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Accelerated Reader: A Study of the Effects
on Reading Comprehension and Attitudes
in the Fifth Grade

Christine Welk Clegg

A Thesis

Submitted in partial fulfillment of the requirements of the
Master of Arts Degree in the Graduate Division
of Rowan University
1997

Approved by _____
Professor

Date Approved May 1997

ABSTRACT

Christine Welk Clegg

Accelerated Reader: A Study of the Effects
on Reading Comprehension and Attitudes
in the Fifth Grade

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Dr. Louis Molinari

Elementary School Teaching

The purpose of this study was to determine if fifth graders, using the Accelerated Reader, a computer-based reading motivation and management program, will demonstrate an increase in reading comprehension scores as tested by their performance in a pre and post test using the reading comprehension portion of the Metropolitan Achievement Tests. This study will also measure any increase in favorable reading attitudes as measured by a pre and post test using the Elementary Reading Attitude Survey by McKenna and Kear.

Two classes were selected from the fifth grade at D'Ippolito Intermediate School in Vineland, New Jersey to participate in this study. Both classes were similar in composition with regard to gender, race/ethnic background and academic ability. The reading comprehension section of the Metropolitan Achievement Tests and the Elementary Reading Attitude Survey were administered. Both classes then received

reading instruction using Harcourt Brace Jovanovich's Reading Series. The experimental group also participated in the Accelerated Reader, a computer based reading management program. Post tests were given to both groups and the results were analyzed. The results supported the null hypothesis that there would be no significant difference in the scores of students who used the Accelerated Reader as measured by the reading comprehension section on the Metropolitan Achievement Tests. There was, however, an indication that the use of the Accelerated Reader did increase the students' positive attitudes toward reading as measured by the Elementary Reading Attitude Survey and therefore the second null hypothesis was rejected.

MINI-ABSTRACT

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The purpose of this study was to determine if fifth grade students, using the Accelerated Reader, a computer based reading motivation and management system would demonstrate an increase in reading comprehension as measured by their performance in a pre and post test using the reading comprehension section of the Metropolitan Achievement Test. Also measured was any increase in favorable attitudes towards reading as measured by the Elementary Reading Attitude Survey. Results indicated that the null hypothesis regarding reading comprehension was supported, however, the null hypothesis with regard to reading attitudes was rejected as there was a significant increase in favorable reading attitudes in the experimental group.

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Also a big thank you to all of my students - it was because of them that I always wanted to do my best.

This thesis is dedicated to the memory of my mother,
who always wanted to be a teacher but couldn't,
and who always wanted to be the best mother
and was.

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Chapter 1 The Problem

Significance of the Study

Developing lifelong readers has long been a goal of education and yet more and more children are choosing not to read. These children are able to read, they are not illiterate, but they are becoming a group known as “aliterates”. Aliteracy has been defined as a “lack of the reading habit; especially, such a lack in capable readers who choose not to read” (Harris & Hodges, 1981,). Aliteracy may be a greater problem than illiteracy. Illiterates in the United States seem to average out to about 1 in 5, yet although reliable estimates of aliterates are more difficult to obtain, researchers suggest that only about 20 percent of the adults who are able to read do so voluntarily with any degree of regularity. That means that of the 4 out of 5 Americans who can read, only 1 actually does. (Cramer and Castle, 1994). There must be a way then that children can be taught the necessary mechanical skills to read and yet develop positive attitudes about the pleasures and values of reading. In the landmark publication *Becoming a Nation of Readers*, a report of the U.S. Commission on Reading stated: “Increasing the proportion of children who read widely and with evident satisfaction ought to be as much a goal of reading instruction as increasing the number who are competent readers” (Anderson et al., 1985) There certainly seems little value in spending so much time and effort developing skillful readers if 80 percent of them will be aliterates.

A goal of any reading program should be to help students to appreciate the value and power of reading and to form a habit of reading. Jane Kurtz (1995) thinks that “readers need to fall in love with books” and these books may not be the “great literature” that their parents and teachers want them to read. Readers go through phases, as did Kurtz, who went through a Golden Book phase, Nancy Drew phase, comic book phase and a romantic mystery phase. She felt that these phases helped cement her passionate attachment to books and reading. Kurtz also believes in taking reading risks which may mean nudging children toward certain books which have proven themselves over the years. Again, however, the emphasis is on developing the love of reading.

Along the same lines, in Keeping Kids Reading (Leonhardt, 1996) Leonhardt suggests four hierarchical goals for readers. Each one is absolute and must not interfere with the one before. The first goal is that children must love reading and that no one must do or recommend anything that puts in jeopardy children’s love of reading. This means rethinking those tedious and monotonous skill lessons that children dislike and finding more creative ways to help children develop those skills. The second goal would be that children should form a habit of reading. Leonhardt suggests a reading-friendly house or classroom to help children form a reading lifestyle and that children should have easy, instant access to huge quantities of irresistible reading materials of all kinds. The third goal is that children should learn to read with a critical eye. This must not conflict with the first two goals however. Endless analyzing would interfere with the previous goals, but a careful drawing out or probing will help children develop critical reading skills. Children should learn to appreciate classical and multicultural literature. That is Leonhardt’s fourth goal and again we are reminded that this goal must never put in jeopardy the first three goals. Schools usually fail in this regard in that they often have books in their curriculum for whole class reading that only a few children read well enough to be able to enjoy. Many students cannot relate to the classics and in their struggle they lose their love of reading. Leonhardt warns against taking any shortcuts

with her strategy and remains fully confident that following this hierarchy of goals will help children grow naturally into eager, sophisticated readers.

Harris and Sipay (1985) conclude that "one of the most crucial tasks in a reading program is the transformation of children's attitudes toward reading from indifference or active dislike to avid reading". They summarize their work in developing reading interests as "a lure and a ladder." The lure may be anything that would entice and encourage children to begin pleasure reading and the ladder involves providing materials that will pique the child's interest in reading and in which he can progress gradually to reading material of superior quality.

It has long been known that there is a correlation between reading ability and academic success. Now there is more interest in the correlation between the amount of reading and future life success in general. Ann Gerhart (1995) feels that we are "flunking reading here in the United States". She reported that "less than a third of all high school seniors were considered good enough readers, according to the 1994 national test scores". Less than a quarter of fourth and eighth graders tested were considered proficient readers. She also noted that "the results were so abysmal that Colorado education commissioner, William T. Randall, called the results 'a whack in the head'." Gerhart is concerned with the implications for American competitiveness and productivity, but expresses sadness at the effect of not reading - the lost opportunity for joy, escape and personal expansion.

With the dramatic impact that computer technology has had on our lives, educators are now exploring the ways that technology can be used to motivate students to read as well as develop their reading skills and habits. In an NEA article (1996), Dave Winans discussed whether computing and the new technology can really help kids learn or whether it was just techno hype and a new educational fad. Steve Jobs, Apple Computer founder, is even quoted as saying, "What's wrong with education cannot be fixed with technology". However, the Maxwell Middle School in Tucson, Arizona,

which boasts an impressive 600 students and 423 computers networked with a full range of workplace and educational software registered an amazing four year boost in their Iowa Test scores, averaging 8 percent gains in English, 10 percent in reading , and 12 percent in math. Their staff-driven curriculum is heavy in reading and writing, thematic instruction, and cooperative learning. Teachers feel that computers help foster teamwork, build confidence, help students get organized, broaden their horizons and prepare them for the hi-tech workplace.

Richard Lookatch (Technos, 1995) seems to agree with Steve Jobs when he says that “research to date has never established that using a computer or any other technology improves learning”. He has found that all studies have a fundamental “Type I Error” which means the researcher has found benefits that aren’t really there. Technological research lacks true control groups; pre-tests that enable the researcher to equalize individual differences among subjects; and failure to control variables. Lookatch feels that “there are no unique educational benefits from multimedia or its attributes” and that “once information content and instructional strategies are controlled for, or equalized, differences will disappear”. Technology is not an educational panacea and “we cannot lose sight of the fact that it is instructional strategies that cause improvements in achievement, not media.” While Lookatch does agree that there are some applications of multimedia and computer technology that are clearly more efficient and economical, we are reminded that

Multimedia provides the opportunity to interact with the images behind a glass screen. Let’s hope we don’t let it replace interaction with each other and the world around us. Multimedia and other technologies are simply tools that assist with instruction. They have no more influence on achievement and wholeness than a scalpel has on healing. (1995)

There are many research projects that have been done on the advantages/disadvantages of using computers in the classroom. There also have been many studies on the values of computer programs in academic achievement and

creativity. Susan Haugland (Quigley, 1996), a professor of child development at Southeast Missouri State University, has found that some (computer programs) "will raise IQ levels; others, particularly drill-and-skill programs, which experts liken to classroom work sheets, may stymie children, dulling creativity and promoting passivity." Haugland's study found that children in the class using drill-and-skill software showed a 50 percent drop in creativity, while children who used developmental software (software programs that don't have predetermined answers) showed a gain of six points in IQ levels. A control group that did not use any software showed no change. Haugland came to the conclusion that the type of software a child uses can have a significant effect - positive or negative - on his development.

Many studies have been done on the effects of computer programs that motivate students to read. A study by Cutler and Truss (1989) found that computer assistance can help to compensate for a deficient sight vocabulary by combining computers with age appropriate reading materials in the form of paper back novels. Reading then became a reinforcing and self-perpetuating activity with students reading more and gaining comprehension skills and scoring higher on the Iowa Test of Basic Skills.

A similar project was initiated by Wepner in 1990. Her study addressed the question of what it is about the computer that motivates at-risk or disabled students to want to read. Students reported that they liked being able to control the machine, they enjoyed the social and intellectual interaction, and they found the computer to be a private motivational tool that allowed them to progress at their own rate without pressure to keep up with the rest of the class.

There is, of course, much more research needed in order to validate any computer assisted program that purports to increase reading comprehension scores and motivate students to become avid readers. The Accelerated Reader, a computerized reading system that motivates, manages and assesses literature based reading, produced by the Advantage Learning Systems, Inc. is one of several programs being made available to

schools throughout the country. The Accelerated Reader is a motivational tool designed to encourage students to read more and better books, improve reading comprehension and develop a love of reading. Designed for students from ages 6 - 18, the Accelerated Reader frees teachers from reading and grading book reports and record keeping. A student selects a book from a list of over 7,500 titles which include acclaimed non-fiction, children's classics, and award winning contemporary books. Multiple choice questions on a computer test the student's knowledge and comprehension. The computer then immediately scores the test for the student and awards points based on the book's length, reading level, and percentage of correct answers. According to Judith Paul, the director of Advantage Learning Systems, The Accelerated Reader program is based on the following principles which motivate students:

1. Students are allowed to choose their own books and are free to select books that correspond to their own needs, interest, and reading ability.
2. Students are in control of their own reading experience and set their own goals.
3. Students respond best to immediate reinforcement and with the Accelerated Reader the computer shows students how well they have done and praises their performance with a personalized message.
4. Students like the point system which is clearly defined and based on the book length, reading level, and percentage of correct answers.
5. Students also enjoy building their total reading point score which recognizes the effort they put into reading challenging books.

