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A Study of the Computerized Reading Management Program, Accelerated Reader, and its Effect on Reading Among Primary Grade Students

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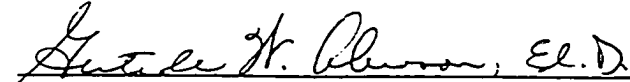Among Primary Grade Students

by

Mitchell O. Pratt

A Dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy

School of Computer and Information Sciences
Nova Southeastern University
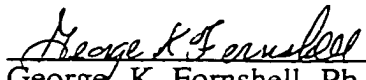
1999

We hereby certify that this dissertation, submitted by Mitchell O. Pratt, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the dissertation requirements for the degree of Doctor of Philosophy.

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A Study of the Computerized Reading Management Program, Accelerated Reader, and its Effect on Reading Among Primary Grade Students

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March 1999

This study examined the computerized reading management program, Accelerated Reader and its effect on primary grade students. The purpose of the study was to test Accelerated Reader's effect on reading comprehension among two student populations that were demographically similar. Two schools were chosen, Orem Elementary, School A, where the researcher is employed, and School B, another elementary school in Alpine School District.

An ex post facto, non-randomized control group design was used. Data from the Utah Core Assessment Series End-of-Level, Reading, Level 3 Form A, (1989) and the Stanford Achievement Test (1990) was used. Students who attended either School A or School B during the first, second, and third grades were included in the cohort of students used for this study. Students who moved in or out during this time were excluded. There were 190 students who participated: School A, 104 students; School B, 86 students.

The hypothesis tested was: There will be a significant difference between students who use Accelerated Reader and those who do not when comparing the reading comprehension scores of primary grade students (grades 1-3) on the Utah Core Assessment Series test as well as the Stanford Achievement Test.

Analysis of various statistical tests indicate no significant statistical difference between School A and School B in Reading Comprehension, as well as subcategories Detail, Inference, Main Idea, and Sequence. These results might infer that Accelerated Reader did not perform as claimed, however, the study found that not all components of the process were put into practice. Full implementation is necessary before any increase in reading comprehension may be expected.

Acknowledgements

This dissertation would not have been possible without the assistance of several individuals. I would like to thank Dr.Trudy Abramson, chair of my dissertation committee. I am grateful for her encouragement, insight, and persistence in helping me complete this study. I would also like to acknowledge the help of Dr. George Fornshell and Dr. Maxine Cohen who served as committee members. I also thank the professors at the School of Computer and Information Sciences whose classes made this program enjoyable. I thank those fellow travelers on this academic road, whose friendship and encouragement helped through the difficult times.

My family has been extremely helpful during the completion of the coursework and the dissertation for this degree. My sisters and brothers, all encouraged me in this process, for which I am very grateful. I thank my mother, whose words of encouragement made a tremendous difference in my success and her insistence that goals can be achieved regardless of age. Families sacrifice as students pursue goals. Mine is no exception. To my wife Cynthia, whose patience and understanding made it possible for this goal to be realized, I give my love and gratitude for her assistance in accomplishing this task. Her knowledge of teaching Reading to primary grade students was invaluable. The success of this work would not have been possible without her encouragement, patience, and assistance in accomplishing this task. Finally, thanks to my late father, whose desire for his children to get an education was paramount. His enthusiasm was a contributing factor in beginning this program. His support, both emotionally and financially made this degree possible. He started this journey with me, but did not finish it. I dedicate this work to two individuals: My late father, Lew S. Pratt, who represents all that is good in the traditions and teachings of the past, and to my grandson, Gavin William Pratt, whose future knows no bounds.

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Chapter I

Introduction

Introduction, Statement of the Problem, and Goal to be Achieved

Introduction

This study was undertaken to examine the effect of the computerized reading management program, Accelerated Reader (AR), Release 4.0 (Advantage Learning Systems (ALS), Inc. 1996a), on reading among primary grade students. Two demographically similar schools in the Alpine School District of Utah were used for this study. Orem Elementary School, where the researcher is employed was identified as School A. School B was identified simply as School B. Proper procedures of the Alpine School District and Nova Southeastern University were followed in the selection process of the schools for this study and permission from each principal involved was obtained. (F. Cameron, personal communication, October 17, 1997). (For a copy of the letter of permission to do research in Alpine School District, see Appendix A; a copy of the letter of permission from Nova Southeastern University is in Appendix B.) This study analyzed the reading comprehension scores of third grade students from one group who used AR in first, second, and third grades and one group who did not.

Computer-assisted-education (CAE) has been an integral part of the technology revolution of the past three decades. Education has benefitted from the advances of the microcomputer as more schools and individuals have access to computing technology and develop multiple uses for teaching and learning. As the ability to test students and collect data with technology has expanded, software developers have created programs for teachers to assess student progress. Reading is one area where this has been done (Knox, 1996).

In 1986, ALS (1996a) introduced AR. This program is a commercial computerized reading assessment and management tool for grades K-12. The software is not intended to teach reading; it tests reading comprehension and manages the test data. A student checks a book out of the school's media center or library and after reading it, takes a comprehension test using the AR software. The student sits at the computer, finds his/her name on the list of students and selects it. The screen will ask for the password. Each student record is password protected. Upon entering the password, the student sees a book list. The student chooses the book to be tested. The computer asks for confirmation for that book; the student answers "yes" to take the test, "no" to not take the test. The test consists of multiple choice questions about the book. There is a single question per screen. The student chooses an answer from the choices given. The student may change an answer, but once the "return" key is pressed, the answer is recorded and cannot be changed. The software scores the test and records the result.

To pass the test, the student must earn a score of 70 percent or higher. If successful, the student may review any questions answered incorrectly. When the review process is completed, the student is not allowed to take that particular test again. This prevents the student from retaking the test and increasing the score. If the student scores less than 70 percent, no points are given and the student is locked out of that test. The test, book title, and score are entered as part of the student's record.

A student who has limited sight vocabulary skills is helped by an older student or parent volunteer (helper) who reads the question and the multiple choice answers orally to the student who then chooses the answer. Older students are assigned times to be available in the media center to help in this way. Books for AR are identified in the media center of School A by small round red stickers placed on the spine of the book.

Points are awarded with the successful completion of each test. The points are based on the length and difficulty of the book. As points are accumulated, various

incentives are awarded to students. At the researcher's school, School A, incentives are in the form of free books (J. Watson, personal communication, September 10, 1996). Data gathered on each student is ongoing from year to year.

There are literally thousands of titles that may be selected and questions on each book have been added by the manufacturer as part of the software. If a school chooses to purchase software upgrades, more titles can be added. (A list of titles for primary grades at School A is included in Appendix C.) The basic premise of AR is that if a student is motivated to read by using the computer to take tests on the books, he/she will read more books and by reading more books he/she will become a better reader with increased reading comprehension (ALS, 1996a).

At School A, AR has been in place for the past five school years: 1994-1995, 1995-1996, 1996-1997, 1997-1998, 1998-1999. (AR was introduced part way through the 1993-1994 school year, but was not fully implemented. The 1994-1995 school year was the first full year of implementation.) All students, grades 1-6, participate in the program. According to AR (1998a) web page information, School A was the only school in the state of Utah currently registered with the program.

Statement of the Problem

Alpine School District made the decision to purchase computer hardware and software. According to Carlson, Hitzfelder, Hudson, and Redmon (1996), much of the software used in school districts has not undergone the rigorous process of iterative development based on actual use in the classroom. Software may be used in educational settings without fully understanding its effect.

Reading is a core skill required to function in society. Methods have been developed to test reading skills including teacher generated paper and pencil tests, standardized paper and pencil tests, and computerized assessment software. One example of computerized assessment software is AR. There have been several studies undertaken to

examine the impact of using this tool. These studies fall into two categories: (a) studies done on behalf of the producers of AR, and (b) studies that are independent of AR. The Institute for Academic Excellence (IAE), a sister organization of ALS that developed AR, has published several studies testing the effectiveness of AR (Paul, 1996; Paul, VanderZee, Rue, and Swanson, 1996; Paul 1997). The content of these studies may be biased. Independent research has also been done. Knox (1996), McKnight (1992), McMillan (1996), Mathis (1996), Peak and Dewalt (1993), and Rosenheck (1996) have independently studied AR.

The studies, both independent of and on behalf of AR, have been done on upper elementary, middle school, and high school students. None have been done on primary grade students. This was an area in need of investigation. Does a reading comprehension assessment software package such as AR offer schools a way of combining technology and reading that effectively increases reading comprehension of primary grade students?

Goal to be Achieved

The goal of the dissertation was to determine whether the use of AR in the primary grades at School A increases reading comprehension. At School A, AR testing began with first grade (kindergarten did not use AR). This study looked at grades one through three. A demographically similar school was chosen as a control for the study. The school used as control was also from Alpine School District.

Relevance and Significance

This work is critical to the use of computerized management and assessment tools in a school setting. It is critical because money is spent on software for students to use; is that money well spent? Are students better off by using the software? Are students better off by having the software? Time is also important. Are products used by students effective in their use of time or are they wasting the student's time? It is important that

studies such as this are undertaken to verify whether the purchase of software is the best way to spend scarce education dollars. As computer-based components are added to the tool kit of education, each must be examined as to its measured value. In one of the most basic of all academic subjects, reading, does the addition of a computerized management and assessment tool make a difference? This work was important to education and educational technology, especially when applied to primary grade students, where learning to read is one of the most important skills. Money spent on programs that do not do all they claim, is a waste of fiscal resources and the student's time.

Barriers and Issues

No barriers were identified in this study. Issues were identified. One issue dealt with measurements. One scale measures grade equivalent, another measures instructional reading level, and yet another measures percentile. A standard measurement was defined and used throughout the study.

Another issue dealt with the organization and cooperation of the faculty and school district. Proper policy procedures from the Alpine School district were followed for permission to use the students. For this study, according to the school district's Director of Research and Evaluation, Frank Cameron, (personal communication, October 17, 1997), parental permission was not necessary for student involvement because: (a) The testing did not interfere with regular curricular time, (b) no direct contact with the researcher took place, and (c) students were anonymous to the researcher. (Appendix A contains the full application to do research in the Alpine School District.) Also, when human subjects are used, policy requires permission from Nova Southeastern University through the Institutional Review Board (Appendix B contains letter of permission to conduct research on human subjects from NSU.)

Another issue was the training of teachers. Cursory training took place in the use

of AR software and in the testing procedures. New faculty members are briefly trained in the use of AR.

Research Question

The ability to read is central to American education. Does the expanding provision of computer hardware and the use of educational software truly benefit the learning? One software package, AR, claims to increase reading comprehension. Therefore, the research question was: Is there a significant increase in a primary grade student's reading comprehension level due to participation in AR?

Limitations and Delimitations

Limitations which may be considered internal threats to this study were:

1. For this study, randomizing subjects or teachers into a control and experimental group from the same school was not possible because the program AR was already in place in each class. The next best design would have been to use a randomized block design where entire classes are randomized from each school into control or experimental groups. This design was not feasible because the whole school adopted AR. Therefore, for the procedure of this study, a school had to be chosen that would overcome these limitations; a comparable school that was not using AR.

2. Another limitation may be due to some historical event that may happen to School A that does not happen to School B, such as a PTA program to encourage parents to read to their children at home, thus influencing the data.

3. The results of this study may not be generalized to all populations. These schools' populations were generally white and middle-class.

There are also certain delimitations associated with this study. These include:

1.   This study examined the reading skills gained by primary grade students, thus excluding fourth through sixth grade students.

2.   The students participating in this study were arranged into a cohort. Those students from each school who have been attending their respective schools in first, second, and third grades are included in the cohort. Students who moved in or out during those years are excluded.

3.   ALS makes several claims concerning AR. These claims may be found in advertisements published in periodicals (ALS, 1998b). These advertised claims indicate that using AR will:

- motivate students to read more books at higher levels;
- increase scores on performance-based and norm-referenced tests;
- develop a lifelong love of reading;
- increase critical-thinking skills;
- put the joy back into teaching;
- work with all students K-12; Learning Disabled, Gifted/Talented.

Some of these claims are subjective and were not within the purview of this study. The first two claims however, that AR will motivate students to read more books at higher levels and increase scores on performance-based and norm-referenced tests, are objective in nature and were within the scope of this study.

Definitions of Terms

For the purposes of this study, the following definitions of terms will be used:

Accelerated Reader: A computerized reading assessment and management software program produced by ALS (1996a).

Independent Reading: The individual, self-paced reading of a written text (Knox, 1996).

Reading comprehension: The ability to understand the detail, sequence, main idea and inferences of a written text (McMillan, 1996).

Standardized test: The Utah Core Assessment Series (UCAS) End-of-Level Tests, Reading, Level 3, Form A (1989). This is a criterion-reference test given each spring to all students, grades one through six. It measures the objectives taught from the state core curriculum to see if students are advanced, proficient, basic, or below basic in passing the objectives. This test has not changed since its publication and has been the same for all the years of the treatment. The Stanford Achievement Test (SAT) (1990) is a norm-reference test that measures all areas of the curriculum and compares the results with scores of other students nationwide. For the purposes of this study, only scores from reading comprehension were used.

Summary

The use of computers has been a growing part of education for the past three decades. Teachers have benefitted from the use of computers in everything from word processing to grade management, from keeping attendance to electronic communications and collaboration. Computers are designed for the collection and analysis of data. As the need for data collection and management increases in educational settings, teachers need to become more involved with technology. In 1986 ALS published AR. This software product is a computerized reading management and assessment program. The ability to collect and manage reading test score data is built into this software (ALS, 1996a). The tests are taken on the computer and results are stored for analysis. Students who have limited sight work skills are helped by older students or parent helpers in taking the tests. Books are identified in the media center by small red round stickers on the spine of the book. The basic claim of AR is that if a student is motivated to read by taking a test on a computer, the better reader he/she will become (ALS, 1996a). School A has been a

registered user of AR for the past five school years.

Studies have been completed on the effects of AR on reading. Some have been conducted on behalf of the product's producer (Paul, 1996; Paul, VanderZee, Rue, and Swanson, 1996; Paul 1997); some have been done independently (Knox 1996; McKnight 1992; McMillan 1996; Mathis 1996; Peak and Dewalt 1993, 1994; and Rosenheck 1996). Studies have been done on upper elementary, middle school, and high school students, but not on primary grades.

The ability to read is central to American education. Schools are beginning to look at the diverse methods of reading acquisition. Companies eager to earn hard-to-come-by education dollars, invest in creating products that will help the teacher in better educating students. Does the expanding provision of computer hardware and the use of educational software truly benefit learning? Is the money spent by schools well spent? Does the software actually do what it claims to do? This study looked at one product, AR, to see if indeed, it helps students, specifically primary grade students, as claimed.

Chapter II

Literature Review

Historical Overview

At School A, AR has been implemented for the past five school years: 1994-1995, 1995-1996, 1996-1997, 1997-1998, 1998-1999. Students in grades one through six participate in the program. Using web page information (1998a), School A was the only school in Utah registered with AR.

There are several factors which are part of the acquisition of reading skills and the ability to read for comprehension. Each factor is important in becoming fully literate. This review of the literature addressed some of the factors important in the acquisition of the skills needed for reading comprehension and how it relates to AR.

Learning and Reading

The following sections deal with elements of learning in general and learning to read specifically: Learning theory, curriculum development, reading, educational change, use of technology, motivation, and computerized adaptive tests. These elements and their overall implications, as part of any reading strategy, need to be understood. Finally, a section on AR discusses the studies that have been conducted on the product.

Learning Theory

Learning is inherent in living organisms. The human brain is designed to learn. According to Heinich, Molenda, Russell, and Smaldino (1996) there are several philosophical as well as psychological approaches to learning. These authors discuss four approaches which are summarized here. One psychological school of thought comes out of

the work of B. F. Skinner (Heinich, et al., 1996). Skinner's work dealt with behavior. This school of thought became known as Behaviorism. The idea behind this approach was that an organism's behavior could be shaped by reinforcing, or rewarding, the desired response. The result of this school of thought, as it applies to education, was the emergence of programmed instruction where learners were lead through a series of instructional steps to a desired level of performance. The behavior was modified toward the desired outcome.

Another psychological school of thought is Cognitivism (Heinich, et al., 1996). This area of study came out of the work of Jean Piaget (1951). This approach to learning centers around the idea that a mental model is created in short- and long-term memory. New information is stored in short-term memory. That information is "rehearsed" until it is ready to be stored in long-term memory. This approach is broader than that of the behaviorists, in that cognitivism allows for more independent learning on the part of the learner. They can rely more on their own cognitive strategies in using resources that are available.

A third school of thought centers on the idea of Constructivism (Heinich, et al., 1996). This approach shifts from the passive transfer of information to active problem solving. Learners create their own interpretation of the world around them. While behaviorists and cognitivists believe the mind can be "mapped" by instruction, constructivists argue that the student situates the learning experience within his or her own experience, that the goal of instruction is not to teach information, but to create situations where the students can interpret information according to their own experience and understanding.

The Social-Psychological perspective is an approach to learning (Heinich, et al., 1996) that looks at the social makeup of classroom, whether instruction takes place on an individual basis, in small groups, or the class as a whole. In this approach, cooperative

learning is more effective and socially beneficial than competition and individual learning.

The more fully teachers understand how people learn, the better educators can develop curricula to meet the learner's needs. Another area of study that impacts how learning takes place is that of brain research. Knowing how the brain functions may help teachers understand how information is processed. Caine and Caine (1991) emphasized the need for brain stimulation in order for learning to take place. Bored students do not learn as well as stimulated ones. The more a learner is stimulated, the more learning will take place. Learning can be effected by factors such as health, stress, and the teaching approach used by the teacher. They further stated that understanding the workings of the brain will allow educators to move away from archaic forms and methods to a pedagogy that includes the whole person; that learning engages the entire physiology. An understanding of each part of the brain and its function is important to educators as a dimension to understanding the teaching process (Sylwester, 1995). As learning theory encompasses brain research, a clearer picture emerges as to how learning is defined and pedagogy evolves.

Gardner (1991) defined the attributes of both the intuitive learner and the scholastic learner. Intuitive learning refers to the natural learning in children. Children learn competencies without formal tutelage. For example, children learn language, how to ride a bicycle, how to sing, how to organize and keep track of multiple objects in their environments, or develop theories how the world around them works. They learn the differences between truth and falsity, good and evil, and what is socially acceptable and what is not. Scholastic learning refers to formal, classroom education that takes place in the public educational system. Education that is school based may produce students that exhibit all the outward sign of academic success without a fundamental understanding of what they have been taught. Papert (1993) referred to the same phenomenon in education, the difference between formal and natural education, as "Schoolers vs. Yearners." This

fundamental difference needs to be understood in terms of educational planning. While formal education has its place, intuitive learning is a fundamental part of the learning process. Educators need to develop a pedagogy that blends the strengths of each type of learning to produce a more educated learner.

Gardner's (1993) theory of multiple intelligences defined seven intelligences that require attention in the educational process: Musical, bodily-kinesthetic, logical-mathematical, linguistic, spacial, interpersonal, and intrapersonal. All these elements are important. He stressed that a well rounded education includes curricula designed to focus on all seven intelligences. Armstrong (1994) stated that teachers need to bring Gardner's theory into the everyday classroom. Learning is enhanced when all seven intelligences are part of the learner's experience.

Ebersole (1997) stated that as technology is added to the learning environment, cognitive issues need to be addressed; that educators adding technology, especially interactive multimedia and hypermedia, need to make sure cognitive processes are considered in curricular content. One particular area Ebersole (1997) discussed was ease of use. This was defined in a computer context as the ease of the user interface; that the navigation through the material should be effortless and without concern for what the computer will do or how to make the computer do what the user desires.

Marzano (1992) argued that learning is the process of constructing meaning. What, then, does it mean to construct meaning or to be educated? Boyer (1995) stated that being educated means developing one's own aptitudes and interests and discovering the diversity that makes each of us unique. He stated that in order to realize the development of aptitudes and interests, a curricular framework needed to be designed.

Curriculum Development

Curriculum must be defined in some organized way. As students progress through the educational system, what are they to learn and when are they to learn it? Boyer (1995)

stated that curriculum needs to be developed that is both comprehensive and coherent; one that can encompass existing subjects and integrate fragmented content while relating the curriculum to the realities of life.

Glatthorn (1995) suggested that educators distinguish between different types of curriculum. He defined four types:

- The Master Curriculum is high in structure and importance. Two criteria are met: (a) The curriculum is essential for all students and (b) it is best learned with a high degree of structure. This type of curriculum takes careful planning and explicit teaching is the province of the school district.

- The Organic Curriculum is nurtured rather than taught. It does not have a high degree of structure. Its emphasis is whenever it is appropriate, happens on a continuous basis and is not grade specific. "Enjoy poetry" is an example. The organic curriculum is fostered through staff development.

- The Team-Planned Enrichment Curriculum is high in structure but low in importance. It is the enrichment provided all students which has been planned by the teachers. The team-planned curriculum is the province of the teachers.

- The Student-Determined Enrichment Curriculum is considered low-structure and low in importance. These are curricular issues students own. Current events they wish to discuss, language-related questions they want answers to are examples of this type of curriculum.

Myers (1995) defined 12 standards which students should master. When these are taken into consideration, a solid curriculum can be constructed.

1. Understand the central ideas in the literature of the United States and the traditions that are contributing and have contributed to it.

2. Write, speak, and respond thoughtfully and critically in a variety of genres for varied purposes and audiences.

3. Apply critical thinking and interpretive skills in comprehension of language and literature.

4. Understand and use the formal conventions of standard English.

5. Use multiple sources and forms of knowledge, including everyday experiences and disciplinary knowledge, to define, synthesize, hypothesize, draw conclusions, and evaluate information.

6. Use a range of technological forms of communication and understand and critically evaluate the conventions, demands, opportunities, and responsibilities of technologically based discourse.

7. Develop multiple strategies to understand, appreciate, interpret, and critique both literature and public discourse, both print and non-print texts, both one's work and the work of others.

8. Understand and respond to literature and its aesthetic dimension.

9. Understand the ways in which readers, writers, speakers, listeners, and viewers are influenced by personal, social, cultural, and historical contexts.

10. Understand a variety of modes and explore ideas and feelings imaginatively through a variety of modes.

11. Become aware of, monitor, reflect on, and communicate about one's own processes and strategies in reading writing, listening, speaking, and viewing.

12. Understand the varieties of language within and across individuals, cultural communities, and social situations.

Reading

One content area of curricular development is Reading. Reading is fundamental to the educational experience. Two separate studies (Lamme & Beckett 1992; Harrington-Leuker, 1996) discussed separate approaches of reading instruction that are at odds with each other. One technique of reading instruction was represented by the phonics approach.

In this approach, which is a "traditional" or "basic skills" approach to reading, the learning process is broken down into small pieces. Students learn these pieces and are rewarded for their success. Teachers diagnose what is known and what is not known then prescribe activities that will teach and/or remediate what is not known. The second approach was whole language. Learning occurs through the use of language and literature as a whole, not as separate parts. The objectives are broader. Where the goal of basic skills is to teach a student to read and write, the goal of a whole language curriculum is to help students become avid readers and writers with a deep love of learning. The following sections deal with the most common approaches to the teaching of reading.

Phonics and Phonetics- Phonics and phonetics are a basic skills approach to reading instruction (Goodman, 1993). The instruction is broken down in to small pieces. Each letter is assigned a sound. The students are taught to recognize the sound the letter makes (Albert, 1994; Taylor, 1997). A differentiation is made between the name of a letter and the sound it makes. Each individual letter and its sound is referred to as a phoneme. Phonemes are learned and blended into words. Eventually words are blended into sentences and sentences into paragraphs.

Linguistic rules are taught as part of the instruction. For example, one of the silent e rules: There is a silent e at the end of words ending in "v" because no English word ends in "v." These rules taught as phonemes are blended into words to understand why the phonemes act one way in one situation and differently in another.

Software packages that teach reading using phonics as part of the approach include The Little Red Planet series, the Learning Company's Reader Rabbit's Interactive Reading Journey, IBM's Writing to Read, MECC's WordMunchers, Waterford Institute's Early Reader, McGraw-Hill's Language Tune-up Kit, Sunburst's First Phonics, Reading Who?, Reading You, A to Zap!, and Learning to Read on the Promenade.

Basal Readers - Basal texts are another basic skills approach to reading instruction.

A basal reader is a textbook that has separate stories that are read by the student (Goodman, 1998). Each story is a reading lesson. Each story may have a series of comprehension questions at the end of it. Worksheets are provided to teach a particular reading skill that may have been illustrated in the story. Questions from the text and practice from the worksheets teach a particular reading skill separate from other skills. The goal is to teach all the reading skills needed to be literate (Goldman, 1988; VanProoyen & Clouse, 1994; Harste 1989).

Whole Language and Literature-Based Reading- Whole language is a reading approach that looks at the acquisition of language and reading skills as a whole, not as individual parts. The proponents of this approach argue that reading should be learned the same way children learn to talk, by absorbing the language around them (Harrington-Leuker, 1996). Literature is used as the foundation for reading. Literature is read and reading skills are mastered through this process. Reading skills are mastered through self-paced, independent reading. Lamme & Beckett (1992) stated that literature-based reading programs focus on helping children become avid and reflective readers, rather than merely skilled readers. Blose (1992) stated the change from a basal reader to a literature-based reading program is a transition that takes effort. The change from a basic skills approach to a whole language approach requires a change in the teacher's philosophy of teaching.

Hoffman (1996) conducted a longitudinal study of first grade teachers who were trying to implement literature-based reading teaching strategies into their classrooms. These teachers' experiences were studied in relation to four areas: (a) skills instruction, (b) guided reading strategies, (c) literature selection, and (d) thematic teaching or curriculum integration. Results of the study indicated the teachers varied considerably in their instruction as they worked through issues how to best guide their students toward appropriate practice and success with texts that were uncontrolled in terms of vocabulary.

McGee and Tompkins (1995) also found that differences occur in the teaching of

literature-based reading due to the fact that teaching strategies of individual teachers vary. With no standardization, these differences in teaching strategies may create differences in student outcomes.

