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The Effectiveness of Hands-On Activities Compared to Paper and Pencil Activities When Teaching Reading to First through Fifth Grade Students

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The Effectiveness of Hands-On Activities Compared to Paper and Pencil
Activities When Teaching Reading to First through Fifth Grade Students

A Study Presented to the Graduate Faculty of the Department of
Occupational and Technical Studies
Old Dominion University

In Partial Fulfillment of the Requirements for the Degree of
Master of Science in Occupational and Technical Studies

By

**Nigel Daniels
December 2006**

SIGNATURE PAGE

This research paper was prepared by Nigel Daniels under the direction of Dr. John M. Ritz, in OTED 636, Problems in Occupational and Technical Studies. It was submitted to the Graduate Program Director as partial fulfillment of the requirements for the Degree of Master Science in Occupational and Technical Studies.

APPROVED BY:

A handwritten signature in cursive script that reads "John M. Ritz". The signature is written in black ink and is positioned above a horizontal line.

Date:

A handwritten date "12-8-06" in cursive script, written in black ink and positioned above a horizontal line.

ACKNOWLEDGEMENTS

The researcher would like to thank all of those who helped provide a template for this study. An exceptional thanks to the students of the researcher, who had a one hundred percent pass rate on the language arts Standards of Learning test. The researcher would also like to thank Dr. John Ritz for making the light at the end of the tunnel a little more visible.

Nigel Daniels

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Chapter I

Introduction

Paper and pencil work does not encourage analytical thinking; it can be used to measure the retention of information for a specific time period. For instance when a particular teacher who taught second grade in 2001-02, he taught a unit on verbs. The teacher standing at the board, explaining that verbs are action words, and having the students complete some activity sheets at their desks taught the unit. The following year the teacher moved up to the third grade with the same students. During the first term they had a review on verbs (that the teacher assumed was going to be easy), but when the students were asked what a verb was, they gave all kinds of answers except the right one. At this time the teacher realized that the lesson should be taught using a different method. The teacher then made a spinning wheel with four adjectives, four verbs, and four nouns. The students would spin the wheel and whatever word they landed on, they would ask themselves if they could do that word. If they could do it they knew it was a verb. Hampton City Schools had citywide language arts assessment tests four months later and there were two questions on the test asking students to identify the verb in the sentence and no one in the class missed either of those questions.

Using manipulatives to teach the other components of language arts can be just as effective as it was for the researcher when teaching grammar. Many teachers have become conscious of the fact that not all students perform to the best of their capabilities. There are many different reasons that could affect

student performance. They have short attention spans and have a propensity to become bored quickly. Many other children are capable, but they are just underachievers. "Basic human values are involved in the problem of success and underachievement. These values involve such old-fashioned but irreplaceable virtues as self-discipline, commitment to goals, the ability to sacrifice momentary pleasures for greater rewards of tomorrow, independence in motivation, moral responsibility, and cooperative effort. Students who attain achievement in school almost always reflect these old-fashioned values. Underachieving students who have brains but lack effort almost always reflect a lack of these values" (Whitley, 2001, p. 26). There is not a better approach when trying to keep children's attention than to have them do something that is interesting and gives them the opportunity to be involved in a hands-on activity.

Statement of the Problem

The problem of this study was to determine the effectiveness of hands-on activities compared to paper and pencil activities (reading textbooks, answering comprehension questions, and worksheets) when teaching language arts to first through fifth grade students, based on student progress and achievement.

Hypothesis

To answer this problem the following hypothesis was established:

H1: There will be a difference in students' achievement levels in elementary reading when determining which is a more effective teaching style, using hands-on activities to teach reading or using paper and pencil work to teach reading.

The hands-on activity will be the more effective method and the students will prove this by increases in their progress levels.

Background and Significance

In elementary school, students are taught the foundation skills of reading that are necessary in order to achieve mastery skill level. Since elementary teachers are responsible for teaching these skills it is vital that the teachers find methods that are interesting, significant, and educational. The reason for this study is to help elementary teachers find the most effective methods to teaching reading in order for their students to achieve their maximum potential.

