope for them? Who will pick up the staff and carry it onto the educational battlefield? The answer to these and other such questions is the cooperation and support of parents in the educational process.

How can parents make the difference when it comes to assuring that their children are receiving a quality education? Parents and schools must team up to form an alliance whose goals will be to provide a "thorough and efficient" education for all students entrusted into their care.

Dr. James Comer, M.D., Yale University devised a program known as the 'Comer Project' includes embracing parents into the educational processes within the school/ district. Dr. Comer believes that for schools to be effective in the delivery of knowledge parents must come on board and become involved in their children's education. Dr. Comer identified various barriers which educators and others had established to prevent parents from actively taking part in their children's school. Barriers which hinder parents from becoming actively involved in their children's school include:

1. **Professional Barriers**
    - Resistance by professional staff
    - Unwillingness to make necessary investments of time and skills
    - Lack of support by school staff to work with interested parents
    - Lack of sensitivity to cultural diversity
2. **Parent Barriers**
    - Attention is focused on basic survival needs
    - Previous negative experiences in school
    - Psychological: fear, anxiety, intimidation, etc.

Joyce Epstein, Johns Hopkins University supports the idea of parents taking an active role in the educational process. Epstein understands the important role that parents play in a well-structured educated society. Susan Swap echoes the sentiments of both Dr. Comer and Joyce Epstein regarding parental involvement.

The results of the experimental study, which was conducted in the intern's assigned classes at a local urban high school, supports the hypothesis that parents are the key factor missing from the educational process.

Students who made up an experimental group had the active support of their parents. Parents volunteered to work in the school or in their child's class. Parental involvement didn't stop at school, instead it continued into the home during homework sessions. Either way, student academic achievement in their science class began to improve.

How can student academic achievement be improved? Get their parents involved!

Implication of the Study

The implications of this study reinforce the findings that parental involvement is an important factor to help students improve their level of academic achievement in science courses at the high school level. These implications also speak to the need of parents getting involved and taking a more active role in the education of their children from the very start of their formal educational experiences.

Parents want to see their children do well in their classes but oftentimes they have not contributed anything to helping their children achieve academic success in school. On the other hand there are those parents who want their children to succeed academically and are willing to get involved in their children's work both at home and at school. The involved parent is not the issue of this thesis project; instead it speaks to the parent who leaves educating their children to the schools and its teachers.

Research proves that children perform better academically when their parents take an active interest in their education as opposed to just being a passive observer. The

more involved parents are at every level of their child's education the more productive the child becomes. Behavioral problems all but disappear for children whose parents are actively involved in their education.

Dr. James Comer, Joyce Epstein, Lee Canter, Susan Swap and many other renown educational scientist agree that parental involvement is the one factor which could do the most to changing students into academically superior students.

The intern's primary intentions were to show that learning and excelling in science courses was indeed possible with support and assistance from parents.

Intern's Leadership Development

Leadership skills which were acquired by the intern from this study include the ability to:

- Apply human relation's skills in interacting effectively with others.
- Initiate and effectively manage change as both leader and member of a leadership team.
- Communicate orally with students, staff, and the community in ways that motivate them to reflect upon and support the school's mission.
- Involve others in developing and assessing the scope, content and sequence of a balanced curriculum.

How has the Project Changed the Organization?

Changes, which occurred in the organization, as a result of this project include:

- Teachers and parents were able to develop strategies and techniques to help students improve academically.
- Students improved academically in their science classes.
- A sense of collegiality developed between teachers and parents.

The Need for Further Study

As the world prepares to enter a new millennium, "the 21st century" America's educational system is in turmoil. From the establishment of Charter schools to school vouchers to magnet schools American schools are engaged in and academic war. The academically prepared versus the unprepared. Students need to be better prepared to meet global changes, which have happened or will happen. Where will students learn the skills which they will need in order to survive? The answer to this question lies in the schools.

Unfortunately, many schools in America have been classified, as "inadequate" because students are leaving them lacking the minimum skills needed to adequately function within a global society. Schools, which are located in urban communities, are considered to be the worst when compared with suburban schools.

Although there were some positive results which grew out of this project, the numbers are far too small to be satisfied. Of the students who participated in both

groups, the effectiveness of those parents who were involved in the experimental group was minimal. Parents who really wanted to take an active role in their child's schoolwork were unable to fully realize their desire to be actively involved. Some of the parents who were willing to devote time to working with their children were ineffective in their efforts. Many of them had limited understanding of the sciences themselves.

Science is a subject which is loved by a few and feared by the majority. Exactly why some students don't like science is not known. To get to the root of the problem of low achievement in science courses by many of America's youth, the answer may be found in educating parents in the sciences as well.

In order to help students overcome the barriers which impede their success in the sciences, educators and parents must unite and work together. Parents are encouraged to take a more active role in their children's education at school and home. This can only be accomplished if parents feel comfortable getting involved with the subject matter in question.

Finally, after comparing the two groups of students who participated in this study it is quite apparent that when the two equations:

- **Student + Teacher + Involved Parent/Guardian = Successful Student**

and

- **Student + Teacher + Uninvolved Parent = Unsuccessful Student**

are compared to each other, the critical factor which makes the difference is the parent.

The need to study this problem is ongoing because of the culture of today's society and the changes which will take place in the future. Parents who are deficient in

their scientific knowledge must be encouraged to attend workshops or to enroll in a school where they will learn concepts which they can use to help their children.

It is my belief that only when these two great forces, parents and the schools, unite and work for a common goal, will high student achievement in the sciences be realized.

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Appendix A

Research Instruments

Student-Parent-Teacher Agreement

We know that learning can take place when there is a combination of effort, interest, and motivation.

Because we are all committed to_____'s progress in school, we are going to promote his/her achievement.

This agreement is a promise to work together. We believe that this agreement can be fulfilled by our team effort. Together we can improve teaching and learning.

As a STUDENT I agree to:	***As a PARENT I agree to***	***As a TEACHER I agree to:***
Work as hard as I can on my Schoolwork and homework assignments.	Talk to my child about his/her school day.	To see that students receive a well-planned day of instruction.
Attend school and be on time every day, unless I am ill.	Find out about my child's progress by attending conferences with the teacher and being present at other school activities whenever needed.	To give feedback to the student and parent about his/her progress.
To respect myself, the rights of others, and obey school rules.	Limit my child's TV time.	To be sensitive to the feelings and needs of the student.
To be ready to talk about the school day with my parents.	Encourage good study habits at home by setting aside quiet time and a place to study.	To respect the rights of students and their parents, including the parent's right to see the child's school records.
To be sensitive to the fee lings of other students and teachers.	To encourage my child to be sensitive to the feelings of other adults and students.	To keep parents informed, speaking with them whenever it is appropriate.
To deliver to my parents all notes and messages from school.	To encourage my child to respect him/herself, to respect the rights of others, and obey school rules.	

_____ _____ _____

Student Parent Teacher

Signed on the_____ day of _____, 19____ in support of improving my child's academic achievement in _____

Biographical Data

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