Star Reader and Accelerated Reader

at

Zimmerly Elementary

Evaluation
by
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I. Executive Summary

This study was conducted to determine the knowledge of and application of the Accelerated Reader Learning Information System and Star Reader Computer-Adaptive Reading Test and Database at Zimmerly Elementary School in Socorro, NM. How these two affect reading test scores and whether or not they improve reading test scores would be explored and documented. Information gathered will become available for decision making regarding the use of these programs (should the continued use be encouraged and supported), and is there a need for additional emphasis on professional development to enhance program applications.

Data was collected during 8 weeks of questionnaire surveys, individual interviews, student cumulative files, and classroom computers. Scatter plots, linear regression, summaries, percentages, and cross checking were prepared in an attempt to objectively order and understand the data gathered.

Results of data analyses show that the majority of teachers are uncomfortable using the Star Reader Test and have a little knowledge or no knowledge whatsoever of how to use Star Reader. This observer is aware that certified staff at Zimmerly began using the Star Reader Test only because they were told to test all students for placement in the Joplin Reading Program. Fifty percent of the teachers had the tech person (who is also a certified teacher) install their class lists on a variety of Apple classroom computers. Star Reader data is used mainly for placement in the Joplin Reading Program. Data from the Star Reader test is used less often to document progress, report to parents, assess reading levels, plan, and determine level of books for Accelerated Reading. Eighty-three percent of respondents use Star Reader two or more times a year, and the remaining 13% of the
respondents do not use the data due to an unfamiliarity with this software application.

Analyses of the data collected on the Accelerated Reader Program indicate 38% of the respondents are uncomfortable with Accelerated Reader and 50% have little or no knowledge about Accelerated Reader. This is consistent with findings during teacher interviews, where an unsurprising 50% indicated that a lack of knowledge was why they did not use Accelerated Reader. Another reason for not using Accelerated Reader is that there aren’t enough AR listed books for the children to read. Zimmerly library catalogs 328 AR identified books in the school library as available for 238 kids. This is not enough books because each child may have time to read as many as ten or more books during reading hour. A complete school-wide Accelerated Reading catalog of books is more than one thousand items with several copies of the most popular books. In addition, application of quizzes, points, and reports which help to generate an incentive to read was inadequate.

This observer found conflicting opinions which substantiate major confusion regarding applications and worth of both Accelerated Reader and Star Reading Test. As an example, one teacher presumed that Star Reader is the program and Accelerated Reader the placement test. Another teacher acclaimed to a full literacy of Accelerated Reader yet could not enter the class lists and had the technical teacher key them in for her. Only one respondent has had any training in AR. All respondents are interested in learning more about Accelerated Reader, due in part to this observer’s excitement about and success with the program. During the 2001-2002 school year, no classroom used AR on a regular basis until one week before data was collected. At that time an Accelerated Reader frenzy began. Therefore, it is impossible to answer the question about what effect Accelerated Reader has on reading scores at Zimmerly School.

Standardized test scores and Star Reader test scores show a weak positive relationship between these two scores.

The purchase of AR software has been approved and funds already spent. Yet, a real-time feasibility study of AR has not been conducted. That is to say, another high dollar software based educational program has been purchased and not used because teachers don’t know how to fully make use of it, parents and the community aren’t completely informed about the potential improvement in reading skills, and administrators already have terabytes of educational management, curriculum development, and program ad infinitum.

This observer recommends that Zimmerly implement an Accelerated Reader pilot program in two classrooms, using the Star Reader Test scores as placement in AR. Requirements of this implementation are modest yet the potential for instilling a “zest to read” in the children is priceless. The short list of needs for the pilot program are, (1) at least 500 more low level Accelerated Reader books $5 to $15 each, (2) purchase 200 quizzes for books already in the library at $2.50 each, (3) AR tests, which are licensed copies of the tests each child takes on the Apple classroom computers, and (4) teacher training in accordance with National Educational Goals and the State of New Mexico Technology Plan, (5) classroom teachers will need technology support in using and trouble shooting the software and hardware, (6) an easy-to-use handbook for busy classroom teachers to supplement previous AR training and technical support. This observer recommends that the pilot program be adopted for the 2002-2003 school year. During the life of the pilot program, data will be collected on student growth, points
accumulated, test scores, books read, comprehension checks, and student satisfaction. This observer would be analyze the data every 9 weeks (report card interval) to determine if and suggest that changes be made to the pilot program.

At the end of the school year, this observer will complete a program evaluation and data analysis to determine the effects, if any, of the pilot program upon reading scores using Standardized Tests. A marginal cost/benefit analysis will be prepared comparing the costs unique to the pilot program to test scores for the two classes, and to test scores school wide. This data will assist administrators to determine if Accelerated Reader and the Star Reader Test increase reading scores and whether or not the to continue using these programs.

If the pilot program is successful, it is hoped that the pilot program can be made school wide, starting in the 2003-2004 school year. Again, resources would need to be allocated for books, tests, training and technical support; justified by the results of the pilot program.

II. Introduction to the Report

The purpose of this evaluation is to determine the effectiveness of the Accelerated Reader Learning Information System (AR) in conjunction with the Star Reader, a Computer-Adaptive Reading Test and Database. This evaluation will also explore the possibility of a correlation between standardized test scores and Star Reading scores, and whether or not the use of Accelerated Reader has an effect on standardized reading test scores. Information gathered will assist the principal in making decisions about professional training and in the implementation of Accelerated Reader and Star Reader.

The client in this evaluation is the Principal/Curriculum Director of Socorro Consolidated Schools. Four discussions with the client indicated a clear desire to improve the reading skills of all students, to get students to read more to increase reading scores on standardized tests.

Primary stakeholders are teachers and students, since both would be directly affected by the findings of this evaluation. Secondary stakeholders are parents and school administrators.