The Accelerated Reader maintains that it offers many proven benefits to students from various backgrounds and at all reading levels. Students are motivated to read more and better books because of the clear program of goals and recognition for improving the quality and difficulty level of their reading. Reading scores have improved according to the study "Reading Achievement: Effect of Computerized Reading Management and

Enrichment,” published in the Winter of 1994 issue of ERS Spectrum. The five year study concluded that the Accelerated Reader “had a significant effect on students’ reading achievement.” Third through sixth grade students showed a 50% improvement in their reading scores on the California Achievement Tests. Students between grades six and eight showed an annual CAT score improvement of more than double the non-using group.

The Accelerated Reader maintains that research has shown that the more a student reads, the better the student’s higher order thinking skills. Combining teacher directed activities with the independent reading activities can utilize all of the levels of Bloom’s Taxonomy.

The management component of the Accelerated Reader tracks student performance and thereby maximizes teacher effectiveness. This allows for teacher interaction with students on their literature responses without having to verify comprehension. Children in need of remediation have a wide range of reading levels to choose from and may benefit the most from the program. Their progress in advancing to more difficult books without losing comprehension is recorded for easy monitoring by the teacher.

The Accelerated Reader maintains that their system reduces discipline problems by improving students’ attitudes toward school. The Accelerated Reader is seen as fun and rewarding and naturally stimulates a love of reading.

Purpose of the Study

The purpose of this study was to determine if a class of fifth graders, using the Accelerated Reader, a computer based reading management program, will demonstrate a significant increase in the reading comprehension scores from a pre test to a post test using the Metropolitan Reading Comprehension Test as compared to reading comprehension scores of a class who does not use the Accelerated Reader. This study will also attempt to discover if reading attitudes are significantly affected by the use of the Accelerated Reader as measured by the Elementary Reading Attitude Survey by McKenna and Kear as compared to a class that does not use the Accelerated Reader.

Hypotheses

There will be no significant difference in reading comprehension scores between a class of fifth grade students after using the Accelerated Reader for a period of three months and a class of fifth grade students who do not as measured by the Metropolitan Reading Comprehension Test.

There will be no significant difference in students' favorable reading attitudes between a class of fifth grade students after using the Accelerated Reader for a period of three months and fifth grade students who used only the traditional reading program as measured by the Elementary Reading Attitude Survey by McKenna and Kear.

Method of Study

Setting

Vineland, the largest city in area in New Jersey, is located in Cumberland County. It is a suburban community with an economy based in farming, glass manufacturing, and health care facilities. Although there is a wide socio economic range, the students in the public schools are generally from the lower socio economic group. D'Ippolito is one of four intermediate schools with a population of approximately 750 students in grades five through eight. Students are not grouped for reading or social studies, however, there is a gifted class in math and science in the fifth grade. Students in the fifth grade remain in their homerooms for reading and students are assigned to homerooms with attention to a racial, sex, discipline and "giftedness" balance.

Procedure

Each class was pre tested using the reading comprehension portion of the Metropolitan Achievement Tests on November 7, 1996. Each class was also pre tested using the McKenna and Kear Elementary Reading Attitude Survey.

The experimental group was then introduced to the Accelerated Reader. After an introduction by the librarian, students were able to check out their books during their regular library period. When they were finished they were to take use the computer program for the Accelerated Reader test. After an introduction on the computer, the students used the Accelerated Reader independently with the teacher involvement being limited to monitoring the computer. i.e. bringing up the program, helping students find the titles of the books they read for the tests and any "user" questions that students may have had.

After three months, post tests using the reading comprehension portion Metropolitan Achievement Tests were given to both classes of students and their scores were compared with the pre-tests. Both classes also were given a post-test using the McKenna and Kear Elementary Reading Attitude Survey and again, their scores were compared with the pre-tests.

Instruments

The reading comprehension section of the Metropolitan Achievement Test used in both the pre and post test was the Seventh Edition, Form S, 1993 by The Psychological Corporation, Harcourt Brace Jovanovich, Inc.

The Elementary Reading Attitude Survey by McKenna and Kear was used in both the pre and post test and was taken from "Measuring Attitudes Toward Reading: A New Tool for Teachers" by Michael C. McKenna and D.J. Kear, The Reading Teacher, May 1990.(see Appendix A)

Limitations of the Study

The following were some limitations of this study.

1. The small number of students involved in this study and the time period of three months would be considered a limitation.
2. A student may not have answered honestly on the Elementary Reading Attitude Survey.
3. At any one time a student may not have put forth an honest effort to participate in the study.
4. Students who are often absent would be considered a limitation.

5. Students who do not have easy access to a computer may react more positively to any program that allows such access.

6. Any group of students who perceive that they are receiving something other than the norm may react more positively than would a control group regardless of any actual difference.

7. The library was inaccessible to the students for a period of two weeks. Unfortunately this may have led to a decrease in interest in the program since no books were available during that time.

8. Not having enough books from the Accelerated Reader list or not having enough copies of favorites may build frustration with the program.

Definitions of terms

1. Accelerated Reader - a computer based reading management system by Advantage Learning Systems, Inc.
2. Attitude - one's disposition, opinion, or mental state
3. Control Group - The group not subjected to the experimental factor
4. Experimental Group - The group that is subjected to the experimental factor or condition.

Organization of the Study

Chapter One contains research relevant to the significance of this study., the purpose of the study, the hypotheses, the method of the study, the limitations definitions of terms and organization of the study.

Chapter Two is a review of the literature on both the attitudes of reading and on reading instruction and computer assisted instruction and management.

Chapter Three identified the design of the study, the setting, a description of the population and sample, description of the instruments, the relationship of the instrument to the null hypothesis, the procedure and the summary.

Chapter Four is a analysis and explanation of the data.

Chapter Five is a summary of the study and its findings, conclusions and recommendations for further studies.

Chapter 2

Review of the Literature

Erasmus said, “When I get a little money, I buy books; And, if any is left, I buy food and clothes”.

Jorges Luis Borges said, “I have always imagined that paradise will be a kind of library”.

Cicero said, “A room without books is like a body without a soul”.

“Outside of a dog, a man’s best friend is a book; inside of a dog, it’s very dark”, are the sentiments of Grouco Marx. (Signals, 1996)

As you can see, many famous men in the past have had strong feelings about books and reading. Children and adults today seem to lack this passion for the written word. Developing lifelong readers must then become the goal and the responsibility of educators. Cramer and Castle (1994) noted that children are taught to read for approximately 12 years. Beginning in the early grades they are taught the fundamental mechanics of decoding and understanding the printed text, and later they learn to “reconstruct, comprehend, extract, assimilate, and use information from a variety of printed sources for many purposes.” They do not, however, choose voluntarily to read, either for their own pleasure or for information, once they have left school.

This lack of interest in reading is not a new concern. In 1908 Edmund Burke Huey wrote,

The prevalent methods of teaching reading are such as cultivate wrong habits and attitudes concerning books.... Methods come and go, but all lack the essentials of any well-grounded method, viz. relevancy to the child's mental needs. No scheme for learning reading can supply this want. Only a new motive, putting the child into a vital relation to the material read, can be of service here.... The child does not want to learn reading as a mechanical tool. He must have a "personal hunger" for what is read. He must come, too, to his reading with personal experience with which to appreciate it. (as cited in Cramer and Castle, 1994)

More recently, Csikszentmihalyi, a researcher at the University of Chicago, in discussing a comprehensive study of the problem of lack of motivation to read, concluded, (as cited in Cramer and Castle, 1994)

It seems increasingly clear that the chief impediments to literacy are not cognitive in nature. It is not that students cannot learn; it is that they do not wish to.... Literacy, numeracy, or indeed any other subject matter will be mastered more readily and more thoroughly when the student becomes able to derive intrinsic rewards from learning.

"And how important is this love of reading?", asks Mary Leonhardt (1996). In 1993 an extensive survey of adult literacy showed that almost half of the adult population couldn't read well enough to hold down a decent job. And, according to the 1994 results of the National Assessment of Educational Progress Report Card, 25 percent of all twelfth graders scored below a basic reading level, and 66 percent scored below a proficient level. Scores were even worse for eighth graders with a suggestion that a large percentage of poor readers had dropped out of school. Leonhardt suggests that a necessary change must take place and it can start in the home. "A love of reading is the greatest educational gift you can give to your children - better than a private-school

education, better than a networked computer, better even than a degree from Harvard. A love of reading changes everything.”

Leonhardt (1996) calls for parents to create a “book-filled home” with a special emphasis on the acquiring of books for children in the second and third grade. She considers this “a critical period in the reading life of children. If children develop into avid, independent readers by third or fourth grade, they should be prepared to be excellent high school students and candidates for top colleges. Not that they won’t necessarily be terrific high school students, but at least they’ll have the ability, unlike kids who arrive in high school without ever having done much independent reading.” Leonhardt advocates specifically arranging book-buying trips, collecting series books, magazines, comics (and subscriptions to both), going to the library regularly and reading aloud.

In How to Increase Reading Ability (1985), Harris and Sipay question the value of the enormous amounts of time, effort and money spent developing skillful readers when so many choose not to read. A successful program must develop children who not only can read, but do read. Building a favorable attitude toward reading, developing a lasting interest in reading and improving reading tastes should be the three major objectives of any total reading program. In order to create and nurture reading interests, a classroom environment should be one in which the teacher is enthusiastic about books; the classroom is full of well-selected books to which the children have easy access; the children have time to browse, choose, and read; children get personal introductions to special selections; books are the subject of much comment and discussion; and appreciation for reading is developed through cumulative experiences (Hickman 1983 as cited in Harris and Sipay, 1985).

With motivation being a key issue to developing avid readers we can then start to search for motivational techniques. Computer technology has had a dramatic impact on our lives in general is now being integrated into our school’s curriculum. Teamed with

the idea of the necessity of motivation to produce a nation of readers, the computer should provide an avenue for success.