Fountas and Pinnell (1996) have developed a program called "Guided Reading." This program is part of the broader idea of balanced literacy. This program is based on an earlier program developed in the mid-1980s known as the "Ohio State University Early Literacy Learning Initiative" (Fountas and Pinnell,1996). The fundamental principles have been in practice since that time. Balanced literacy regularly provides several kinds of reading and writing. Components of balanced literacy include items such as:

1. Reading aloud allows the teacher the opportunity to read to children and help them experience literary works they cannot yet understand;

2. Shared reading gives the opportunity for children to participate in reading and learn critical concepts of how print works;

3. Literature circles enable children to think more deeply about what is read as they talk with one another and co-construct new understandings.

4. Guided reading provides the opportunity for teachers to show the children how to read and provides a support system for the children as they read.

Using guided reading, the teacher works with small groups of children who have similar reading processes or skills and who are able to read similar levels of text. The text provides a minimum of new learning; that is that children can read the text with skills they currently possess while the text provides the opportunity for small amounts of new learning to take place. The basic components of guided reading include :

• A teacher works with a small group.

• Children in the group are similar in their development of a reading process and are able to read about the same level of text.

• Teachers introduce the stories and assist children's reading in ways that help to

develop independent reading strategies.

- Each child reads the whole text.

- The goal for children is to read independently and silently.

- The emphasis is on reading increasingly challenging books over time.

- Children are grouped and regrouped in a dynamic process that involves ongoing observation and assessment.

Fountas and Pinnell (1996) stated that readings are understood in the context of meaning cues that relate what is being read to their own life experiences. The text is also understood according to syntactic cues. These cues assist the student in understanding the text in that it should "sound right." Visual cues are essential in this process to understand the relationship between oral language and graphic symbols; the letters that are formed into words.

Philosophies differ as to the best approach to teach reading (Taylor, 1997). Harrington-Leuker (1996) stated that teachers in everyday classrooms, away from the debate of educational theory and philosophy, find a blend of the two approaches to be very successful; teachers know the needs of their students and find the best combination of approaches to meet those needs.

Educational Change

Sykes (1995) argued that educational reform is necessary because our present system is not adequate to provide the type of education needed for the future. Perkins (1992) also argued that an education revolution is necessary to provide skills students of tomorrow need.

Darling-Hammond (1997) stated that schools need to be redesigned to focus on learning. She further stated that learning needs to be rigorous as well as relevant. Change needs to take place in order to stop the feelings stated by a California high school student, "this place hurts my spirit" (Darling-Hammond, 1997, p. 15).

Postman (1995) stated that education has become trivial and mechanical; that education has lost sight of the value and substance of learning. Reform is necessary to educate students for the future. Ennis (1992) stated that systemic change is necessary; that even small changes can lead to large results. Kniep and Martin-Kniep (1995) stressed that community stakeholders need to share in the vision of how students will be educated for a changing world. Hardin and Ziebarth (1998) stated that a revolution is taking place in the way people learn and the way instruction is given. They credit much of the change to the addition of technology to education.

Educational change is necessary to provide the learner with the needed skills to succeed in the future. As communities share in the task of education, change not only needs to take place, but the inclusion of technology needs to be addressed as part of that change.

Use of Technology

The combining of technology and education has created a new paradigm. Hardin and Ziebarth (1998) stated that technology is effecting education in revolutionary ways, and that the momentum toward these changes is irreversible.

Harris (1998) pointed out that the use of technology does not automatically create better education. While referring to the use of the Internet specifically as an educational tool, she expressed concerns that can be generalized to the broader context of technology as a whole. One concern was whether technology will enable students to do something they could not do before. Another concern was whether technology will allow students to do something they could do before, but do it better.

These concerns are central to the use of technology. Much of the use of technology revolves around the software used. These questions may be posed as one looks at any particular software package used by students.

Harrington-Leuker (1996) argued that all the tools of the technology tool kit need to

be used. These technologies may include everything from computers to overhead projectors, from white boards to VCRs, from laser disk players to paper and pencils. Most teachers use technologies that they are comfortable using. New technologies are intimidating, thus causing some teachers to elect not to use them. Teachers often choose technologies that best fit their own styles and leave out other technologies that can benefit learners.

Harrington-Leuker (1996) also described how some teachers are using technology in individual classrooms. One teacher used a notebook computer to record observations on each student's reading. The teacher hoped to add these observations to the building-wide network so data will not be lost. Another was experimenting with Sunburst's *Learner Profile* where data on each student can be entered electronically using a bar-code scanner. Further experimentation has been done using Aurbach and Associate's *Grady Profile* to create electronic portfolios. Using various electronic tools, first grade teachers have provided early interventions for their students. The study indicates all first grade students are leaving first grade as readers.

If technology using teachers are to become the norm, training is critical. Levin (1995) argued that acquiring hardware and software is not enough. Training is necessary for full implementation. According to Simic (1993), the evolution of using technology in teacher training involved three phases: computer literacy, the use of the computer to solve problems, and how to use computer applications in support of the curriculum. Once teachers are trained in the use of technology, both Kinnaman (1994) and Orwig (1994) found that motivation for using technology greatly increased. The more comfortable teachers felt using the technology the more likely they would use it. Teacher motivation in the use of technology creates an atmosphere where student motivation can be affected. If the students are motivated, increased achievement should be the result.

Motivation

Luskin (1996), found that using media stimulates learners, especially the use of multimedia. He described media psychology as the study of how the mind and emotions respond to a multiplicity of sensory stimuli. Using Gardner's theory of multiple intelligences, Luskin (1996) further stated that we need to understand the plurality of intellect and that individuals differ in various intelligence profiles. Using media psychology, we can learn to use sound, video, print, and their critical components in learning, positive growth, personal achievement, and self-actualizing experiences.

Terrell and Rendulic (1996) studied the effect of computer-generated graphical feedback on motivation and achievement. The study provided evidence that the use of computer-managed-instructional (CMI) feedback had a positive result on student motivation and achievement. The study compared two groups of students based upon the Cognitive Evaluation Theory's proposition that extrinsic, informal feedback will result in higher levels of intrinsic motivation and achievement. One group received computer-generated graphical grade feedback for twenty-seven weeks. The other group received traditional feedback. The computer-generated graphical grade feedback consisted of a computerized graph that was printed for each student showing the student's data for a given week. The graph included the grade for the week, the average grade for the student's stanine group, and the class average. The group receiving the computerized printout showed a significant increase in intrinsic motivation and achievement over the group that did not receive the treatment. These students were highly motivated due to computerized, graphical feedback.

Built into AR is the philosophy that the computer is a motivational tool. The AR Manual (ALS, 1996a) states that the reason the product is motivating is that it is based on the game motivational model. This model is based primarily on the idea that activities can cause individuals to exert themselves to achieve an objective. The manual (ALS, 1996a)

states that while games may be motivational to students, often times school work is not. Certain game motivational strategies are incorporated into AR. The strategies and their rationale are:

•*Clear Game Rules* - The rules of taking tests and receiving points are easily understood and seen as fair.

•*A Fair Scorekeeper* - The computer becomes the scorekeeper and rewards points fairly.

•*Independent, Nonmanipulative "Official"* - The computer applies the rules in a way that is independent and the rules cannot be manipulated.

•*Score Proportional to the Degree of Success* - The score that is given is proportional to the difficulty of the book read and the student's retention after reading the book.

•*Instantaneous Feedback of Score* - The use of the computer allows for instantaneous feedback of the score, without waiting for teacher intervention.

•*Scoring Allows for All Participants to Gain Recognition* - The wide variety of books and the proportional nature of the score, makes it possible for students of all abilities to earn points and gain recognition.

•*Ability to "play" Independently* - Testing is computer-based allowing students to participate independently at their own pace.

By using the game motivational model, AR claims that taking tests on computers is like playing a game. The premise is that students enjoy using the computer and students enjoy reading, therefore, students will enjoy using the computer to take tests on what was read.

Betz (1996) stated that using computer games or simulations can add to a student's learning, problem solving skills, and performance. Dempsey (1996) stated that care needs to be taken in the selection of computer games for learning. He defined five criteria for computer game selection:

1. Simplicity

2. Adaptability

3. Potential for educational use

4. Difference from other software in the same category

5. The ability to be played by a single player.

Dempsey (1996) divided games into eight categories:

1. Adventure games

2. Arcade games

3. Board games

4. Card games

5. Miscellaneous games

6. Puzzles

7. Simulations

8. Word games

Additionally, he studied 40 computer games which were sampled by 40 adult participants. Each game was played by two males and two females. An evaluator was present as the game was played. Follow-up interviews with the participants shed light on how differences in gender, learning style, and preferred problem-solving strategies affected the impact of the game on the individual learner. Results of the study indicated that subjects felt the adventure, arcade, board, simulations, puzzles, and word games could be used for teaching problem-solving and decision making.

Computerized Adaptive Tests

Computerized adaptive tests are tests that are taken on a computer instead of using a paper and pencil. Many of these tests are multiple choice tests, such as the one used with AR. AR tests consist of ten multiple choice questions with four possible answers each. There is a single question per screen. Students choose which answer is correct and key in

the letter of the response desired.

Grist (1989) stated that a test given on the computer allows for more flexibility in the testing process than does a fixed paper and pencil test. Students may take tests at their own pace or at a time that is more convenient. Test administration is better organized and may be easier to administer as tests do not have to be passed out, taken, and returned. DuMont, Barton, and Rhimes (1995) stated that technology allows learners to self-pace their work. As tests are taken, students may work at a rate that is comfortable for them. Testing pressure may increase the likelihood of student error, where anxiety may be lessened when the student feels more in control.

Shermis, Stemmer, and Webb (1996) stated that computer adapted tests may be more accurate in assessing student ability than traditional tests. The computer accurately scores tests as they are being administered. Using paper and pencil testing procedures, human error can occur in scoring tests or test papers may be lost requiring students to take the test again. Feedback may be delayed when the time to correct the tests is factored in. Computers score the test as it is being taken and the data is immediately available.

Some computerized assessments are programmed to provide for "adaptive-branching." The student gets a test question on the computer, answers it, and immediately the computer decides, based on the student's response, whether to give a more difficult question or a less difficult question the next time. If the student answers the question correctly, he/she will get a more difficult question. If the student answers the question incorrectly, he/she will get a less difficult question. This may allow for a more accurate assessment of student performance (ALS, 1996b).

Accelerated Reader

AR is a software package that tests and tracks reading comprehension and is based upon the principles of Literature-based reading (ALS, 1996a). Students read books they check out of the school's media center or library and take a comprehension test using the

AR software on that particular book.

Peak and Dewalt (1994) reviewed third-, sixth-, and eighth-grade students in Gaston County, North Carolina. The California Achievement Test (CAT) was used as the instrument for testing. Reading scale scores for two randomly selected, demographically matched groups of students were compared. One group used the AR from third through eighth grade; the other group did not. The study found that students who used the program improved their reading scores 50% more from third through sixth grade than the non-using group. The experimental group's annual CAT score improvement was more than double that of the non-using group. (In reviewing this study, no data concerning the sixth through eighth grade students was found.)

Paul (1996) compared 2,500 elementary, middle, and high schools using AR to approximately 3,500 Texas schools that did not use the software. Scores from the Texas Assessment of Academic Skills (TAAS) showed that schools that owned and used AR scored higher on virtually all of the tests. The study concluded that AR is an effective tool in stimulating increased reading. This study was conducted over a period of three years. The results of these studies may be suspect in that they were conducted on behalf of ALS. by the Institute for Academic Excellence, a sister company. There may be inherent bias in the results.

Clarke (1997) described the implementation of AR in 44 Houston Independent School District's middle and alternative schools. Teachers were trained to use the program as implementation continued. Many schools put AR on the network to allow for widespread delivery throughout the school. One middle school reported growth in the reading comprehension of one to two grade levels after using the program for the 1996-97 school year. Also noted was how motivational the program was. Incentives created a great deal of motivation in the students. Students' scores are based on the length of the book, the reading level, and the percentage of correct answers on the test. Students are measured

against themselves and can set their own goals. The harder and/or longer a book is, the number of points increase. The more books a student reads, the more points earned lead to more recognition. Recognition is one way to motivate students. Recognition and/or incentives included such items as students having their names called out over the public address system, receiving individual prizes, going on class trips, and having parties.

Contrary to the above published reports, the findings of two doctoral dissertations (Knox, 1996; McMillan, 1996) failed to find significant statistical differences in student populations using AR and those who did not. McMillan (1996) used the same instrument as the Paul (1996) study, the TAAS. For this study, 214 fourth grade students from three elementary schools were studied. These students were from a mid-urban school district in southeastern Texas. One group received the treatment using AR and two did not. The treatment lasted for one school year, the fourth grade. These students were pretested at the end of the third grade and posttested at the end of the fourth grade. The TAAS test is a criterion-referenced test. The questions related to objectives taught each year according to the state curriculum. Motivation was tested using data from library records. Results indicated that the reading comprehension of fourth grade students who participated in the AR program was not statistically significant compared to the reading comprehension of the fourth grade students who did not. Data for the first hypothesis, statistically significant difference in reading comprehension, was analyzed using analysis of covariant (ANCOVA) procedures. Motivation was also tested. Records were kept by each group in the study for a three week period of time. Check-out data was recorded showing the titles checked out and the frequency of the book check-outs. There was a statistically significant difference in the number of books checked-out between the groups in the sample. These data were analyzed using a t-test for independent samples. Those who used AR were more motivated to check out books from the library than those who did not. In both cases, the ninety-five percent confidence level ($p < .05$) was used as the level for statistical significance.

Knox (1996) studied the effects of AR on fourth and fifth grade students. AR was compared to a teacher directed reading program. Seventy-seven students were used in the study: 33 fourth graders and 44 fifth graders. These students attended the same school and were tested during the 1995-1996 school year. The school had a small population of 400 students. The school also qualified as a Chapter I school which provides funds for additional support in reading for students who are below grade level. Students were randomly selected for either the group that received the treatment AR, or the group that received the teacher directed program. Students using AR self-selected a title, read the book and took a test on the computer. Students in the teacher directed reading group self-selected a title, read the book, and were interviewed about the book's content. Both groups were then sent to the library to draw an illustration on the computer. ANCOVAs measured differences in reading vocabulary and comprehension showed no significant statistical difference between the groups. Knox (1996) found that AR added little to the overall reading comprehension in fourth and fifth grade students.

These studies (Knox, 1996; McMillan, 1996) involved two different populations. One was mid-urban and middle-class, where there was a straight forward analysis of a control group and experimental group and where a larger sample could be used (McMillan, 1996). This school closely resembles the schools used in this present study. The other study (Knox, 1996) included a small population with small samples used in the study. Interventions, such as Chapter I, a federally funded program to teach reading to students who are below grade level, were used to reinforce the teaching of reading. Demographically, this school does not represent the schools in this study.

Carter (1996) questioned the value of computerized reading management programs that claim to increase reading motivation among students in grades K-12. The areas of concern she identified are:

1. Reading in and of itself is devalued. This concern dealt with the giving of

rewards for reading, which in the case of AR may be incentives given to students for gaining a certain number of points. She stated that the pleasures of reading should be the reward and that giving points and rewards devalues reading.

2. Tangible rewards lead to diminished motivation. With the giving of rewards for reading, the likelihood of students reading more voluntarily was lessened. The focus became the reward and not reading itself. When students were interviewed about AR, 75% of those who liked the program did so because of the points and awards. The students were not motivated to read, but to earn rewards.

3. Limited title choice was a by-product of program use. Monitoring circulation in three North Texas schools, she found that there was increased circulation of books that were on AR books lists and lower circulation of non-AR books. Also, she found that AR is heavily weighted towards fiction. Non-fiction, poetry collections, and highly visual texts are under-represented or not represented at all on the AR book lists.

4. Both materials selection and collections development become the province of a commercial venture. The concern here is that commercial ventures become the selection guides as to what books are purchased for a library or media center.

5. Children fail to develop skills as independent selectors of books. She states that adults have a variety of schemes to choose books for pleasure reading: Whether by author, genre, jacket art, size, or binding, adults do not select books according to some arbitrary point value system. If children choose books entirely on the basis of point value, they do not develop selection skills. Children may also choose books they do not like just to get the points.

6. Testing, rather than independent needs drives reading. Readers read for what they can take from the reading (efferent reading) or for what they can experience through the reading (aesthetic reading). She pointed out that while literary conversation may take place among readers, it is tangential to the taking of the test and not central to the reading

itself.

7. These programs do not make the best uses of a school's resources. The questions she posed is whether or not purchasing a program such as AR best uses the resources available to a school. Testing skills may be taught directly rather than using computer generated, repetitive testing. Computer resources were used for multiple choice tests, simply transferred from paper to computer, when sophisticated applications that might otherwise be used, were not.

Summary

In this review of the literature, several topics were discussed. A review of psychological and theoretical approaches to learning were discussed. Whether any theory such as behaviorism, cognitivism, constructivism, or multiple intelligences, is used, a theoretical base is important in structuring instruction. Caine and Caine (1991) emphasized the need for stimulation of the brain itself. The more the brain is stimulated, the more learning that takes place. Sylwester (1995) stated that when teachers are taught how the brain functions, the better they can plan and execute instructional designs. Gardner (1993) discussed the idea of multiple intelligences and the critical role they play in educating the whole person.

Glatthorn (1995) pointed out several types of curricula that are needed in any instructional strategy as well as the standards and requirements necessary to complete any curricular framework. Myers (1995) added standards that students should master in order to be educated.

Reading is central to education. There are several approaches to the teaching of reading. These include: Phonics, basal readers, whole language, and literature-based reading. Lamme and Beckett (1992), Harrington-Leuker (1996) and Taylor (1997) pointed out different schools of thought on how reading is best taught. There are supporters for

each approach.

Hardin and Ziebarth (1998) stated that technology is effecting education in revolutionary ways, and that the momentum toward these changes is irreversible, yet Harris (1998) cautioned that the use of technology does not automatically create better education. Harrington-Leuker (1996) stated that teachers often limit the use of technology due to the comfort level felt by individual teachers in using any particular technology. Levin (1995) argued that acquiring hardware and software is not enough, that training is necessary to fully implement technology.

A study by Terrell and Rendulic (1996) discussed that computer-generated graphical feedback was very motivational. The AR Manual (ALS, 1996) states that a game motivational model is used to motivate students in using the product. Betz (1996) stated that computer games or simulations can be beneficial in acquiring problem solving skills.

AR has been studied both independently (Knox 1996; McKnight 1992; McMillan 1996; Mathis 1996; Peak and Dewalt 1993, 1994; and Rosenheck 1996), and on behalf of its manufacturer, ALS (Paul, 1996; Paul, VanderZee, Rue, and Swanson, 1996; Paul 1997). These studies gave mixed results as to the ability of AR to increase reading comprehension scores on standardized tests.

Chapter III

Methodology

Research Methods

The purpose of this study was to examine the effect of AR on primary grade
students. ALS makes several claims concerning AR. These claims may be found in
advertisements published in periodicals (ALS, 1998b). These advertised claims indicate
that using Accelerated Reader will:

- motivate students to read more books at higher levels;
- increase scores on performance-based and norm-referenced tests;
- develop a lifelong love of reading;
- increase critical-thinking skills;
- put the joy back into teaching;
- work with all students K-12, Learning Disabled, Gifted/Talented.

Some of these claims are subjective and were not within the purview of this study.
The first two claims however, that AR will motivate students to read more books at higher
levels and increase scores on performance-based and norm-referenced tests, are objective in
nature and were within the scope of this study.

The research question: Was there a significant increase in a primary grade student's
reading comprehension due to the use of AR? The hypothesis tested was: There will be a
significant difference between students who use Accelerated Reader and those who do not
when comparing the reading comprehension scores of primary grade students (grades 1-3)
on the Utah Core Assessment Series (UCAS) test as well as the Stanford Achievement Test
(SAT).

To test the hypothesis, an ex post facto non-randomized control group design was used. This design tested the relationship between two groups. The manipulation of an independent variable was possible. A control group and instrumentation was identified. AR claims that students will increase scores on performance-based and norm-referenced tests. The UCAS test is a criterion-reference or performance-based test given each spring to all students, grades one through six. It measures the objectives taught from the state core curriculum to see if students are advanced, proficient, basic, or below basic in passing the objectives. This test has not changed since its publication and has been the same for all the years of the treatment. The SAT is a norm-referenced test that is given each fall to third and fifth grade students on the elementary school level in Utah. This test was administered under similar circumstances at each school, using the same directions and time frame for testing. Data from each of these tests was analyzed to test the claims of AR and to test the hypotheses of this study.

Two demographically similar student populations from two schools were used for this study. The population consisted of first, second, and third grade students. One population, School A, had the treatment of using AR and can be identified as "Experimental." The other population, School B, did not use AR and can be identified as "Control." Using a control group, School B, allowed for differences in the reading comprehension test scores to be attributed to the treatment of using AR and no other variable. An experimental design was not used because randomization was not possible in these two populations; all students in grades 1-3 participate in the standardized testing and all students in grades 1-3 at School A participate in AR.

Reading comprehension scores from the UCAS and SAT tests were compared to determine if AR had an effect on reading comprehension among primary grade students. The UCAS test consisted of both vocabulary and comprehension sections. It is a criterion-reference or performance-based test that tested the objectives of the state core curriculum.

The test was designed to test how well students learn the core curriculum in each grade level and is given each spring. Students were either advanced, proficient, basic, or below basic in passing the objectives. Each test was grade level specific. Only the scores from the comprehension section of the third grade test was used since the study looked at results of third graders. There were 60 items in the reading section of this test. The first 30 items dealt with vocabulary. The second 30 items testing reading comprehension. Test results gave a reading comprehension score for the whole reading comprehension section. Each subcategory of reading comprehension was also scored. These subcategories deal with detail, inference, main idea, and sequence. Items 31, 35, 39, 40, 42, 43, 47, 49, 58, and 59 dealt with detail. Items 34, 41, 46, 52, and 53 dealt with sequence. Items 32, 37, 44, 48, and 51 dealt with main idea. Items 33, 36, 38, 45, 50, 54, 55, 56, 57, and 60 dealt with inference. Third grade reading comprehension as a whole, as well as subcategory scores of detail, inference, main idea, and sequence were compared for both groups. This allowed the researcher to check for any subcategory variation from the reading comprehension score as a whole.

The reading comprehension portion of the SAT test, as described in the test manual (The Psychological Corporation, 1990), consisted of material that can be found in recreational, textual, and functional reading. Recreational reading was defined as reading that demonstrates the ability to construct meaning with material typically read for enjoyment. Textual reading was defined as reading that demonstrates the ability to construct meaning with material typically found in grade-appropriate textbooks and other sources of information. Functional reading was defined as reading that demonstrates the ability to construct meaning with material typically encountered in everyday life situations. The test breakdown consisted of 38% of the questions concerning recreational reading; 30% of the questions concerning textual reading; and 32% of the questions concerning functional reading.

Specific Procedures

Since this study was an ex post facto study, the UCAS and SAT tests had already been taken. The treatment period was for three years: the 1995-1996, 1996-1997, and 1997-1998 school years. Scores were ascertained from the SAT test given in the fall of 1997 and the UCAS test given in the spring of 1998. Students at School A have used AR for three full years: First, second, and third grades. An analysis was undertaken to see if there are any statistically significant differences between the scores of the two populations.

The independent variable that was manipulated in this study: Group, with two levels, Experimental and Control. The dependent variable in this study was the reading test results or scores from the UCAS and SAT tests.

Comparing the Experimental and Control groups, a statistical analysis of the data was undertaken to see if there was a significant statistical difference between the groups due to the treatment at School A. Using SPSS statistical software (SPSS Student Version 6.1.1 for the Macintosh), data were entered using the following variables: Group = School A, designated 1, School B designated as 2; gender = male designated as 0, female designated as 1; reading comprehension scores; reading comprehension subcategory scores including detail, inference, main idea, and sequence (all scores are percentages and based on 0% to 100%). These subcategory scores were also compared to see if significance could be ascertained in any of the subcategories of reading comprehension.

SAT grade level equivalent scores were compared to AR reading levels to see if there were any differences. Differences between the grade level assigned by the SAT test and the level of the books read by the student to take AR tests may or may not have been different. AR claims that students who use their product will read more books on higher levels and this comparison tested that claim.

To test the hypothesis, statistical analysis consisted of independent sample, two-

tailed t-tests and Analysis of Variance (ANOVA) tests to check for significant statistical differences between the two populations. Reading comprehension data, as well as subcategories detail, inference, main idea, and sequence, were analyzed. (Printouts from these tests can be found in Appendix F.)

In addition to the statistical analysis, an analysis was undertaken to compare the reading methods at each school and the methods prescribed for full AR implementation as outlined in the Reading Renaissance Manual (IAE, 1998). A series of questions were given to core teachers at each school to specify the average number of minutes each reading component received.

Projected Outcomes

As schools expand the use of technology, consideration must be given to the computer programs that are purchased. This study provided input to the decision process about whether to purchase AR.

Rejecting the hypothesis called into question the claims of ALS. Purchasing this product may not be the best way to spend scarce school funds. Individual administrators will have to weigh whether or not it would be a good addition to their particular setting, knowing that no real significance can be placed on the product's use.

Many schools in the researcher's school district are looking at the possibility of purchasing AR. If the study's results indicated improvement in reading comprehension, it gives further evidence of the program's ability to motivate students to read more and thereby increase reading comprehension. If Group A showed no significant increase in reading comprehension scores, serious questions should be raised regarding the purchase of this program and it would be incumbent on the researcher to make the results of this study available to those teachers and/or administrators considering the purchase of this product.

The focus of this study was the examination of AR's claims that use of its product increases the number and level of books read and that reading comprehension scores increase on both norm-reference tests as well as performance-based tests. These claims are of particular importance as schools are partially evaluated on the basis of standardized test scores. Reading comprehension is one of the key components of standardized tests.

Demographics

Snyder, Hoffman, and Geddes tabulated 14,883 school districts in the United States (1997, Table 89). Also listed (Snyder, et al., 1997, Table 93) were the 130 most populous school districts in the U.S. Of those 130 largest school districts, Alpine School District ranks as the 98th largest school district in the U.S. (Snyder, et al., 1997, Table 93). Alpine School District is one of 40 school districts in the state of Utah. The district consists of 34 elementary schools, eight junior high schools, and nine high schools. The student populations of these schools are: Elementaries, 23,640; junior high schools, 10,040; and high schools, 10,726. The district total student population: 44,406 (F. Cameron, personal communication, May 16, 1998).