The scope of this evaluation is limited by the small sample available for data collection. This evaluator is a teacher at the school and close friend of the participants and hence did not fill out the survey or answer the interview questions because the evaluator’s responses would have been biased by information already collected.

III. Overview of Report Contents

This is a formative evaluation using a combination approach utilizing both objective and participatory oriented approaches to evaluate. In that test scores, surveys, and statistical analyses are quantifiable, the evaluation is also an objectives oriented approach. This researcher’s experience with Accelerated Reading and 20 years of teaching reading enhance the expected outcomes of the evaluation. A combination of approaches enables the evaluator to demonstrate trends in test scores as well as how the
programs are viewed by primary stakeholders. There is a large amount of data available showing that these programs do increase reading scores. The client wants to determine if a similar increase can be translated into this particular district, and to Zimmerly School. Due to the small data source, information from all available student scores and teachers will be used. Client concerns, informational needs, and criteria for effectiveness guide the direction of the study. The client has undertaken a feasibility study of Accelerated Reading and is considering continued use of AR, modification of AR for local use, allocation of funds for additional training of certified staff, or writing off the investment in AR as inapplicable. Also under consideration is the Star Reader test. Administrators seek to determine if Star Reader tests measure a valid improvement for children who have participated in Accelerated Reading.

Special consideration was given to confidentiality of data and participants. Human Subject Approval was received on March 7, 2002 from Sonda Gabriel, Coordinator, College of Education Human Subjects Committee, University of Illinois. (Appendix D)

This report describes the evaluand, data collection, analysis of data, results, strengths and weaknesses of Accelerated Reader and Star Reader, and recommendations.

IV. Focus of the Evaluation

Zimmerly Elementary is a small school of 230 fourth and fifth grade students, 11 classroom teachers, 2 special education teachers, and 5 ancillary staff. It is located in Socorro, NM, an incorporated city with a population of about 11,994. Ethnic categories for student enrollment are Anglo-25.8%, Hispanic-68%, Native American-1.7%, Black-1.3%, Asian-0.7%, and Other-2.6%. Of the total student population, 57.9% of the student population is receive free or reduced price lunches.

The Socorro Consolidated School System encourages teachers to write mini-grant proposals for innovative teaching ideas for amounts up to $1000. A review committee determines which proposals to fund. A teacher who used the Accelerated Reader and Star Reader at another school took advantage of this opportunity, applied for and was awarded a grant by Socorro Schools. The proposal as approved by the grant committee funded the Basic Accelerated Reader Program and Star Reader. Software for Accelerated Reader and Star Reader Test was delivered in December of 2001. Software was then installed on Apple classroom computers for each participating classroom computers in each classroom. Instructional staff were informed that the programs have been installed on the computers; but, were given no instruction as to their use. Some teachers experimented with the software throughout the remainder of the school year. No Accelerated Reader cataloged books were available at that time.

During the year, teachers began searching for ways to get books to match reading quizzes (software) already installed. One class went so far as to hunt for books in thrift shops, in used book stores, and on the internet. One teacher was awarded an additional mini-grant to purchase lower reader level AR books (not catalogued for use until this school year). A volunteer compiled two complete lists of books and tests. Months later, a teacher found that the Accelerated Reader management software would generate the same lists. Another teacher found a way to use the software management program to install classroom lists. Then went on to install class lists for the remaining classrooms in need of lists.
Only the four inclusion classes use AR on a regular basis. School wide, use is sporadic and inconsistent. By January 2002, three hundred thirty-eight AR books had been purchased and placed on Media Center shelves.

The Star Reader Test was used between January 2001 and May of 2001 by inclusion teachers to find out what level of books the students should be reading. In September of 2001, Zimmerly decided to use the Joplin Reading plan as a part of their reading instruction. This meant grouping students according to their reading level. To determine reading level, all students were to be given the Star Reading test. The Star Reading Test scores and reading scores from last years CTBS test were to be used to group students. There was a lot of skepticism about using the Star Reading test since no one knew if there was any correlation with CTBS scores or whether the scores really indicated anything significant at all.

In order to answer the questions put forth in this evaluation, Renaissance Learning was contacted for information about the use of the Accelerated Reader and Star Reader. Following is a summary of these programs and results documented by schools who use Accelerated Reader and Star Reader. The Accelerated Reader is a learning information system that provides teachers with information needed to develop appropriate intervention strategies to improve students’ reading abilities. This feedback allows teachers to determine how often students are reading, whether they are reading books at the appropriate level of difficulty, and if they understand what they are reading. For more than 16 years, Accelerated Reader management software has helped teachers in their classrooms. Documented results include more time reading books, more books checked out of libraries, increased success rate on standardized tests. Students who use the Accelerated Reader program spend more time on reading per day than students who do not use the Accelerated Reader program. This program matches students with books at the appropriate level of difficulty, so that the reading is neither too easy nor too hard. Reading Practice Quizzes are provided for each book. These quizzes incorporate multiple-choice items that focus on literal understanding because this is the most appropriate way to motivate students and determine if they have read a book. Thus, these Reading Practice Quizzes are less subject to bias such as higher-order thinking skills that may have been learned outside of school. Recorded-Voice Quizzes and Spanish quizzes are available for preliterate and Spanish-speaking students. Aligned quizzes are available for a variety of textbooks as well as trade books. An extensive analysis of student performance with Accelerated Reader suggests that students who read the book do well on the quiz. By doing well on a quiz, students are motivated to read additional books and take the corresponding quizzes. This tendency is consistent with the observations of Black and William (1998) that students respond more favorably when they can establish their own goals and are presented with “a meaningful, interesting, and reasonably demanding challenge”. AR quizzes are standardized in two respects. First, they are administered and scored in a predetermined and standard manner, making them fair. Second, the development and administration of Accelerated Reader Reading Practice Quizzes means the information they provide is comparable over time and from student to student. Each book is assigned a point value based on the number of words in the book and its reading level, using the ATOS Readability Formula for Books. After reading a book, the student goes to the computer and takes a quiz. Students must score at least 60% on 5-and 10-question quizzes and 70% on 20-question quizzes to earn any points.
The points are an accurate measure of the amount of words being read and comprehended, and therefore a precise quantitative measurement of reading practice.