Based on the idea that the more students read, the higher their reading scores will be, some educators are exploring the ways that computer technology can be used to motivate students to read independently (Peak, Dewalt, 1994). The Accelerated Reader is the computerized reading management software system being used in some schools in Gaston County, North Carolina. In this program students choose and read books from an extensive list, and then take computerized tests on a computer that uses a point system to track students' performance. An article from the Educational Research Service in 1994, showed results between two particular schools that were very convincing. There was a thirty point gain in the total CAT Reading Scores for the school using the Accelerated Reader over the school that did not. Students reported that they believed the major advantages of the computerized management approach were: "that it helped increase their overall vocabulary, that they read more and better books, that they did not have to write conventional book reports, that the system was fair and accurate, and that they had immediate reinforcement" (Peak & Dewalt, 1994)

Many are wary of the use of technology in educational reform. "Technology is no 'silver bullet' for transforming education (Means, 1995). In using computers to help develop lifelong readers, there is a need for schools to provide student-centered, curriculum-rich, technology based projects. Using computers in isolation is not enough and most schools have not made the commitment to fully integrate computers into the curriculum. Fundamental changes must be made in the teaching practices as technology often add another level of complication to an already daunting task.

In Technology for Teaching (1995), Richard Lookatch claimed that the research that has been reported on teaching technologies has a fundamental flaw and that "research to date has never established that using a computer or any other technology improves learning". This flaw is called the "Type I Error" and it means that the

researcher has found benefits that aren't really there. In the use of computers Lookatch contends that there really is no control group and that typically the experimental group has the "best", most motivated, dynamic teacher, who uses superior instructional strategies and has "free rein" with her classes. Even without computers, this teacher's class would test show higher test scores. He maintains that nothing can replace a dynamic lesson plan.

One aspect of the Accelerated Reader was the point system as a reward for correctly completing the test for each book read. Susan Davis wrote about her opinions about rewards in Principal (1994). In "Make Reading Rewarding, Not Rewarded", she notes that the stimulus-response theory that has been used in reading education has failed miserably. Students need to have "real" reasons to read and her school's philosophy is that reading should be encouraged for its own sake. In 1993 an Exemplary Reading Program Award from the International Reading Association was given for the school's highly successful approach to reading. There are four reasons for reading that form the foundation for the program.

1. Reading to share - Student groups, or literacy clubs, meet for 30 minutes three times a week for discussion. Children are asked to read silently for part of the time and then encouraged to share what they read with others in the group.

2. Reading to interact - One goal is to encourage students to interact with their acquired information not only in school, but outside of school as well. Backpacks were purchased and filled with books, manipulatives, journals etc. around a common theme, often a topic the students were studying in school. Many backpacks are circulating in any one classroom at a time. Students check them out for a week and parents are encouraged to participate with their children.

3. Reading to evaluate books - The school staff organized a contest that would involve groups of books to be read and evaluated by the students. In the fall books were introduced, children were encouraged to read them and a classroom chart kept track of

books read. In the spring, students were given the opportunity to campaign and vote for the book that they liked the best. When votes were counted and winner announced, the students sent congratulatory notes to the winning authors.

4. Reading to celebrate reading - A Day of Reading was initiated during which all activities celebrated reading. Events included inviting community members and authors to read to the classes, students dramatizing student writing, quiz contests about books, a book parade with student-made floats, students creating "rap" and dressing up like the characters of their favorite books.

The most important component of this reading program is the philosophy that children must be given real reasons to read if they are to develop into lifelong readers and that only when children read for their own reasons, rather than for extrinsic rewards, will they choose to read on their own.

In addressing a reward system, Cameron (1993), wrote an article entitled, "Gotta Get a Gimmick?". Cameron said that "reading for prizes has always struck me as about as appropriate as logging time spent in prayer. Some things are just not done to please others." A librarian, she feels that there is a natural and powerful attraction between people and stories and that "people want stories and information with a part of themselves that's different from the part that wants candy". An important part of the job of educators is to make the reading process easier for those people who find it difficult, but in the end, reading should be its own reward.

Dr. Betty Carter (1996) is another skeptic who questions whether computerized reading programs send the right message. In her article, which specifically addresses the Accelerated Reader, Dr. Carter looks at the downside of these programs and considers the following seven points.

1. Granting rewards for reading devalues the act of reading itself. The message sent here is that reading, for the sake of reading, is not an enjoyable pursuit and so an incentive must be given to compensate for doing a disagreeable task. Bonuses are not

given to encourage children to play more video games or watch more television, so why should they be given for reading.

2. “Tangible rewards lead to diminished motivation” (Kohn as cited by Carter, 1996). The focus is on the reward rather than on the reading and the child becomes motivated, not to read, but to earn prizes. After a period of time even the students who were motivated to read will turn to reading for its extrinsic rewards.

3. Students often limit themselves to only Accelerated Reader books. Even though there are numerous books on the Accelerated Reader list, Carter feels that the collection is heavily weighted in fiction with little representation from poetry collections and informational books. Students are being drawn away from many books that they might find enjoyable by the lure of points.

4. This is a commercial venture. Schools that buy one of the computer managed reading systems like the Accelerated Reader usually purchase the books recommended by them. Jobbers cater to school libraries with package deals and books are often purchased for no other reason than that they are on the reading list. These companies are becoming regarded as reliable recommendation sources. Collection development of libraries often falls behind because books that may fit the curricula are not on the list.

5. Carter also feels that children will fail to develop skills as independent selectors of books. Children are not learning to select books by favorite authors, subjects, or even covers and jacket information. Instead, the point value has become the determining factor for chosen books. Adults don't select their reading material by points, but that is the system that children are using.

6. Testing drives reading. Students read to pass factual, multiple-choice tests which does not constitute a personal literary experience. Emphasis on correct answers stresses that there is only one way to read a book - for factual information.

7. These programs do not make the best uses of a school's limited amount of money. Carter questions the investment and would rather see students being encouraged

to read for its intrinsic pleasure. Children will become better readers by reading and doing more than taking objective tests. She is also concerned about children who are drawn to the programs by promise of greater computer use only to be given multiple choice tests transferred from paper to screen. There is no skill being taught or used in participating in a reading management system.

Dr. Carter summarizes her feelings when she says:

Schools can use their money for many different materials and their staff time in many different ways. They can teach children to read for points or for pleasure; to record finite answers to questions on a computer or explore the Internet. Teachers and librarians can manage motivational systems or they can promote books and reading; they can award prizes to students who recall factual information or design instruction that helps children seek answers to their own questions.

In conclusion, there are many opinions on the reading process; how to do it, how to teach it, and how to evaluate it. Over the years there have been many schools of thought on the "proper" way to encourage children to read and comprehend literature as well as enjoy it. Educators must explore every avenue in order to encourage literacy and discourage illiteracy or alliteracy. Since every teacher has his own "style" of teaching and every learner has his own "style" of learning, this is a formidable challenge.

Chapter 3

Design of the Study

Setting

D'Ippolito Intermediate School is located in Vineland, New Jersey. Located in Cumberland County, D'Ippolito houses grades five through eight. The school's racial population is 41.5% Whites, 19.8% African Americans, 37.5% Hispanics and 1% Other. There is a one percent greater male than female population. 53% of the student population is on the reduced or free lunch program. Over 17% of the school population has either left or entered during the past school year. This is significantly higher than the state average. Of the 745 students, 101 or 18% are identified as gifted and 27% (207) have been identified by low MAT scores in math, writing, and reading and are receiving supplemental assistance through the *Higher Order Thinking Skills* (HOTS) program. The school population represents a high number of students from low socio-economic homes with a majority of children from single-parent households. There is a large percentage of latchkey children. Vineland is considered an urban/suburban community with all of the problems of an inner city area. The students and the community are affected by the larger societal problems of low economic growth and accompanying increases in illegal drug trafficking and addiction, domestic violence and criminal activity.

Description of Sample

Two classes of fifth graders from the D'Ippolito Intermediate School in Vineland, New Jersey were chosen for this study. Each class contained twenty seven students with the following demographics:

	<u>Experimental Group</u>	<u>Control Group</u>
Boys	16	13
Girls	11	14
Age 10	14	18
11	9	9
12	4	0
Race white	15	13
African American	6	2
Hispanic	6	12
Qualified for free or reduced lunch	18	11
Two parent families	15	19
In gifted program	5	5
HOTS (remedial)	9	3
Resource room (classified)	2	3

Description of Instruments

The testing instruments included the Reading Comprehension portion of the Metropolitan Achievement Test, Seventh Edition, Elementary 2, Form S published by The Psychological Corporation, Harcourt Brace Jovanovich, Inc., 1993. This test included reading passages followed by multiple choice questions.

The Elementary Reading Attitude Survey was also used. This "Garfield" survey was from "Measuring attitudes toward reading: A new tool for teachers" by Michael C. McKenna and D. J. Kear, The Reading Teacher, May 1990 as cited in Literacy

Assessment : A Handbook of Instruments edited by Lynn K. Rhodes, 1993. Each statement regarding reading is followed by four pictures of Garfield. Each picture is designed to represent a different emotional state ranging from very positive to very negative. This particular instrument was chosen to make the test easy and fun for the children and to encourage honest answers.

Relationship of the instrument to the Null Hypothesis

This first hypothesis stated that there would be no significant differences in reading comprehension scores between a class of fifth grade students after using the Accelerated Reader for a period of three months and a class of fifth grade students who did not participate in the Accelerated Reader program. Reading comprehension for both groups was measured by the Metropolitan Reading Comprehension Test.

The second hypothesis stated that there would be no significant differences in students' favorable reading attitudes between a class of fifth grade students after using the Accelerated Reader for a period of three months than a class of fifth grade students who did not participate in the Accelerated Reader program but used only the traditional reading program. Students reading attitudes were measured by the Elementary Reading Attitude Survey by McKenna and Kear. (see Appendix A)

Since any statistical test performed on sample data may result in outcomes that are due entirely to chance, great care has been taken to insure that any increase in the results, as measured by the instruments, represents an effect of the use of the Accelerated Reader Program. Testing instructions to both groups were identical including the time and day. The group using the Accelerated Reader was given no extra time, rewards or incentives in order to test only the intrinsic motivational qualities of the program.

Procedure

Homeroom A-3 was chosen as the experimental group to participate in the Accelerated Reader program. A-2 was chosen as the control group that would not. Both classes would continue to instruction with the traditional reading program, Light Up the Sky, HBJ Treasury of Literature published by Harcourt Brace Jovanovich, Inc., 1993. Both teachers have similar backgrounds with whole language and multiple intelligences teaching styles and techniques, the same number of years experience and comparable educational backgrounds. Both teachers shared a common planning time which was used to keep both classes together. Supplemental materials were shared so that both classes had the same instructional materials and both classes progressed in the unit at the same rate. Great care was taken so that instructionally both classes were as similar as possible.

Each class was pre-tested using the reading comprehension portion of the Metropolitan Achievement Tests at the same time on November 7, 1996. A copy of the directions was given to each teacher who read them to the class with no additions. Fifty minutes were allotted for the test after which all materials were collected. No papers were accepted early and no other help was given.