During this study, School A had a population of 838 students. Primary grades one through three had populations of: Grade one, 122; grade two, 115; and grade three, 120. The total primary grade population was: 357 (F. Cameron, personal communication, May 16, 1998). School B had a population of 741 students. Primary grades one through three had populations of: Grade one, 97; grade two, 115; and grade three, 102. The total primary grade population was: 314 (F. Cameron, personal communication, May 16, 1998).

Both schools in this study are on productivity models due to overcrowding. Productivity models allow for schools to house more students than the physical facilities were designed for. One example is Year-Around schools. Another model is called

Extended-Day. This is the model both schools in this study use. The day is lengthened by one hour for teachers, but not for students. (Teachers get the equivalent of 26 days added to their contract for this extra time.) Students are on two tracks. Track one begins school at 8:00 A.M. and is dismissed at 2:00 P.M. Track two begins school at 9:30 A.M. and is dismissed at 3:30 P.M. The curriculum is broken down into two areas: Core and specialty. Core classes consist of Reading, Math, Language, Spelling, and Handwriting. Specialty classes consist of Art, Music, Drama, Physical Education, Social Studies, Science, and Computers. Core classes continue all year. Specialty classes are divided into terms. Track one students begin the day with the core class. After the lunch recess, track one students switch to the specialty class they are assigned to that term. Track two students begin with the specialty class. After the lunch recess, track two switches to the core class.

Students spend one term in each specialty. At the end of the term, students are assigned a new specialty. Upper grade students, grades 4 through 6, have a computer specialty for one term. The school year is 180 days with terms equaling 60 days. Primary grades have a 30 minute session in the computer lab once a week all year. The researcher is the computer specialty teacher at School A, teaching all grades, K through 6.

Staffs are stable at each school with little turn over. When a faculty member leaves, a new teacher is hired. Most of the time, the new faculty member is an experienced teacher who has transferred from another school or one who has taught for years, taken time off, and is entering the profession again. Inexperienced teachers are hired on occasion. Teachers are certified by the Utah State Department of Education.

Alpine School District does not collect data concerning family income, college education of family members, employment of family members, housing density (single family units vs. multiple family units), or two-parent or single-parent households. Snyder, et al., (1997) collected information that may shed light on the demographics of Utah. In Utah, in 1996, the median family income was $40,611 (Snyder, et al., 1997,

Table 37). Of the population, 8.4% are living in poverty (Snyder, et al., 1997, Table 20). Monies spent per pupil was $3,656 (Snyder, et al., 1997, Table 168). Of the fifty states, Utah was the lowest in per pupil expenditures.

Of the forty school districts in Utah, Alpine School District spends the least per pupil of any district (G.Seastrand, personal communication, May 5, 1998). This infers that Alpine School District spends less per pupil than any other school district in the United States. The pupil-teacher ratio nationally is 18.6 students per teacher (Snyder, et al., 1997, Table 64). The pupil-teacher ratio in Utah is 23.8 students per teacher (Snyder, et al., 1997, Table 66). These data give a perspective of the relationship of Alpine School District to the rest of the nation and the state.

Other indicators may be useful in establishing information for each of the schools used in this study, School A and School B. A survey was given to all sixth grade students on February 28, 1998 (F. Cameron, personal communication, May 16, 1998). The results are indicative of personal goals and attitudes that assumedly come, in part, from the home environment. School A had 78% of the sixth grade participate in the survey, School B had 83% participate. The survey queried students about post high school plans. Three percent from School A indicated they would go straight to work while four percent at School B indicated the same. At School A, 58% indicated an interest in attending four or more years of college after high school, School B indicated 60% would like to attend college for four or more years following high school. Twenty-nine percent at School A indicated they did not know what they would do after high school, where School B indicated 30% did not know what they would do after high school.

Other information, drawn from data collected from the schools, can be inferred. Seventy-three percent of the students at School A have been at the school for the school years one through three. Seventy-seven percent of the students at School B have been at that school for the school years one through three. This indicates a fairly stable population

(F. Cameron, personal communication, May 16, 1998). The percentage of free and reduced school lunch indicates similarity in the number of students in the low income bracket from each school. School A has 14.7% of its students who receive free or reduced lunch. School B has 15.9% of its students who receive free or reduced lunch (F. Cameron, personal communication, May 16, 1998).

Both schools in this study are neighborhood schools. Students are within walking distance of each school and neither school has school busses. Both schools are in areas that are primarily zoned for residential units. In comparison to the residential zoning, few commercial zones are in the boundaries of either school. (B. Thompson, personal communication, May 29, 1998).

The students represented in this study were arranged into a cohort. Those students from each school who have been attending their respective schools in first, second, and third grades were included in the cohort. Students who moved in or out during those years are excluded. School A had 93 out of 127 students or 73% who attended all three years. School B has 83 out of 108 students or 77% who have attended all three years. (The total of students in each school here is different than the totals given earlier. This is due to the fact that the earlier totals represent data from the 1997-98 school year and the totals here are for the 1996-97 school year.) These students were the cohort from each school who were represented in this study.

Using SAT test scores, the two school populations were also academically similar. SAT tests were given in the fall of 1997 to third grade students. The results of comparing the control group, School B, with the experimental group, School A, for Reading Comprehension raw scores on the SAT test $F(1, 188) = .092, p = .761,$ did not indicate a significant difference.

Resources

Thirty Macintosh SE computers were donated to School A by the State of Utah's Department of Health. Twelve of these computers were placed in the media center and used for AR. Installation and setup for AR was done according to the manual (ALS, 1996a). A fileserver in the media center stored the data generated by the students who use Accelerated Reader. The media specialist was given the responsibility to oversee all aspects of the use of the hardware and software for the program. Data was backed up daily on an Iomega Zip disk and hard copies of the data were printed out at least monthly.

In addition to the mini-lab in the media center, each classroom had computer access to the fileserver using the school's intranet. Taking advantage of intranet connectivity can be very beneficial in an educational setting (Littman, 1996).The school's intranet allows information to be accessed from any computer in the facility. Using the school's intranet, students took tests in the media center or in their classrooms.

Cursory training took place for each teacher in using AR. Little time was required on the part of individual teachers. Computers set up in each classroom automatically launched AR software and connected to the data file on the fileserver upon start-up. The only time required of teachers was to occasionally monitor the testing taking place in their individual classrooms. The researcher was the only person required to have an intensive involvement in the project, both due to the fact that he is the system administrator for AR and because of the current study. Because the needed hardware and software were in place at School A, no new purchases were needed to accomplish this work.

Data from the UCAS and SAT tests was provided by the Department of Research and Evaluation from the Alpine School District. It is the responsibility of this department to collect all data from standardized tests taken throughout the district. (These data can be found in Appendixes E and F.)

Reliability and Validity

In this study, the UCAS test was used. This test was given at the end of each school year to test each student to measure mastery of the objectives that were to have been taught that year. Reliability was established by standardizing the following: (a) all subjects taking the test were given the same directions, and (b) all subjects had the same time frame during the same time of the day to take the test.

Validity was established internally by selecting a student population that was demographically similar to School A. Factors such as: Type of curriculum, type of productivity model used, teaching methodologies, percentage students on free and reduced lunch, and scores on the SAT battery were ascertained. The population that most closely matched School A was used. The external validity or generalizability of the study was limited to like populations. Dissimilar populations may or may not have the same results this study generated.

Summary

The purpose of this study was to examine the effect of the AR program on primary grade students. Since this study was an ex post facto study, the UCAS test had already been taken. These tests are given in the spring of each year. Scores were ascertained from the SAT test, fall 1997, and the UCAS test, spring 1998.

Students at School A used AR for three years during first, second, and third grades. Using the third grade scores, an analysis was undertaken to see if there were any statistically significant differences between the scores of the two populations after three full years of treatment.

There was an independent variable that was manipulated in this study. The independent variable was: Group (Experimental, Control). The independent variable has

two levels: Group A (Experimental) who received the treatment and Group B (Control) who did not. The dependent variables in this study, were the reading comprehension and subcategory scores from the UCAS and SAT tests. To test the hypotheses, statistical analysis consisted of independent sample, two-tailed t-tests and ANOVA tests to check for significant statistical differences between the two populations. Reading comprehension subcategory analyses were also conducted on detail, inference, main idea, and sequence.

Reliability was established by standardizing the following: (a) subjects taking the test were given the same directions, and (b) subjects had the same time frame during the same time of the day to take the test.

Validity was established internally by selecting a student population that was demographically similar to School A. The external validity or generalizability of the study may be limited to like populations. Dissimilar populations may or may not have the same results this study generated.

Chapter IV

Results

This study looked at achievement differences between students who did and did not use AR for three years, 1995-1996, 1996-1997, and 1997-1998. This chapter discusses the results of the study. Section one discusses AR implementation. Section two discusses reading methodology at Schools A and B and how it compared to the suggested implementation of AR. Section three discusses the instrumentation used in this study. Section four provides an analysis of the data. Section five discusses the findings of the study. Section six provides a summary of the results.

AR Implementation

AR is a commercial computerized reading assessment and management tool for grades K-12. The software is not intended to teach reading; it tests reading comprehension and manages the test data. A student checks a book out of the school's media center or library and after reading it, takes a comprehension test using the software. The student sits at the computer, finds his/her name on the list of students and selects it. The screen will ask for the password. Each student record is password protected. Upon entering the password, the student sees a book list. The student chooses the book to be tested. The computer asks for confirmation for that book; the student answers "yes" to take the test, "no" to not take the test. The test consists of multiple choice questions about the book. There is a single question per screen. The student chooses an answer from the choices given. The student may change an answer, but once the "return" key is pressed, the answer is recorded and cannot be changed. The software scores the test and records the

result.

To pass the test, the student must earn a score of 70 percent or higher. If successful, the student may review any questions answered incorrectly. When the review process is completed, the student is not allowed to take that particular test again. This prevents the student from retaking the test and increasing the score. If the student scores less than 70 percent, no points are given and the student is locked out of that test. The test, book title, and score are entered as part of the student's record.

A student who has limited sight vocabulary skills is helped by an older student or parent volunteer (helper) who reads the question and the multiple choice answers orally to the student who then chooses the answer. Older students are assigned times to be available in the media center to help in this way. Books for AR are identified in the media center of School A by red stickers placed on the spine of the book.

Points are awarded with the successful completion of each test. The points are based on the length and difficulty of the book. As points are accumulated, various incentives are awarded to students. Data gathered on each student is ongoing from year to year. At School A, incentives are in the form of free books (J. Watson, personal communication, September 10, 1996). Monies raised by book fairs and through donations from business partners go toward the purchase of books for this purpose. The first of each month, an AR report is run on student progress. If the student has met the reading goal, a book is awarded. Dozens of books are laid out on tables in the media center. As the student's name is called, he/she is excused to go to the media center and choose a book. The students are free to choose any title. Other than books, no other incentives were given.

As part of AR, there are literally thousands of titles that may be selected (See Appendix C) and questions on each book have been added by the manufacturer as part of the software. The basic premise of AR is that if a student is motivated to read by using the computer to take tests on the books read, he/she will read more books and by reading more

books he/she will become a better reader with increased reading skills (ALS, 1996a). AR is based upon the principles of literature-based reading (ALS, 1996a). Keller (1998) states that computerized reading programs may be a good way to foster a love of reading while increasing reading comprehension scores.

Implementation of AR requires a high level of commitment on the part of the teachers participating (Keller, 1998; IAE, 1998), setting aside up to 60 minutes per day for individualized reading. The potential exists for other subjects to be short changed (Keller, 1998). Implementation also requires teachers to be willing to monitor tests taken by the students to insure that students are not cheating or reading books inappropriate to their reading levels.

ALS has developed a training program called "Reading Renaissance" (RR) to train teachers how to fully implement and integrate AR in their classrooms. Keller (1998) stated that while AR works as a stand alone program, at least one staff member needs to be trained in RR. Teachers are sent to RR training to learn tools and techniques to motivate students to read, to learn how to better monitor their progress, and how to diagnose reading progress and intervene to insure student success.

RR consists of four components (IAE, 1998) Component one is reading To, With and Independently (TWI). This component requires sufficient time for reading. Suggested time is 60 minutes per day. Component two is the Learning Information System (LIS). This component is AR. The third component is the Reading Motivation System (RMS). This component assures the students read with enthusiasm and keep on reading. The fourth component is the teacher Motivates, Instructs, Monitors, and Intervenes (MIMI). This component insures consistent and reliable results. According to the RR manual, adding these components together "is the formula for success." (IAE, 1998, pg. 2) Again, as Keller (1998) stated, AR is a stand alone product, but training in RR better prepares teachers to use AR successfully as an integrated part of the reading curriculum.

Motivation is key to the success of AR. Clarke (1997) describes the implementation of AR in 44 Houston Independent School District's middle and alternative schools. One middle school noted how motivational the program was. Incentives created a great deal of motivation in the students. Students' scores are based on the length of the book, the reading level, and the percentage of correct answers on the test. Students are measured against themselves and can set their own goals. The harder and/or longer a book is, the number of points increase. The more books a student reads, the more points earned lead to more recognition. Recognition is one way to motivate students. Recognition and/or incentives included such items as students having their names called out over the public address system, receiving individual prizes, going on class trips, and having parties.

Diagnosis and intervention are part of AR. Several reports can be generated. The following reports are available:

Annual Goals Report - The annual goals report tells how close students are to achieving their goals by tracking eight different features:

- Points earned/year -- The number of points the student has earned to date.

- Annual Goal -- The number of points the student is trying to earn that year.

- % of Annual Goal -- Percent of the annual goal that has been earned to date.

- Average Points/day -- The average points the student has earned each day.

- Daily Goal -- The number of daily points the student should earn on average to reach the annual goal.

- % of Daily Goal -- The percent of the daily goal that is currently being achieved.

- Adjusted Point/day -- Based on the current date and how many points the student has earned so far, the computer calculates how many points the student needs to earn per day to reach the annual goal.

- Adjusted % Increase -- The student may need to increase the number of points earned per day. This report calculates the percentage of increase needed to achieve

the annual goal.

At-Risk - The At-Risk Report identifies students having difficulty. If a student is identified as an At-Risk student, the report attaches a letter code to the student's name. The meaning of each letter code appears at the bottom of the report.

Book Label - The Book Label Report prints the title, author, reading level (optional), and point value for each selected book.

Calendar - The Calendar Report prints out the information from the calendar that AR uses.

Club Members - The Club Members Report tells which students belong to which club, listing the various point clubs from the lowest to the highest.

Club Summary - The Club Summary Report lists selected students and the clubs to which they belong.

Independent Readers - The Independent Reader Report lists the date each selected student becomes an Independent Reader. An Independent Reader is defined as a student who has read three books, passed the tests without help, and accumulated ten points.

Progress - The Progress Report tracks the week-by-week reading progress for a single student, group of students, or the entire school.

Security - The Security Report is a summary of security-sensitive events. It includes all attempts at unauthorized access and shows which records were affected.

Student List - The Student List Report lists the names of all the selected students.

Student Points - The Student Points Reports list the points the selected students have earned.

Student Record - The Student Record Report provides the entire student record.

Student Summary - The Student Summary Report provides an overview of each student's reading activity showing a one-line summary of their records.

System Information - The System Information Report lists pertinent and unique information about the AR program and the computer.

Test List - The Test List Report lists the test number, title, author, reading level, and point value for each title selected.

Test Questions - The Test Questions Report allows for teacher made tests to be printed.

Test Takers - The Test Takers Report tells which students have taken a particular test.

Test Usage - The Test Usage Report provides information on which books are the most or least popular.

Test-blocking Rules - The Test-blocking Rules Report provides the test-blocking rules created by the teacher. Test-blocking rules prevent certain students from taking certain tests.

Top Point Earners - The Top Point Earners Report indicates the students who earn the most points.

Weekly Team - The Weekly Team Report shows the reading team's weekly progress and the individual contributions of each student.

The only reports generated by AR that were used at School A as part of the AR implementation were the Student Points Report, the Student Record Report, and the Student Summary Report. (Samples of these reports can be found in Appendix G.) No other reports were used as part of the AR implementation.

As AR was implemented at School A, the media specialist became the AR system administrator. The AR fileserver was housed in the media center. All AR computers were networked to the fileserver through the school's intranet. It was the media specialist's responsibility to purchase books and corresponding AR tests for the library. As a book was acquired, a red dot was placed on the spine of the book to indicate the book can be used for AR.

The media specialist set up a schedule where the core classes visited the library two times per week. One visit consisted of the traditional library visit where a story was read to the class by the librarian or parent volunteer, library skills were taught, and books were checked in and out. The second library visit consisted of time for AR. Each core class, K-6, was able to visit the media center once a week for 30 minutes to take AR tests.

Other than this weekly 30 minute focus on AR provided by the media specialist, little attention was given by classroom teachers. While teachers were encouraged to have students participate in the program students were not required to participate and did so only on a voluntary basis. AR was not included as part of the reading curriculum per se, but as an extra curricular experience.

As the RR manuals states, (IAE, 1998) all four components need to be in place for successful implementation. Only one component was in place during this study: AR. TWI was not implemented. Portions of the "Guided Reading" program fit well into TWI but do not provide the required time for this component. RMS was not implemented. The only motivational element was the free books once a month if the reading goal was met. MIMI was not implemented. This component, where the teacher motivates, instructs, monitors and intervenes did not take place.

Keller (1998) states that teachers must frequently monitor quizzes and reading logs to insure that student do not cheat or attempt to read books inappropriate to their reading levels. As part of the implementation of AR at School A, students were allowed to freely take tests without constant monitoring. There was little effort to insure students were reading books at grade level.

Reading Implementation at Schools A and B

Reading is fundamental to the educational experience. Myers (1995) stated that one of the most important skills learned is the ability to apply critical thinking and

interpretive skills in comprehension of language and literature. Separate studies (Lamme & Beckett 1992; and Harrington-Leuker 1996) discussed two approaches to reading instruction that are at odds with each other. One technique of reading instruction is represented by the phonics approach to teaching reading. The other is the whole language approach.

In the phonics approach, which is a "traditional" or "basic skills" approach to reading, learning is broken down into small pieces (Goodman, 1993; Albert, 1994; Taylor, 1997). Students learn these pieces and are rewarded for their success. Teachers diagnose what is known and what is not known then prescribe activities that will teach and/or remediate what is not known. In the second approach, whole language, the learning occurs through the use of language and literature as a whole, not as separate parts. The objectives are broader. Where the goal of the basic skills approach is to teach a student to read and write, the goal of a whole language curriculum is to help students become avid readers and writers with a deep love of learning.

The proponents of whole language argue that reading should be learned the same way children learn to talk, by absorbing the language around them (Harrington-Leuker, 1996). Literature is used as the foundation for reading. Literature is read and reading skills are mastered through this process. Reading skills are mastered through self-paced, independent reading. Lamme & Beckett (1992) stated that literature-based reading programs focus on helping children become avid and reflective readers, rather than merely skilled readers. Blose (1992) stated the change from a basal readers to a literature-based reading program is a transition that takes effort. The change from a basic skills approach to a whole language approach requires a change in the teacher's philosophy of teaching.

McGee and Tompkins (1995) also found that differences occur in the teaching of literature-based reading due to the fact that teaching strategies of individual teachers vary. With no standardization, these differences in teaching strategies may create differences in

student outcomes.

Harrington-Leuker (1996) stated that teachers in everyday classrooms, away from the debate of educational theory and philosophy, find a blend of the two approaches to be very successful; teachers know the needs of their students and find the best combination of approaches to meet those needs.

This blend of teaching methods is the basis of reading instruction at the schools in this study. Fountas and Pinnell (1996) developed a program based on the idea of balanced literacy, which relies heavily on literature, yet uses phonetic approaches, as necessary, to provide understanding of the visual cues of reading. Their program, "Guided Reading," as described in Chapter II, has been implemented in the Alpine School District. (These principles were implemented with these students part way through their first grade year and continued through their second and third grade years.)

The basic elements of "Guided Reading" were used in the instruction of reading to both groups of students in this study. A typical lesson may begin with a new story where the teacher has the students look at the pictures in the book to get an idea of what they think is going on in the story. Students are encouraged to predict what they think is going to happen in the story. Vocabulary words are introduced using phonetic and spelling rules and the words become part of the spelling list for the week. Word meanings are discussed in order that students can understand the words as they encounter them in the text. Settings for the story are discussed. For example, if the story was about Pompeii, a discussion on volcanoes may take place. As the story is read, students raise their hands as they come across vocabulary words and they are discussed within the context of the story. After the story is read, comparisons can be made as to how the predictions made about the story compare to the events of the story. Comprehension activities take place to see how well the students understood the story. These may be questions and answers, fill in the blank questions, or putting pictures from the story in order. Culminating activities may consist of

creating pop-up books, writing poetry about the story, or simply writing about the student's favorite part of the story along with drawing an illustration. Students read out loud individually and in groups. A running record is kept of reading progress. Trade books are used instead of basal readers because a wider range of literature is available. Students are read to on a daily basis by the classroom teacher (D. Williams, personal communication, December 16, 1998).

In addition to the pedagogy used, an analysis of additional methods used in reading acquisition was undertaken. This analysis consisted of comparing the use of the schools' media centers, the amount of time spent on reading components, and the practices of teachers to assist the students in building good reading habits.

The following questions were e-mailed to the respective media specialists:

- How often do classes come to the media center?

- How long are the classes in the media center each visit.

- What occurs during the visit to the media center?

- What lessons are provided by the librarian?

- What lessons are proved by the teacher?

- What are the number of books that are borrowed at a time per student?

The media specialists indicated that classes attend the media center at School A twice per week. Once for regular media time and once for AR. All other responses to these questions were consistent between the two groups. Classes visited the media center 30 minutes each visit. The media specialist gave lessons on such items as: the Dewey decimal system, care for books, how to use reference books, how use an electronic card catalog system, discussion of Newberry and Caldecott award winning books, how to use electronic books in the form of CD-ROMs. The media specialist also used the time to read to students. Teachers accompanied their classes to the media center, but did not present material to the class. Typically teachers graded papers, read, or relaxed as their classes

were attended to by the media specialist. Students were able to check out one book during the visit if the book from the previous visit was returned. If the student finished the book before the next visit the student was able to return the book and check out a new one. Media centers district wide are under a central media coordinator and run in a similar fashion under the direction of this coordinator.

In addition, the media centers sponsored Book Fairs during the year, typically during the week of Parent-Teacher conferences. At these fairs students could purchase a wide variety of books and provided a focal point for parents to become better informed about the reading programs at the school.

To ascertain the resources used and the time spent on reading elements, the following questions were e-mailed to the primary grade core teachers at each school:

Reading to children:

- What resources do you use?
- How many minutes per day do you read to children?

Shared reading:

- What resources do you use?
- How many minutes per day do you use shared reading?

Guided and independent (silent) reading:

- What resources do you use?
- How many minutes per day do you use guided and independent (silent) reading?

Book reports:

- How much time do you use for oral and written book reports and presenting the same to the class?

Teacher participation in building good reading habits:

- What do you do to encourage and build good reading habits?

As the district's implementation of reading criteria is based on the Utah State Core Curriculum, responses were similar between schools. Resources for reading to children included picture books, big books, seasonal and holiday books, AR stories, and chapter books. Resources for shared reading included big books, poetry books, story retelling, reading alternative texts, and products on interactive writing. Resources for guided and independent (silent) reading included a wider range of materials from basal readers to picture books, to self-selected books.

Some teachers indicated that once a book was read, a student may prepare and present a traditional oral book report. Students were also given the choice to rewrite stories they had read with different endings and were able to present those alternative stories to their class. These types of activities were not given high priority in the daily routine and were fit in when and if time allowed.

Several teachers indicated they have a program where they send home a reading assignment each day. Students were to read a certain number of pages or read for a certain number of minutes per day. Parent's involvement was to check to see that this was done and sign-off on a daily reading log the student brought home. Many teachers at each school had read-a-thons during the year. Teachers at School A encouraged students to read books for AR tests.

In analyzing time used for TWI reading, teachers indicated how many minutes they set aside for each reading element. Results are found in Table 1.

Table 1. Comparison of Suggested and Actual Reading Times

	AR Suggested* (minutes per day)	School A (minutes per day)	School B (minutes per day)
First Grade			
Reading to Children	15	15	15
Shared Reading	15	10	10
Independent Reading	<u>30</u>	<u>20</u>	<u>20</u>
Total	60	45	45
Second Grade			
Reading to Children	15	15	15
Shared Reading	5	20	15
Independent Reading	<u>40</u>	<u>15</u>	<u>15</u>
Total	60	50	45
Third Grade			
Reading to Children	5-15	10	10
Shared Reading	5-15	10	10
Independent Reading	<u>60</u>	<u>10</u>	<u>20</u>
Total	70-90	30	40

*IAE, 1998

Instrumentation

AR claims that students will increase scores on performance-based and norm-referenced tests. As part of this study, data from each type of test was analyzed.

The UCAS is a criterion-reference test given each spring to all students, grades one through six. It measures the objectives taught from the state core curriculum to see if students are advanced, proficient, basic, or below basic in passing the objectives. This test has not changed since its publication and has been the same for all the years of the treatment.

The SAT is a norm-referenced test that is given each fall to third and fifth grade students on the elementary school level in Utah. This test was administered under similar circumstances at each school, using the same directions and time frame for testing.

Data from each of these tests were analyzed to test this claim of AR and to test the hypotheses of this study. Data analysis is detailed in the next section.

Analysis

Will AR motivate students to read more books at higher levels? After reading and taking tests on books, AR assigns a grade level to each student according to the books read. (This grade level assignment is an average of the reading levels of the books read.) This allows teachers to check to see if students are reading below, at, or above grade level books. The claim that students would read books at a higher level was analyzed by comparing the SAT grade equivalence score assigned each student at School A with the average grade level of the books read and tested as assigned by AR. (See Appendix F for a list of these scores.) Twenty-one out of 104 students (20.2%) read books on a higher grade level than was assigned by the SAT test. Two out of 104 students (1.9%) read books on the grade equivalence that was assigned by the SAT test. Eighty-one of the 104 students (77.9%) read books below the grade equivalence assigned by the SAT test. These results indicate a majority of the students in this study, at School A during their third grade year, read and took tests on books that were below their grade equivalence as assigned by the SAT.

Does AR increase scores on performance-based and norm-referenced tests? Since this was an ex post facto study, the UCAS test had been taken previous to the study. Scores from the UCAS test were obtained from the Alpine School District research department for the populations of School A and B for second and third grades. These tests were given in the spring of 1997 for second grade and the spring of 1998 for third grade. (Scores for these students, when they were in first grade, spring 1996, were not made available to this researcher.) These second and third grade scores were analyzed using SPSS software. Each student received an ID number; was identified by gender; and

reading scores from the UCAS and SAT tests were entered.