These selected-response assessments are efficient in that they provide a high degree of useful information while consuming relatively little time. For the most part, client teachers report that cheating is not a significant problem. Answers to questions are presented in a random order making cheating more difficult. In addition, since there are no negative consequences to poor performance, students are less likely to cheat. Teachers indicate that students enjoy reading books they have chosen, feel confident about taking quizzes, and recognize that Accelerated Reader quizzes are non-threatening assessments.

Literacy Skills Tests have been developed for some of the Accelerated Reader books to extend the effectiveness of Accelerated Reader and make it consistent with standards-based education and help identify students’ reading weaknesses. The Literacy Skill test items are based on 24 specific higher-order reading comprehension skills and are drawn from and item bank. This test is not motivational in nature and should be used as a diagnostic tool. Diagnostic reports can be generated to give teachers an accurate picture of students’ reading strengths and weaknesses.

Star Reader computer-adaptive reading test uses an item bank for questions. This program is a norm-referenced assessment that provides an accurate measure of students’ reading comprehension in less than 10 minutes. Students can be tested several times without encountering the same item twice. One advantage of Star Reading is that they can be administered several times a year in order to identify the reading level for a student, predict the students’ performance on a standardized test, monitor student growth, and match reading instruction to individual needs. A second advantage is that a student’s test performance gives a Zone of Proximal Development (ZPD). This is the reading level at which the student will gain the maximum benefit from reading. It should be challenging but not too difficult and takes the guesswork out of trying to decide which books a child should read. Several reports can be easily generated including a parent report that describes the students’ test scores and a diagnostic report on their reading. Other scores that are generated by the Star Reader test are SS (Scales Score), GE (Graded Equivalent), PR (Percentile Rank), NCE (Normal Curve Equivalent), and IRL (Independent Reading Level). According to Renaissance Learning, Star Reading results are highly correlated with traditional standardized tests.

**Evaluation Questions**

- What knowledge do teachers have about the Accelerated Reader and how is it being used in classrooms at Zimmerly Elementary School?
- What knowledge do teachers have about the Star Reader and how is it being used in the classrooms at Zimmerly Elementary School?
- Is there a correlation between Star Reader score and CTBS scores in reading?
- Do students who participate in Accelerated Reader experience a greater degree of improvement in reading skill than those who do not participate in Accelerated Reader?
V. Evaluation Plan and Procedures

Information from teachers, classroom computers, and student cumulative records will be collected to answer the evaluation questions. Confidentiality is key to the collection of information so, names will not be associated with the data. Instruments to be used include a survey questionnaire, teacher interviews, scatter plots, and histograms as quantitative analyses (approach). Summaries, percentages, and linear regression, will be used to analyze the data. Compilation of information will be included in a written report to be presented to the client at the completion of the evaluation. More about the evaluation plan can be found in Appendix A.

VI. Results and Interpretation

Twelve interviews were conducted and 10/12 questionnaire surveys were returned. Subgroups for education, age, and position were considered but no differences were found for these subgroups. Results and interpretations are organized by Evaluation Questions.

What knowledge do teachers have about the Accelerated Reader and how is it being used in classrooms at Zimmerly Elementary School?

A teacher questionnaire survey was placed in the school mailbox of each certified teacher. Ten out of twelve surveys were returned. The Likert scale survey gave teachers 5 choices for each question: Level 1 for “not at all”, 3 “to some extent”, and 5 “a great deal”. Ten teachers were interviewed, individually over a 2 week period. Data collected was cross checked with each other and with information gathered from classroom computers. (Appendices B and C provide complete summaries of the survey and interviews.)

On the survey, thirty percent of responses for question 15 indicate little or no comfort in using the AR and forty percent are above 3 indicating a fairly high or high comfort level. (Chart A) Thirty-eight percent of responses on questions1-13 indicate no knowledge of the AR and a total of forty-seven percent of responses are in Level one or two showing that almost 50% of the teachers have little or no knowledge of AR. Twenty-eight percent of responses are in Levels four and five with only 15% showing a great deal of knowledge about AR. (Chart B)
Chart A

*Accelerated Reader Comfort Level*

Chart B

*Teacher Knowledge of Accelerated Reader as Determined by Teacher Survey*
Responses during the teacher interviews show 90% of respondents have no knowledge about the points that are accumulated by taking the reading quizzes or what to do with them. Eighty percent of the teachers did not know how to determine the levels of the AR books students should be reading. Sixty percent of respondents indicated never using any AR reports and 30% of the respondents who said they did use the report forms were confused about whether or not they were AR or Star Reader report forms. They were actually Star Reader forms that they had used.

Three respondents indicated that they used the Accelerated Reader on a regular basis. Further inquiry revealed this to be inaccurate. One teacher said she had just started using it about a week ago due to problems with the computer, and the other two teachers said they used it when something else was cancelled and only recently. Another teacher said that some students may be using AR but he wasn’t sure. When the evaluator checked the classroom computer, 2 students had taken 2 tests, not enough to be considered regular use.

Seventy-percent of respondents indicated using it infrequently or not at all. Some of the ways it is being used are:
- As a back up when something else is cancelled
- An optional activity when students finish something else
- Supplement other reading
- Required to read one AR book/week as of (3-27-02)
- In Joplin Reading Group

Reasons given for not using the Accelerated Reader:
- Lack of time-17%
- Lack of knowledge(trial and error method was too time-consuming) 50%
- Not enough books-50%.
- Doesn’t work-8%
- Don’t know what books to have children read.