Each class was also pre-tested using the McKenna and Keat Elementary Reading Attitude Survey. Again, each class was tested at the same time on November 8, 1996, with the same directions. No surveys were collected until all children were finished.

Both classes continued to be taught with Light Up the Sky, a fifth grade level series published by Harcourt Brace Jovanovich. Components included the literature anthology, a writer's journal, an integrated spelling book, and a practice book. In addition to classroom instruction, both classes had a daily 20 minute sustained silent reading period and a designated book selection period at the library once every ten day cycle.

Then only the experimental group was introduced to the Accelerated Reader, a computer based management reading system. The librarian gave an introduction to the program and students were told that library books in the program were targeted with a red dot. Students were able to check out Accelerated Reader books at their regular library period. No extra time was given for students to check out their books or read them. When students finished a book they were able to take the short test on the computer in the classroom. This was done during their study hall or before or after school. No special time was allotted for testing. There were no special incentives for either the number of books read or the scores on the tests. After the introduction, the students used the Accelerated Reader independently with the teacher involvement being limited to monitoring the computer, i.e. booting the program, helping students find the titles of the books they read for the tests and any "user" questions that students may have had.

After three months, post-tests, using the reading portion of the Metropolitan Achievement Tests, were given to both classes of students and their scores were compared with the pre-tests. Both classes were also given a post test using the McKenna and Kear Elementary Reading Attitude Survey and again, their scores were compared with the pre-tests. Differences in the pre and post test scores were analyzed to determine if there was a significant increase in the scores of either instrument which could be the result of using the Accelerated Reader.

Summary

This study took place at D'Ippolito Intermediate School in Vineland, New Jersey. It involved two fifth grade classes of students with similar backgrounds. The study began on November 6, 1996 and ended on February 17, 1997, a period of over three months. Both groups were pre-tested for comprehension using the reading portion of the Metropolitan Achievement Tests and for favorable reading attitudes using the

Elementary Reading Attitude Survey by McKenna and Kear. Both groups were post-tested using the same instruments. The control group was taught reading in the traditional manner while the experimental group was taught reading in the traditional manner but also participated in a computer based reading management system called the Accelerated Reader.

Chapter 4

Analysis of Data Related to the Null Hypothesis

This study was conducted to determine if a class of fifth graders, using the Accelerated Reader, a computer based management program, would demonstrate significant increase in their reading comprehension scores as measured by the Metropolitan Reading Comprehension Test as compared to a class of fifth graders who did not participate in the Accelerated Reader program. This study also established the effect of the Accelerated Reader on the reading attitudes of those participating in the program as opposed to those who did not. The participants', both the control and experimental groups, attitudes were measured by the Elementary Reading Attitude Survey by McKenna and Kear, (see appendix A).

The two classes to participate in this study were from the fifth grades at D'Ippolito Intermediate School in Vineland, New Jersey, during the 1996-1997 school year. There were twenty-five students in the control group and twenty-four students in the experimental group. Both received eighty minutes of reading instruction every day from the Harcourt Brace Jovanovitch reading series. In addition, the experimental group also participated in the Accelerated Reader program. Pre tests were given before the introduction of the program and post tests were administered approximately three months later.

Hypothesis I

The first hypothesis states that there will be no significant difference in reading comprehension scores between a class of fifth grader students after using the Accelerated Reader for a period of three months and a class of fifth grader students who do not as measured by the Metropolitan Reading Achievement Comprehension Test.

Data from the pre and post tests of both groups was analyzed and since the difference between the population mean is less than zero, there is no evidence that the use of the Accelerated Reader program increases the scores of students as measured by the Reading Comprehension portion of the Metropolitan Achievement Test. The mean score gains of the control and experimental groups were compared to each other using a t-test for nonindependent samples with a resulting score of -1.671. It was decided to retain the null hypothesis at the 0.05 level of significance if $t > \text{or} = 1.684$ with a degree of freedom of 47. Using Pearson's R, the control group had a score of 0.79 with a degree of freedom of 23 while the experimental group had a score of 0.51 with a degree of freedom of 22 which led to the retaining of the null hypothesis.

Appendix B contains the tables and graphs that show the relationship between the pre and post tests scores of the Experimental Group and the Control Group with regard to their scores on the Metropolitan Achievement Reading Comprehension Test.

In summary, it appears that the control group that did not participate in the Accelerated Reader actually showed a greater improvement in their Metropolitan Achievement Reading Scores than the experimental group. It should be noted here that there are many limiting factors to be weighed when analyzing this statistical data.

Hypothesis 2

The second hypothesis of this study states that there will be no significant difference in students reading attitudes between a class of fifth grade students after using the Accelerated Reader for a period of three months and a class of fifth grade students who do not as measured by the Elementary Reading Attitude Survey by McKenna and Kear.

After analyzing the scores on the pre and post test from both the experimental and control groups, it was decided to reject the null hypothesis. The data indicated that the t value was -2.407 . The null hypothesis would be rejected at the 0.05 level of significance if t were $<$ or $= 1.684$ with a degree of freedom of 45 .

In applying the Pearson's r , the experimental group had a score of 0.83 with a degree of freedom of 22 , while the control group had a score of 0.68 with a degree of freedom of 21 . It is therefore indicated that there is a high probability that the use of the Accelerated Reader affects the attitudes of students towards reading.

Appendix C contains the tables and graphs that show the relationship between the pre and post tests scores of the Experimental Group and the Control Group with regard to their scores on the Elementary Reading Attitude Survey. It should be noted here that there are many limiting factors to be weighed when analyzing this statistical data.

Chapter 5

Conclusions and Recommendations

Summary of the Problem

Developing lifelong readers has long been a goal of educators. We are now facing a generation of children who know how to read, but chose not to. This group is known as "aliterates" and it is growing in size. Statistics reveal that of the four out of five Americans who can, only one actually does. This startling information has educators scrambling for ways of teaching children not only how to read, but how to take pleasure in reading so that it becomes an enjoyable and integral part of their lives. With many different theories on reading instruction and the literacy demands of society, it has become important to not only evaluate students' success in comprehension and decoding skills, but also to evaluate their attitudes towards reading which will effect their adult reading habits. I believe that there is a definite relationship between interest and comprehension: interest motivates students and will facilitate comprehension. It is essential then that students are motivated to read and are given every opportunity to explore various forms of print material. This hand in hand relationship between interest and comprehension also includes motivation. If students are motivated to read they will put their energy into the comprehension skills they will need and if they are secure in their comprehension skills then they will feel free to tackle materials that they have an interest in. With this in mind, the Accelerated Reader seemed to be an answer to the

dilemma of motivating children to read, increasing their reading comprehension and instilling in them favorable attitudes that will make them lifelong learners.

Therefore, the purpose of this study was to determine if a class of fifth graders, using the Accelerated Reader, a computer based reading management program, will demonstrate a significant increase in the reading comprehension scores as measured by the Reading Comprehension portion of the Metropolitan Achievement Test as compared to the reading comprehension scores of the class of students who do not use the Accelerated Reader. This study will also indicate if there is a significant increase in favorable reading attitudes of a class of fifth graders using the Accelerated Reader as measured by the Elementary Reading Attitude Survey by McKenna and Kear as compared to a class that does not use the Accelerated Reader.

Summary of the Method of Investigation

Two classes were selected from the fifth grade at D'Ippolito Intermediate School in Vineland, New Jersey to participate in this study. Each class was pre tested using the reading comprehension section of the Metropolitan Achievement Test on November 7, 1996. Both classes were also pre tested using the McKenna and Kear Elementary Reading Attitude Survey. Both classes received reading instruction using Harcourt Brace and Jovanovich's Reading Series, Light Up the Sky. The experimental group was then introduced to the Accelerated Reader, a computer based reading management program, that targets books, identifies reading levels and tests students' reading comprehension with a short multiple choice test. It grades the tests, awards points determined by the book's reading level and the number of correct answers, and keeps a record for each student. The control group did not participate in the Accelerated Reader program. Every attempt was made to keep the reading instruction of both groups as comparable as

possible so that the only variable would be the introduction of the Accelerated Reader. After a three month period both groups were administered a post test using the same testing instruments as in the pre test. The results were then analyzed.

Conclusions and Implications

After analyzing the data, one can draw certain conclusions regarding the use of the Accelerated Reader. The first hypothesis, which stated that there would be no significant difference in Metropolitan Achievement Tests scores in reading comprehension between the control and experimental groups, was retained. There was no evidence that the use of the Accelerated Reader had any impact on the test scores. In fact, the control group showed a slightly higher increase in scores than the experimental group. Closer examination of scores in the experimental group, however, showed that two students showed a decrease of 35 and 31 points in the post test. This would greatly skew the results. This significant decrease would indicate that students may not have put forth an honest effort on the test or that there were other contributing factors that may have interfered with the student's ability to perform on this test. This is one of the limitations of this study over which there is no control.

The charts on the following pages graphically illustrate the pre and post test scores of the Control Group, the Experimental Group and gain or losses of both groups. The pre test scores of the both the Control Group and the Experimental Group show a fairly smooth curve. The post test scores, however, seem to be quite erratic with significant spikes of a positive nature for the Control Group and very dramatic negative spikes for two students in the Experimental Group. The graph on the Metropolitan Reading Comprehension Differences in Pre and Post Test Scores shows a comparison of the gains and losses in scores of both the Control and Experimental Groups.

In analyzing the data with regard to the second hypothesis, which stated that the use of the Accelerated Reader would have no significant effect on the students' favorable reading attitudes, this study has rejected the null hypothesis. The data supports the opinion that the use of the Accelerated Reader did, in fact, foster favorable reading attitudes among the fifth grade students participating in this study. One of the limitations of this study that may have had an effect on this outcome is that many students who do not have access to a computer in other situations may react more positively to any program which allows such access. It is also possible that any group of students who perceive that they are receiving something other than the norm may react more positively than would a control group regardless of any actual difference.

The following charts illustrate the pre and post test scores on the Elementary Reading Attitude Survey for both the Control and the Experimental Groups. It is evident that the post test scores show a more negative attitude toward reading for the Control Group. The Experimental Group, however, tends to reflect more positive attitudes with even the negative attitudes not being as dramatically different as the Control Group in the post test.