As discussed in Chapter III, two demographically similar student populations were used for this study. The populations consisted of first, second and third grade students (see Table 2 for student population data). While first grade data was not available for these students, the students of School A did receive the treatment during their first grade year, 1996-1997.

Table 2. Participants by Group and Gender

Group	School A	School B	Total
Female	47 (53%)	41 (47%)	88 (46%)
Male	57 (56%)	45 (44%)	102 (54%)
Total	104 (55%)	86 (45%)	190 (100%)

To test the hypothesis, statistical analysis consisted of independent sample, two-tailed t-tests and ANOVA tests to check for significant statistical differences between the two populations. (Printouts from these tests can be found in Appendix D.) Reading comprehension subcategory analysis was also conducted on detail, inference, main idea, and sequence. The results of comparing the mean scores may be seen in Figure 1.

Figure 1. Comparison of Means

Mean Scores, Reading Comprehension plus Subcategories
School A = Group 1; School B = Group 2
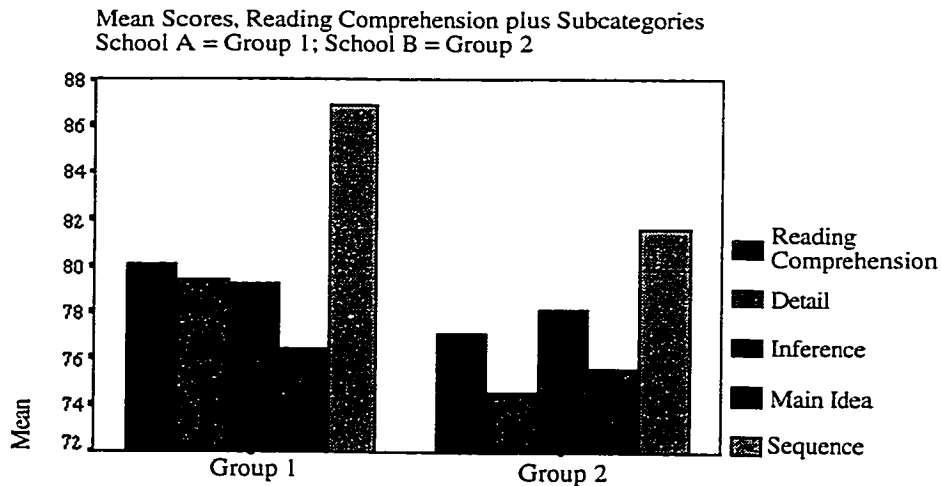
In all cases, the mean score of the control group, School B, was lower than that of the experimental group, School A. The question then must be posed: Is the difference between the scores of the control group and the experimental group statistically significant?

The results of comparing the control group, School B, with the experimental group, School A, for Reading Comprehension on the UCAS test did not indicate a significant difference. An analysis of School B indicated a mean score of 77.09 with a standard deviation of 20.68. The analysis of School A indicated a mean score of 80.12 with a standard deviation of 18.28. Levene's Test for Equality of Variances produced an F value of 1.65 and a p value of .293, indicating an equality of variables. The equal variance t-test calculated a t value of 1.07 and a p value of .287. The ANOVA for Reading Comprehension on the UCAS test, $F(1, 188) = 1.142, p = .287$, did not indicate a significant difference between the populations.

The results of comparing the control group, School B, with the experimental group, School A, for Detail on the UCAS test did not indicate a significant difference. An analysis of School B indicated a mean score of 74.53 with a standard deviation of 23.35. The analysis of School A indicated a mean score of 79.42 with a standard deviation of 19.70. Levene's Test for Equality of Variances produced an F value of 2.78 and a p value of .097, indicating an equality of variables. The equal variance t-test calculated a t value of 1.57 and a p value of .119. The ANOVA for Detail on the UCAS test, $F(1, 188) = 2.45, p = .119$, did not indicate a significant difference between the populations.

The results of comparing the control group, School B, with the experimental group, School A, for Inference on the UCAS test did not indicate a significant difference. An analysis of School B indicated a mean score of 78.14 with a standard deviation of 22.88 The analysis of School A indicated a mean score of 79.23 with a standard deviation of 21.48. Levene's Test for Equality of Variances produced an F value of .705 and a p value

of ..402, indicating an equality of variables. The equal variance t-test calculated a t value of .34 and a p value of .735. The ANOVA for Inference on the UCAS test, $F(1, 188) =$ .114, $p = .735$, did not indicate a significant difference between the populations.

The results of comparing the control group, School B, with the experimental group, School A, for Main Idea on the UCAS test did not indicate a significant difference. An analysis of School B indicated a mean score of 75.58 with a standard deviation of 24.23. The analysis of School A indicated a mean score of 76.35 with a standard deviation of 23.77. Levene's Test for Equality of Variances produced an F value of .94 and a p value of .760, indicating an equality of variables. The equal variance t-test calculated a t value of .22 and a p value of .827. The ANOVA for Main Idea on the UCAS test, $F(1, 188) =$ .048, $p = .827$, did not indicate a significant difference between the populations.

The results of comparing the control group, School B, with the experimental group, School A, for Sequence on the UCAS test did not indicate a significant difference. An analysis of School B indicated a mean score of 81.63 with a standard deviation of 26.61. The analysis of School A indicated a mean score of 86.92 with a standard deviation of 21.90. Levene's Test for Equality of Variances produced an F value of 3.02 and a p value of .084, indicating an equality of variables. The equal variance t-test calculated a t value of 1.50 and a p value of .134. The ANOVA for Sequence on the UCAS test, $F(1, 188) =$ 2.264, $p = .134$, did not indicate a significant difference between the populations.

The results of comparing the control group, School B, with the experimental group, School A, for Reading Comprehension raw scores on the SAT test, did not indicate a significant difference. An analysis of School B indicated a mean score of 26.80 with a standard deviation of 8.06. The analysis of School A indicated a mean score of 27.17 with a standard deviation of 8.41. Levene's Test for Equality of Variances produced an F value of 0.00 and a p value of .999, indicating an equality of variables. The equal variance t-test

calculated a *t* value of .30 and a *p* value of .761. The ANOVA for Reading

Comprehension Raw Scores on the SAT test, $F(1, 188) = .092, p = .761,$ did not indicate

a significant difference between the populations.

Findings

Analysis from various statistical tests indicated no significant statistical differences

exist between School A and School B in Reading Comprehension, Detail, Inference, Main

Idea, and Sequence using UCAS data. Analysis also indicate no statistical difference

between School A and School B using SAT Reading Comprehension data. With this

information, we reject the hypothesis. These findings are consistent with those of Know

(1996) and McMillan (1996). These studies also failed to find any statistical differences in

reading comprehension between students who used AR and those who did not.

Analysis of information provided by teachers and media specialists from both

schools indicated little difference in practice between schools. When comparing this

information to full AR implementation, minimal suggested requirements for successful use

of this product were not met.

Summary

This study looked at achievement differences between students who did and did not

use AR for three years, 1995-1996, 1996-1997, and 1997-1998.

Reading methodologies were discussed as they related to the schools in this study.

Fountas and Pinnell (1996) created a program called "Guided Reading" that has been

adopted by the Alpine School District. This pedagogy uses the best of the phonetic

approach as well as the best of the whole language approach which is stated by Harrington-

Leuker (1996) as the most common sense approach to teaching of reading.

The implementation of AR was discussed as it applies to School A. ALS makes

two claims concerning AR that were within the purview of this study: AR will motivate students to read more books at higher levels and increase scores on performance-based and norm-referenced tests.

Data from the UCAS test and the SAT were provided by the Alpine School District office of research. These data were entered into SPSS software and analyzed. As stated in Chapter III, this study was an ex post facto study. The UCAS and SAT tests had already been taken. Scores were ascertained from the SAT test given in the fall of 1997 and the UCAS test given in the spring of 1998.

The independent variable that was manipulated in this study: Group, with two levels, Experimental and Control. The dependent variables in this study were the reading test results or scores from the UCAS and SAT tests.

Statistical analysis consisted of independent sample, two-tailed t-tests and ANOVA tests to check for significant statistical differences between the two populations. Reading comprehension data, as well as subcategories: detail, inference, main idea, and sequence, were analyzed. (Printouts from these tests can be found in Appendix F.)

The analysis of the data indicated that the results of comparing the control group, School B, with the experimental group, School A, for Reading Comprehension on the UCAS test did not indicate a significant difference. Analysis also indicated no statistical difference using SAT Reading Comprehension data. With this information, we reject the hypothesis. These findings are consistent with those of Know (1996) and McMillan (1996).

Analysis of information provided by teachers and media specialists from both schools indicated little difference in practice between schools. When comparing this information to full AR implementation, minimal suggested requirements for successful use of this product were not met.

Chapter V

Conclusions, Implications, Recommendations And Summary

In this chapter, four sections will be discussed. The first deals with the conclusions of the study. Second, the implications of the study will be discussed. The third section lists recommendations. The fourth section provides a summary of the study.

Conclusions

This study looked at the achievement scores of students in one school that used AR and another school that did not. The study covered the academic years: 1995-1996, 1996-1997, and 1997-1998. Based on the analysis of the data the following conclusions are reached:

1. AR claims that students will be motivated to read books at higher levels. Results of this study do not support this claim. At School A, the data indicated that 21 out of 104 students (20.2%) read books on a higher grade level than was assigned by the SAT test. Two out of 104 students (1.9%) read books on the grade equivalence that was assigned by the SAT test. Eighty-one of the 104 students (77.9%) read books below the grade equivalence assigned by the SAT test. These results indicate a majority of the students in this study, at School A during their third grade year, read and took tests on books that were below their grade equivalence as assigned by the SAT.

2. AR claims that reading comprehension scores on both performance-based and norm-referenced tests will increase. An analysis of the data indicate the results of comparing the control group, School B, with the experimental group, School A, for Reading Comprehension on the UCAS and SAT tests did not indicate a significant difference.

The major limitation of this study dealt with implementation of AR. AR at School

A was an extra-curricular activity. The monitoring of the implementation by administration and teachers appears to be short of the prescribed AR implementation protocol. Careful checking of whether or not a student read a book on grade level was not done on a consistent basis. Much of the test taking was based on what Carter (1996) referred to as reading for external rewards. Points were accumulated for the reward of a free book every month. As long as a test was taken and passed, little value was placed on the type of book or level of book read. As mentioned in Chapter IV, School A did not fully implement AR.

Implications

The product as used with the primary grade students did not indicate a statistically significant increase in reading comprehension scores on either norm-referenced or performance-based tests. To assume the product did not perform as claimed based on these results may be an incorrect assumption due to the fact that the program was not fully implemented. The implication is that in order to truly assess the benefits of AR, full implementation needs to take place. This did not happen at School A.

With reading such a critical part of the curriculum, programs that claim to raise reading comprehension scores need to be evaluated on their merits. However, those programs need to be evaluated after full implementation takes place.

This study supports Carter's (1996) argument that reading for points, in and of themselves do not increase reading comprehension scores. Where the students in the experimental group read at the same levels as the control group, purchasing and implementing AR to increase reading comprehension scores as only an extra curricular type activity does not work. Schools may use the program as a way to manage testing data, integrate computers into the testing process, or increase motivation (McMillan, 1996) among students. This study adds to professional practice the knowledge that full implementation of AR may be necessary to see the results claimed by its producers.

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Recommendations

This study looked at one group who used AR and one who did not. The results of this study show that without full implementation, AR did not perform as claimed. Recommendations for change in practice are:

1. Train teachers in the Reading Renaissance component of the program which will train the teachers how to implement and integrate AR into the reading process.

2. Monitor the levels of books read by students to make sure students are reading books that are appropriate for the current reading level attained by the student.

Recommendations for further research and change in research methods are:

1. Development of an experimental model wherein students in one particular class are randomized but taught by the same teacher. Half the class receive the treatment of AR and the other half does not.

2. Replicate the study with the same schools after full implementation of AR takes place.

3. Test a fully implemented AR program against another reading program wherein the same level of teacher-intensive pedagogy is involved to see if AR actually makes a significant difference (G. Abramson, personal communication, January, 27, 1999).

Summary

In 1986 a software program was introduced that claimed to increase reading comprehension scores on both norm-referenced and performance-based tests. That product was AR. AR was purchased and installed on twelve media center computers at School A. The media specialist was assigned the task of handling the system administrator functions dealing with this software.

Students read books checked out of the media center and took multiple choice

reading comprehension tests on the computers. The computer checked the test and recorded the results.

With thousands of books available in the media center at School A, students had a wide range of books to choose from. Tests were taken and results stored for use by teachers.

Since School A had invested monies on this software, the question arose as to the ability of the software to perform as claimed. The research question became: Is there a significant increase in a primary grade student's reading comprehension level due to participation in AR?

There have been several studies undertaken to examine the impact of using this tool. These studies fall into two categories: (a) studies done on behalf of the producers of AR, and (b) studies that are independent of AR. The Institute for Academic Excellence (IAE), a sister organization of ALS that developed AR, has published several studies testing the effectiveness of AR (Paul, 1996; Paul, VanderZee, Rue, and Swanson, 1996; Paul 1997). The content of these studies may be biased. Independent research has also been done. Knox (1996), McKnight (1992), McMillan (1996), Mathis (1996), Peak and Dewalt (1993), and Rosenheck (1996) have independently studied AR. There had been no studies done using data from primary grade students and it was determined that this was an area in need of investigation.

A review of the literature was undertaken. This review found several philosophies that purport to be the best pedagogy. While there were many ways to teach, one element that was clear was that reading is a foundational element of education. Incorporated in reading were different approaches such as phonics instruction and whole-language. A balanced-literacy approach combined the best of these.

Technology was found to be a beneficial tool added to teacher methodology. Proper training in technology, specifically computers was necessary to get the best results.

If reading is fundamental, and students enjoy using technology, combining the two may increase student motivation toward reading. AR is based on the idea that students have to learn to read, use computers, and take tests on what they read. The combining of these elements make up AR.

This study was undertaken to test the claims of AR using data from primary grade students. One area studied was the claim that AR would motivate students to read more books at higher levels. Another area studied was whether primary grade students' reading comprehension scores would be higher because they use AR or not.

A hypothesis was generated: There will be a significant difference between students who use Accelerated Reader and those who do not when comparing the reading comprehension scores of primary grade students (grades 1-3) on the Utah Core Assessment Series (UCAS) test as well as the Stanford Achievement Test (SAT).

To test the hypothesis, an ex post facto non-randomized control group design was used. This design tested the relationship between two groups. The manipulation of an independent variable was possible. A control group and instrumentation was identified. The UCAS tests is a criterion-reference or performance-based test given each spring to all students, grades one through six. The SAT is a norm-referenced test that is given each fall to third and fifth grade students on the elementary school level in Utah. Data from each of these tests was analyzed to test the claims of AR and to test the hypotheses of this study.

Two demographically similar student populations from two schools were used for this study. The population consisted of first, second, and third grade students. One population, School A, used AR and was identified as "Experimental." The other population, School B, did not use AR and was identified as "Control." Comparing the Experimental and Control groups, a statistical analysis of the data was undertaken to see if there was a significant statistical difference between the groups due to the treatment of School A.

Analysis from various statistical tests indicated no significant statistical differences exist between School A and School B in Reading Comprehension, Detail, Inference, Main Idea, and Sequence using UCAS data. Analysis also indicate no statistical difference between School A and School B using SAT Reading Comprehension data. With this information, we reject the hypothesis. These findings are consistent with those of Know (1996) and McMillan (1996). These studies also failed to find any statistical differences in reading comprehension between students who used AR and those who did not.

An analysis of additional methods used in reading acquisition was also undertaken. This analysis consisted of comparing the use of the schools' media centers, the amount of time spent on reading components, and the practices of teachers to assist the students in building good reading habits. These results indicated that practice was similar between media centers and teacher's methods of teaching reading.

Results indicate that School A did not fully implement AR. Interpretation of statistical analysis must be done with this limitation. With no statistical difference between groups indicated, inference cannot be made that AR did or did not work, because full implementation did not take place. Further research, with full implementation may provide different results.

APPENDIX A

Application to do research in the Alpine School District

(Methodology has changed since this was submitted. Changes have been made orally with
Dr. Frank Cameron, Director of Research and Evaluation, Alpine School District and are
not shown herein.)

REQUEST FOR PERMISSION TO CONDUCT RESEARCH
IN THE ALPINE SCHOOL DISTRICT

Research and Evaluation reviews all requests to conduct research in the Alpine School District. Please respond to each of the following questions. Use additional paper if necessary. Read the Guidelines prior to filling out this request form.

1. *Name of person responsible for conducting research.*

   Mitchell Pratt

   Status:

   Faculty, Orem Elementary School

   Mailing Address:

   450 W. 400 S. Orem, UT 84057

   Telephones:

   (home) 377-4824 (work) 227-8727

   Highest academic degree which you hold:

   Master of Arts

2. *If you are a university student, provide the following:*

   Department/Committee Chair

   Name:

   Dr. Trudy Abramson, Professor

   Department:

   School of Computer and Information Sciences

   Office Telephone:

   (954) 262-2070

   University address:

   **School of Computer and Information Sciences
   Nova Southeastern University
   3100 S. W. 9th Avenue, Fifth Floor
   Fort Lauderdale, FL 33315**

3. *Indicate the reason(s) for conducting the research.*

Course requirements: **None**   What course? **None**

Degree requirements: **Dissertation**   What degree? **Ph.D.**

Which Institution: **School of Computer and Information Sciences**
Nova Southeastern University

Professional interest: **To add the knowledge base of education as well as further my own expertise and scholarship.**

Other: **None**

4. *List the school(s) in which you wish to conduct research.*

Orem Elementary School

5. *Describe the amount of actual classroom time to be involved in this research. Identify public school personnel who will be involved or affected by the study, describe briefly how each will be involved, and how much of their time will be used. Identify all those who will be involved.*

There will be no instructional time used for this research. Students access the computers in the media center and in their individual classrooms during lunch, before and after school, during recess, or when they have free time in their classrooms. I will be the only individual directly involved in the research. The media specialist and all classroom teachers are involved peripherally as they are present in the rooms when the computers are used, but none of them are directly involved in the research. The data has been collected as the students accessed the tests on the computer, thus little time on any school personnel's part will be necessary.

6. *What specific questions will the research attempt to answer?*

AR is an electronic, computer based Reading assessment and management tool. Student access the tests on computers in the library or in their individual classrooms. The goal of the research is to examine the use of AR at Orem Elementary School in the primary grades. At Orem Elementary School, kindergarten does not use AR. The testing begins with first grade. This study will look at grades one through three.

As each student takes a test on a book the score is recorded. These scores are available for use as needed in a central database configured in the software. Pre and Post tests are also built into the system where reading levels can be ascertained through the use of the companion software package: Standardized Test for Assessment of Reading (STAR). These pre and post tests will be used as the criteria to measure if there is any effect on reading as a result of this software. These are given at he beginning, middle and end of the school year and the mean scores of these tests will be compared.

It is the contention of AR that for every 100 points earned taking these tests, two and a half reading levels of growth takes place.

The review of the literature indicates that no research has been done specifically on primary grade students using AR. The use of the computer in this regard is a fairly new

phenomenon. As the only school in the state of Utah to implement AR, we are pioneering a new product. One barrier inherent with being the first, is that it is difficult to compare data with others in the same district with similar demographics. The data does not exist. It is the purpose of this work to generate that data.

Another barrier deals with definitions. What does a reading level mean? When AR indicates two and one half reading levels of growth for every 100 points, what does that mean? A standard definition of reading level will need to be defined and used or comparisons to norms of other tests may be necessary to see if growth has indeed taken place.

This work is critical to the use of computerized assessment tools in a school setting. As computing technology is added to the tool kit of education, is there a significant contribution made? In one of the most basic of all academic subjects, Reading, does the addition of a computerized assessment tool make a difference? A review of the literature gives mixed results on the use of AR software in upper elementary and junior high school students. This work is of critical significance to education, especially when applied to primary grade students, where learning to read is one of the most important skills they can acquire.

7. *Describe the research design.*

As discussed with Dr. Cameron.

8. *Fully describe the research procedure.*

Data from the AR tests have been collected during the past two years. This is the third year Orem Elementary has been using AR. Data from the 1996-97 school year will be used. Data from the 1995-96 school year may not be as valid, as the program was being introduced that year and variables effecting the data may have been present. The second year, 1996-97, use of the program was managed more effectively and the data collected more valid.

These data are electronically stored and available for study. The data will be analyzed and compared to standardized, normed tests to see if indeed, growth has taken place as claimed by the software publisher.

9. *Describe the experimental and control/comparison samples, their size and how they will be selected.*

The data collected will be compared to standardized, normed reference test results. The STAR test gives normed equivalents as part of the test results. All first through third grade students who have used AR will be part of the study. Students are not required to participate.

10. *What instruments will be used? If these are not readily available or well-known, attach a copy. If a questionnaire/survey is being used, attach a copy.*

The STAR test will be used as the basis for testing reading levels. There is also other data on the test results; see the attached definitions. Each student in the school is tested four times per year to determine reading levels and growth. Attached is an example STAR test result from a student taking the test at the beginning of this school year.

11. *How will the confidentiality of student data or of those who participate in the study be assured?*

The data is electronically stored and protected by password. Each teacher has a password to access the data for their own students. The principal, the media specialist, and myself are the only personnel who know the passwords to access the entire database. Students will be referred to generically in the research with no student, faculty, or other staff member identified by name.

12. *Attach a copy of the form to be used for securing parental permission.*

Not applicable (according to Dr. Cameron) for this research.

13. *Attach a review of the literature relevant to the study.*

A complete review of the literature will be included in the final dissertation report that will be furnished to the district upon completion.

Please return a completed copy of this form, along with all supporting documents to:

Frank Cameron, Ph.D.
Director of Research and Evaluation
Alpine School District
50 North Center
American Fork, UT 84003

(801) 756-8464

The Alpine School District is anxious to cooperate with and to facilitate well-designed theoretical and field research. If you have questions about the research-approval process, or if you would like to discuss your ideas for the study, please call Bonnie Newman (756-8487) and make an appointment.

AGREEMENT

I agree to submit my completed report to the Department of Research and Evaluation by:

Spring 1999

I accept the Guidelines as they are outlined. If approval is granted to conduct research in the Alpine School District, I will follow the design and process as I have described it.

_____   _____
Signature   Date

ALPINE SCHOOL DISTRICT

575 NORTH 100 EAST, AMERICAN FORK, UTAH 84003-1758 (801) 756-8464
FAX NUMBER: (801) 756-8490

FRANK L. CAMERON, PH.D., DIRECTOR - RESEARCH & EVALUATION

20 March 1998

Mitch Pratt
Orem Elementary School
Orem, Utah

Mitch,

You have permission to examine the effectiveness of the computer-assisted reading program at Orem Elementary School. Many thanks for your work on this. Too often we do not investigate the actual impact of innovative programs, and your assistance with it is much appreciated

Please work closely with Principal Kim Roper, and keep him and me apprised of your progress and your findings.

Again, Mitch, thanks for your work on this project.

Copy   Kim Roper, Jack Reid and Gary Keetch

APPENDIX B

Permission to Conduct Research Using Human Subjects
Nova Southeastern University
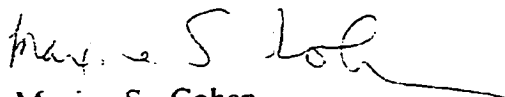
July 9, 1998

Mitchell O. Pratt
Ph.D. Candidate
Coordinator, Educational Technology
Orem Elementary School
450 W. 400 S.
Orem. UT 84058

Dear Mitch,

This letter is to document the filing in May 1998 of your dissertation research project titled "A study of the computerized reading management program Accelerated Reader and its effect on reading among primary grade students" as Exempt under the rules of the IRB of Nova Southeastern University. This research does not cause harm to subjects. It is educational research using existing data available from the school district. Subjects can not be identified directly or indirectly. Permission has been obtained from the school district through the Director of Research and Evaluation.

Exempt does not mean the research is exempt from review. It means the research does not need to go before the IRB board for a full review. The research is still logged and recorded as human subjects research under SCIS.