There have been many studies on the use of manipulatives when educating children. They have proven that manipulatives are beneficial when teaching students. They encourage students to think on a higher level and students get to actually see what they have just learned. "Children are primarily kinesthetic learners through the third grade. The game-like feel of manipulatives motivates students of all ages, so they work at higher levels and accomplish more. Manipulatives develop the right brain and lead to higher levels of thinking. They help children to see how parts go together to make a whole, or how reading works". (n.d. <http://www.nea.org/member/index.html>)

Manipulatives give students the chance to learn outside of the classroom and give parents the opportunity to teach reading skills without the worry of teaching them something wrong.

The games get parents involved in their children's education.

Many parents are shy about teaching their children and feel that

teaching should be left to teachers. Some experts in general agree; but parents do teach their children in many areas every day, perhaps without realizing it. Why shouldn't they help with reading, also – in a fashion that does not interfere with school? Games and manipulatives are the perfect way for parents to give language arts help without turning into mean trackmasters (Kaye, 1984, p. xii).

Therefore it is the responsibility of teachers and parents to keep children engaged in the learning process, and we know that is sometimes a job, but why not make it easy and teach by using methods that are interesting and meaningful. Paper and pencil activities do not enable children to become creative, to have fun, and have the opportunity to visually see the objectives for language arts instruction. This study is undertaken to determine if manipulatives can assist elementary age students in improving their reading skills.

Limitations

The limitations of this study were methodological. The students that were observed were between the ages of six and eleven. All of the students also attended Cooper Elementary in Hampton, Virginia. The school was located in an urbanized area and consisted of slightly below middle to middle class families.

Assumptions

The students that were observed in this study will be more likely to retain the information that was taught to them longer than those who were taught

language arts activities with the minimal use of hands-on activities. The reason why they will be able to retain the information longer is due to the fact that they were taught the skills using mastery learning. The students will also be able to use visual mapping skills to recall information that was given to them over an extended period. Even with all of this being said, using hands-on activities to teach language arts is still being criticized. The major complaints of using hands-on activities to teach language arts are that they are time consuming, they can be costly, and children will not be able to distinguish the difference between playing and learning.

All of the students that were observed in this study were of normal to slightly high intelligence. All of the students that were observed were in general education classes, but some were mainstreamed in or out for some subjects. All of the teachers in this study have a genuine concern in finding the best techniques to teach students that coincide with elevated rates of learning. The teachers that were involved in this study were all qualified to teach in Virginia.

Procedures

The study lasted for nine weeks and it was done by teaching the first four weeks of a term by teaching a skill, then using paper and pencil activities to reinforce the skill. The next four weeks teachers taught the skill, then using hands-on activities to reinforce the skill. For the last week there was a mixture of both methods. The final data were then compared to each other to determine

which method was more beneficial to the students based on their learning progress.

Definition of Terms

Listed below are the terms and their definitions, which are used frequently in the study.

1. Manipulatives- Manipulatives are objects that aid in the learning process. Some examples are games, posters, toys, etc.
2. Mainstreaming- Mainstreaming is when a student goes from a special education classroom to a general education classroom for certain subjects. An example is when a student has trouble in visual perception problems that affect their reading skills. Because of the visual perception problem the student is in special education, but if the student performs well in mathematics they will go out to a general education class for mathematics.
3. Hands-On Activities- Hands-On Activities are activities that children use their hands and minds and get involved. With hands-on activities you do not just read and complete problems, you get involved physically. These activities are beneficial to students because of their cognitive learning styles. The activities should be used to reinforce a skill.
4. Cloze Procedures- Activities that require students to fill in blank spaces in a particular text that would make sense with the rest of the text by using context clues. Example: The big _____ chased the cat.

5. Context Clues- Information from the text of a story used to determine the definition of an unfamiliar word and also give clues about events in the story.
6. Bubble Maps- Graphic organizers that are used for staying on topic when writing paragraphs in elementary language arts.
7. Venn Diagrams- A graphic organizer that is used to compare and contrast information.
8. KWL Charts- Graphic organizers that are used to determine what the students know, what they want to know, and what they have learned subsequent to the lesson.