Feedback from the participants in the Accelerated Reader study show that there are other concerns than those listed in the limitations of the study. Students felt that there were not enough books that they thought would be interesting to read - the titles were boring or they were too thick. In the intermediate school selection list many of the books were rated for 6th through 8th grade reading levels. There were some, but not as many as was needed in the fifth and lower reading level category. Many of the students in the experimental class needed these lower level selections and were frustrated with their original book choices. Few of the titles or authors were ones that they were familiar with. Many students felt that after reading the books from the list they couldn't really recommend them to other students because they didn't really enjoy them. Although the

library has purchased the kit from one of the Accelerated Reader book suppliers, students felt that there was not a large enough number or selection of books to choose from. Other problems stemmed from factors over which the study had no control. The library was closed for two weeks to computerize the catalogue system and after that only books with bar codes could be checked out. The students tended to lose their reading momentum at this point and it was difficult for them to get back on track. Students didn't mind taking the short, multiple choice tests, however, their scores were generally low. Many students were intrigued by the fact that they had to have a password to use the program and see their scores. They seemed to enjoy the personal messages from the computer even when it gave a message of "You didn't do too well, this time." All things considered, the experimental group seemed to like the use of the computer, but did not like the books they had to read to get to use the computer. Although their reading attitudes became more favorable to reading after participating in the study (according to the Elementary Reading Attitude Survey), there did not seem to be an increase in the amount of books they read or in the amount of time spent reading. Nor did they seem to show any more interest in going to the library or in the silent reading period.

From a personal standpoint, I had decided to do this research on the Accelerated Reader after D'Ippolito Intermediate School purchased the program. There was a great deal of literature on the program and many impressive statistics on the ability of the program to raise test scores and increase reading motivation. Most of the praise, however, came from the company's literature and research. There were many different packages to choose from and although the basic package was supposed to be all that was needed for the fantastic results touted by AR, I soon realized that the improvements in test scores and attitudes were more likely to be caused by the external rewards that AR said "could" be implemented. Originally I was led to believe that the reading rewards were intrinsic and that students were motivated by the satisfaction of successfully taking the tests on the computer and keeping track of their progress etc. It seems as though the

more I became involved with the program the more I realized that the extrinsic rewards which the company claimed were optional were the real impetus for success in the program. The students in the study did not have any reward system in order to test the intrinsically motivational qualities of the program. They did check out a great number of books over the three month period, but very few ever read them to the end. Most were frustrated by the reading level and length and were bored by the books themselves. Although they seemed to enjoy the computer involvement, they found the tests to be hard and they had little success. I feel this ultimately discouraged them from choosing AR books. If we are indeed trying to motivate the students to read more then the program needs to reassess its book selections. As one student put it, "these books aren't fun to read, where is R. L. Stine?" I happen to agree. In order to motivate children to read it has to be fun first and educational later. The AR book lists are available now from many different jobbers. I did however get the feeling that maybe some publishers and AR are in cahoots. I would not think it out of line to suspect that they may be trying to push certain books by putting them on the AR list and including them in the packages that are purchased for school libraries. After all, both AR and the publishers are in a "for profit" business. I have read some of these books and have found them not only to be "not fun" but also not examples of good literature or for that matter, good anything.

AR uses computers. It does not, however, use computers to teach children how to decode, use semantic and syntax clues, construct meaning, develop a reader's schemata, or enjoy reading. It uses computers to test and keep records. This is, to me, a waste of a valuable teaching tool. Strickland, Feeley and Wepner in their book Using Computers in the Teaching of Reading (1987) list five guidelines for computers and reading. They include:

1. Computer instruction in reading should focus on meaning and stress reading comprehension.

2. Computer instruction in reading should foster active involvement and stimulate thinking.
3. Computer instruction in reading should support and extend students' knowledge of text structures.
4. Computer instruction in reading should make use of content from a wide range of subject areas.
5. Computer instruction in reading should link reading to writing.

In summary, I will continue to use the Accelerated Reader program for another year and will reevaluate it at that time. After reading all of the literature from the Accelerated Reader I was disappointed in the results of this study. Careful scrutiny of both the cheers and jeers from other users have made me more critical of any program with claims of such fantastic success.

Recommendations for Future Study

Based on the findings of this study, analysis of the data, and the conclusions drawn, the following recommendations are made:

1. Similar studies should be conducted with a larger population sample and for an extended period of time. Results may have been distorted due to the limited number of students in this study.
2. Conducting this study for a longer period of time is recommended to obtain more a more accurate correlation between the use of the Accelerated Reader and reading comprehension and attitudes.
3. A larger and more varied selection of Accelerated Reader material in the library may alter the results and show a more accurate relationship than did this study.

4. Perhaps this study would be more accurate if it were conducted with the same group of students and one teacher with the first two semesters used as a control situation and the second two semesters as an experimental situation using the Accelerated Reader.
5. Having this study done with various grade levels may also be advantageous since reading attitudes especially vary with age.
6. While this particular study was conducted without the use of material or external incentives, the Accelerated Reader does advocate using rewards, i.e. tee shirts, prizes, point goals etc. and this would almost certainly have had an effect on the results.

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Elementary Reading Attitude Survey

1. How do you feel when you read a book on a rainy Saturday?



2. How do you feel when you read a book in school during free time?



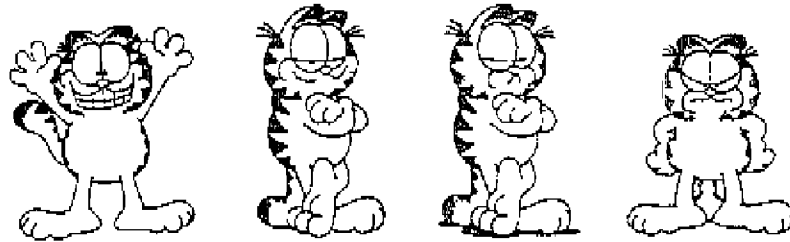
3. How do you feel about reading for fun at home?



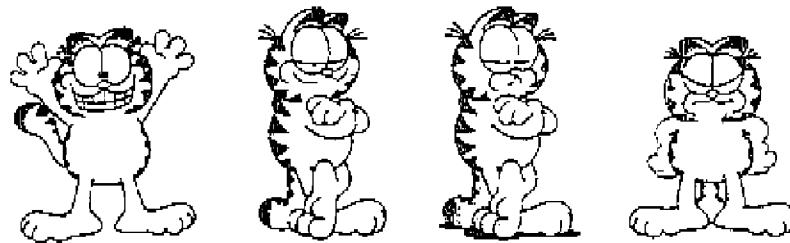
4. How do you feel about getting a book for a present?



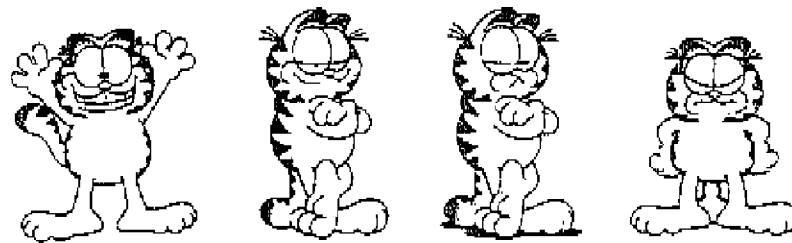
5. How do you feel about spending free time reading?



6. How do you feel about starting a new book?



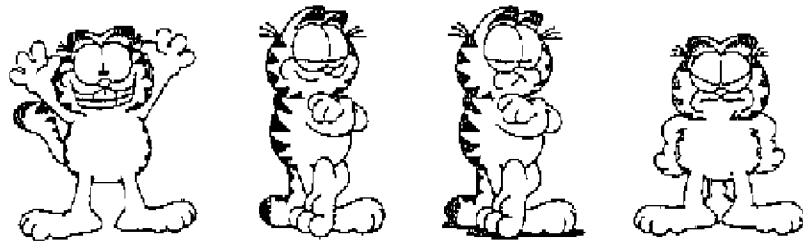
7. How do you feel about reading during summer vacation?



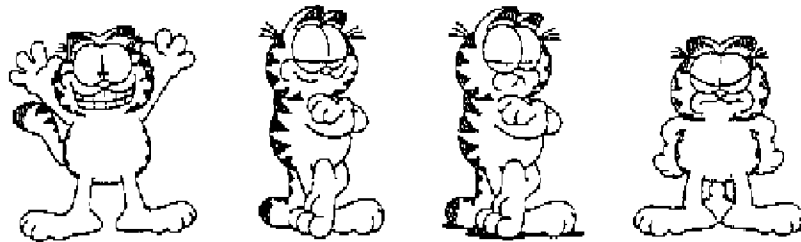
8. How do you feel about reading instead of playing?



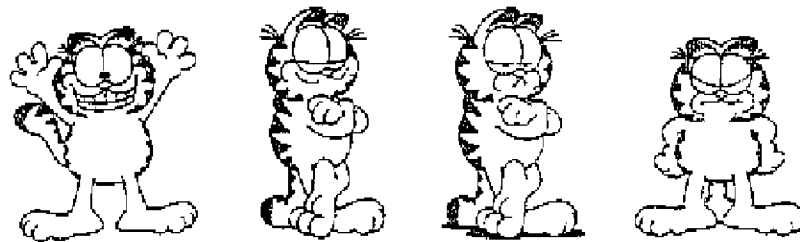
9. How do you feel about going to a bookstore?



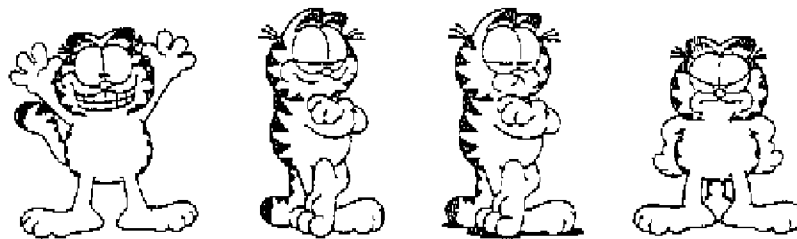
10. How do you feel about reading different kinds of books?



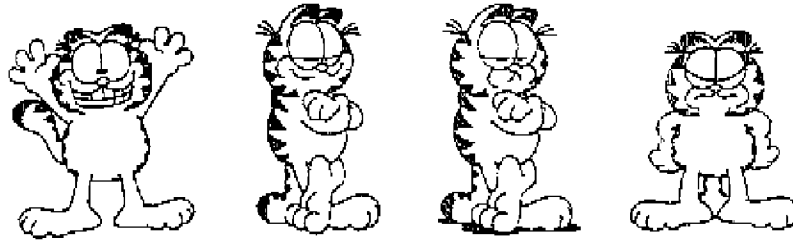
11. How do you feel when the teacher asks you questions about what you read?