Maxine S. Cohen
Assistant Professor
SCIS Representative to the Institutional Review Board (IRB) of Nova Southeastern University

APPENDIX C

First, Second, and Third Grade Reading Books
Used for AR

Reading Level One:

Title:	Author:	Reading Level:
Are You My Mother?	Eastman, P.D.	1.0
Bunny Hop, The	Slater, Teddy	1.0
Can You Play?	Ziefert, Harriet	1.0
Choco-Louie	Kindley, Jeff	1.0
Dog's Tale, A	Reit, Seymour	1.0
Easter Surprise	Stock, Catherine	1.0
Follow That Fish	Oppenheim, Joanne	1.0
Good News	Brenner, Barbara	1.0
Goodnight Moon	Brown, Margaret W.	1.0
Happy Easter, Little Critter	Mayer, Mercer	1.0
Just Me and My Mom	Mayer, Mercer	1.0
Knight and the Dragon, The	Depolai, Tomie	1.0
Lucky Bear	Phillips, Joan	1.0
Plant That Kept on Growing	Brenner, Barbara	1.0
Sleep Tight, Pete	Schecter, Ellen	1.0
Sleepy Dog	Ziefert, Harriet	1.0
Spaghetti Party, The	Orgel, Doris	1.0
Wake Up, Baby!	Oppenheim, Joanne	1.0
All By Myself	Mayer, Mercer	1.1
Best Castle Ever, The	Ziefert, Harriet	1.1
I Hate Boots	Ziefert, Harriet	1.1
Molly Radlauer,	Ruth S.	1.1
Molly Goes Hiking	Radlauer, Ruth S.	1.1
Wake Up, Sun	Harrison, David	1.1
Across the Stream	Ginsburg, Mirra	1.2
And I Mean It, Stanley	Bonsall, Crosby	1.2
Ball Book, The	Hillert, Margaret	1.2
Catch Me, Catch Me!	Awdry, Rev. W.	1.2
Come to School, Dear Dragon	Hillert, Margaret	1.2
Follow the Monsters!	Lerner, Sharon	1.2
Friend for Dear Dragon, A	Hillert, Margaret	1.2
Go to Sleep, Dear Dragon	Hillert, Margaret	1.2
House for Little Red, A	Hillert, Margaret	1.2
I Like Ketchup Sandwiches	Conway, Lisa	1.2
I Love You, Dear Dragon	Hillert, Margaret	1.2
I Need You, Dear Dragon	Hillert, Margaret	1.2
It's Circus Time, Dear Dragon	Hillert, Margaret	1.2
Kiss for Little Bear, A	Minarik, Else H.	1.2
Leo the Late Bloomer	Kraus, Robert	1.2
Let's Go, Dear Dragon	Hillert, Margaret	1.2
Let's Have a Play	Hillert, Margaret	1.2
Not I, Not I	Hillert, Margaret	1.2
Officer Buckle and Gloria	Rathmann, Peggy	1.2
Prince's Tooth Is Loose, The	Ziefert, Harriet	1.2
Shine, Sun!	Greene, Carol	1.2

So Sick!	Ziefert, Harriet	1.2
Take My Picture!	Ziefert, Harriet	1.2
Amelia Bedelia	Parish, Peggy	1.3
Babar's Picnic	deBrunhoff, Lauren	1.3
Birthday Car, The	Hillert, Margaret	1.3
Chita's Christmas Tree	Howard, Elizabeth	1.3
Circus Fun	Hillert, Margaret	1.3
City Fun	Hillert, Margaret	1.3
Clifford the Big Red Dog	Bridwell, Norman	1.3
Dozen Dogs, A	Ziefert, Harriet	1.3
Freddie's Spaghetti	Doyle, Charlotte	1.3
Fun Days	Hillert, Margaret	1.3
Happy Birthday, Cookie Monster!	Haus, Felice	1.3
Happy Birthday, Thomas	Awdry, Rev. W.	1.3
Help for Dear Dragon	Hillert, Margaret	1.3
Hi, Clouds	Greene, Carol	1.3
Ice Is...Whee!	Greene, Carol	1.3
Kit and Kat	dePaola, Tomie	1.3
Leaves	Corderoy, William	1.3
Magic Beans, The	Hillert, Margaret	1.3
Merry Christmas, Amelia Bedelia	Parish, Peggy	1.3
Nate the Great and the Musical...	Sharmat, Marjorie	1.3
Thomas and the School Trip	Awdry, Rev. W.	1.3
Three Bears, The	Hillert, Margaret	1.3
Three Goats, The	Hillert, Margaret	1.3
Three Little Pigs, The	Hillert, Margaret	1.3
Tom Thumb	Hillert, Margaret	1.3
Yellow Boat, The	Hillert, Margaret	1.3
Baby Bunny, The	Hillert, Margaret	1.4
Big Bird's Copycat Day	Lerner, Sharon	1.4
Boy and the Goats, The	Hillert, Margaret	1.4
Bugs!	McKissack, Patrici	1.4
Clifford's Christmas	Bridwell, Norman	1.4
Clifford's Kitten	Bridwell, Norman	1.4
Clifford's Puppy Days	Bridwell, Norman	1.4
Dozen Dizzy Dogs, A	Hooks, William	1.4
Four Good Friends	Hillert, Margaret	1.4
Frog and Toad All Year	Lobel, Arnold	1.4
Frog and Toad are Friends	Lobel, Arnold	1.4
Frog and Toad Together	Lobel, Arnold	1.4
Funny Baby, The	Hillert, Margaret	1.4
Go-With Words	Dobkin, Bonnie	1.4
Harry Dresses Himself	Gaban, Jesus	1.4
Harry's Sandbox Surprise	Colorado, Nani	1.4
In the Small, Small Pond	Fleming, Denise	1.4
Little Cookie, The	Hillert, Margaret	1.4
Little Runaway, The	Hillert, Margaret	1.4
Nate the Great and the Boring...	Sharmat, Marjorie	1.4
No More TV, Sleepy Dog	Ziefert, Harriet	1.4

Noah's Ark	Hayward, Linda	1.4
Old Black Fly	Aylesworth, Jim	1.4
One Fish, Two Fish, Red Fish...	Seuss, Dr.	1.4
Pinocchio	Hillert, Margaret	1.4
Sir Small and the Dragonfly	O'Connor, Jane	1.4
Snow Joe	Greene, Carol	1.4
Snug Bug	Dubowski, Cathy	1.4
Spiders and Webs	Lunn, Carolyn	1.4
Tiger is a Scaredy Cat	Phillips, Joan	1.4
Tim and Jim Take Off	Ziefert, Harriet	1.4
Up, Up, and Away	Hillert, Margaret	1.4
When Will the Snow Trees Grow?	Shecter, Ben	1.4
Who Goes to School?	Hillert, Margaret	1.4
Baby Moses	Hayward, Linda	1.5
Beef Stew	Brenner, Barbara	1.5
Berenstain Bears Count Their...	Berenstain, Stan a	1.5
Best Friends Wear Pink Tutus	Brownrigg, Sheri	1.5
Big Mistake, A	Rinder, Lenore	1.5
Bonk! Goes the Ball	Stevens, Philippa	1.5
Chipmunk at Hollow Tree Lane	Sherrow, Victoria	1.5
Cinderella at the Ball	Hillert, Margaret	1.5
Circus, The	Harmer, Mabel	1.5
Clifford and the Big Storm	Bridwell, Norman	1.5
Clifford's Good Deeds	Bridwell, Norman	1.5
Clifford's Happy Easter	Bridwell, Norman	1.5
Clifford's Thanksgiving Visit	Bridwell, Norman	1.5
Come Play With Me	Hillert, Margaret	1.5
Cookies and Crutches	Delton, Judy	1.5
Curious George	Rey, H.A.	1.5
David and the Giant	Little, Emily	1.5
Eat Your Peas, Louise!	Snow, Pegeen	1.5
Five Silly Fishermen	Edwards, Roberta	1.5
Happy Easter, Dear Dragon	Hillert, Margaret	1.5
Harry's Mealtime Mess	Colorado, Nani	1.5
Hop on Pop	Seuss, Dr.	1.5
I Like Things	Hillert, Margaret	1.5
I Love Cats	Matthias, Catherin	1.5
Ice-Cold Birthday	Leffler, Maryann	1.5
Just Me and My Puppy	Mayer, Mercer	1.5
Keep the Lights Burning, Abbie	Roop, Peter & Connie	1.5
Knick Knack Paddywack	Moss, Marissa	1.5
Listen to Me	Neasi, Barbara	1.5
Little Red Riding Hood	Hillert, Margaret	1.5
Lucky Dog Days	Delton, Judy	1.5
Magic Nutcracker, The	Hillert, Margaret	1.5
Me First	Lester, Helen	1.5
Me Too!	Mayer, Mercer	1.5
Messy Bessey	McKissack, Patrici	1.5
More Spaghetti, I Say!	Gelman, Rita Golde	1.5
Mother, Mother I Want Another	Polushkin, Maria	1.5

Mrs. Brice's Mice	Hoff, Syd	1.5
My New Boy	Phillips, Joan	1.5
Oh No, Otis!	Frankel, Julie	1.5
One in the Middle...Kangaroo, The	Blume, Judy	1.5
Pumpkin Pumpkin	Titherington, Jean	1.5
Rain! Rain!	Greene, Carol	1.5
Ronald Morgan Goes to Bat Giff,	Patricia Rei	1.5
Row, Row, Row Your Boat	Oppenheim, Joanne	1.5
Show-and-Tell Frog, The	Oppenheim, Joanne	1.5
Sneaky Pete	Milios, Rita	1.5
Snow Baby, The	Hillert, Margaret	1.5
Splat! O'	Connor, Jane	1.5
Toad Eats Out	Schade/Buller	1.5
Tub Time for Harry	Gaban, Jesus	1.5
Twinkle, Twinkle, Little Bug	Ross, Katherine	1.5
Wait, Skates!	Johnson, Mildred	1.5
Wee Little Woman, The	Barton, Byron	1.5
What Is It?	Hillert, Margaret	1.5
What's in a Box?	Boivin, Kelly	1.5
Who Is Coming?	McKissack, Patrici	1.5
Why Can't I Fly?	Gelman, Rita	1.5
Witch Who Went For A Walk, The	Hillert, Margaret	1.5
You Are Much Too Small	Boegehold, Betty	1.5
Addition Annie	Gisler, David	1.6
All Stuck Up	Hayward, Linda	1.6
Bears, Bears, Everywhere	Milios, Rita	1.6
Bedtime for Frances	Hoban, Russell	1.6
Big Dog...Little Dog	Eastman, P.D.	1.6
Bigmama's	Crews, Donald	1.6
Boy Who Ate Dog Biscuits, The	Sachs, Betsy	1.6
Cave Boy	Dubowski, Cathy	1.6
Curious George Flies a Kite	Rey, Margret	1.6
Dirty Larry	Hamsa, Bobbie	1.6
Do You Like Cats?	Oppenheim, Joanne	1.6
Doll Party	Albert, Shirley	1.6
Foot Book, The	Seuss, Dr.	1.6
Golden Goose, The	Hillert, Margaret	1.6
Great Bug Hunt, The	Dobkin, Bonnie	1.6
I Love Fishing	Dobkin, Bonnie	1.6
In the Tall, Tall Grass	Fleming, Denise	1.6
It's Halloween, Dear Dragon	Hillert, Margaret	1.6
Julius	Hoff, Syd	1.6
Just For You	Mayer, Mercer	1.6
Just Grandpa and Me	Mayer, Mercer	1.6
Little Chief	Hoff, Syd	1.6
Little Cowboy and the Big Cowboy	Hillert, Margaret	1.6
Oscar Otter	Benchley, Nathanie	1.6
P.J. Funnybunny Camps Out	Sadler, Marilyn	1.6
Pet for Pat, A	Snow, Pegeen	1.6
Polar Bear, Polar Bear, What Do	Martin, Bill	1.6

Purple Pussycat, The	Hillert, Margaret	1.6
Rollo and Tweedy and the Ghost	Allen, Laura	1.6
Stone Soup	Brown, Marcia	1.6
Weeds and Wild Flowers	Podendorf, Illa	1.6
Where is Mittens?	Boivin, Kelly	1.6
Where's Lulu?	Hooks, William	1.6
Who Will Be My Friends?	Hoff, Syd	1.6
Why We Have Thanksgiving	Hillert, Margaret	1.6
Wrong-Way Rabbit, The	Slater, Teddy	1.6
Annie's Pet	Brenner, Barbara	1.7
Arthur's Tooth	Brown, Marc	1.7
At the Crossroads	Isadora, Rachel	1.7
Blue Skies, French Fries	Delton, Judy	1.7
Bookstore Cat	Wheeler, Cindy	1.7
Clifford's Pals	Bridwell, Norman	1.7
Cow that Got Her Wish, The	Hillert, Margaret	1.7
Curious George at the Beach	Rey, Margret	1.7
Curious George Visits the Zoo	Rey, Margret	1.7
Danny and the Dinosaur	Hoff, Syd	1.7
Day Jimmy's Boa Ate the Wash, The	Noble, Trinka Hake	1.7
Days With Frog and Toad	Lobel, Arnold	1.7
Double-Header	Herman, Gail	1.7
Feed Me	Hooks, William	1.7
Grizzwold	Hoff, Syd	1.7
Growing Vegetable Soup	Ehlert, Lois	1.7
Happy Birthday, Dear Dragon	Hillert, Margaret	1.7
Horse in Harry's Room, The	Hoff, Syd	1.7
I Have a Sister My Sister Is Dead	Peterson, Jeanne	1.7
I Love to Sneeze	Schecter, Ellen	1.7
Jungles	Podendorf, Illa	1.7
Just Like Me	Neasi, Barbara	1.7
Larry and the Cookie	McDaniel, Becky	1.7
Merry Christmas, Dear Dragon	Hillert, Margaret	1.7
My Mom Made Me Go To Camp	Delton, Judy	1.7
Pain and The Great One, The	Blume, Judy	1.7
Ready, Get Set Go!	Berenstain, Stan J.	1.7
Sandbox Betty	Petrie, Catherine	1.7
She'll Be Coming Around The Mountain	Coplon, Emily	1.7
Small Pig	Lobel, Arnold	1.7
Statue of Liberty, The	Penner, Lucille Re	1.7
We're Going On a Bear Hunt	Rosen, Michael	1.7
Whisper is Quiet, A	Lunn, Carolyn	1.7
All Tutus Should Be Pink	Brownrigg, Sheri	1.8
Aquariums and Terrariums	Broekel, Ray	1.8
Big Green Pocketbook, The	Ransom, Candice	1.8
Blow Me a Kiss, Miss Lilly	Carlstrom, Nancy	1.8
Bobby's Zoo	Lunn, Carolyn	1.8
Camp Ghost-Away	Delton, Judy	1.8

Gingerbread Man, The	Schmidt, Karen	1.8
Great Day for Up!	Seuss, Dr.	1.8
Happy Birthday Moon	Asch, Frank	1.8
Hello, Two-Wheeler!	Mason, Jane B.	1.8
Henry and Mudge and the Bedtime	Rylant, Cynthia	1.8
Hooray for the Golly Sisters!	Byars, Betsy	1.8
Just Going to the Dentist	Mayer, Mercer	1.8
Little Puff	Hillert, Margaret	1.8
Little Runner of the Longhouse	Baker, Betty	1.8
Moon Boy	Brenner, Barbara	1.8
Moving Day	Szekeres, Cyndy	1.8
N-O Spells No!	Slater, Teddy	1.8
Nate the Great and the Missing K	Sharmat, Marjorie	1.8
No Mail for Mitchell	Siracusa, Catherin	1.8
Oceans Carter,	Katherine	1.8
Oliver	Hoff, Syd	1.8
Paul the Pitcher	Sharp, Paul	1.8
Please, Wind?	Greene, Carol	1.8
Sammy the Seal	Hoff, Syd	1.8
Sheep Out to Eat	Shaw, Nancy	1.8
Snowy Day, The	Keats, Ezra	1.8
Stan the Hot Dog Man	Kessler, Ethel/Leo	1.8
Three Ducks Went Wandering	Roy, Ron	1.8
Too Many Balloons	Matthias, Catherin	1.8
Too Many Mice	Brenner, Barbara	1.8
Very Scary Jack-O'Lantern, A	Barham, Joanne	1.8
Yoo Hoo, Moon!	Blocksma, Mary	1.8
Birds We Know	Friskey, Margaret	1.9
Candy Corn Contest, The	Giff, Patricia	1.9
Captain Cat	Hoff, Syd	1.9
Cat in the Hat Comes Back, The	Seuss, Dr.	1.9
Daniel's Dog	Bogart, Jo Ellen	1.9
Dinosaurs, Dinosaurs	Barton, Byron	1.9
Farm Animals	Jacobsen, K.	1.9
Fight, The	Boegehold, Betty	1.9
Fire Fighters	Broekel, Ray	1.9
Good Morning, Miss Gator	Kraus, Robert	1.9
Harold and the Purple Crayon	Johnson, Crockett	1.9
Hedgehog Bakes a Cake	Macdonald, Maryann	1.9
Hey! Get Off Our Train	Burningham, John	1.9
Horrible Holidays, The	Wood, Audrey	1.9
If You Give a Moose a Muffin	Numeroff, Laura	1.9
In the Dinosaur's Paw	Giff, Patricia	1.9
Just Me and My Cousin	Mayer, Mercer	1.9
Katie Can	McDaniel, Becky	1.9
Mama, Do You Love Me?	Joosse, Barbara M.	1.9
Morris Goes to School	Wiseman, B.	1.9
My Visit to the Dinosaurs	Aliki	1.9
Never Spit on Your Shoes	Cazet, Denys	1.9
Pickle Puss	Giff, Patricia	1.9

Pigs Aplenty, Pigs Galore!	McPhail, David	1.9
Rabbit's Birthday Kite	Macdonald, Maryann	1.9
Samantha the Snob	Cristaldi, Kathryn	1.9
Scruffy	Parish, Peggy	1.9
Storms	Broekel, Ray	1.9
Take a Walk, Johnny	Hillert, Margaret	1.9
Ten Sly Piranhas	Wise, William	1.9
Three Sisters	Wood, Audrey	1.9
Time	Ziner, F.	1.9
Tiny Timothy Turtle	Leditschke, Anna	1.9
Valentine Star, The	Giff, Patricia	1.9

Reading Level Two:

Actually I Used to Be a Princess	Unada	2.0
Airplanes	Peterson, David	2.0
All New Jonah Twist, The	Honeycutt, Natalie	2.0
Always Arthur	Graham, Amanda	2.0
Amanda Pig on Her Own	VanLeeuwen, Jean	2.0
Amelia Bedelia and the Baby	Parish, Peggy	2.0
Angel Child, Dragon Child Surat,	Michele Mar	2.0
Animal Babies	Hamsa, Bobbie	2.0
Barney's Horse	Hoff, Syd	2.0
Berenstain...and the Missing Honey	Berenstain, Stan/J	2.0
Berenstain...on the Job, The	Berenstain, Stan/J	2.0
Big Mile Race, The	Kessler, Leonard	2.0
Birds	Lantier-Sampon, P.	2.0
Brutus the Wonder Poodle	Gondosch, Linda	2.0
Buzz is Part of a Bee, A	Lunn, Carolyn	2.0
Caboose Mystery	Warner, Gertrude C.	2.0
Castles	Jeunesse, Gallimar	2.0
Cat's Quizzer, The	Seuss, Dr.	2.0
Chalk Box Kid, The	Bulla, Clyde Robert	2.0
Clifford the Firehouse Dog	Bridwell, Norman	2.0
Clifford's Family	Bridwell, Norman	2.0
Clifford's First Christmas	Bridwell, Norman	2.0
Clifford's Manners	Bridwell, Norman	2.0
Conservation	Gates, Richard	2.0
December Secrets	Giff, Patricia R.	2.0
Dinosaurs	Clark, Mary Lou	2.0
Dragon in a Wagon, A	Dodd, Lynley	2.0
Drinking Gourd, The	Monjo, F.N.	2.0
Eency Weency Spider	Oppenheim, Joanne	2.0
Everybody Says	Dobkin, Bonnie	2.0
Fish Face	Giff, Patricia R.	2.0
Flying Insects	Lantier-Sampon, P.	2.0
Fraidy Cats	Krensky, Stephen	2.0
Freckle Juice	Blume, Judy	2.0
Ghost Named Fred, A	Benchley, Nathanie	2.0
Good-Bye Book, The	Viorst, Judith	2.0
I Am Not Afraid	Mann, Kenny	2.0

Kittens Are Like That	Pfloog, Jan	2.0
Knots on a Counting Rope	Martin, Bill	2.0
Let's Go Home, Little Bear	Waddell, Martin	2.0
Magic Pumpkin, The	Martin, Bill	2.0
Marvin Redpost: Is He a Girl?	Sachar, Louis	2.0
Moon, Sun and Stars	Lewellen, John	2.0
Mustard	Graeber, Charlotte	2.0
Nate the Great and the Stolen ...	Sharmat, Marjorie	2.0
On Christmas Eve	Brown, Margaret W.	2.0
On Top of Spaghetti	Glazer, Tom	2.0
Picture for Harold's Room, A	Johnson, Crockett	2.0
Purple Climbing Days	Giff, Patricia R.	2.0
Purple is Part of a Rainbow	Kowalczyk, Carolyn	2.0
Rebus Bears, The	Reit, Seymour	2.0
Remembering Box, The	Clifford, E.	2.0
Shortest Kid in the World, The	Bliss, Corinne	2.0
Snaggle Doodles	Giff, Patricia R.	2.0
Spider's Lunch: All About Garden	Cole, Joanna	2.0
Spooky Halloween Party, The	Prager, Annabelle	2.0
Stone Fox	Gardiner, John	2.0
Surprise Island	Warner, Gertrude C.	2.0
Sweet Dreams	Neasi, Barbara	2.0
There Is a Carrot in My Ear	Schwartz, Alvin	2.0
Third Grade is Terrible	Baker, Barbara	2.0
What If?	Utton, Peter	2.0
What's the Matter with Herbie?	Jo Kline, Suzy	2.0
When I Get Bigger	Mayer, Mercer	2.0
White Stallion, The	Shub, Elizabeth	2.0
Yellow House Mystery, The	Warner, Gertrude C.	2.0
You're the Scaredy-Cat	Mayer, Mercer	2.0
Adventures of Taxi Dog, The	Barracca, Debra	2.1
Airplanes	Lantier-Sampon, P.	2.1
Amelia Bedelia Goes Camping	Parish, Peggy	2.1
Beast in Ms. Rooney's Room, The	Giff, Patricia R.	2.1
Bedtime Mouse	Stoddard, Sandol	2.1
Collecting	Dobkin, Bonnie	2.1
Could It Be?	Oppenheim, Joanne	2.1
Dinosaur Babies	Penner, Lucille	2.1
Flying Animals	Lantier-Sampon, P.	2.1
Harold's Runaway Nose	Sonnenschein, Harr	2.1
If You Give a Mouse a Cookie	Numeroff, Laura	2.1
Junie B. Jones and her Big Fat...	Park, Barbara	2.1
Just A Daydream	Mayer, Mercer	2.1
Just Lost!	Mayer, Gina/Mercer	2.1
Katie Couldn't	McDaniel, Becky	2.1
Katie Did It	McDaniel, Becky	2.1
Key to the Treasure	Parish, Peggy	2.1
Little Critter at Scout Camp	Mayer, Mercer	2.1
Molly's Pilgrim	Cohen, Barbara	2.1
Oh, the Thinks You Can Think!	Seuss, Dr.	2.1

Oliver Pig at School	VanLeeuwen, Jean	2.1
Say "Cheese"	Giff, Patricia R.	2.1
There's a Wocket in My Pocket!	Seuss, Dr.	2.1
Tom the TV Cat	Heilbroner, Joan	2.1
True Story of Pocahontas, The	Penner, Lucille	2.1
Very Special Critter, A	Mayer, Gina/Mercer	2.1
Woodshed Mystery, The	Warner, Gertrude C	2.1
"Uh-Oh!" Said the Crow	Oppenheim, Joanne	2.2
Beavers Beware!	Brenner, Barbara	2.2
Best Little Monkeys in the World	Standiford, Natali	2.2
Buzby to the Rescue	Hoban, Julia	2.2
Case of the Scaredy Cats, The	Bonsall, Crosby	2.2
Chester	Hoff, Syd	2.2
Chester the Out-of-Work Dog	Singer, Marilyn	2.2
Curse of the Squirrel, The	Yep, Laurence	2.2
Dinosaur Garden	Donnelly, Liza	2.2
Donkey's Tale, The	Oppenheim, Joanne	2.2
Down By the Bay	Drescher, Henrick	2.2
Find Me a Tiger	Dodd, Lynley	2.2
Fox on the Job	Marshall, James	2.2
Grandmas At Bat	McCully, Emily A.	2.2
Henry and Mudge...Puddle Trouble	Rylant, Cynthia	2.2
Hungry Billy Goat, The	Milios, Rita	2.2
I Am Not Going to Get up Today!	Seuss, Dr.	2.2
I Speak English For My Mom	Stanek, Muriel	2.2
Insects	Podendorf, I.	2.2
Just Camping Out	Mayer, Mercer	2.2
Last Little Duckling, The	Kennedy, Fiona	2.2
Lion and Lamb Step Out	Brenner, Barbara	2.2
Lucky Baseball Bat, The	Christopher, Matt	2.2
Marvin Redpost: Alone in His Tea	Sachar, Louis	2.2
May I Bring a Friend?	DeRegniers, Beatrice	2.2
Messy Bessey's Closet	McKissack, P.	2.2
Messy Bessey's Garden	McKissack, P.	2.2
Nate the Great and the Mushy...	Sharmat, Marjorie	2.2
Owl At Home	Lobel, Arnold	2.2
Pear by Itself, A	Baker, Bonnie	2.2
Pirates Past Noon	Osborne, Mary	2.2
Runaway Teddy Bear, The	Hofmann, Ginnie	2.2
Sometimes Things Change	Eastman, Patricia	2.2
Spooky Old Tree, The	Berenstain, Stan/J	2.2
This Is My Friend	Mayer, Mercer	2.2
Wake Up, Bear	Dodd, Lynley	2.2
When I Am Old With You	Johnson, Angel	2.2
Who Wants Arthur?	Graham, Amanda	2.2
Amelia Bedelia and the Surprise	Parish, Peggy	2.3
Arthur's Christmas Cookies	Hoban, Lillian	2.3
Baseball	Broekel, Ray	2.3
Berenstain Bears' New Baby, The	Berenstain, Stan	2.3

Berenstain...and the Big Road ...	Berenstain, Stan	2.3
Berenstain...Missing Dinosaur Bone	Berenstain, Stan	2.3
Betsy's Little Star	Haywood, Carolyn	2.3
Big Honey Hunt, The	Berenstain, Stan	2.3
Bike Lesson, The	Berenstain, Stan	2.3
Bremen-town Musicians, The	Gross, Ruth B.	2.3
Case of the Double Cross, The	Bonsall, Crosby	2.3
Case of the Hungry Stranger, The	Bonsall, Crosby	2.3
Deserts	Posell, Elsa	2.3
Father Bear Comes Home	Minarik, Else H.	2.3
Frog Prince, The	Tarcov, Edith	2.3
Geraldine's Blanket	Keller, Holly	2.3
Ghost in Tent 19, The	O'Connor, Jim & Ja	2.3
Henry & Mudge Under the Yellow ..	Rylant, Cynthia	2.3
If I Were An Ant	Moses, Amy	2.3
Island of the Skog, The	Kellogg, Steven	2.3
Just A Mess	Mayer, Mercer	2.3
Just Me and My Babysitter	Mayer, Mercer	2.3
Just Me and My Dad	Mayer, Mercer	2.3
Lion and Lamb	Brenner, Barbara	2.3
Little Bear's Visit	Minarik, Else H.	2.3
Melvin's Cold Feet	Crust, Linda	2.3
Mike's Mystery	Warner, Gertrude C.	2.3
Mr. Sun and Mr. Sea	Butler, Andrea	2.3
My G-r-r-reat Uncle Tiger	Riordan, James	2.3
On Mother's Lap	Scott, Ann	2.3
Pancakes, Crackers, and Pizza	Eberts, Marjorie	2.3
Piles of Pets	Delton, Judy	2.3
Pioneer Bear	Sandin, Joan	2.3
Porcupine's Pajama Party	Harshman, Terry	2.3
Smallest Turtle, The	Dodd, Lynley	2.3
Snow Lion	McPhail, David	2.3
Surprise Party, The	Prager, Annabelle	2.3
When Bluebell Sang	Ernst, Lisa C.	2.3
Who Put the Pepper in the Pot	Cole, Joanna	2.3
Amigo	Baylor, Byrd	2.4
Anansi's Narrow Waist	Cabral, Len	2.4
Animals of Sea and Shore	Podendorf, Illa	2.4
Arthur's Halloween Costume	Hoban, Lillian	2.4
Arthur's New Puppy	Brown, Marc	2.4
Aunt Eater Loves a Mystery	Cushman, Doug	2.4
Baby Sister Says No	Mayer, Mercer	2.4
Baseball Ballerina	Cristaldi, Kathryn	2.4
Bear Scouts, The	Berenstain, Stan	2.4
Beast in the Bathtub, The	Stevens, Kathleen	2.4
Berenstain Bears and...Junk Food	Berenstain, Stan	2.4
Berenstain...and the Ghost...	Berenstain, Stan	2.4
Blue Bay Mystery	Warner, Gertrude C.	2.4
Bully Trouble	Cole, Joanna	2.4
Cam Jansen...Monkey House	Adler, David A.	2.4