Overview of Chapters

This chapter has briefly stated the difference between hands-on activities and paper and pencil work. It has also told the benefits of using manipulatives when teaching language arts. This study began by explaining the difference between hands-on activities and paper and pencil activities. The study will review literature on the best practices to use when teaching language arts. It will also discuss common manipulatives used when teaching reading.

In the following chapters the study will review literature on the best practices to use when teaching language arts, different types of manipulatives for language arts instruction, and how children learn. In the third chapter the study will reveal the methods and procedures that were used to gather the data for the study. The next chapter will inform the reader with the findings of the study. The

last chapter of the study will include a summary and conclusions of the problem. The paper will end with recommendations for those who teach elementary language arts.

Chapter II

Review of Literature

If a coach was teaching young children how to hit a baseball, telling them how to swing a baseball bat will not make them a good hitter. Practice by using hands-on activities will. The same can be said for teaching language arts to elementary students. As a result of certain leading educational studies, "school administrators are urging teachers to get children involved in the learning process and the use of hands-on activities have proven to be very effective" (n.d. <http://www.nea.org/profdev/index.htmlx>). The teacher wants students to think critically and the information that is taught to them to become concrete, in order for them to achieve understanding, evaluate points, and solve problems they need to think critically. Critical thinking has always been associated with understanding, evaluating, and resolving information (Victor, 1992). Hands-on activities give the young students the ability to think critically, retain the information, and make it concrete.

This chapter will give a description of Hands-On Language Arts Activities for Elementary Students. Limitations and Assets of Hands-On Language Arts Activities will be discussed also, as well as the Components of Elementary Language Arts in Hampton City Schools. The chapter will end with reading and language arts strategies and a summary of the chapter.

Description of Hands-On Language Arts Activities for Elementary Students

There are many different hands-on activities that one can use to teach language arts to elementary students. The use of games can be very beneficial in teaching language arts; games bring out the competitive nature of the human being and allow them to have fun. Games are very popular with children, and they are most effective when they are played in a way where there is no apparent winner or loser. Song and rhyme charts are helpful when teaching language arts also. They are just songs and rhymes that are usually sung in the key of a popular tune that are used to teach different skills in language arts, mainly grammar and diction.

Graphic organizers are also essential hands-on activities that can be used in teaching language arts to elementary students. Graphic organizers are visual versions of traditional outlines that come in various forms including KWL charts, bubble maps, story maps, Venn diagrams, and more. A KWL chart is a vertical chart that is split into three sections. The first section is labeled, What I **K**now, the second section is labeled What I **W**ant to Know, and the third section is labeled What I Have **L**earned. This is used to promote reading strategies, such as pre-reading, during reading, and after reading strategies. Bubble maps are a group of circles that include details that are enclosed in a circle that branches off from a topic that is in the middle of the circles. Bubble maps are useful when teaching paragraph writing skills. Story maps are charts that are divided into four parts: story setting, main characters, problem, and solution. Story maps help to identify the parts of a story and they can also be used for comprehension. Venn

diagrams are two circles that overlap each other and two items are compared and contrasted in the circles. This can also be used for reading comprehension. Another type of hands-on activity is teacher made activities. These activities are varied and consist of many different things. They can teach every skill in language arts.

Limitations of Using Hands-On Language Arts Activities

Despite all of the accolades that language arts hands-on activities in elementary grades have received, they have also received their fair share of complaints and criticisms. Reading is taught in steps: first letter symbols, then letter sounds, and then phonics. "Children taught this way can read. Millions of children taught other ways can't" (Flesch, 1985, p. 32). Other critics of hands-on activities believe that they consume too much time. Once the teacher has completed the introduction of the skill, the critics believe that instead of completing an activity to reinforce the skill, the teacher can just give the students a worksheet, assess them, and teach the skills that were lacking. Other critics believe that children are not learning during these activities because they cannot differentiate between having fun and learning. They just see this as a time to play.