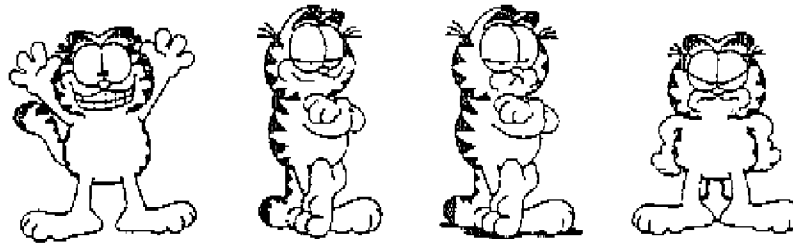
12. How do you feel about doing reading workbook pages and worksheets?



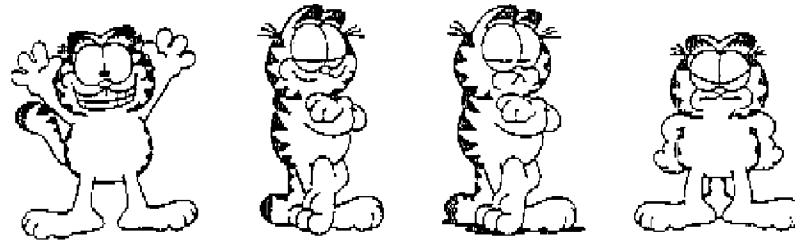
13. How do you feel about reading in school?



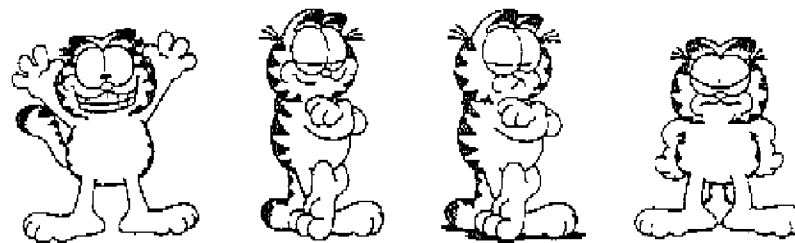
14. How do you feel about reading your school books?



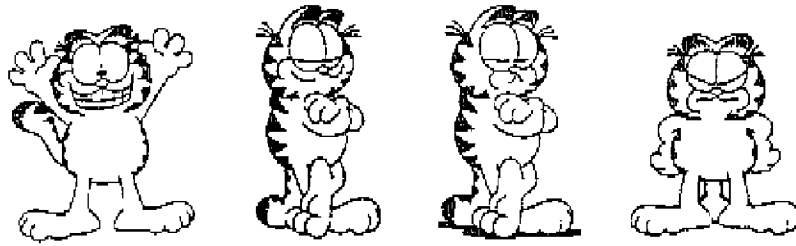
15. How do you feel about learning from a book?



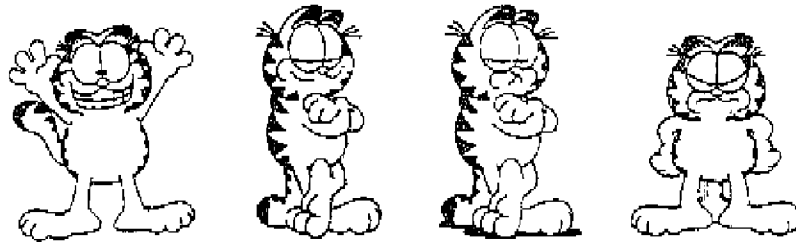
16. How do you feel when it's time for reading class?



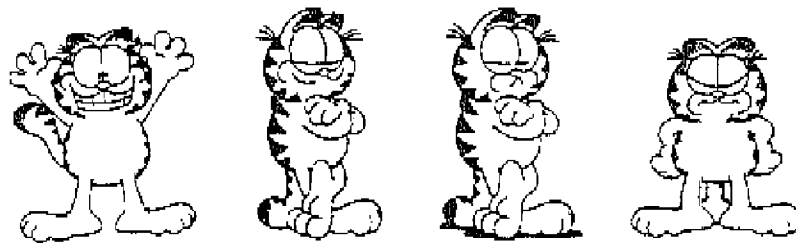
17. How do you feel about the stories you read in reading class?



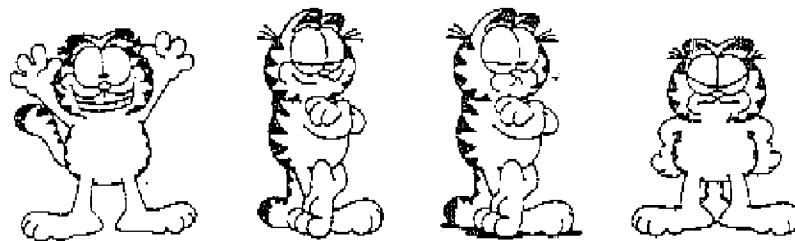
18. How do you feel when you read out loud in class?



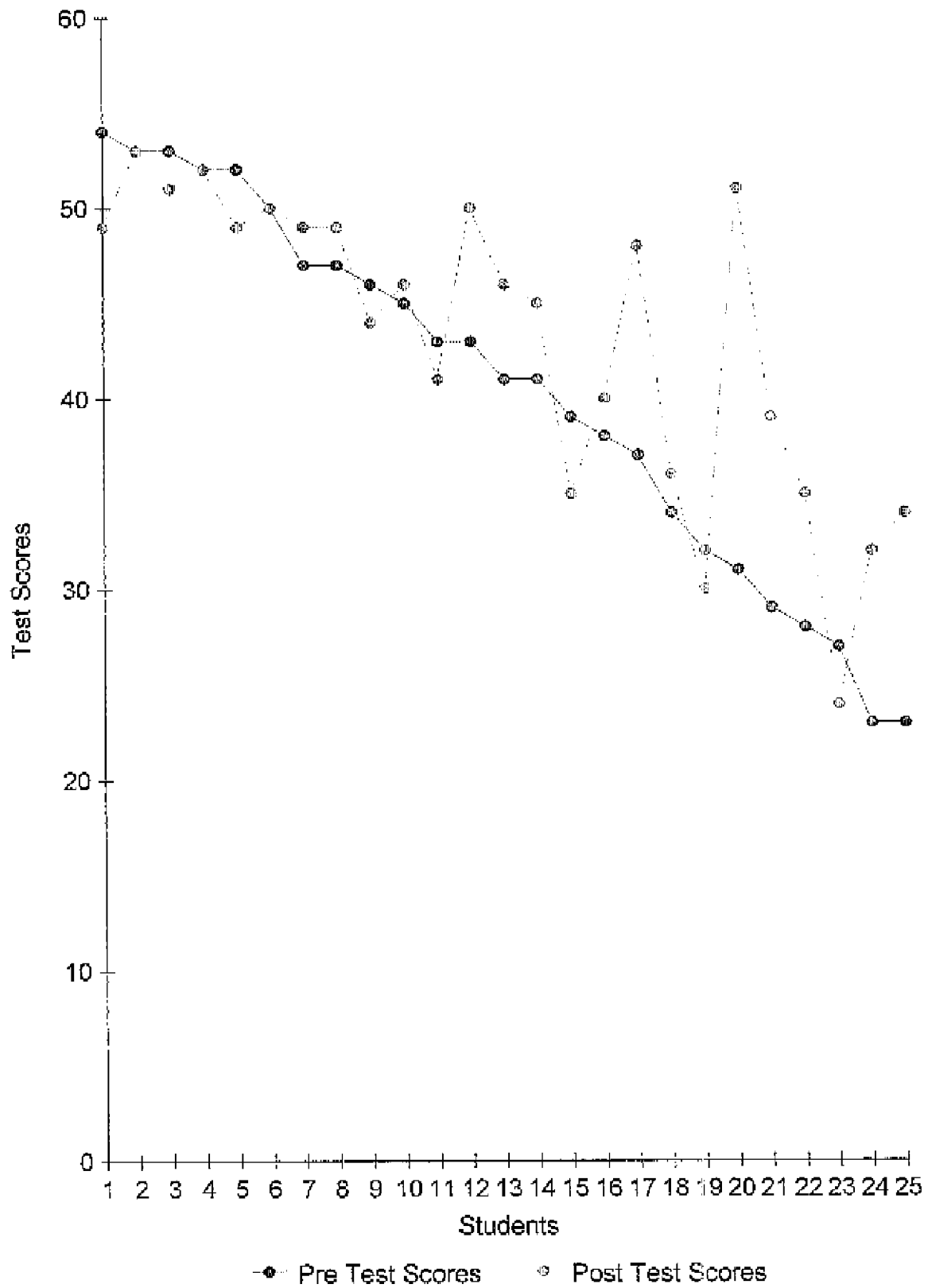
19. How do you feel about using a dictionary?