Caps For Sale	Slobodkina, Esphyr	2.4
Come Back, Amelia Bedelia	Parish, Peggy	2.4
Dogs	Posell, Elsa	2.4
Dolphins!	Bokoske, Sharon	2.4
Football	Broekel, Ray	2.4
Fox in Love	Marshall, Edward	2.4
Ghost and Pete	Dodds, Dayle Ann	2.4
Gruff Brothers, The	Hooks, William	2.4
Hill of Fire	Lewis, Thomas	2.4
Hurricane City	Weeks, Sarah	2.4
Just Me and My Little Sister	Mayer, Mercer	2.4
Just Shopping With Mom	Mayer, Mercer	2.4
Lights, Action, Land-Ho!	Delton, Judy	2.4
Marvin K. Mooney WILL YOU PLEASE...	Seuss, Dr.	2.4
Monster from the Sea, The	Hooks, William	2.4
Mouse Who Wanted to Marry, The	Orgel, Doris	2.4
New Shoes for Silvia	Hurwitz, Johanna	2.4
No Good in Art	Cohen, Miriam	2.4
Norma Jean, Jumping Bean	Cole, Joanna	2.4
Old Woman and Her Pig, The	Kimmel, Eric	2.4
Picasso the Green Tree Frog	Graham, Amanda	2.4
Seasons	Podendorf, Illa	2.4
Small Wolf	Benchley, Nathanie	2.4
Snowbound Mystery	Warner, Gertrude C.	2.4
Teeny Tiny Woman, The	O'Connor, Jane	2.4
Three up a Tree	Marshall, James	2.4
Two Bad Ants	VanAllsburg, Chris	2.4
'Twas the Night Before Thanks...	Pilkey, D.	2.4
Adventures of Snail at School, The	Stadler, John	2.5
Arthur's Loose Tooth	Hoban, Lillian	2.5
Arthur's Prize Reader	Hoban, Lillian	2.5
Babar's Little Circus Star	deBrunhoff, Lauren	2.5
Baby Animals	Podendorf, Illa	2.5
Back To School With Betsy	Haywood, Carolyn	2.5
Bear Detectives, The	Berenstain, Stan	2.5
Bears' Christmas, The	Berenstain, Stan	2.5
Bears' Picnic, The	Berenstain, Stan	2.5
Bears' Vacation, The	Berenstain, Stan	2.5
Berenstain...and the Sitter, The	Berenstain, Stan	2.5
Berenstain...Trick or Treat, The	Berenstain, Stan	2.5
Big Balloon Race, The	Coerr, Eleanor	2.5
Christmas Witch, The	Oppenheim, Joanne	2.5
Cowboys	Martini, Teri	2.5
Crazy Quilt, The	Avery, Kristin	2.5
Cream of Creature...Cafeteria	Thaler, Mike	2.5
Dear Rebecca, Winter Is Here	George, Jean Craig	2.5
Down on the Funny Farm	King, P.E.	2.5
Earthquakes	Challand, Helen J.	2.5
Educating Arthur	Graham, Amanda	2.5

Ellen and Penguin	Vulliamy, Clara	2.5
Engelbert Moves the House	Paxton, Tom	2.5
Experiments With Light	Broekel, Ray	2.5
Fireflies!	Brinckloe, Julie	2.5
Flea's Best Friend	Fuge, Charles	2.5
Fox On Stage	Marshall, James	2.5
George and Martha	Marshall, James	2.5
Grouchy Ladybug, The	Carle, Eric	2.5
Harry Goes to Day Camp	Ziefert, James	2.5
Health	Jacobsen, K.	2.5
I Have To Go!	Munsch, Robert	2.5
Isabelle's New Friend	deBrunhoff, Lauren	2.5
Johnny Lion's Book	Hurd, Edith	2.5
Julius, The Baby of the World	Henkes, Kevin	2.5
Little Bear's Friend	Minarik, Else H.	2.5
Little Gorilla	Bornstein, Ruth	2.5
Littles, The	Peterson, John	2.5
Mice At Bat	Oechsli, Kelly	2.5
Molly the Brave and Me	O'Connor, Jane	2.5
Molly's Surprise	Tripp, Valerie	2.5
Monkey-Monkey's Trick	McKissack, Patrici	2.5
Mouse Soup	Lobel, Arnold	2.5
Mouse Tales	Lobel, Arnold	2.5
Mr. Monster	Hooks, William	2.5
No More Monsters for Me	Parish, Peggy	2.5
Noah and the Flood	Brenner, Barbara	2.5
Play Ball, Amelia Bedelia	Parish, Peggy	2.5
Pudmuddles	York, Carol	2.5
Puppies Are Like That	Pfloog, Jan	2.5
Reptiles	Ballard, Lois	2.5
Science Experiments	Webster, Vera R.	2.5
Shape of Me and Other Stuff	Seuss, Dr.	2.5
Ships and Seaports	Carter, K.J.	2.5
Slinky Malinki	Dodd, Lynley	2.5
Snakes	Broekel, Ray	2.5
Three by the Sea	Marshall, Edward	2.5
Trains	Broekel, Ray	2.5
Try Again Sally Jane	Feddersen, Mary	2.5
Two of Everything	Hong, Lily	2.5
Up North at the Cabin	Chall, Marsha	2.5
Weather Experiments	Webster, Vera R.	2.5
20,000 Baseball Cards...Sea	Buller, Jon	2.6
Abe Lincoln's Hat	Brenner, Martha	2.6
Airports	Peterson, David	2.6
Animal Observations	Broekel, R.	2.6
Annie and the Old One	Miles, Miska	2.6
Arthur Meets The President	Brown, Marc	2.6
Arthur's Honey Bear	Hoban, Lillian	2.6
Astronomy	Fradin, Dennis B.	2.6
Bald Eagles	Lepthien, Emilie	2.6

Berenstain...and the Bad Habit	Berenstain, Stan	2.6
Berenstain...Blaze a Trail, The	Berenstain, Stan	2.6
Bootsie Barker Bites	Bottner, Barbara	2.6
Busybody Nora	Hurwitz, Johanna	2.6
Case of the Cat's Meow, The	Bonsall, Crosby	2.6
Dust For Dinner	Turner, Ann	2.6
Emily Arrow Promises To Do Bette	Giff, Patricia R.	2.6
Flower of Sheba, The	Orgel, Doris	2.6
Four on the Shore	Marshall, Edward	2.6
Good Morning, Chick	Ginsburg, Mirra	2.6
Great White Man-Eating Shark, The	Mahy, Margaret	2.6
Green Eggs and Ham	Seuss, Dr.	2.6
Hairy Maclary's Rumpus at the...	Ve Dodd, Lynley	2.6
I Can Read with My Eyes Shut!	Seuss, Dr.	2.6
I Just Forgot	Mayer, Mercer	2.6
I Was So Mad	Mayer, Mercer	2.6
Lighthouse Mystery, The	Warner, Gertrude C	2.6
Lionel in the Fall	Krensky, Stephen	2.6
Mirandy and Brother Wind	McKissack, P.	2.6
Miss Nelson Is Missing	Allard, Harry	2.6
Mr. Dinosaur	Hooks, William	2.6
Red Fox and His Canoe	Benchley, Nathanie	2.6
S-S-Snakes	Penner, Lucille	2.6
Slinky Malinki, Open the Door	Dodd, Lynley	2.6
Soccer	Rosenthal, B.	2.6
Star Maiden, The	Esbensen, Barbara	2.6
Sylvester and the Magic Pebble	Steig, William	2.6
Three Names	MacLachlan, P.	2.6
Trees	Podendorf, I.	2.6
Very Hungry Caterpillar, The	Carle, Eric	2.6
When Will I Read?	Cohen, Miriam	2.6
Adventures o f Ratman, The	Weiss, Ellen	2.7
Astronauts	Greene, Carol	2.7
Automobiles	Wilkinson, Sylvia	2.7
Berenstain...and the Bad Dream	Berenstain, Stan	2.7
Berenstain...Get in a Fight, The	Berenstain, Stan	2.7
Berenstain...Trouble With Money	Berenstain, Stan	2.7
Boy Who Cried "Wolf!", The	Schecter, Ellen	2.7
Buck-Buck the Chicken	Ehrlich, Amy	2.7
Christmas Coat, The	Bulla, Clyde Rober	2.7
Clara and the Bookwagon	Levinson, Nancy	2.7
Flossie and the Fox	McKissack, Patrici	2.7
Fox in Socks	Seuss, Dr.	2.7
Great Getaway, The	Cossi, Olga	2.7
Happy Mother's Day!	Hautzig, Deborah	2.7
Indians	Martini, Teri	2.7
Job For Jenny Archer, A	Conford, Ellen	2.7
Just Me and My Little Brother	Mayer, Mercer	2.7
Madeline's Christmas	Bemelmans, Ludwig	2.7
Mexico	Jacobsen, Karen	2.7

Mitchell Is Moving	Sharmat, Marjorie	2.7
Mountain Top Mystery	Warner, Gertrude C.	2.7
Mr. Brown Can Moo! Can You?	Seuss, Dr.	2.7
Mystery of the Phantom Pony, The	Hall, Lynn	2.7
Mystery of the Pirate Ghost, The	Hayes, Geoffrey	2.7
Next Time I Will	Orgel, Doris	2.7
No Fighting, No Biting!	Minarik, Else H.	2.7
Owl and the Pussycat, The	Lear, Edward	2.7
Schnitzel von Krumm's Basketwork	Dodd, Lynley	2.7
Things That Go	Reit, Seymour	2.7
Tillie and Mert	Luttrell, Ida	2.7
Ups and Downs with Lion and Lamb	Brenner, Barbara	2.7
Vampires Don't Wear Polka Dots	Dadey, Debbie	2.7
What A Pest!	Leffler, Maryann	2.7
When the Giants Came to Town	Leonard, Marcia	2.7
White-Tailed	Deer Kolbacken, J.	2.7
"Not Now!" Said the Cow	Oppenheim, Joanne	2.8
Apt. 3	Keats, Ezra	2.8
Babies of Cockle Bay, The	McAllister, Angela	2.8
Berenstain Bears and Too Much TV	Berenstain, Stan	2.8
Berenstain...and the In-Crowd, The	Berenstain, Stan/J	2.8
Berenstain...and Too Much Birthday	Berenstain, Stan/J	2.8
Berenstain...Moving Day, The	Berenstain, Stan/J	2.8
Berenstain...Visit the Dentist	Berenstain, Stan/J	2.8
Boxcar Children, The	Warner, Gertrude C.	2.8
Cory Coleman, Grade 2	Brimner, Larry Dan	2.8
Dangerous Fish	Broekel, R.	2.8
Dinosaur Days	Milton, Joyce	2.8
Endangered Animals	Stone, Lynn M.	2.8
George and Martha Rise and Shine	Marshall, James	2.8
Giraffe and the Pelly and Me, The	Dahl, Roald	2.8
Grasshopper on the Road	Lobel, Arnold	2.8
Hattie Rabbit	Gackenbach, Dick	2.8
Here Comes Zelda Claus...Disaster	Hall, Lynn	2.8
Horrible Harry in Room 2B	Kline, Suzy	2.8
Ira Sleeps Over	Waber, Bernard	2.8
It's About Time, Jesse Bear	Carlstrom, Nancy	2.8
Just My Friend and Me	Mayer, Mercer	2.8
Little House, The	Burton, Virginia L	2.8
Magic Box, The	Brenner, Barbara	2.8
Mandans, The	Lepthien, E.U.	2.8
Meet Kirsten	Shaw, Janet	2.8
Mike Mulligan and His Steam Shovel	Burton, Virginia L	2.8
Miss Rumphius	Cooney, Barbara	2.8
Mystery Behind the Wall	Warner, Gertrude C.	2.8
Mystery in the Sand	Warner, Gertrude C.	2.8
Owlbert	Harris, Nicholas	2.8
Papa Lucky's Shadow	Daly, Niki	2.8
Patchwork Quilt, The	Flournoy, Valerie	2.8
Photography	Freeman, Tony	2.8

Promise is a Promise, A	Munsch, Robert	2.8
Sharks Sharks Sharks	Anton, Tina	2.8
Snot Stew	Wallace, Bill	2.8
Sound Experiments	Broekel, Ray	2.8
Story of Jumping Mouse, The	Steptoe, John	2.8
There's a Nightmare in My Closet	Mayer, Mercer	2.8
There's No Such Thing as a Dragon	Kent, Jack	2.8
Up North in Winter	Hartley, Deborah	2.8
Village of Round and Square House	Grifalconi, Ann	2.8
Whales and Other Sea Mammals	Posell, Elsa	2.8
Who Wants an Old Teddy Bear?	Hofmann, Ginnie	2.8
William's Doll	Zolotow, Charlotte	2.8
Anna Banana and Me	Blegvad, Lenore	2.9
Bathwater Gang, The	Spinelli, Jerry	2.9
Berenstain...and the Truth, The	Berenstain, Stan	2.9
Berenstain...Trouble With Pets,	Berenstain, Stan	2.9
Best Friends for Frances	Hoban, Russell	2.9
Biggest Dinosaurs, The	Berenstain, Michael	2.9
Bus Station Mystery	Warner, Gertrude C.	2.9
Chinese Mirror, The	Ginsburg, Mirra	2.9
Computers	Jacobsen, Karen	2.9
Cow Buzzed, The	Zimmerman, Andrea	2.9
Dinosaur...In My Backyard, The	Hennessy, B.G.	2.9
Doctor De Soto	Steig, William	2.9
Doctor De Soto Goes to Africa	Steig, William	2.9
Dr. Seuss's ABC	Seuss, Dr.	2.9
Emma	Kesselman, Wendy	2.9
Europe	Georges, D.V.	2.9
Fantastic Mr. Fox	Dahl, Roald	2.9
First Strawberries, The	Bruchac, Joseph	2.9
Fossils	Roberts, Allan	2.9
Four Dollars and Fifty Cents	Kimmel, Eric	2.9
Fox Went Out...Chilly Night, The	Spier, Peter	2.9
Gerbil Pets and Other Small Rodents	Broekel, Ray	2.9
Good-For-Something Dragon, The	Enderle, Judith	2.9
Ice Cream Soup	Herman, Gail	2.9
If the Dinosaurs Came Back	Most, Bernard	2.9
Joshua's Dream A Journey to the ...	Segal, Sheila	2.9
Julian, Dream Doctor	Cameron, Ann	2.9
Little Engine That Could, The	Piper, Watty	2.9
Little Rabbit, The	Dunn, Judy	2.9
Missing Tooth, The	Cole, Joanna	2.9
Monkeys and Apes	Lumley, Kathryn	2.9
Mother Makes a Mistake	Dorer, Ann	2.9
Mufaro's Beautiful Daughters	Steptoe, John	2.9
Mystery Ranch	Warner, Gertrude C.	2.9
Nez Perce, The	Osinski, A.	2.9
Night Tree	Bunting, Eve	2.9
Owl Moon	Yolen, Jane	2.9
Poky Little Puppy, The	Lowrey, Janette	2.9

Popcorn	Asch, Frank	2.9
Pressure Play	Hughes, Dean	2.9
Runaway Bunny, The	Brown, Margaret W.	2.9
Schoolhouse Mystery	Warner, Gertrude C.	2.9
Song Lee in Room 2B	Kline, Suzy	2.9
Storm in the Night	Stolz, Mary	2.9
Story of Ferdinand, The	Leaf, Munro	2.9
Story of Johnny Appleseed, The	Aliki	2.9
Talking Eggs, The	SanSouci, Robert	2.9
Through Moon... Night Skies	Turner, Ann	2.9
Uncle Elephant	Lobel, Arnold	2.9
Wednesday Surprise, The	Bunting, Eve	2.9
When Grandfather's Parrot...	Allen, Linda	2.9
Where the Wild Things Are	Sendak, Maurice	2.9

Reading Level Three:

Afternoon On The Amazon	Osborne, Mary Pope	3.0
Aliens for Breakfast	Etra, Jonathan	3.0
Animal Shelter Mystery, The	Warner, Gertrude C.	3.0
Asia	Georges, D.V.	3.0
Babar and the Ghost	deBrunhoff, Lauren	3.0
Baseball Birthday Party, The	Prager, Annabelle	3.0
Berenstain...Go Out for the Team	Berenstain, Stan	3.0
Berenstain...Go to Camp, The	Berenstain, Stan	3.0
Big Max	Platt, Kin	3.0
Brazil (Postcards From)	Dawson, Zoe	3.0
Brother Eagle, Sister Sky	Jeffers, Susan	3.0
Button Soup	Orgel, Doris	3.0
Case for Jenny Archer, A	Conford, Ellen	3.0
Chocolate Touch, The	Catling, Patrick	3.0
Christmas Mircles of Jonathan To	Wojciechowski, S.	3.0
Counting on Frank	Clement, Rod	3.0
Deserted Library Mystery	Warner, Gertrude C.	3.0
Dinosaurs Before Dark	Osborne, Mary Pope	3.0
Einstein Anderson, Science Sleuth	Simon, Seymour	3.0
Giving Tree, The	Silverstein, Shel	3.0
Happy Mother's Day	Kroll, Steven	3.0
Harry Kitten and Tucker Mouse	Selden, George	3.0
Henry and Beezus	Cleary, Beverly	3.0
Henry and Ribsy	Cleary, Beverly	3.0
Horse Called Starfire, A	Boegehold, Betty	3.0
How Yossi Beat the Evil Urge	Chaikin, Miriam	3.0
Hunches in Bunches	Seuss, Dr.	3.0
I Am Really A Princess	Shields, Carol	3.0
I Should Worry, I Should Care	Chaikin, Miriam	3.0
Japan	Jacobsen, Karen	3.0
Julian's Glorious Summer	Cameron, Ann	3.0
Kitty in the Middle	Delton, Judy	3.0
Knight at Dawn	Osborne, Mary Pope	3.0
Lemming Condition, The	Arkin, Alan	3.0

Library Dragon, The	Deedy, Carmen Agra	3.0
Making the Team	Hughes, Dean	3.0
Meet Samantha	Adler, Susan S.	3.0
Mignight on the Moon	Osborne, Mary Pope	3.0
Mitzi's Honeymoon With Nana Pott	Williams, Barbara	3.0
Mummies in the Morning	Osborne, Mary Pope	3.0
Mystery at Snowflake Inn, The	Warner, Gertrude C.	3.0
Mystery of the Missing Cat, The	Warner, Gertrude C.	3.0
Napping House, The	Wood, Audrey	3.0
Navajo, The	Osinski, Alice	3.0
Nettie's Trip South	Turner, Ann	3.0
Night of the Ninjas	Osborne, Mary Pope	3.0
North America	Georges, D.V.	3.0
P.J. the Spoiled Bunny	Sadler, Marilyn	3.0
Penguin Pete's New Friends	Pfister, Marcus	3.0
Pretty Good Magic	Dubowski, Cathy	3.0
Ramona the Brave	Cleary, Beverly	3.0
Riptide	Weller, Frances	3.0
Robots	Greene, Carol	3.0
Rocks and Minerals	Podendorf, Illa	3.0
Schoolyard Mystery, The	Levy, Elizabeth	3.0
Seven Kisses in a Row	MacLachlan, P.	3.0
Sidewalk Story	Mathis, Sharon B.	3.0
Sim Chung and the River Dragon	Schecter, Ellen	3.0
Six Perfectly Different Pigs	Geoghegan, Adrienne	3.0
Skeletons Don't Play Tubas	Dabey, Debbie	3.0
Stephen's Feast	Richardson, Jean	3.0
Sunset of the Sabertooth	Osborne, Mary Pope	3.0
Tales of a Fourth Grade Nothing	Blume, Judy	3.0
Taste of Blackberries, A	Smith, Doris	3.0
Tree House Mystery	Warner, Gertrude C.	3.0
Victory Goal	Hughes, Dean	3.0
Winged Colt of Casa Mia, The	Byars, Betsy	3.0
Your Five Senses	Broekel, Ray	3.0
"B" is for Betsy	Haywood, Carolyn	3.1
Alex Fitzgerald's Cure for Night	Krull, Kathleen	3.1
At the Ball Game	Kramer, S.A.	3.1
Beavers	Lepthien, E.U.	3.1
Berenstain...and the Double Dare	Berenstain, Stan	3.1
Berenstain...Forget Their Manner	Berenstain, Stan	3.1
Berenstain...Go to the Doctor, The	Berenstain, Stan	3.1
Camp-out Mystery, The	Warner, Gertrude C.	3.1
Diamonds and Toads	Schecter, Ellen	3.1
Eddie's Green Thumb	Haywood, Carolyn	3.1
Good Hunting, Blue Sky	Parish, Peggy	3.1
Haunted Cabin Mystery	Warner, Gertrude C.	3.1
Jimmy's Boa...Birthday Bash	Noble, Trinka Hake	3.1
Lion to Guard Us, A	Bulla, Clyde Rober	3.1
Make Way for Ducklings	McCloskey, Robert	3.1
Messy Marcy MacIntyre	Cotton, Debie	3.1

Mr. Bubble Gum	Hooks, William	3.1
My Shadow	Stevenson, Robert	3.1
Mystery of the Hidden Painting, The	Warner, Gertrude C.	3.1
Penrod Again	Christian, Mary	3.1
Polar Express, The	VanAllsburg, Chris	3.1
Projects With Color and Light	Williams, John	3.1
Psyched!	Hughes, Dean	3.1
Red Sails to Capri	Weil, Ann	3.1
Sing, Little Sack! ÍCanta, Saqui	Jaffe, Nina	3.1
Tree in the Wood, The	Manson, Christopher	3.1
Tub People, The	Conrad, Pam	3.1
Winning Streak	Hughes, Dean	3.1
Year Mom Won the Pennant, The	Christopher, Matt	3.1
African Animals	Purcell, J.W.	3.2
Berenstain...Go to School, The	Berenstain, Stan	3.2
Blackberries in the Dark	Jukes, Mavis	3.2
Bunnicula	Howe, Deborah	3.2
Cannonball Chris	Marzollo, Jean	3.2
Chippewa, The	Osinski, Alice	3.2
Christmas in the Big Woods	Wilder, Laura Ingalls	3.2
Corduroy	Freeman, Don	3.2
Ears and Eyes	Greenaway, Theresa	3.2
Houseboat Mystery	Warner, Gertrude C.	3.2
Minstrel in the Tower, The	Skurzynski, Gloria	3.2
Mystery of the Mixed-up Zoo	Warner, Gertrude C.	3.2
Old Motel Mystery, The	Warner, Gertrude C.	3.2
On Beyond Zebra	Seuss, Dr.	3.2
Peach Boy	Hooks, William	3.2
Penguin Pete	Pfister, Marcus	3.2
Projects With Wheels	Williams, John	3.2
Space Colonies	Fradin, D.B.	3.2
Space Rock	Buller, Jon	3.2
Why Mosquitoes Buzz...Ears	Aardema, Verna	3.2
Aldo Applesauce	Hurwitz, Johanna	3.3
Attack of the Mutant	Stine, R.L.	3.3
Backup Goalie	Hughes, Dean	3.3
Baseball STAR, The	Arrigg, Fred G.	3.3
Beaks and Noses	Greenaway, Theresa	3.3
Below the Green Pond	Humphrey, Paul	3.3
Berenstain Bears and the Gallopi	Berenstain, Stan	3.3
Berenstain Bears and the New ...	Berenstain, Stan	3.3
Berenstain Bears at Camp Crush	Berenstain, Stan	3.3
Berenstain...and the Bully, The	Berenstain, Stan	3.3
Berenstain...Get Stage Fright, The	Berenstain, Stan	3.3
Cats	Posell, E.	3.3
Certain Small Shepherd, A	Caudill, Rebecca	3.3
Cherokee, The	Lepthien, Emilie	3.3
Daniel's Duck	Bulla, Clyde Rober	3.3
Dr. Seuss's Sleep Book	Seuss, Dr.	3.3