How is Accelerated Reader being used in the classroom?

At the time of this evaluation, only one teacher was using AR on a regular basis and she had only been using it for a week. Two other classrooms indicated they had been using it, every day, for about 2 weeks. Irregular use was indicated by about 50% of the teachers. When this evaluator checked classroom computers and reviewed quiz and point summaries, records showed very little use and nothing consistent except for the two classrooms that had used it for 2 weeks. Two computers had lost all of the data from Aug, 2001 until Jan, 2002 but showed little use since January. AR was used occasionally when there was nothing else to do or if students wanted to use it. Data on the classroom computers and on teacher interviews support each other showing very little use of the Accelerated Reader.
What do teachers know about Accelerated Reader?

The teacher survey indicates that 30% of the respondents are uncomfortable with Accelerated Reader and that 48% have little or no knowledge of AR. This is consistent with what was found on the teacher interviews with 50% indicating a lack of knowledge was the reason for not using Accelerated Reader. Fifty percent of respondents claimed they didn’t use AR on a long term basis because there weren’t enough books. Library records showed only 328 AR books in the media center with a total of 238 students enrolled in the school. This is not enough books for a school-wide program. In addition, knowledge about quizzes, points, and reports is spotty and sometimes inaccurate. This evaluator received some conflicting information showing confusion as to which program respondents were talking about. When asked, one teacher if she knew how to install class lists into her computer, she said yes. Further questioning revealed that she always had someone else install her lists because she didn’t know how to do that. Only one respondent indicated having any training in AR and one hundred percent indicated a desire to have more information on how to use the program. The data collected supports the idea that teachers lack of knowledge contributes to not using the AR program.

What knowledge do teachers have about the Star Reader and how is it being used in the classrooms at Zimmerly Elementary School?

What do teachers know about the Star Reader Test? Information was collected through a questionnaire survey, teacher interviews, and from classroom computers. From the survey, the majority of teachers appear to be uncomfortable with the Star Reader Test with 5 teachers choosing a 1 or 2 and only 3 teachers choosing 4 or 5. (See Chart C) For questions 16 through 26, 32% of all responses were in the middle showing some knowledge, 32% were 1 or 2 showing little or no knowledge, and 36% were in the higher range showing a greater amount of knowledge. It is important to note that, for the responses in the lower range, 23% indicated no knowledge. (See Chart D)
Chart .C

Star Reader Comfort Level

Chart D

Knowledge of Star Reader as Determined by Teacher Survey
Summarizing the teacher interviews, 83% of all respondents wanted to know more about this program and 100% wanted to receive training. Twenty-five percent of respondents said they didn’t know about any of the reports available through the Star Reader software. The other 75% used one or more of the report forms. Thirty-three respondents had to have someone else enter their class lists. Sixteen percent wanted to know what the initials on the reports meant, twenty-five percent didn’t really know how to use it without getting help. Teachers felt students should do better on the tests because of retaking the test. They did not know that the tests were never the same because the questions came from a large bank of questions, which indicates a lack of knowledge.

Eleven respondents indicated that they did use the Star Reader test with the following frequency:
- 4 times a year-6 respondents
- 2 times a year-2 respondents
- pretest only-1 respondent
- 3 times a year- 2 respondents
- don’t know what it is-1 respondent

This evaluator checked classroom computers and found the information there to be consistent with the information provided in the interviews, showing that Star Reader was being used for:
- Placing students in Joplin Reading Program
- Showing which students have progressed or regressed
- Assessing reading levels
- Planning
- Student files
- Determining level of AR book children should be reading consistently by all teachers with the exception of one teacher who had a computer that needed work.

Interpretation of Data collected for Star Reader

Most responding teachers are uncomfortable using the Star Reader Test and have some knowledge or no knowledge of how to use it. After interviewing the teachers, I discovered that there was some confusion about whether we were talking about the Star Reader Test or the Accelerated Reader. They were actually more comfortable and knowledgeable with the Star Reader than was shown by the survey. The discrepancy is probably related to confusion over the program names. Teachers started using Star Reader because they were told to test all students for placement in the Joplin Reading Program. At that time 50 percent of the teachers had one teacher install their class lists for them. Star Reader information is used mainly for placement in the Joplin Reading Program. It is used by a few teachers for documenting progress, reporting to parents, assessing reading levels, planning, putting in student files, determining level of books for AR. Eighty-three percent of respondents use Star Reader 2 or more times a year to determine progress. Respondents who didn’t use it more indicated they didn’t know they should and really didn’t know how to use it.
Is there a correlation between Star Reader scores and CTBS scores in reading?

NCE (Normal Curve Equivalent) scores were used as requested by the client. Star Reader Test scores for the 4th (Chart F) and 5th (Chart E) grade students were collected from classroom computers. The dates of the tests ranged from 9-2001 to 1-2001. CTBS scores were documented from student cumulative records. Those test scores were dated March of 2001. Students who did not have both test scores were excluded from this part of the evaluation. Excel Spreadsheets were used to develop 2 scatter plots with trend lines or linear regression lines. One was made for 4th grade and one was made for 5th grade to see if there was any difference. The R value was used to determine correlation between test scores. The closer the R value is to 1, the better the fit of the line and the higher the correlation. The closer the R value is to 0, the larger the estimate of error and the weaker the correlation. The first scatter plot shows the distribution of test scores for 5th grade students. The R value for 5th graders can be rounded to .60 which is about halfway between 1 and 0. This shows a weak positive linear relationship between the 2 scores for the fifth graders. The R value shown on the 4th grade scatter plot can be rounded to .71 which shows a stronger positive relationship.
Do students who participate in Accelerated Reader experience a greater degree of improvement in reading skill than those who do not participate in Accelerated Reader?