20. How do you feel about taking a reading test?

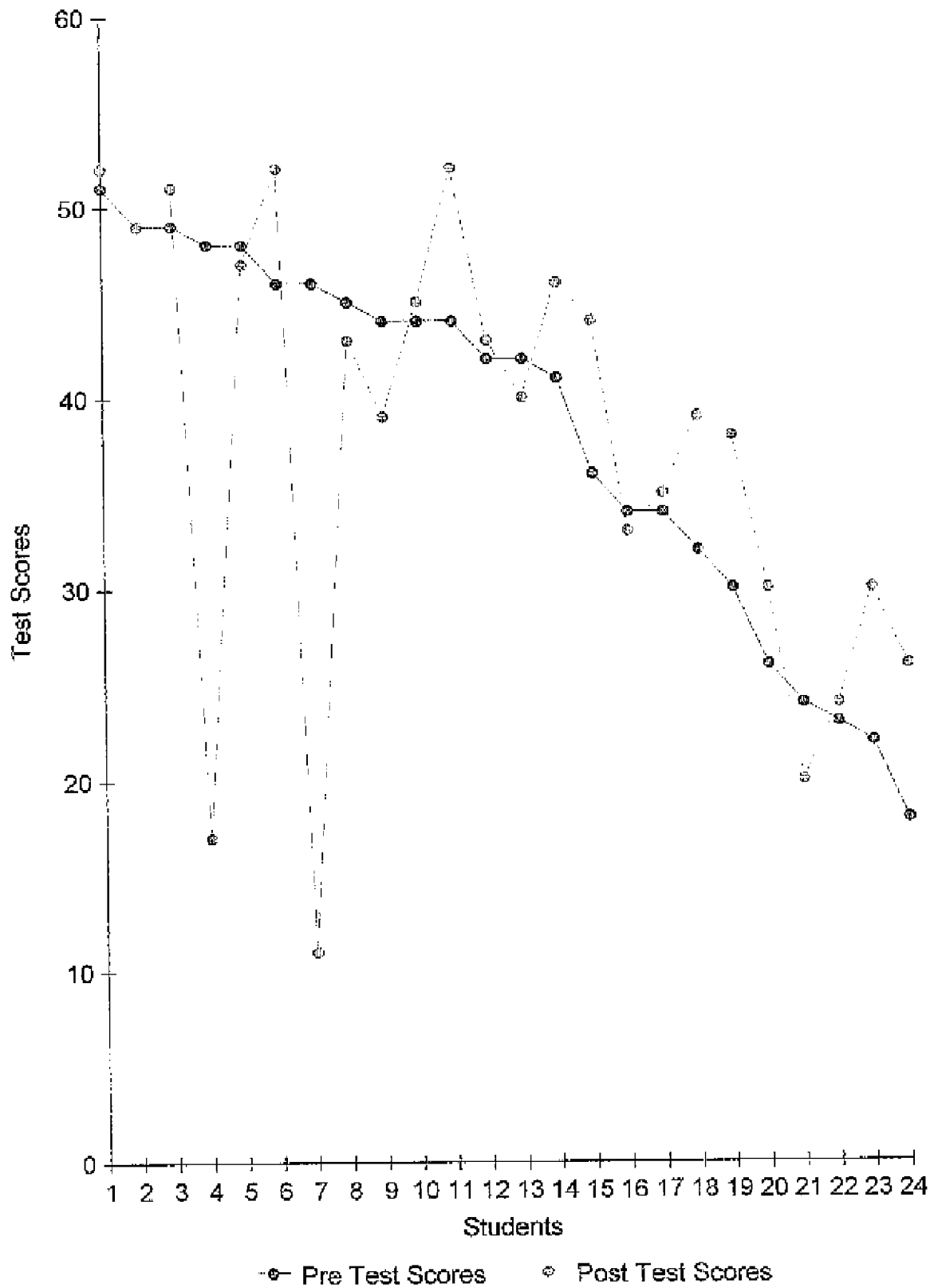


Metropolitan Reading Comprehension Control Group



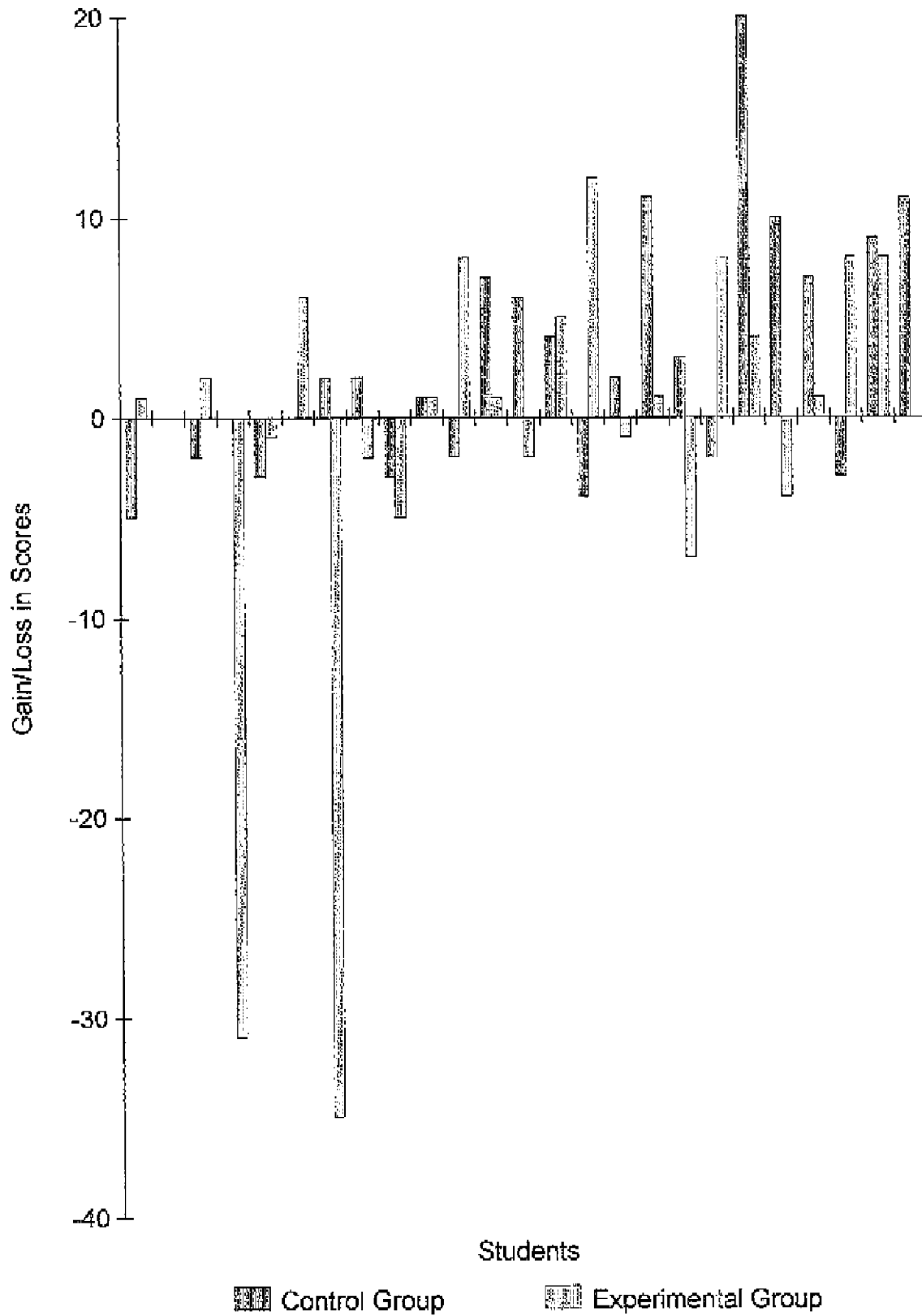
Metropolitan Reading Comprehension

Experimental Group



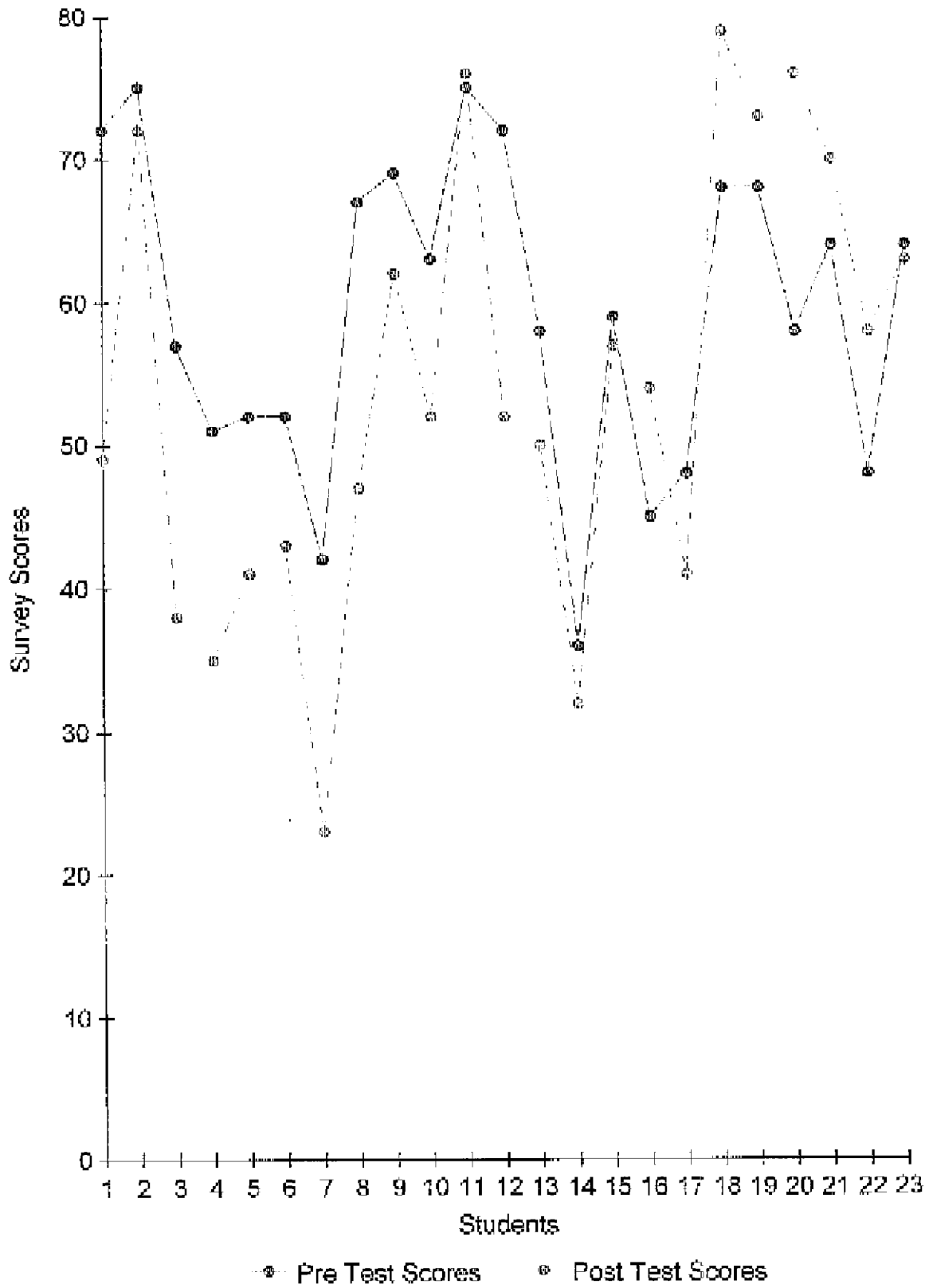
Metropolitan Reading Comprehension

Differences in Pre and Post Test Scores



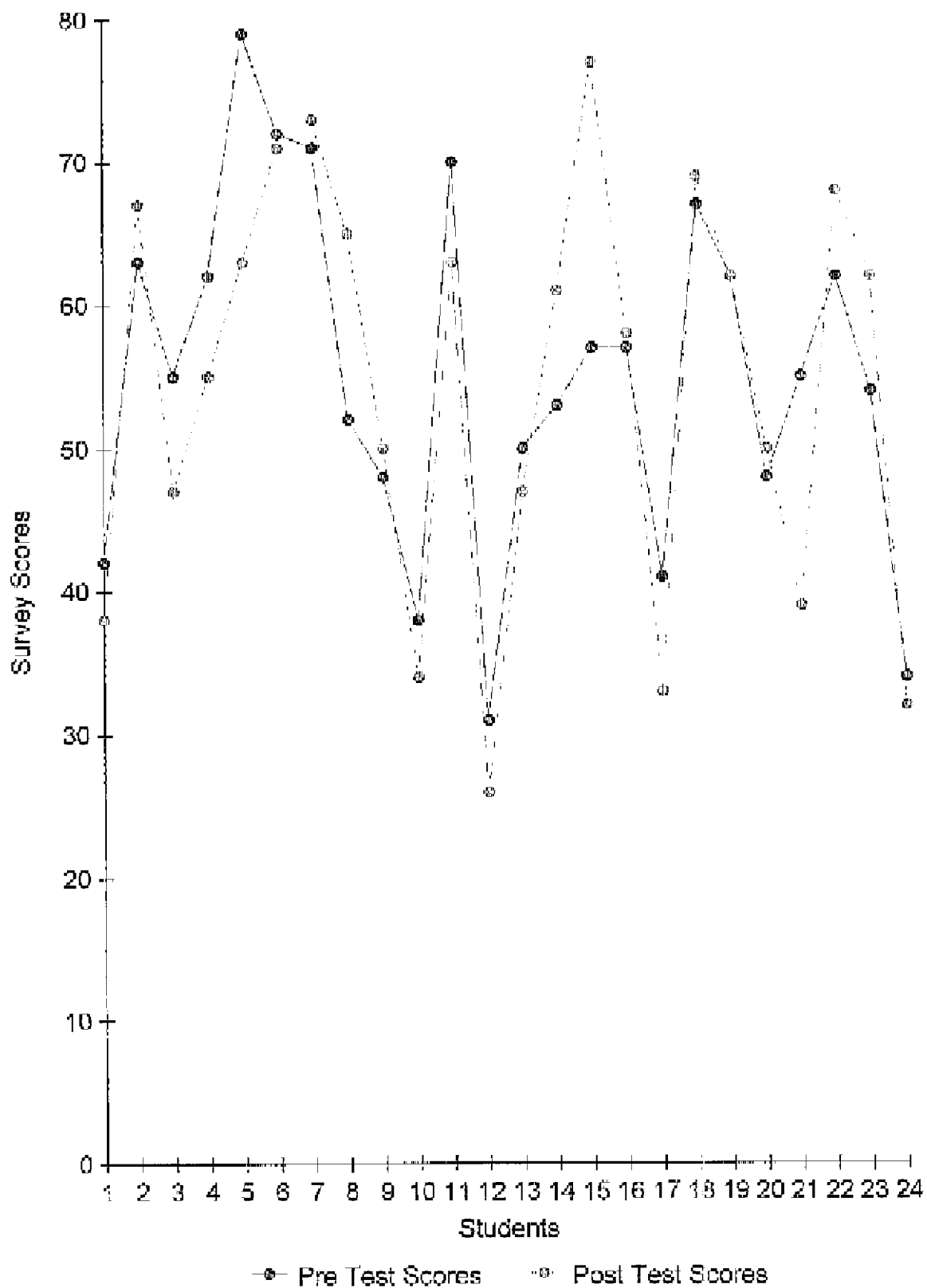