Experiments with Straws and Paper	Broekel, R.	3.3
Frogs (Amazing Amphibians)	Gerholdt, James E.	3.3
Fudge	Graeber, Charlotte	3.3
Go Eat Worms!	Stine, R.L.	3.3
Going to Town	Wilder, Laura Ingalls	3.3
Gregory, the Terrible Eater	Sharmat, Mitchell	3.3
Happy Birthday, Samantha!	Tripp, Valerie	3.3
Hit-Away Kid, The	Christopher, Matt	3.3
Imogene's Antlers	Small, David	3.3
Impy for Always	Koller, Jackie	3.3
Johnny Appleseed	Kellogg, Steven	3.3
Little Poss and Horrible Hound	Hooks, William	3.3
Meet Babar and his Family	deBrunhoff, Lauren	3.3
Meg Mackintosh and the Case of ...	Landon, Lucinda	3.3
Meg Mackintosh and the Mystery ...	Landon, Lucinda	3.3
Monsters of Marble Avenue, The	Gondosch, Linda	3.3
Mr. Baseball	Hooks, William	3.3
Mystery Cruise, The	Warner, Gertrude C.	3.3
Mystery Girl, The	Warner, Gertrude C.	3.3
Mystery of the Hidden Beach, The	Warner, Gertrude C.	3.3
New Dress for Maya, A	Blackman, Malorie	3.3
Oh, the Places You'll Go!	Seuss, Dr.	3.3
Pocket For Corduroy, A	Freeman, Don	3.3
Projects With Air	Williams, John	3.3
Projects With Flight	Williams, John	3.3
Projects With Time	Williams, John	3.3
Red Ribbon Rosie	Marzollo, Jean	3.3
Return of the Mummy	Stine, R.L.	3.3
Space Shuttles	Friskey, Margaret	3.3
Spiders	Podendorf, Illa	3.3
Stroke of Luck	Hughes, Dean	3.3
Tikki Tikki Tembo	Mosel, Arlene	3.3
Total Soccer	Hughes, Dean	3.3
Very Young Skater, A	Krementz, Jill	3.3
Very Young Skier, A	Krementz, Jill	3.3
Warrior Maiden, The	Schecter, Ellen	3.3
Watch the Stars Come Out	Levinson, Riki	3.3
When the Wind Stops	Zolotow, Charlotte	3.3
Why I'm Afraid of Bees	Stine, R.L.	3.3
Wild Christmas Reindeer, The	Brett, Jan	3.3
Winter Days in the Big Woods	Wilder, Laura Ingalls	3.3
X-Men: Battle of the Sentinels	Hautzig, Deborah	3.3
Aldo Ice Cream	Hurwitz, Johanna	3.4
Amusement Park Mystery, The	Warner, Gertrude C.	3.4
Annie & Moon	Smith, Miriam	3.4
Benny Uncovers a Mystery	Warner, Gertrude C.	3.4
Berenstain Bears and the Giddy ...	Berenstain, Stan	3.4
Berenstain...No Girls Allowed, The	Berenstain, Stan	3.4
Bicycle Mystery	Warner, Gertrude C.	3.4
Bridges	Carlisle, Norman	3.4

Championship Game	Hughes, Dean	3.4
Christina's Ghost	Wright, Betty R.	3.4
Deer in the Wood, The	Wilder, Laura Ingalls	3.4
Exploring Deserts	Behm, Barbara	3.4
Exploring Lakeshores	Behm, Barbara	3.4
Exploring Mountains	Behm, Barbara	3.4
First Thanksgiving, The	Hayward, Linda	3.4
Fur and Feathers	Greenaway, Theresa	3.4
Ghost Beach	Stine, R.L.	3.4
Gift of the Pirate Queen, The	Giff, Patricia R.	3.4
How My Parents Learned to Eat	Freidman, Ina R.	3.4
I Had Trouble Getting To Solla ...	Seuss, Dr.	3.4
Meg Mackintosh and the Mystery ...	Landon, Lucinda	3.4
Monster Blood III	Stine, R.L.	3.4
Moon Flights	Fradin, D.B.	3.4
Night in Terror Tower, A	Stine, R.L.	3.4
Oceans	Palmer, Joy	3.4
Oh Say Can You Say?	Seuss, Dr.	3.4
One of Three	Johnson, Angela	3.4
Paws and Claws	Greenaway, Theresa	3.4
Penrod's Pants	Christian, Mary	3.4
Phantom of the Auditorium	Stine, R.L.	3.4
Piano Lessons Can Be Murder	Stine, R.L.	3.4
Pied Piper of Hamelin, The	Hautzig, Deborah	3.4
Play-off	Hughes, Dean	3.4
Pollution	Amos, Janine	3.4
Projects With Electricity	Williams, John	3.4
Projects With Machines	Williams, John	3.4
Projects With Water	Williams, John	3.4
Roxaboxen	McLerran, Alice	3.4
Sam, Bangs and Moonshine	Ness, Evaline	3.4
Snowbound With Betsy	Haywood, Carolyn	3.4
Superstar Team	Hughes, Dean	3.4
Tortoise and the Hare, The	Stevens, Janet	3.4
Watch Out, Ronald Morgan	Giff, Patricia R.	3.4
Welcome to Dead House	Stine, R.L.	3.4
William and the Good Old Days	Greenfield, Eloise	3.4
X-Men: Enter Magneto	Weiner, Eric	3.4
Alexander and the...Very Bad Day	Viorst, Judith	3.5
Alexander, Who...Last Sunday	Viorst, Judith	3.5
Almost Starring Skinnybones	Park, Barbara	3.5
And to Think That I...Mulberry ...	Seuss, Dr.	3.5
Aunt Flossie's Hats and Crab Cake	Howard, Elizabeth	3.5
Baseball's Greatest Pitchers	Kramer, S.A.	3.5
Basketball	Rosenthal, B.	3.5
Be Careful What You Wish For...	Stine, R.L.	3.5
Berenstain...and Mama's New Job	Berenstain, Stan	3.5
Berenstain...and the Messy Room,	Berenstain, Stan	3.5
Berenstain...and the Slumber Party	Berenstain, Stan	3.5
Berenstain...Get the Gimmies, The	Berenstain, Stan	3.5

Berenstain...in the Dark, The	Berenstain, Stan	3.5
Berenstain...Learn About Strange	Berenstain, Stan	3.5
Betsy and the Boys	Haywood, Carolyn	3.5
Betsy and the Circus	Haywood, Carolyn	3.5
Biggest Pumpkin Ever, The	Kroll, Steven	3.5
Black Snowman, The	Mendez, Phil	3.5
Bloomers!	Blumberg, Rhoda	3.5
Cassie Binegar	MacLachlan, P.	3.5
Comeback! Four True Stories	O'Connor, Jim	3.5
Commonwealth...States, The	Jacobsen, Karen	3.5
Coping With Plastic Trash	Daniel, Jamie	3.5
Cuckoo Clock of Doom, The	Stine, R.L.	3.5
Dance at Grandpa's	Wilder, Laura Ingalls	3.5
Deep Trouble	Stine, R.L.	3.5
Dinosaur Hunters	McMullan, Kate	3.5
Dirt Bike Race	Christopher, Matt	3.5
Exploring Forests	Behm, Barbara	3.5
Exploring Woodlands	Behm, Barbara	3.5
Feeding the World	Amos, Janine	3.5
Fly Away Home	Bunting, Eve	3.5
Frederick	Lionni, Leo	3.5
Ghost Next Door, The	Stine, R.L.	3.5
Happy Birthday to You	Seuss, Dr.	3.5
Henry and the Clubhouse	Cleary, Beverly	3.5
Hobie Hanson, You're Weird	Gilson, Jamie	3.5
I Can Lick 30 Tigers Today	Seuss, Dr.	3.5
I'll Meet You at the Cucumbers	Moore, Lilian	3.5
It Came From Beneath the Sink!	Stine, R.L.	3.5
Jumanji	VanAllsburg, Chris	3.5
Kickoff Time	Hughes, Dean	3.5
Kirsten Saves the Day	Shaw, Janet	3.5
Kirsten's Surprise	Shaw, Janet	3.5
Lizards	Gerholdt, James E.	3.5
Lo-Jack and the Pirates	Hooks, William	3.5
Madeline and the Gypsies	Bemelmans, Ludwig	3.5
Molly Saves the Day	Tripp, Valerie	3.5
Money	Elkin, Benjamin	3.5
Monster Blood II	Stine, R.L.	3.5
Moonwalk	Donnelly, Judy	3.5
Much Ado About Aldo	Hurwitz, Johanna	3.5
My Buddy	Osofsky, Audrey	3.5
My Hairiest Adventure	Stine, R.L.	3.5
Nibble, Nibble, Jenny Archer	Conford, Ellen	3.5
Night Crossing	Ackerman, Karen	3.5
O'Diddy	Stevenson, Jocelyn	3.5
Oil Spills	Stille, Darlene	3.5
Olympics	Fradin, Dennis	3.5
Otherwise Known as Sheila the ...	Blume, Judy	3.5
Over and Over	Zolotow, Charlotte	3.5
Ozone Hole, The	Stille, Darlene	3.5
Pluto	Fradin, D.B.	3.5

Present for Big Pig, A	Gliori, Debi	3.5
Princess and the Pea, The	Andersen, Hans Christian	3.5
Rain Forests	Palmer, Joy	3.5
Safe at First	Hughes, Dean	3.5
Samantha Learns a Lesson	Adler, Susan S.	3.5
Scarecrow Walks at Midnight, The	Stine, R.L.	3.5
Singing Sam	Bulla, Clyde Robert	3.5
Sneetches and Other Stories, The	Seuss, Dr.	3.5
Squirrels	Lepthien, Emilie	3.5
Teeth and Tusks	Greenaway, Theresa	3.5
Tongues and Tails	Greenaway, Theresa	3.5
Tree Frogs (Amazing Amphibians)	Gerholdt, James E.	3.5
Truck Book, The	McNaught, Harry	3.5
Turkey for Thanksgiving, A	Bunting, Eve	3.5
United Nations	Greene, Carol	3.5
Up & Down Spring, The	Hurwitz, Johanna	3.5
Water Pollution	Stille, D.	3.5
What a Catch!	Hughes, Dean	3.5
Wind-Ups	Ollerenshaw, Chris	3.5
Year of the Perfect Christmas ...	Houston, Gloria	3.5
You Can't Scare Me	Stine, R.L.	3.5
You're Only Old Once!	Seuss, Dr.	3.5
Air Pollution	Stille, D.	3.6
Aliens For Lunch	Etra, Jonathan	3.6
Amazing Grace	Hoffman, Mary	3.6
Berenstain...and the Week at ...	Berenstain, Stan	3.6
Berenstain...and Trouble Gro, The	Berenstain, Stan	3.6
Berenstain...Meet Santa Bear, The	Berenstain, Stan	3.6
Berenstain...Trouble at School,	Berenstain, Stan	3.6
Big Base Hit	Hughes, Dean	3.6
Butter Battle Book, The	Seuss, Dr.	3.6
Chickens Aren't the Only Ones	Heller, Ruth	3.6
Cloudy With a Chance of Meatball	Barrett, Judi	3.6
Coping With Food Trash	Daniel, Jamie	3.6
Coping With Glass Trash	Daniel, Jamie	3.6
Curse of the Mummy's Tomb, The	Stine, R.L.	3.6
Defense	Hughes, Dean	3.6
Deputy Dan and the Bank Robbers	Rosenbloom, Joseph	3.6
Deputy Dan Gets His Man	Rosenbloom, Joseph	3.6
Did I Ever Tell You How Lucky ...	Seuss, Dr.	3.6
Eddie and Gardenia	Haywood, Carolyn	3.6
Eddie and the Fire Engine	Haywood, Carolyn	3.6
Electricity	Ollerenshaw, Chris	3.6
Encyclopedia Brown Boy Detective	Sobol, Donald J.	3.6
Exploring Seashores	Behm, Barbara	3.6
Frog Prince Continued, The	Scieszka, Jon	3.6
Haunted Mask, The	Stine, R.L.	3.6
Horton Hatches the Egg	Seuss, Dr.	3.6
Iggie's House	Blume, Judy	3.6
Josefina Story Quilt, The	Coerr, Eleanor	3.6

Lasers	Oleksy, Walter	3.6
Levers	Ollerenshaw, Chris	3.6
Little Island, Th	MacDonald, Golden	3.6
Little Polar Bear	deBeer, Hans	3.6
Maebelle's Suitcase	Tusa, Tricia	3.6
Magic School Bus...Solar System	Cole, Joanna	3.6
Monster Blood	Stine, R.L.	3.6
Mystery of the Lost Village, The	Warner, Gertrude C.	3.6
Puppy Who Wanted a Boy, The	Thayer, Jane	3.6
Relatives Came, The	Rylant, Cynthia	3.6
Ruby Mae Has Something to Say	Small, David	3.6
Say Cheese and Die!	Stine, R.L.	3.6
Snakes	Gerholdt, James E.	3.6
Stay Out of the Basement	Stine, R.L.	3.6
Stories Julian Tells, The	Cameron, Ann	3.6
Strawberry Girl	Lenski, Lois	3.6
Sub, The	Petersen, P.J.	3.6
Thidwick the Big-Hearted Moose	Seuss, Dr.	3.6
Tough to Tackle	Christopher, Matt	3.6
Up to Bat	Hughes, Dean	3.6
Velveteen Rabbit, The	Williams, Margery	3.6
Welcome to Camp Nightmare	Stine, R.L.	3.6
Werewolf of Fever Swamp, The	Stine, R.L.	3.6
Yertle the Turtle and Other Stories	Seuss, Dr.	3.6
All Together Now	Hughes, Dean	3.7
Angel's Mother's Wedding	Delton, Judy	3.7
Babushka's Doll	Polacco, Patricia	3.7
Bartholomew and the Oobleck	Seuss, Dr.	3.7
Berenstain...and the Prize Pumpkin	Berenstain, Stan	3.7
Berenstain...and Trouble Fri, The	Berenstain, Stan	3.7
Beware the Dragons!	Wilson, Sarah	3.7
Beyond the Ridge	Goble, Paul	3.7
Boy of the Three-Year Nap, The	Snyder, Dianne	3.7
Coping With Paper Trash	Daniel, Jamie	3.7
Dragonling, The	Koller, Jackie	3.7
Easter Cat, The	DeJong, Meindert	3.7
Experiments With Electricity	Challand, Helen J.	3.7
Gears	Ollerenshaw, Chris	3.7
Ghost Ship Mystery, The	Warner, Gertrude C.	3.7
Girl Who Cried Monster, The	Stine, R.L.	3.7
Hang Tough, Paul Mather	Slote, Alfred	3.7
Hansel and Gretel	Lesser, Rika	3.7
Hattie and the Wild Waves	Cooney, Barbara	3.7
How the Grinch Stole Christmas	Seuss, Dr.	3.7
Jamaica's Find	Havill, Juanita	3.7
Johnny Long Legs	Christopher, Matt	3.7
Jupiter	Fradin, D.B.	3.7
Just My Dad & Me	Komaiko, Leah	3.7
Let's Get Invisible!	Stine, R.L.	3.7
Line Drive	Hughes, Dean	3.7

Loop the Loop	Dugan, Barbara	3.7
Lorax, The	Seuss, Dr.	3.7
Magic School Bus Inside the Earth	Cole, Joanna	3.7
Mare for Young Wolf, A	Shefelman, Janice	3.7
McElligot's Pool	Seuss, Dr.	3.7
Mesa Verde National Park	Petersen, D.	3.7
Ming Lo Moves the Mountain	Lobel, Arnold	3.7
Mistletoe and the Baobab Tree	Huriet, Genevieve	3.7
Mud Pony, The	Cohen, Caron L.	3.7
My Teacher Is an Alien	Coville, Bruce	3.7
Nana Upstairs & Nana Downstairs	DePaola, Tomie	3.7
Night of the Living Dummy	Stine, R.L.	3.7
One Day at HorrorLand	Stine, R.L.	3.7
One Fine Day	Hogrogian, Nonny	3.7
Pizza Mystery, The	Warner, Gertrude C.	3.7
Plane Song	Siebert, Diane	3.7
Rabbit Ears	Slote, Alfred	3.7
Recycling	Kalbacken, J.	3.7
Rookie Star	Hughes, Dean	3.7
Save the Macaws (Save Our Species)	Bailey, Jill	3.7
Scrambled Eggs Super	Seuss, Dr.	3.7
Silver Cow, The	Cooper, Susan	3.7
Soccer Mania	Tamar, Erika	3.7
Stage Fright	Martin, Ann M.	3.7
Stars for Sarah	Turner, Ann	3.7
Story About Ping, The	Flack, Marjorie	3.7
Submarines	Petersen, David	3.7
Thirteen Colonies	Fradin, D.B.	3.7
Treasure...Lost Lagoon, The	Hayes, Geoffrey	3.7
When Africa Was Home	Williams, Karen	3.7
When I Was Young in the Mountain	Rylant, Cynthia	3.7
Amos & Boris	Steig, William	3.8
Animal Cafe	Stadler, John	3.8
Berenstain...and Too Much Pressure	Berenstain, Stan	3.8
Berenstain...and Too Much Vacation	Berenstain, Stan	3.8
Berenstain...Don't Pollute, The	Berenstain, Stan	3.8
Bionic Bunny Show, The	Brown, Marc	3.8
Blueberries For Sal	McCloskey, Robert	3.8
Canoe Trip Mystery, The	Warner, Gertrude C.	3.8
Castle Mystery, The	Warner, Gertrude C.	3.8
Chessie the Long Island Squirrel	Komoto, Sachiko	3.8
Comets, Asteroids, and Meteors	Fradin, Dennis	3.8
Coping With Metal Trash	Daniel, Jamie	3.8
Coping With Wood Trash	Daniel, Jamie	3.8
Daring Rescue...Swimming Pig, The	Saunders, Susan	3.8
Eskimo, The	Osinski, Alice	3.8
Family Moving Day	Huriet, Genevieve	3.8
Floating and Sailing	Jennings, Terry	3.8
George Washington's Breakfast	Fritz, Jean	3.8
Grand Canyon National Park	Petersen, David	3.8

Greenhouse Effect, The	Stille, Darlene	3.8
Happy Birthday, Kirsten!	Shaw, Janet	3.8
Hey, Al	Yorinks, Arthur	3.8
Horton Hears a Who!	Seuss, Dr.	3.8
If I Ran the Circus	Seuss, Dr.	3.8
Lila on the Landing	Alexander, Sue	3.8
Madeline	Bemelmans, Ludwig	3.8
Magic School Bus...Human Body	Cole, Joanna	3.8
Make-Believe Ball Player	Slote, Alfred	3.8
Me, Mop, and the Moondance Kid	Myers, Walter Dean	3.8
Mystery at the Dog Show, The	Warner, Gertrude C.	3.8
Mystery Horse, The	Warner, Gertrude C.	3.8
Mystery of the Purple Pool, The	Warner, Gertrude C.	3.8
On the Way Home	Wilder, Laura Ingals	3.8
Penguins	Lepthien, Emilie	3.8
Perfect the Pig	Jeschke, Susan	3.8
Periwinkle at the Full Moon Ball	Huriet, Genevieve	3.8
Quest for Queenie, The	Ball, Brian	3.8
Rabbit Spring	Michels, Tilde	3.8
Slime Time	O'Connor, Jim & Ja	3.8
Song and Dance Man	Ackerman, Karen	3.8
Sophie and Lou	Mathers, Petra	3.8
Space	Podendorf, Illa	3.8
Strega Nona	dePaola, Tomie	3.8
Three Little Wolves and the Big	Trivizas, Eugene	3.8
Trading Game, The	Slote, Alfred	3.8
Tyrannosaurus Rex	Petersen, D.	3.8
Very Young Gymnast, A	Krementz, Jill	3.8
Wonder Kid Meets...Lunch Snatcher	Duncan, Lois	3.8
Work Animals	Lumley, K.W.	3.8
Yellowstone National Park	Peterson, D.	3.8
14 Forest Mice and the Harvest ...	Iwamura, Kazuo	3.9
14 Forest Mice and the Spring ...	Iwamura, Kazuo	3.9
Forest Mice and the Summer ...	Iwamura, Kazuo	3.9
14 Forest Mice and the Winter ...	Iwamura, Kazuo	3.9
500 Hats of Bartholomew Cubbins	Seuss, Dr.	3.9
Alex Fitzgerald, TV Star	Krull, Kathleen	3.9
Amelia Bedelia's Family Album	Parish, Peggy	3.9
Anastasia, Ask Your Analyst	Lowry, Lois	3.9
Armadillo Rodeo	Brett, Jan	3.9
Babar Learns To Cook	deBrunhoff, Lauren	3.9
Bear	Schoenherr, John	3.9
Berenstain...Accept No Substitute	Berenstain, Stan	3.9
Berenstain...and the Drug Free ...	Berenstain, Stan	3.9
Berenstain...and the Female Full ...	Berenstain, Stan	3.9
Berenstain...and the Nerdy Nephew	Berenstain, Stan	3.9
Berenstain...and the New Girl in...	Berenstain, Stan	3.9
Berenstain...and the Red-Handed ...	Berenstain, Stan	3.9
Berenstain...and the School ...	Berenstain, Stan	3.9
Berenstain...and the Wheelchair	Berenstain, Stan	3.9

Berenstain...Gotta Dance!, The	Berenstain, Stan	3.9
Best Friends	Kellogg, Steven	3.9
Betsy's Busy Summer	Haywood, Carolyn	3.9
Big Snow, The	Hader, Berta	3.9
Catwings	LeGuin, Ursula K.	3.9
Changes For Molly	Tripp, Valerie	3.9
Dandelion's Vanishing Vegetable	Huriet, Genevieve	3.9
Disappearing Friend Mystery, The	Warner, Gertrude C.	3.9
Football Fugitive	Christopher, Matt	3.9
Galimoto	Williams, Karen	3.9
Giant Pandas	Wong, Ovid	3.9
Gorilla Rescue (Save Our Species)	Bailey, Jill	3.9
Hide and Seek Fog	Tresselt, Alvin	3.9
Hopi, The	Tomchek, Ann	3.9
If I Ran the Zoo	Seuss, Dr.	3.9
Jackie Robinson	O'Connor, Jim	3.9
Just a Dream	VanAllsburg, Chris	3.9
King's Stilts, The	Seuss, Dr.	3.9
Legend of Icebreaker, The	Westphal, Patricia	3.9
Legend of the Bluebonnet, The	DePaola, Tomie	3.9
Legend of the Indian Paintbrush,	DePaola, Tomie	3.9
Little Red Lighthouse...Bridge,	Swift, Hildegarde	3.9
Lon Po Po: A Red-Riding Hood ...	Young, Ed	3.9
Magic School Bus - On the Ocean	Cole, Joanna	3.9
Magic School Bus At the ...	Cole, Joanna	3.9
Magic School Bus in the Haunted	Beech, Linda Ward	3.9
Man Out at First	Christopher, Matt	3.9
Many Moons	Thurber, James	3.9
Maps and Globes	Broekel, Ray	3.9
Merry Christmas From Betsy	Haywood, Carolyn	3.9
Moses the Kitten	Herriot, James	3.9
Most Beautiful Place in the World	Cameron, Ann	3.9
Mountains	Stone, Lynn M.	3.9
Mystery in the Snow, The	Warner, Gertrude C.	3.9
Mystery in Washington, D.C., The	Warner, Gertrude C.	3.9
Mystery of the Singing Ghost, The	Warner, Gertrude C.	3.9
Mystery on the Ice, The	Warner, Gertrude C.	3.9
Netherlands, The	Jacobsen, K.	3.9
Ox-Cart Man	Hall, Donald	3.9
Patrick's Dinosaurs	Carrick, Carol	3.9
Pish, Posh, said Hieronymus ...	Willard, Nancy	3.9
Poppy's Dance	Huriet, Genevieve	3.9
Prairie School	Lenski, Lois	3.9
Quentin Corn	Stolz, Mary	3.9
Rag Coat, The	Mills, Lauren	3.9
Saint George and the Dragon	Hodges, Margaret	3.9
Salmon	Savage/Newman	3.9
Sarah, Plain and Tall	MacLachlan, P.	3.9
Seagull	Savage, Stephen	3.9
Secret Life of the Underwear ...	Miles, Betty	3.9
Silent Lotus	Lee, Jeanne M.	3.9

Sleeping and Dreaming	Milios, Rita	3.9
Space Brat	Coville, Bruce	3.9
Stay Away from the Junkyard	Tusa, Tricia	3.9
Sunken Treasure	Gibbons, Gail	3.9
Three Brave Women	Martin, C.	3.9
Tooth-Gnasher Superflash	Pinkwater, Daniel	3.9
Uranus	Fradin, D.B.	3.9
When Spring Comes	Kinsey Warnock, N.	3.9
Whipping Boy, The	Fleischman, Sid	3.9
Who Shot the President?	Donnelly, Judy	3.9
Whoo-oo Is It?	McDonald, Megan	3.9

APPENDIX D

SPSS Statistical Printouts

t-test for Independent Samples for GROUP

Reading Comprehension

Variable	Number of Cases	Mean	SD	SE of Mean
RCOMP3				
GROUP 1	104	80.1154	18.276	1.792
GROUP 2	86	77.0930	20.682	2.230

Mean Difference = 3.0224

Levene's Test for Equality of Variances: F= 1.114   P= .293

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Dif
Equal	1.07	188	.287	2.828	(-2.556, 8.600
Unequal	1.06	171.28	.292	2.861	(-2.625, 8.670

t-test for Independent Samples for GROUP

Detail

Variable	Number of Cases	Mean	SD	SE of Mean
DETAIL3				
GROUP 1	104	79.4231	19.698	1.932
GROUP 2	86	74.5349	23.347	2.518

Mean Difference = 4.8882

Levene's Test for Equality of Variances: F= 2.782 P= .097

	t-test for Equality of Means				95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Dif
Equal	1.57	188	.119	3.123	(-1.272, 11.048
Unequal	1.54	166.82	.125	3.173	(-1.377, 11.153

t-test for Independent Samples for GROUP

Sequence

Variable	Number of Cases	Mean	SD	SE of Mean
SEQUENC3				
GROUP 1	104	86.9231	21.903	2.148
GROUP 2	86	81.6279	26.607	2.869

Mean Difference = 5.2952

Levene's Test for Equality of Variances: F= 3.023   P= .084

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Dif
Equal	1.50	188	.134	3.519	(-1.647, 12.237)
Unequal	1.48	164.37	.141	3.584	(-1.781, 12.372)

t-test for Independent Samples for GROUP

Main Idea

Variable	Number of Cases	Mean	SD	SE of Mean
MIDEA3				
GROUP 1	104	76.3462	23.773	2.331
GROUP 2	86	75.5814	24.234	2.613

Mean Difference = .7648

Levene's Test for Equality of Variances: F= .094   P= .760

Variances	t-test for Equality of Means t-value	df	2-Tail Sig	SE of Diff	95% CI for Dif
Equal	.22	188	.827	3.496	(-6.131, 7.660
Unequal	.22	180.03	.827	3.502	(-6.145, 7.675

t-test for Independent Samples for GROUP

Inference

Variable	Number of Cases	Mean	SD	SE of Mean
INFERNC3				
GROUP 1	104	79.2308	21.483	2.107
GROUP 2	86	78.1395	22.881	2.467

Mean Difference = 1.0912

Levene's Test for Equality of Variances: F= .705   P= .402

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Dif
Equal	.34	188	.735	3.225	(-5.270, 7.453
Unequal	.34	176.63	.737	3.244	(-5.311, 7.494

t-test for Equality of Means

Analysis of Variance

Reading Comprehension

```
* * * A N A L Y S I S   O F   V A R I A N C E * * *

        RCOMP3
   by   GROUP

        UNIQUE sums of squares
        All effects entered simultaneously
```

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	430.002	1	430.002	1.142	.287
GROUP	430.002	1	430.002	1.142	.287
Explained	430.002	1	430.002	1.142	.287
Residual	70759.871	188	376.382		
Total	71189.874	189	376.666		

190 cases were processed.
0 cases (.0 pct) were missing.