Assets of Hands-On Language Arts Activities

Transfer of knowledge can be improved by helping students become aware of themselves as learners who actively monitor their learning strategies and resources and assess their readiness for particular tests

and performances. Metacognitive approaches to instruction have been shown to increase the degree to which students will transfer to new situations without the need for explicit prompting (National Research Counsel, 2000, p. 67).

One type of approach to using hands-on activities to teach language arts is reciprocal teaching.

Reciprocal teaching to increase reading comprehension is designed to help students acquire specific knowledge and also learn a set of strategies for explicating, elaborating, and monitoring understanding necessary for independent learning. The three major components of reciprocal teaching are instruction and practice with strategies that enable students to monitor their understanding; provision, initially by a teacher, of an expert model of metacognitive processes; and a social setting that enables joint negotiation for understanding (National Research Counsel, 2000, p. 67).

The same approach can be used when teaching writing.

Each type of hands-on activity has a different asset. For instance, games have three great virtues. First, a teacher can use them to teach nearly every skill a beginning reader needs to learn. If a first-grader has trouble distinguishing *b* from *d*, games can improve his/her eye for tiny details. If a student is working on remembering words, games can help that student's

memory. The second virtue is that games are fun. They draw on the one skill that all children have in abundance, the ability to play. When children play, their resistance to learning goes down and their willingness to apply themselves goes up. They never absorb ideas more easily when they are having a good time. The third virtue is that the games allow the learning to occur outside of the classroom. The right game can zero in on any need or interest a child might have. To sum it up, games take the drudgery out of drill (Kaye, 1984, p. xi).

Songs and rhymes are effective in teaching language arts to young children because they appeal to children's learning styles. "Children learn with a cognitive style of leveling versus sharpening, which is individual variations in remembering that pertain to the distinctiveness of memories and the tendency to merge similar events" (<http://tip.psychology.org/styles.htm>). The songs and rhymes are effective because they usually are modeled after tunes that are popular to children, and they use repetition and alliteration, which most children find very amusing.

Graphic organizers are also effective hands-on activities. Children are either auditory or visual learners, and graphic organizers are visual versions of traditional outlines, but the information read to them or by them, or given to them orally. With this in mind students get to hear and see it. This is beneficial for them because if they did not get it from one form, they have a chance to receive the information from another form of learning style.

Hands-on activities are effective in language arts in elementary schools, because they tie real-life experiences with learning. Research studies generally provide strong support for the benefits of helping students represent their experiences at levels of abstraction that transcend the specificity of particular contexts. Studies show that abstracted representations do not remain as isolated instances of events but become components of larger, related events, schemata. Knowledge representations are built up through many opportunities for observing similarities and differences across diverse events. Schemata are posited as particularly important guides to complex thinking, including analogical reasoning. “Successful analogical reasoners transfer to the induction of a general schema for the solved problems that can be applied to subsequent problems” (National Research Council, 1994 p. 43). Memory retrieval and transfer are promoted by schemata because they derive from a broader scope of related instances than a single learning experience” (National Research Council, 2000, pp. 65-66).

Components of Elementary Language Arts in Hampton City Schools

There are six components of elementary language arts in Hampton City Schools, and they are daily oral language, shared reading, guided reading, independent practice, writer’s workshop, and intervention or extension. Oral language are activities done daily to practice grammar, mechanics, punctuation, cloze activities, and/or spelling. The daily oral language can be done in either a whole group situation or students can be heterogeneously grouped in a teacher directed environment.

Shared reading is the reading of the story selection for the week. There is usually one selection read each week, and the stories are out the Scott Foresman Reading textbooks. The skills that are reviewed or taught during shared reading are reading strategies, annotation, comprehension, mechanics, spelling, phonics, grammar, and cloze activities.

The next component is guided reading which is done in small homogeneous groups where the teacher meets with each group about twice each week. Guided reading groups are used to give each student more one-on-one attention with the teacher. The skills that are reviewed or taught during guided reading are reading strategies, annotation, comprehension, mechanics, spelling, phonics, grammar, and writing skills.