No students have been using the Accelerated Reader until the last couple of weeks. Therefore, this question cannot be evaluated at this time.

**VII. Conclusions and Recommendations**

The Star Reader Test and Accelerated Reader programs support each other and share a database so they will be treated as a single entity at this point. Criteria for judging comes from the National Educational Technology Standards (NETS), National Educational Technology Goals, New Mexico’s Educational Technology Plan, Socorro Consolidated School’s Technology Plan, and “Power On! New Tools for Teaching and Learning, and Evaluating Software for Educators”.

![Chart F](image-url)

*Test Scores for Fourth Grade Students at Zimmerly Elementary*

- $y = 0.8712x - 7.3892$
- $R^2 = 0.7092$
**Strengths of Accelerated Reader and Star Reading Test**

1. Supports NETS performance indicators for teachers
   - Apply technology in assessing student learning of subject matter using a variety of assessment techniques.
   - Use technology resources to collect, analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.
   - Facilitate technology-enhanced experiences that address content standards and student technology standards.
   - Use technology to support learner-centered strategies that address the diverse needs of students.
   - Manage student learning activities in a technology-enhanced environment
   - Apply technology to increase productivity
   - Use technology to communicate and collaborate with peers, parent, and the larger community in order to nurture student learning.
   - Apply technology in assessing student learning of subject matter using a variety of assessment techniques, use technology resources to collect
   - Analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning

2. Supports NETS performance indicators for students
   - Use keyboards and other common input and output devices
   - Use general-purpose productivity tools and peripherals to support personal productivity, remediate skill deficits, and facilitate learning throughout the curriculum.

3. Supports National Education Goal for Technology
   - Effective software and on-line resources will be an integral part of every school’s curriculum.

4. Supports focus area for the Socorro Consolidated Schools
   - Enhance student achievement for students of all academic abilities in the area of language arts, mathematics, and science

5. Provides a teacher-friendly method to track a student’s reading and comprehension

6. Motivating to children by being computer oriented.

7. Provides for children of all levels

8. Requires minimal training for use.

9. Produces information that helps teachers in planning

10. Tests may be generated for books that schools already own.

11. Reports can provide information on student weaknesses and strengths

12. Parent reports keep parents up-to-date on child’s progress

13. Record keeping is done automatically saving time for teacher.

14. Has the potential to be on a networked system so information on each student can be followed for several years, instead of teachers having to start over every year.

15. School wide summary reports available when system is networked.
16. Students can work on their own  
17. Progress is easily documented  
18. Software responds to learner’s own rate of learning.  
19. Requires 4-10 minutes to complete, adjusted to reading level.  
20. Students can use independently.  
21. Provides immediate feedback for student.  
22. Keeps a history of student work for future retrieval.  
23. Teacher options are easy to find and use.  
24. Integration with previous use.  
25. Random generation of questions allows frequent use of the Star test.  
26. May be networked to track student progress over several years.  
27. Motivating to students  

**Weaknesses of Accelerated Reader and Star Reading Test**  
1. Purchase of additional books and tests may be expensive.  
2. With only one computer per room, students have to wait to take tests so feedback is delayed.  
3. Software manual is difficult for some people to use.  
4. Reading quizzes cannot be retaken.  
5. Difficult to stop a quiz once it is started.  
6. Students need immediate access to additional books after taking a quiz, which isn’t always possible.  
7. Scheduling time is difficult.  

**Recommendations**  

Since the management software for these programs has already been purchased and installed on classroom computers, it is recommended that a pilot program be implemented. This pilot program would involve 2 classrooms with students of diverse needs and teachers who are eager to do the study. Teachers in the study would be trained by Mrs. C., a teacher already trained by Renaissance Learning. They would also need training in technology troubleshooting and have access to technology assistance. Additional books and quizzes need to be purchased. To cut implementation costs, quizzes should be purchased at $2.50 each for books that are already in the library. Paperback books for readers at lower levels could be purchased for $5-$10 a piece. Lists of quizzes already installed should be examined and purchase books to match the quizzes.  

From observing students reading one half hour every day, it was noted that Level 1 and 2 students read 5-10 books a week, Level 3 students read 2-5 books a week, and Levels 4 and up read 1 book per week. Data should be collected throughout the year on student growth, points accumulated, test scores, books read, comprehension checks, and student satisfaction.  

Evaluation of the program should be continuous with checks at the end of each 9-week period. At the end of one year, the benefits and costs of the program should be evaluated and analyzed. At that time the district will have to decide if they are going to support the programs and allocate funds to buy additional books and quizzes and train the remaining teachers.
VIII. Appendices

Appendix A

Process

The client and the researcher met on 3 occasions to discuss the direction of this evaluation. One of the instructional areas he finds to be most critical is the area of reading. In order to plan for teacher training, it was decided to find out what the teachers know about the Accelerated Reader and Star Reader and how these programs are being used in classrooms. The client wants to examine the correlation between standardized test results and the Star Reader test results. In addition, he wants to know if students who use the Accelerated Reader make greater gains in reading.

Evaluation Plan

Questions 1 & 2
(1) What knowledge do teachers have about the Accelerated Reader and how is it being used in classrooms at Zimmerly Elementary School?
(2) What knowledge do teachers have about the Star Reader and how is it being used in the classrooms at Zimmerly Elementary School?

Design
The researcher will implement a cross-sectional design in order to find currently held attitudes, behaviors, opinions, and expertise about applications of Accelerated Reader and Star Reader tests.

Source of Information
Teachers at Zimmerly Elementary School

Sampling
All teachers will be surveyed and interviewed, on a voluntary basis, due to the small number of teachers available.