Elementary Reading Attitude Survey

Control Group



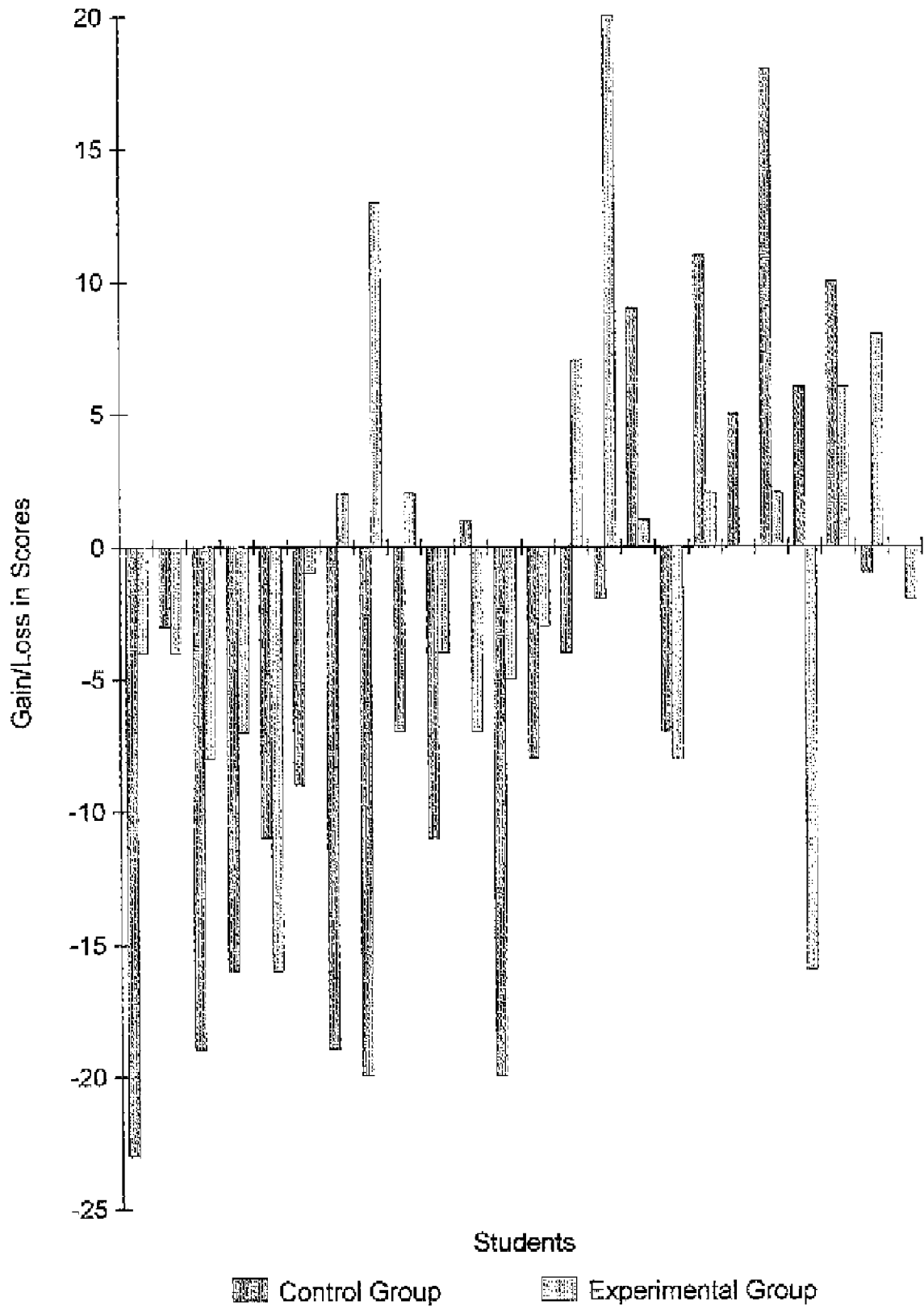
Elementary Reading Attitude Survey

Experimental Group

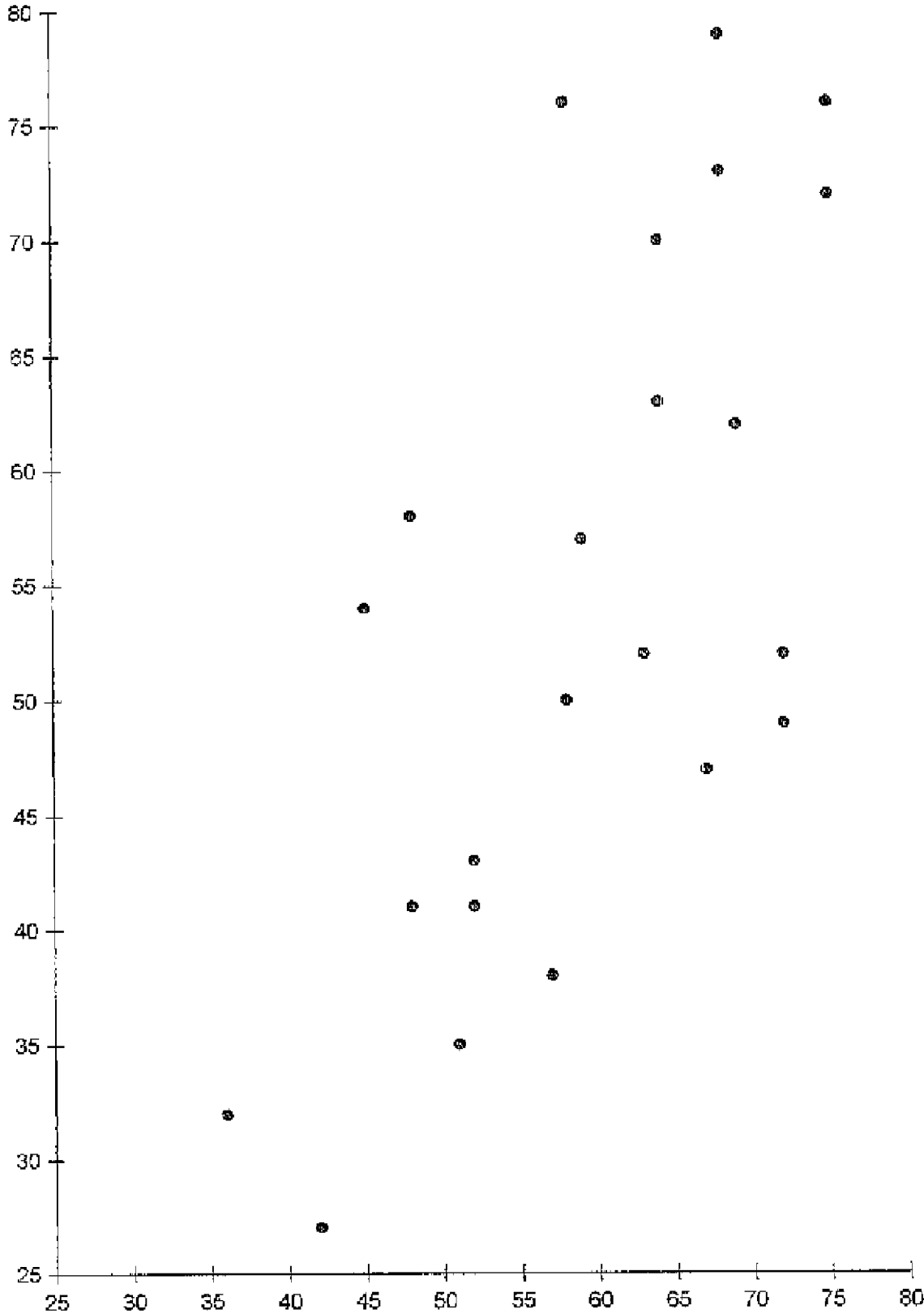


Elementary Reading Attitude Survey

Differences in Pre and Post Test Scores



Scatterplot for Attitude Survey
Control Group



Scatterplot for Attitude Survey
Experimental Group