Independent practice is when students work on the skills that they were taught during the week, independently. Writer's workshop is done daily in a whole group setting and in this component students practice their writing by using models and examples. Intervention is when the teacher has to step in and teach certain skills over to the below average students or students that were having difficulty with a particular skill. Extension is when certain students completely grasp the concept of a particular skill, usually very early. They are given more assignments that require more analytical thinking. Both of these components are done in small groups.

Reading and Language Arts Strategies

There are several strategies that are used to teach language arts to elementary students. These strategies are very similar for each school district, but the names differ. In Hampton the PAR method is used to teach reading. PAR is a three step process that is used to increase reading skills and enhance reading comprehension. The first step is **P**, preparation before reading. In this step the teacher sets a purpose for reading, previews pictures, clarifies key concepts and vocabulary, and makes predictions. The second step is **A**, assistance during reading. In this step the students read and ask relevant questions to comprehend the story and prove or disprove predictions. They also revisit the story and annotate for specific purposes. The third step is **R**, reflection after reading. In this step the students participate in class discussions, write responses, summarize, make illustrations and study guides, and confirm predictions.

When teaching the writing process the card method writing process is very beneficial. This process focuses on how to write a paragraph. There are four cards used in this process and on the first card the student writes a topic and a topic sentence. On the second card the student will write the topic sentence and at least four detailed sentences that have something in common with the topic sentence. On the third card the student will write the topic sentence and at least four detailed sentences that have something in common with the topic sentence and a concluding sentence that ties all of the information together. The last card has all of these steps, but it is written in paragraph form.

Summary

Hands-on activities have proven to be beneficial and effective when teaching language arts to elementary students. The activities get the children involved and give them the opportunity to visualize the skill that is being taught. The visualization of the skill gives the student the ability to retrieve information from a mental picture that they have made. Hands-on activities have been scrutinized, but all of the scrutiny has been about the time they take, the cost, and management skills needed to complete them. The results of the information that is retained when using hands-on activities cannot be criticized.

The next chapter will discuss the methods and procedures that were used to complete this study. It also explains the population of the participants that were involved in the study, as well as the research variables and the instrument design.

Chapter III

Methods and Procedures

This was an experimental research study that compared the effectiveness of using hands-on activities when teaching language arts to two groups of elementary students. The students that were used in this study all attended W.M. Cooper Elementary in Hampton, Virginia. The students' grade levels ranged from the second to fifth grade. The steps that were taken to gather the data used in the study will be discussed in this chapter. Population, Research Variables, Instrument Design, Methods of Data Collection, and Statistical Analysis are the topics that are discussed in this chapter.

Population

The population of the study was Cooper Elementary students in grades second through fifth. These students were taught language arts for two hours each day during the morning hours. Some grade levels had a break in their schedule during that time to go to resource classes, the technology lab, or lunch. During the 2002-2003 school year there were 212 students enrolled in the second through fifth grades. Out of those 212, eleven were in special education. These students were young, so none of them had calculated grade point averages, but for the most part all of them were of average ability levels. The student population was 90.7% black, 6.0% white, and 2.3% other. The students came from slightly below middle to middle class families; a large number were from military parents.

Research Variables

Language is essential for thinking, communicating, and learning in all cultures. An effective English Language Arts program should provide each student with six major goals in its curriculum: 1) To communicate effectively by speaking, listening, reading, and writing, 2) To develop positive attitudes toward language learning, 3) To make connections to other areas of study and to life outside the classroom, 4) To think critically, creatively, and reflectively, 5) To appreciate their own culture and the culture of others, and 6) To use technology.

(English Language Arts K to 7 - British Columbia Ministry of Education, 2001)

There was a controlled group and an experimental group used from one of the third grade classes. The controlled group was a group of nine students who were randomly selected, five girls and four boys. The experimental group was a group of nine students who were randomly selected, six boys and three girls. The controlled group was taught language arts by the teacher explaining the work and then giving them activity sheets to complete. The experimental group was taught by the teacher explaining the concept and then having the students do a hands-on activity, and later complete an activity sheet for a grade. The independent variable was the hands-on activity and the teacher explaining the skills then having the students complete the assignments. The dependent variable was the language arts grade averages.