Instruments
Data will be collected from all classroom teachers at Zimmerly Elementary with a nonrandom and self-selected procedure. All teachers will be asked to participate in this evaluation by completing a survey and being interviewed by the researcher. (See appendix B for survey and Appendix A for interview questions). The surveys and half of the interviews will be conducted on-site, between March 18, 2002 and March 28, 2002. The remainder of the interviews will be completed, on-site, after spring break during the week of April 8th. Participation will be voluntary and confidential and no one but the researcher will have access to participant names and the information they provide.
Analysis and Reporting
Analysis of the collected data will be descriptive and will be part of a written report. Survey information will be presented in a Likert-Scale. Interview information will be summarized. The survey information will be cross-checked with the information collected in individual interviews. Summary reports, growth reports, and test scores for both the Accelerated Reader and the Star Reader will be collected as a way of cross-checking the answers give by teachers as to use of both programs.

Question #3
Is there a correlation between Star Reader score and CTBS scores in reading?

Design
The design is quasi-experimental in that CTBS scores are taken from end of the 2000-2001 school year, yet Star Reader scores are from the 40th day summaries.

Source of Information
Student cumulative files and classroom computers will provide the necessary information.

Sampling
No sampling will be used. All students having scores for both the STAR Reader and CTBS will be used.

Methods
Student test scores will be collected from individual student CUM files for the CTBS test given at the end of the school year ending in May of 2001. The score being used is the NCE score for the reading composite score. Star Reader growth reports will be collected from the Star Reader Management Software located in the individual classroom computers. From the growth reports, the NCE score for the initial test will be used. This collection should be completed by April 10. The 2 scores for each student will be put onto a worksheet which will later be placed into an Excel spreadsheet. No student names will be associated with the scores to preserve confidentiality.

Analysis
The 2 scores for each student (without using their names) will be placed in an Excel spreadsheet. A scatter plot will be made and a trend line will be inserted, using a linear regression model to determine whether there is any correlation. Separate scatter plots will be made for the fourth and fifth grade.

Reporting
This information will be presented in graph form for the final report along with a written interpretation.

Question # 4
Is there a difference in CAT reading scores for students in classrooms where the Accelerated Reader is used and where it isn’t used?
Design
A posttest design will be used by gathering the reading test results from the end of the year standardized test. One group will be students who have used the Accelerated Reader throughout the year and the other groups will be students who have not used the Accelerated Reader.

Source of Information
Classroom computers, Accelerated Reader Management software and end of the year standardized test results for the CAT.

Methods and Instruments
We will be comparing children who did not use Accelerated Reader and children who did not use Accelerated Reader. CAT scores will be collected as soon as they arrive in May of 2002.

Analysis
Pie charts and histograms will be constructed for students who use Accelerated Reader and for children who do not use the program. The 2 charts will be compared to see if there is any difference. ANOVA will be used to analyze the variance between students who used Accelerated Reader and those who didn’t use AR.

Reporting
Charts and graphs will be included in a written report along with an interpretation.
Letter to Teachers

Dear Teachers,

I am enrolled in a graduate class at the University of Illinois in Evaluation and Assessment in Learning Technologies. My teacher’s name is Dr. Lizanne DeStefano. She may be contacted by phone at (217) 333-8520 or by e-mail at destefan@uiuc.edu. As part of my coursework, I am required to do an evaluation project involving learning technologies.

This survey questionnaire is being disseminated to all classroom teachers at Zimmerly Elementary School in Socorro, New Mexico. The information will be used in an evaluation of the Star Reader and Accelerated Reader programs from Renaissance Learning. The purpose of this evaluation is to determine what the teachers know about these programs, how they are being used in classrooms, and whether or not these programs have an affect on student growth. The information from this survey will be combined with other information to develop our language arts program, facilitate changes to maximize student learning, and for planning staff development.

Completion of this survey is voluntary and confidential so please do not include your names. The only person who will have access to these surveys is myself. I will compile the information and analyze it so that it won’t be recognizable as coming from any one person.

I anticipate that this survey will take no more than 30 minutes to complete. You may answer any, all, or none of the questions. If you are willing to participate, please complete and turn into my mailbox by Friday, March 22, 2002.

Thank you for your help with this research project.

Sincerely,

Nelda Baker
Teacher Demographics

Your answers to the following questions will support our analysis of the Accelerated Reader and Star Reader programs as they are used in our curriculum at Zimmerly Elementary School.

1. How many years of teaching experience do you have? __________

2. What is the highest degree you have received? Please circle one answer.
   a. Bachelor Degree
   b. Bachelor Degree, plus___hours
   c. Masters Degree
   d. Masters Degree, plus___credits
   e. Ph.D.

3. What grade level(s) do you presently teach? __________

4. My primary teaching assignment for this year is (are):
   a. Elementary
   b. Elementary, Inclusion class
   c. Special Education
   d. Other (please list)_____________________________

5. In which areas do you hold certification?
   a. Elementary
   b. Secondary
   c. Special Education
   d. Reading
   e. Science
   f. Language Arts
   g. Mathematics
   h. Fine Arts
   i. Music
   j. Technology
   k. Other_____________________________________

6. Is (are) your primary teaching assignment(s) in an area where you hold Certification? Yes No
Summary of Responses of Survey Questionnaire For Teachers

A survey was placed in the mailbox of eleven teachers at Zimmerly Elementary School. Ten out of eleven surveys or 91% were returned. Total number of responses for each level of the Likert Scale is recorded in the following form. These responses were then placed in an Excel spreadsheet. Means were found for each column and each section. The mean score for all respondents for Accelerated Reader, questions 1-12, was 2.65 and the mean score for Star Reader, questions 15-25, was 2.66. Both of these are less than the mean of 3 for a scale 1 to 5. This indicates that overall, teacher knowledge is on the low end between “not at all” and “to some extent” for both the Accelerated Reader and Star Reader. This information was cross-checked with information from teacher interviews and found to be accurate. Numbers in each box reflect the number of responses marked in that box.