Analysis of Variance

Detail

* * * A N A L Y S I S   O F   V A R I A N C E * * *

DETAIL3
by   GROUP

UNIQUE sums of squares
All effects entered simultaneously

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	1124.799	1	1124.799	2.450	.119
GROUP	1124.799	1	1124.799	2.450	.119
Explained	1124.799	1	1124.799	2.450	.119
Residual	86296.780	188	459.025		
Total	87421.579	189	462.548		

190 cases were processed.
0 cases (.0 pct) were missing.

Analysis of Variance

Sequence

* * * A N A L Y S I S O F V A R I A N C E * * *

SEQUENC3
by GROUP

UNIQUE sums of squares
All effects entered simultaneously

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	1319.891	1	1319.891	2.264	.134
GROUP	1319.891	1	1319.891	2.264	.134
Explained	1319.891	1	1319.891	2.264	.134
Residual	109587.478	188	582.912		
Total	110907.368	189	586.811		

190 cases were processed.
0 cases (.0 pct) were missing.

Analysis of Variance

Main Idea

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              * * *  A N A L Y S I S   O F   V A R I A N C E  * * *

                  MIDEA3
           by     GROUP

                  UNIQUE sums of squares
                  All effects entered simultaneously
```

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	27.531	1	27.531	.048	.827
GROUP	27.531	1	27.531	.048	.827
Explained	27.531	1	27.531	.048	.827
Residual	108132.469	188	575.173		
Total	108160.000	189	572.275		

190 cases were processed.
0 cases (.0 pct) were missing.

Analysis of Variance

Inference

* * * A N A L Y S I S   O F   V A R I A N C E * * *

INFERNC3
by   GROUP

UNIQUE sums of squares
All effects entered simultaneously

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	56.055	1	56.055	.114	.735
GROUP	56.055	1	56.055	.114	.735
Explained	56.055	1	56.055	.114	.735
Residual	92040.787	188	489.579		
Total	92096.842	189	487.285		

190 cases were processed.
0 cases (.0 pct) were missing.

APPENDIX E

UCAS Raw Data Used in This Study

Data from the Utah Core Assessment Series End-of-Level Test,
Reading, Level 3, Form A

Raw Data Used For This Study

Reading Scores from the Utah Core Assessment Series End-of-Level Test, Reading, Level 3, From A (1989)

ID	GENDER	GROUP	RCOMP.2	RCOMP.3	DETAIL	SEQUENCE	MAIN IDEA	INFERENCE
101	1	1	96	93	100	100	80	90
102	1	1	91	87	100	100	60	80
103	1	1	100	100	100	100	100	100
104	1	1	100	90	80	100	100	90
105	0	1	43	67	60	80	80	60
106	1	1	87	93	90	100	80	100
107	1	1	91	83	90	80	80	80
108	0	1	100	93	90	100	80	100
109	0	1	9	23	50	40	0	0
110	0	1	83	77	100	80	60	60
111	1	1	96	83	80	100	80	80
112	0	1	96	83	70	100	80	90
113	0	1	100	97	100	100	80	100
114	0	1	91	83	70	80	80	100
115	0	1	35	53	60	20	80	50
116	0	1	100	93	90	80	100	100
117	0	1	87	90	90	100	80	90
118	0	1	87	90	100	100	60	90
119	0	1	83	63	70	60	80	50
120	1	1	78	73	50	100	80	80
121	0	1	70	100	100	100	100	100
122	0	1	87	87	90	100	60	90
123	0	1	91	47	40	100	20	40
124	0	1	74	47	40	60	20	60
125	0	1	70	60	50	40	80	70
126	0	1	96	93	100	100	80	90
127	1	1	35	77	80	80	80	70
128	0	1	100	90	90	100	100	80
129	0	1	87	87	80	100	80	90
130	1	1	87	70	80	80	80	50
131	1	1	91	90	90	80	100	90
132	1	1	87	67	70	40	80	70
133	1	1	83	47	60	40	60	30
134	0	1	83	57	50	80	40	60
135	0	1	87	70	70	80	40	80
136	1	1	100	93	90	100	100	90
137	1	1	100	90	90	100	80	90
138	0	1	100	73	50	80	80	90
139	1	1	61	63	60	80	100	40
140	1	1	100	87	90	80	80	90
141	0	1	87	93	90	100	100	90
142	0	1	70	43	20	60	60	50
143	0	1	96	93	90	100	80	100
144	0	1	96	93	90	100	100	90

ID	GENDER	GROUP	RCOMP.2	RCOMP.3	DETAIL	SEQUENCE	MAIN IDEA	INFERENCE
145	0	1	91	90	90	100	80	90
146	0	1	91	87	90	100	80	80
147	0	1	100	97	100	100	80	100
148	0	1	83	7	0	0	20	10
149	0	1	100	97	100	100	80	100
150	1	1	83	73	90	100	40	60
151	1	1	4	57	60	60	80	40
152	0	1	48	73	60	80	80	80
153	1	1	0	77	70	100	80	70
154	0	1	83	83	70	100	60	100
155	1	1	96	70	80	80	60	60
156	1	1	100	87	70	100	100	90
157	1	1	100	87	80	100	100	80
158	0	1	78	67	60	100	40	70
159	0	1	91	77	80	100	60	70
160	1	1	87	97	100	100	80	100
161	0	1	52	73	80	80	40	80
162	1	1	96	90	80	100	100	90
163	1	1	87	57	60	60	60	50
164	1	1	96	93	90	100	100	90
165	1	1	91	70	70	80	40	80
166	0	1	83	93	90	100	80	100
167	1	1	91	97	90	100	100	100
168	0	1	74	43	40	60	20	50
169	0	1	96	77	90	100	80	50
170	0	1	91	87	70	100	100	90
171	0	1	100	100	100	100	100	100
172	1	1	83	67	60	60	80	70
173	0	1	100	93	90	100	80	100
174	0	1	83	83	90	100	60	80
175	1	1	100	90	80	100	100	90
176	1	1	100	90	90	100	60	100
177	0	1	74	83	80	100	80	80
178	1	1	96	87	100	100	60	80
179	0	1	70	90	90	100	100	80
180	1	1	0	70	80	80	60	60
181	0	1	100	100	100	100	100	100
182	0	1	78	77	80	100	80	60
183	1	1	87	87	80	100	80	90
184	0	1	100	100	100	100	100	100
185	0	1	35	27	50	0	20	20
186	1	1	91	93	80	100	100	100
187	0	1	96	90	80	80	100	100
188	0	1	100	97	100	100	80	100
189	1	1	43	37	40	40	20	40
190	0	1	91	87	80	100	100	80
191	0	1	96	93	80	100	100	100
192	1	1	87	87	100	100	60	80
193	1	1	96	87	80	100	100	80
194	1	1	91	97	100	100	100	90

ID	GENDER	GROUP	RCOMP.2	RCOMP.3	DETAIL	SEQUENCE	MAIN IDEA	INFERENCE
195	1	1	87	90	90	80	100	90
196	1	1	100	100	100	100	100	100
197	1	1	100	97	90	100	100	100
198	0	1	91	90	80	100	100	90
199	1	1	87	83	100	60	40	100
200	1	1	91	57	40	60	60	70
201	1	1	100	100	100	100	100	100
202	0	1	91	83	90	100	60	80
203	0	1	83	90	100	100	100	70
204	1	1	83	93	100	80	100	90
301	0	2	70	27	30	0	20	40
302	0	2	83	90	80	100	80	100
303	1	2	83	83	80	100	80	80
304	1	2	87	87	70	100	80	100
305	0	2	96	80	70	80	100	80
306	1	2	87	90	100	100	100	70
307	0	2	30	63	70	40	60	70
308	0	2	57	53	50	40	80	50
309	0	2	65	83	70	100	100	80
310	0	2	70	97	100	100	80	100
311	1	2	100	90	90	100	80	90
312	0	2	87	80	80	80	80	80
313	1	2	65	57	50	60	60	60
314	0	2	100	97	100	100	100	90
315	0	2	87	93	90	100	100	90
316	1	2	87	70	60	100	60	70
317	0	2	96	47	30	40	60	60
318	0	2	74	63	70	100	60	40
319	1	2	96	90	80	100	100	90
320	0	2	96	83	80	60	100	90
321	0	2	100	63	60	80	80	50
322	1	2	65	33	0	40	60	50
323	1	2	91	90	100	80	100	80
324	1	2	87	97	100	100	80	100
325	1	2	96	97	100	100	100	90
326	1	2	96	100	100	100	100	100
327	0	2	87	57	60	60	40	60
328	0	2	96	80	70	60	80	100
329	1	2	87	90	80	100	80	100
330	0	2	96	90	90	100	80	90
331	0	2	91	87	70	100	100	90
332	1	2	83	93	90	80	100	100
333	1	2	91	93	100	100	60	100
334	1	2	78	73	60	80	100	70
335	1	2	83	80	90	80	100	60
336	0	2	70	37	40	40	20	40
337	1	2	91	87	90	60	100	90
338	0	2	96	97	90	100	100	100
339	1	2	91	87	100	100	60	80
340	1	2	78	60	60	60	60	60

ID	GENDER	GROUP	RCOMP.2	RCOMP.3	DETAIL	SEQUENCE	MAIN IDEA	INFERENCE
341	1	2	100	90	90	100	80	90
342	1	2	96	87	80	80	100	90
343	1	2	91	87	70	100	80	100
344	1	2	70	77	70	100	60	80
345	0	2	78	97	100	80	100	100
346	0	2	83	27	10	60	0	40
347	0	2	83	73	70	80	60	80
348	0	2	83	90	90	100	100	80
349	0	2	78	93	90	100	100	90
350	1	2	96	90	100	100	80	80
351	1	2	83	100	100	100	100	100
352	0	2	91	77	60	100	80	80
353	1	2	91	70	70	80	60	70
354	0	2	78	37	40	40	40	30
355	1	2	83	83	60	100	100	90
356	0	2	61	60	80	40	100	30
357	0	2	83	80	80	80	40	100
358	1	2	96	87	100	100	60	80
359	0	2	100	83	70	100	80	90
360	0	2	87	80	50	80	100	100
361	0	2	83	80	70	80	80	90
362	0	2	26	27	20	20	40	30
363	1	2	91	93	100	100	80	90
364	0	2	87	77	70	100	60	80
365	1	2	91	73	70	60	80	80
366	0	2	96	93	80	100	100	100
367	1	2	91	93	90	100	80	100
368	0	2	83	83	90	100	40	90
369	1	2	91	93	100	100	80	90
370	0	2	91	97	90	100	100	100
371	0	2	35	47	40	20	60	60
372	1	2	91	90	90	100	60	100
373	0	2	61	63	70	80	60	50
374	1	2	52	23	30	0	40	20
375	1	2	78	70	60	80	100	60
376	0	2	87	83	80	100	80	80
377	0	2	78	93	100	100	80	90
378	1	2	100	70	70	100	20	80
379	0	2	87	90	90	80	80	100
380	0	2	78	40	40	60	80	10
381	1	2	91	93	90	100	80	100
382	1	2	96	100	100	100	100	100
383	0	2	17	13	20	0	0	20
384	1	2	96	90	90	100	60	100
385	0	2	57	77	80	100	80	60
386	1	2	96	97	100	100	80	100

APPENDIX F

Stanford Achievement Test and Accelerated Reader
Grade Level Data Comparison

Raw Data Used For This Study

Reading scores from the Stanford Achievement Test and AR grade level data.

ID	GENDER	GROUP	SAT RAW	SAT PRCTILE	SAT GRDLVL	AR GRDLVL	DIFFERENCE
101	1	1	34	83	5.4	3.0	2.4
102	1	1	27	56	3.4	2.6	0.8
103	1	1	36	91	7.0	3.2	3.8
104	1	1	33	79	5.0	2.5	2.5
105	0	1	*	*	*	2.6	-2.6
106	1	1	27	56	3.4	2.4	1
107	1	1	21	35	2.7	2.3	0.4
108	0	1	33	79	5.0	2.6	2.4
109	0	1	7	3	1.7	2.5	-0.8
110	0	1	*	*	*	2.5	-2.5
111	1	1	31	71	4.3	2.6	1.7
112	0	1	34	83	5.4	3.1	2.3
113	0	1	37	94	7.7	3.0	4.7
114	0	1	33	79	5.0	3.4	1.6
115	0	1	14	17	2.3	2.2	0.1
116	0	1	36	91	7.0	3.1	3.9
117	0	1	32	75	4.5	2.5	2
118	0	1	31	71	4.3	3.2	1.1
119	0	1	21	35	2.7	2.5	0.2
120	1	1	29	64	3.8	2.0	1.8
121	0	1	30	67	4.0	3.1	0.9
122	0	1	31	71	4.3	3.2	1.1
123	0	1	10	7	2.0	2.1	-0.1
124	0	1	23	41	2.9	2.5	0.4
125	0	1	22	38	2.8	2.6	0.2
126	0	1	18	26	2.5	2.6	-0.1
127	1	1	5	1	1.6	2.5	-0.9
128	0	1	*	*	*	2.6	-2.6
129	0	1	33	79	5.0	2.6	2.4
130	1	1	20	32	2.7	2.5	0.2
131	1	1	30	67	4.0	3.0	1
132	1	1	26	53	3.3	3.6	-0.3
133	1	1	16	21	2.4	2.0	0.4
134	0	1	19	29	2.6	2.7	-0.1
135	0	1	31	71	4.3	2.3	2
136	1	1	36	91	7.0	3.2	3.8
137	1	1	29	64	3.8	2.7	1.1
138	0	1	29	64	3.8	2.7	1.1
139	1	1	21	35	2.7	2.3	0.4
140	1	1	33	79	5.0	2.3	2.7
141	0	1	19	29	2.6	2.5	0.1
142	0	1	17	23	2.5	3.0	-0.5
143	0	1	34	83	5.4	3.1	2.3

ID	GENDER	GROUP	SAT RAW	SAT PRCTILE	SAT GRDLVL	AR GRDLVL	DIFFERENCE
144	0	1	29	64	3.8	2.8	1
145	0	1	32	75	4.5	3.6	0.9
146	0	1	30	67	4.0	2.4	1.6
147	0	1	36	91	7.0	2.4	4.6
148	0	1	7	3	1.7	3.4	-1.7
149	0	1	39	99	13.0	4.1	8.9
150	1	1	20	32	2.7	2.2	0.5
151	1	1	11	10	2.0	2.9	-0.9
152	0	1	13	14	2.2	2.1	0.1
153	1	1	22	38	2.8	3.1	-0.3
154	0	1	22	38	2.8	3.1	-0.3
155	1	1	27	56	3.4	2.7	0.7
156	1	1	28	60	3.6	2.6	1
157	1	1	32	75	4.5	3.1	1.4
158	0	1	22	38	2.8	2.6	0.2
159	0	1	25	49	3.2	2.3	0.9
160	1	1	33	79	5.0	2.8	2.2
161	0	1	15	19	2.3	2.7	-0.4
162	1	1	33	79	5.0	2.1	2.9
163	1	1	29	64	3.8	2.8	1
164	1	1	36	91	7.0	2.7	4.3
165	1	1	27	56	3.4	2.6	0.8
166	0	1	35	87	5.9	2.3	3.6
167	1	1	26	53	3.3	2.3	1
168	0	1	17	23	2.5	2.3	0.2
169	0	1	25	49	3.2	2.2	1
170	0	1	17	23	2.5	4.1	-1.6
171	0	1	34	83	5.4	2.6	2.8
172	1	1	*	*	*	2.4	-2.4
173	0	1	29	64	3.8	2.6	1.2
174	0	1	32	75	4.5	2.4	2.1
175	1	1	35	87	5.9	3.5	2.4
176	1	1	32	75	4.5	2.5	2
177	0	1	30	67	4.0	2.6	1.4
178	1	1	30	67	4.0	2.4	1.6
179	0	1	23	41	2.9	3.0	-0.1
180	1	1	19	21	2.4	2.4	0
181	0	1	34	83	5.4	3.1	2.3
182	0	1	6	2	1.7	2.7	-1
183	1	1	39	99	13.0	2.3	10.7
184	0	1	34	83	5.4	3.0	2.4
185	0	1	9	6	1.9	3.0	-1.1
186	1	1	35	87	5.9	3.3	2.6
187	0	1	36	91	7.0	3.2	3.8
188	0	1	39	99	13.0	3.3	9.7
189	1	1	11	10	2.0	2.8	-0.8
190	0	1	33	79	5.0	2.8	2.2
191	0	1	32	75	4.5	2.6	1.9
192	1	1	32	75	4.5	2.6	1.9
193	1	1	34	83	5.4	2.8	2.6

ID	GENDER	GROUP	SAT RAW	SAT PRCTILE	SAT GRDLVL	AR GRDLVL	DIFFERENCE
194	1	1	32	75	4.5	2.5	2
195	1	1	27	56	3.4	3.0	0.4
196	1	1	34	83	5.4	2.8	2.6
197	1	1	38	97	9.0	2.5	6.5
198	0	1	29	64	3.8	3.0	0.8
199	1	1	30	67	4.0	3.1	0.9
200	1	1	22	38	2.8	2.3	0.5
201	1	1	39	99	13.0	3.6	9.4
202	0	1	27	56	3.4	3.4	0
203	0	1	30	67	4.0	2.8	1.2
204	1	1	35	87	5.9	3.3	2.6
301	0	2	24	44	3.0		
302	0	2	27	56	3.4		
303	1	2	25	49	3.2		
304	1	2	38	97	9.0		
305	0	2	35	87	5.9		
306	1	2	28	60	3.6		
307	0	2	21	35	2.7		
308	0	2	7	3	1.7		
309	0	2	22	38	2.8		
310	0	2	27	56	3.4		
311	1	2	35	87	5.9		
312	0	2	31	71	4.3		
313	1	2	20	32	2.7		
314	0	2	35	87	5.9		
315	0	2	35	87	5.9		
316	1	2	28	60	3.6		
317	0	2	36	91	7.0		
318	0	2	21	35	2.7		
319	1	2	34	83	5.4		
320	0	2	11	10	2.0		
321	0	2	19	29	2.6		
322	1	2	14	17	2.3		
323	1	2	*	*	*		
324	1	2	20	32	2.7		
325	1	2	38	97	9.0		
326	1	2	38	97	9.0		
327	0	2	25	49	3.2		
328	0	2	33	79	5.0		
329	1	2	35	87	5.9		
330	0	2	36	91	7.0		
331	0	2	31	71	4.3		
332	1	2	30	67	4.0		
333	1	2	33	79	5.0		
334	1	2	19	29	2.6		
335	1	2	19	29	2.6		
336	0	2	22	38	2.8		
337	1	2	30	67	4.0		
338	0	2	28	60	3.6		
339	1	2	32	75	4.5		

ID	GENDER	GROUP	SAT RAW	SAT PRCTILE	SAT GRDLVL
340	1	2	15	19	2.3
341	1	2	32	75	4.5
342	1	2	34	83	5.4
343	1	2	34	83	5.4
344	1	2	33	79	5.0
345	0	2	36	91	7.0
346	0	2	20	32	2.7
347	0	2	18	26	2.5
348	0	2	29	64	3.8
349	0	2	28	60	3.6
350	1	2	36	91	7.0
351	1	2	37	94	7.7
352	0	2	27	56	3.4
353	1	2	19	29	2.6
354	0	2	21	35	2.7
355	1	2	22	38	2.8
356	0	2	10	7	2.0
357	0	2	24	44	3.0
358	1	2	37	94	7.7
359	0	2	34	83	5.4
360	0	2	32	75	4.5
361	0	2	27	56	3.4
362	0	2	19	29	2.6
363	1	2	31	71	4.3
364	0	2	26	53	3.3
365	1	2	16	21	2.4
366	0	2	35	87	5.9
367	1	2	18	26	2.5
368	0	2	29	64	3.8
369	1	2	33	79	5.0
370	0	2	34	83	5.4
371	0	2	12	12	2.1
372	1	2	29	64	3.8
373	0	2	20	32	2.7
374	1	2	9	6	1.9
375	1	2	19	29	2.6
376	0	2	31	71	4.3
377	0	2	29	64	3.8
378	1	2	26	53	3.3
379	0	2	25	49	3.2
380	0	2	15	19	2.3
381	1	2	35	87	5.9
382	1	2	36	91	7.0
383	0	2	34	83	5.4
384	1	2	20	32	2.7
385	0	2	12	12	2.1
386	1	2	38	97	9.0

* Did not take the SAT test.
Only Group 1 participated in AR, therefore no data for AR exists for Group 2.

APPENDIX G

Accelerated Reader Reports Used at Orem Elementary

AR Report

Student Points Report*

```
                  Accelerated Reader
                 Student Points Report
        OREM ELEMENTARY SCHOOL - OREM, UT  USA


Start Date: 01/01/80
  End Date: 06/04/98
Sort Order: Last Name
```

Student	Points Earned	Points Used	Points Avail	Points Spent
. . . .	34.4	25.0	9.4	_____

```
                         _____
                         Teacher Signature
```

*Student and Teacher names have been deleted.

AR Report

Student Record Report*

Accelerated Reader
Student Record Report
OREM ELEMENTARY SCHOOL - OREM, UT USA

Start Date: 01/01/80   Failed Tests Before Inclusion: 0
 End Date: 06/04/98   * = Failed test
Sort Order: Last Name

***   ***

ID:
Grade: 3   Section:
Teacher: Team:
Team Minimum: Annual Goal:
Indep. Reader:

Test	Title	Quest Rt/Poss	% Rt	Points Earn/Poss	Date	Read Level
9778	Mama Don't Allow..........	5/ 5	100	0.5/ 0.5	08/27/97	2.2
7247	When I Get Bigger..........	5/ 5	100	0.5/ 0.5	09/10/97	2.0
992	Dogteam....................	5/ 5	100	0.5/ 0.5	09/17/97	2.0
134	Ramona Quimby, Age 8.......	10/10	100	4.0/ 4.0	09/22/97	5.5
486	My Father's Dragon.........	10/10	100	1.0/ 1.0	09/22/97	6.9
6143	Shortcut...................	5/ 5	100	0.5/ 0.5	09/24/97	1.5
914	Actually I Used to Be a Pr.	5/ 5	100	0.5/ 0.5	10/08/97	2.0
964	Lilly's Purple Plastic Pur.	4/ 5	80	0.4/ 0.5	10/17/97	2.0
6117	Giant Jam Sandwich, The....	5/ 5	100	0.5/ 0.5	10/17/97	2.6
942	Dinosaurs Before Dark......	10/10	100	1.0/ 1.0	10/22/97	3.0
1001	Pumpkins...................	5/ 5	100	0.5/ 0.5	10/29/97	3.0
69	Pippi Longstocking.........	8/10	80	3.2/ 4.0	11/05/97	6.6
5243	Sideways Stories...Wayside.	9/10	90	3.6/ 4.0	12/10/97	4.9
20	Charlie and the Chocolate .	10/10	100	5.0/ 5.0	01/28/98	6.7
1025	Just a Little Bit..........	5/ 5	100	0.5/ 0.5	01/28/98	2.0
1027	Homeplace..................	5/ 5	100	0.5/ 0.5	02/04/98	3.0
1032	Jennifer Jones Won't Leave.	4/ 5	80	0.4/ 0.5	02/11/98	3.0
7564	Five Chinese Brothers, The.	4/ 5	80	0.4/ 0.5	02/18/98	3.5
9391	Three Bears, The..........	0/ 5	0	0.0/ 0.5	02/18/98	1.3*
1036	Shark Lady.................	9/10	90	1.8/ 2.0	02/25/98	3.0
1038	Fanny's Dream..............	5/ 5	100	0.5/ 0.5	02/25/98	2.5
10541	Shortest Kid in the World,.	5/ 5	100	0.5/ 0.5	02/25/98	2.0
58	Mr. Popper's Penguins......	10/10	100	3.0/ 3.0	02/27/98	6.6
9002	And to Think That I...Mulb.	4/ 5	80	0.4/ 0.5	02/27/98	3.5
9308	Collecting.................	5/ 5	100	0.5/ 0.5	02/27/98	2.1
9312	Go-With Words..............	3/ 5	60	0.3/ 0.5	02/27/98	1.4
9317	I Love Fishing.............	5/ 5	100	0.5/ 0.5	02/27/98	1.6
9324	Larry and the Cookie.......	5/ 5	100	0.5/ 0.5	02/27/98	1.7
11397	Tops and Bottoms..........	5/ 5	100	0.5/ 0.5	02/27/98	2.0

```
 1048  Clever Tom and the Leprech.   5/ 5   100    0.5/   0.5 03/18/98   2.0
12099  Smallest Turtle, The.......   4/ 5    80    0.4/   0.5 03/25/98   2.3
 7292  Runaway Bunny, The.........   5/ 5   100    0.5/   0.5 04/01/98   2.9
  991  Little Mouse, the Red Ripe.   5/ 5   100    0.5/   0.5 04/15/98   2.0
 9350  Who Is Coming?.............   5/ 5   100    0.5/   0.5 04/15/98   1.5
```

*** Summary ***

```
------------------------------------------
   Average percent correct.....  91.8%
   Average reading level.......   3.0
   Tests taken.................  34
   Tests passed................  33
   Tests failed................   1

   Points possible.............  37.0
   Points earned...............  34.4
   Points used.................  25.0
   Points available............   9.4


------------------------------------------
```

*Student and Teacher names have been deleted.

AR Report

Student Summary Report*

```
                    Accelerated Reader
                  Student Summary Report
          OREM ELEMENTARY SCHOOL - OREM, UT  USA

Start Date: 01/01/80
  End Date: 06/04/98
Sort Order: Last Name
```

Student Name	Tests Pass	Test Pass%	Avg % Right	Points Earned/Poss	Avg Read Level	% Of Goal	Rank
....	33	97.1	91.8	34.4/ 37.0	3.0	------	1
Report Totals	33	97.1	91.8	34.4/ 37.0	3.0		

```
                *** Summary ***
      ---------------------------------------------
      Total number of students.......    1
      Average points earned/student..   34.4
      ---------------------------------------------
```

*Student and Teacher names have been deleted.

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