Instrument Design

Elementary language arts has five different components and they are reading, writing, spelling, grammar, and handwriting, although handwriting is usually only taught in kindergarten, first, and third grades. The reading component consists of phonics, comprehension, and word recognition. Writing consists of writing complete sentences, topic sentences, paragraphs, and concluding sentences. Writing also consists of capitalization and punctuation. Spelling consists of common practices in spelling. In grammar the students learn parts of speech, subject verb agreement, possessives, comma usage, etc. Handwriting consists of forming letters in manuscript and cursive in the D'Nealian style.

Using class work scores and test scores configured the students' grades. The class work and test were forms such as multiple choice, matching the answer, and fill in the blanks form. When manipulatives were used students often answered questions in short answer form.

Methods of Data Collection

The teacher collected the data and the grades were placed into a spreadsheet. The data were grades that the students had received for half of the second marking period and all the third marking period. The information was copied and copies were sent home with the students.

The students' were graded on the assignments that were given to them by the teacher. The assignments consisted of reading, writing, spelling, grammar,

and handwriting. A portion of the students completed their assignments by doing worksheets only. More than 75% of the worksheets came from the city curriculum. The other 25% came from teacher made activity sheets and books from the parent teacher store. Another portion of the students did their assignments with the aid of manipulatives. More than 50% of the manipulatives came from the city curriculum. The other 50% of the manipulatives were teacher made and from the parent teacher store.

Statistical Analysis

The t-test was used to determine if there was a difference between the averages of the two groups. The means were calculated by using the mean of the control group and the mean of the experimental group. The t-test compared the group that used hands-on activities with the group that did not use hands-on activities.

Summary

A teacher at Cooper Elementary collected all of the data used. The grades were placed on a spreadsheet to compute the students' averages. The t-test was used to determine if there was a difference between the averages of the two groups. In the following chapter the data were analyzed and the results were reported.

Chapter IV

Findings

This study was used as an experiment to determine if the use of manipulatives along with teacher instruction when teaching language arts to elementary students increased learning. The problem of this study was to determine the effectiveness of hands-on activities compared to paper and pencil activities (reading textbooks, answering comprehension questions, and worksheets) when teaching language arts to first through fifth grade students, based on student progress and achievement. The sub-sections of Chapter IV are term grades comparisons, results, and summary.

Term Grades Comparisons

The data collected reported individual language arts grades (for two grading terms, one used before and the other during the term) for all of the students that participated in the study. There are 212 students in the control and experimental groups. Each student had seventeen language arts grades for the period of the study. The average for each term was calculated and used to calculate the t-ratio. Table I shows the average grades for the terms and data per group.

Table I.

Comparison of grades from the first term and the second term	
Terms of Study	Class Average
First Term-Before the Study (Experimental)	71.4
Second Term-During and After the Study (Experimental)	82.1

Chapter V

Summary, Conclusions, and Recommendations

Manipulatives and hands-on activities can be very effective with helping children gain information and skills that they are being taught. The effects of manipulatives have been discussed for many years. This chapter will summarize the research study. Chapter V will draw conclusions based upon the hypothesis and will make recommendations for future studies.

Summary

The purpose of this study was to determine if using manipulatives when teaching language arts to elementary students was more effective than teacher based instruction, with lecture and worksheets. The problem of this study was to determine the effectiveness of hands-on activities compared to paper and pencil activities (reading textbooks, answering comprehension questions, and worksheets) when teaching language arts to first through fifth grade students, based on student progress and achievement. The hypothesis was:

H₁: There will be a difference in students' achievement levels in elementary reading when determining which is a more effective teaching style, using hands-on activities to teach reading or using paper and pencil work to teach reading. It was hypothesized that the hands-on activity will be the more effective method and students will prove this by increases in their academic progress levels.

First Term-Before the Study (Control)	73.1
Second Term-During and After the Study (Control)	74.4

The class average for the first term was 71.4% for the experimental group and 73.1% for the control group. The class average for the second term was 82.1% for the experimental group and 74.4% for the control group. The scores from the second term were 10.7 points higher than the scores from the first term for the experimental group.