Results of Survey Questionnaire for Teachers

For each of the following statements, circle the number that best represents your answer. These statements are about the Accelerated Reader.

<p>| | | | | |</p>
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</thead>
<tbody>
<tr>
<td></td>
<td>Not at all (1)</td>
<td>some extent (3)</td>
<td>great deal (5)</td>
<td></td>
</tr>
<tr>
<td>1. I know about the Accelerated Reader Program.</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2. I have used the Accelerated Reader Program.</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3. I have adequate information to use the Accelerated Reader Program.</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>4. I have attended training on the Accelerated Reader.</td>
<td>9</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>5. I know about all of the report forms available in the Accelerated Reader.</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. I feel confident about using the Accelerated Reader Management Software.</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>7. I know how to put class lists into the Accelerated Reader.</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>8. I know how to print student reports from the Accelerated Reader.</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>9. I know how to print prescriptive reports for my students.</td>
<td>4</td>
<td>4</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>10. I understand how students acquire points in the Accelerated Reading program and what to do with them.</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
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<td></td>
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</tr>
<tr>
<td>11.</td>
<td>I know how often students should read Accelerated Reader books to maximize benefits.</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>12.</td>
<td>I am familiar with the Reading Skill Quizzes.</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>13.</td>
<td>I would like to know more about the Accelerated Reader.</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>14.</td>
<td>I feel comfortable using Accelerated Reader.</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

Please respond to these statements about the Star Reader.

<p>| | | | | | |</p>
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</tr>
</thead>
<tbody>
<tr>
<td>15.</td>
<td>I have used the Star Reader.</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>16.</td>
<td>I know about the Star Reader.</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>17.</td>
<td>I have adequate information to use the Star Reader.</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>18.</td>
<td>I have attended training on Star Reader.</td>
<td>9</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>19.</td>
<td>I know how to make graphs showing student progress.</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>20.</td>
<td>I know the difference between Star Reader and the Accelerated Reader.</td>
<td>4</td>
<td></td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>21.</td>
<td>I know about all report forms available in the Star Reader.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>22.</td>
<td>I feel confident about using Star Reader Management software.</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>23.</td>
<td>I know how to install class lists into Star Reader.</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>24.</td>
<td>I know how to print student reports from the Star Reader.</td>
<td>2</td>
<td></td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>25.</td>
<td>I am able to print growth reports.</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>26.</td>
<td>I feel comfortable with using Star Reader.</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>27.</td>
<td>I would like to know more about Star Reader.</td>
<td></td>
<td></td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
Programs used in connection with Accelerated Reader and Star Reader.

<table>
<thead>
<tr>
<th>28. I am familiar with Literacy Skill Quizzes.</th>
<th>Not at All (1)</th>
<th>Some Extent (3)</th>
<th>Great Deal (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>29. I am familiar with Renaissance Learning.</td>
<td>3</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

Please answer the following questions.

1. What do you like the most about the Star Reader? (4 respondents did not answer)
   a. Being able to test students every 9 weeks
   b. Having the ability to test children at the beginning of the year.
   c. Ability to assess kids, see progress, standardization
   d. Quick and easy way to monitor reading level
   e. It shows any positive or negative growth.
   f. It shows growth, or lack of growth, when used monthly.

2. What do you like the least about the Star Reader? (5 respondents did not answer)
   a. I haven’t had any problems
   b. Using the same test repeatedly
   c. That I don’t know much about it
   d. It is not always an accurate assessment
   e. The test is the same over and over so naturally they show growth.

3. What do you like the most about the Accelerated Reader? (3 respondents did not answer)
   a. Levels
   b. Reading at an appropriate level and at the individual pace
   c. I like that the program can be a guided reading system
   d. Good way to monitor independent reading and ensure students are reading on their level so they continue to grow.
   e. I haven’t used it.
   f. That the students can take short quizzes on books they read individually.
   g. Seeing student progress by testing.

4. What do you like the least about the Accelerated Reader? (5 respondents did not answer)
   a. Not having enough books
   b. We don’t have enough books
   c. Our library and tests are not adequate enough to provide a strong program.
   d. I haven’t used it.
   e. I need to better understand it.
Appendix C

Twelve certified staff members were interviewed. This is a summary of their responses. The number in parentheses indicates number of participants with the same comment.

Interview Questions and Responses

1. Do you use the Accelerated Reader (AR) on a regular basis?
   - Yes (3) When questioned further, all 3 respondents said they had just started using AR
   - No (9)
   Reasons for not using regularly:
   - Lack of time (3)
   - Don’t know what to do with it (4)
   - Busy with other things (2)
   - Not enough books (2)
   - Some may be using but not sure. (I checked his computer and found that 2 students had taken 2 tests.)
   - Computer doesn’t have current book lists.

2. How do you use the Accelerated Reader in your room?
   - I don’t. (3)
   - Joplin Reading Group
   - Back up when something else is cancelled.
   - It is optional. If they read a book they can test on it.
   - Just started using it during reading time. (3-27-02)
   - Silent Reading Time
   - Supplement to other reading (2)
   - Required to check out one AR book per week and take a quiz.(started 4-8, after spring break)

3. How do you think this program should be used for reading instruction?
   - Supplement for other reading instruction (4)
   - Practice for reading comprehension.
   - Independent reading
   - No answer (3)
   - As a check for reading comprehension (2)
   - Tied in with the basal would be nice.
   - Daily, during silent reading time.

4. Are any of the AR forms useful to you? If yes, which ones?
   - NO (6)
   - Confused about which reports were available (3)
   - Diagnostic (2)
5. How do you use the points that accumulate from the AR quizzes?
   - Don’t know about them (9)
   - Trade for prizes.