Results

The t-test results showed that when comparing control and the experimental groups, t equaled 14.7. The degree of freedom was 15.

Summary

In summary, the findings reported a 10.7 point difference in the mean of the two sets of scores, for the experimental group, in the t-test t equaled 14.7. The first term had an average score of 71.4 and the second term had an average of 82.1. In Chapter V, the findings will be given and conclusions will be made based on the hypothesis and recommendations will be made for future study.

This study examined the effects that manipulatives and hands-on activities have on elementary students when they are used to teach language arts. Due to all of the pessimistic outlooks on using manipulatives, such as time restraints, classroom management, and the availability of materials, it became important to discover if the outcome made it worth the time and resources. This study was done to prove manipulatives are beneficial to students in this age range.

In order to report on the helpfulness of manipulatives, the researcher examined students' language arts grades before and after the study was done. There were not many studies done that discussed the benefits of using manipulatives, so students grades in language arts could be used as an indicator of the advantages of using manipulatives when teaching language arts to first through fifth grade students. The language arts grades consisted of spelling, reading, writing, and grammar.

The limitations set certain boundaries to the study. The students that were observed were between the ages of six and eleven, in the first through fifth grade. All of the students also attended Cooper Elementary in Hampton, Virginia. The school was located in an urbanized area and consisted of slightly below middle to middle class families. The data were collected by a teacher at Cooper Elementary. The data were collected from January 2003 to June 2003. The students' language arts grades were used as the factor for determining the success of using manipulatives.

The population of the study was Cooper Elementary School students from the first to the fifth grade. These students had language arts for two hours daily.

During the time period of the study there were 212 students that participated. All of the students were of average academic ability. The student population was 90.7% black, 6.0% white, and 2.3% other. The students come from slightly below middle to upper middle-income families.

Language Arts in elementary grades is usually comprised of reading, spelling, grammar, and writing. There is emphasis placed on the reading aspect of language arts. It can be considered the most vital component. Language arts is integrated with every subject in school.

The t-test analysis was used to discover if there was a significant difference between the means and the two samples. The means were calculated by using the students' grades during the time of the study in language arts to their grades before the study started. The t-test was used to compare the experimental group (students who did receive instruction with manipulatives) with the control group (students who did receive instruction with manipulatives).

Conclusions

The conclusion for this study was based on the following hypothesis:
H₁: There will be a difference in students' achievement levels in elementary reading when determining which is a more effective teaching style, using hands-on activities to teach reading or using paper and pencil work to teach reading. The hands-on activity will be the more effective method and the students will prove this by increases in their progress levels.

The hypothesis was accepted with a t-test score of 14.7, which exceeded the .01 level of significance, $p > 2.576$. Therefore, we may conclude that hands-on

activities had a significant effect on elementary students at Cooper Elementary School in reading.

Recommendations

Most school systems give their teachers an outline on what to teach and when to teach it (scope and sequence), but it might be beneficial to the students to give the teachers some instructions on how to teach skills by using hands-on activities. Based on these research findings, further research should be carried out to determine if the same results are possible with the other core academic subjects. There was a significant change in the grades that were earned during this study.

Today many schools are pressured by standardized testing results, which have placed a damper on the use of hands-on activities because of time restraints. With this type of teaching, information is usually memorized. It is not concrete. Therefore additional studies should be done on which type of teaching yields longer periods of time for the students to retain information.

The researcher recommends:

1. A more thorough investigation on the majority of the students learning styles, in order to determine if they were mainly auditory or visual learners.
2. An in depth investigation on the factors that the time of day has on student success, achievement, and creativity. It is possible that after recess, or lunch, students are not as motivated as they were earlier in

the morning, or on the contrary, they could still be tired at the beginning of school.

3. Based on the results of this study a more meticulous investigation needs to be done to figure out if cultural diversity plays a part in the results. This study was done at a school that has many military families; as a result many of the students were from different parts of the country and have traveled throughout the world.
4. Finally it is recommended to undertake a study to determine if the same results could be achieved in a daily fifty-minute class period that was achieved in this study during a daily two-hour class period.

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