6. Do you feel that the Accelerated Reader is beneficial to your students?
   - It would be good for comprehension.
   - Don’t know.
   - It could be if they would read the books.
   - Can’t use it so doesn’t know.
   - Encourages students to read an entire book.
   - Recordkeeping and grading are done for me.
   - Does encourage reading but would have been better if I could have started using it earlier in the year.
   - Yes, it helps children feel successful. (3)
   - Not helping with remediation but is motivating.

7. What do you find the most frustrating about the AR?
   - Figuring out book levels and colors
   - Knowing you can do different things but not knowing how (4)
   - Setting up classes
   - No manual
   - Not enough books (3)
   - Not enough tests.
   - Library doesn’t support Accelerated Reader
   - The book lists. They need to be easier
   - Not having enough time (2)
   - Can’t use it because it doesn’t work
   - Students can’t retake the quizzes.
   - Not being able to get out of tests and other areas in the software.

8. What keeps you from using AR more than you do right now?
   - No time (2)
   - Lack of training, knowledge (Trial and Error Method is time consuming) (6)
   - Not enough books (6)
   - Not enough personnel to implement (Librarian) (2)
   - Don’t know what books to have children read (7)
   - Doesn’t work
   - Need nonfiction books as well as fiction
   - Need more lower level books because those children can go through many books in one week and when they get started they don’t want to stop reading.
Lack of high interest, low reading level books and quizzes. Our children are older and don’t always like to read the lower level books that look like books for young children.

**Star Reader**

1. **Do you use the Star Reader?**
   - Yes (11)
   - No (1)
   - How often do you give the Star Reader Test?
     - Four times a year-every 9 weeks (6)
     - Twice a year (2)
     - Beginning of the year
     - 3 times a year (2)
     - Don’t know what it is

2. **How do you use the information from this test?**
   - I don’t.
   - Send report to parents (2)
   - Analyze graphs
   - Show which students have progressed or regressed (5)
   - Placement in Joplin Reading (8)
   - Assess reading levels
   - Gives me an idea of why kids excel or don’t in other areas
   - Helps me when I am planning
   - Put in student work file
   - Find out what level of AR books students should be reading.

3. **Is there anything you would like to know about the SR? What?**
   - Why do students sometimes look as though they have regressed?
   - Will distractions lower their test scores?
   - What the initials on the reports mean (2)
   - How to use it (3)
   - Are there any other uses for it?
   - No-don’t have a working computer.
   - No, I understand it. (5)
   - How to put in class lists and use the management software

4. **Do you use any of the forms from the SR? If yes, which ones?**
   - Don’t know enough to use them (2)
   - Parent forms go home (5)
   - Graphs for teacher use
   - Class summary
   - Individual growth (3)
   - One that showed reading level (student placement) (3)
• Used some but not sure which ones
• Diagnostic (4)

Combination
1. Do you feel that if you knew more about the AR and Star Reader that you would use them more often?
   • Yes (10)
   • More effectively (1)
   • I have used it more this year because I know more about it.
   • Need more computers and books to use more often. If all students use one computer, they end up having to wait in line to take their quizzes.

2. Is it a hindrance or help having these programs on the computer?
   • Help (12)
   • Students are highly motivated
   • Encourages more reading when they know they will get to take a quiz on the computer.
   • Big help in record keeping for teachers.
   • This way you can tell if the child really read the book.

3. How can we help you use these programs?
   • Make more books available (3)
   • Educate teachers on its use (11) (pay for training time would help, on school time)
   • “Snapshot Manual” that is easy to use
   • High interest, low reading level material
   • Telling me how students can retake the test
   • More computers

4. Would you like to receive training in the use of these programs?
   • Yes (12)

Interview Guidelines
This evaluator will be interviewing ten 4th and 5th grade teachers to find out how they use the Accelerated Reader and Star Reader programs. This information will be used to determine how these programs are being used in classrooms and to confirm what teachers know or don’t know about these programs. A few of these questions are structured while the others are designed to allow probing.

Protocol for Interviews

A. Introduce Self (to those people who don’t know you)
B. Interview Consent (to be given verbally)

1. Why: research for an evaluation project for Master’s program at U of I.
2. Teacher’s name and contact information: Dr. Lizanne DeStefano.
   (217) 333-8520 or by e-mail at destefan@uiuc.edu.
3. Purpose of Evaluation: To determine what you know about Accelerated Reader and Star Reader, how they are being used in classrooms, and whether or not these programs have an affect on student growth. The purpose of this evaluation combined with other information will be used to help develop our language arts program, facilitate changes to maximize student learning, and for planning staff development.
4. Confidentiality: voluntary and confidential
   The only person who will have access to these interviews is myself.
5. Time: I anticipate that this survey will take no more than 30 minutes to complete.
   You may answer any, all, or none of the questions.
6. Thank you.

C. Allow time for the interviewee to ask questions.
D. Don’t talk too much, be patient, and allow responses.
E. Thank the interviewee for their time and input.
Letter to Teachers

Dear Teachers,

I am enrolled in a graduate class at the University of Illinois in Evaluation and Assessment in Learning Technologies. My teacher’s name is Dr. Lizanne DeStefano. She may be contacted by phone at (217) 333-8520 or by e-mail at destefan@uiuc.edu. As part of my coursework, I am required to do an evaluation project involving learning technologies.

This survey questionnaire is being disseminated to all classroom teachers at Zimmerly Elementary School in Socorro, New Mexico. The information will be used in an evaluation of the Star Reader and Accelerated Reader programs from Renaissance Learning. The purpose of this evaluation is to determine what the teachers know about these programs, how they are being used in classrooms, and whether or not these programs have an effect on student growth. The information from this survey will be combined with other information to develop our language arts program, facilitate changes to maximize student learning, and for planning staff development.

Completion of this survey is voluntary and confidential so please do not include your names. The only person who will have access to these surveys is myself. I will compile the information and analyze it so that it won’t be recognizable as coming from any one person.

I anticipate that this survey will take no more than 30 minutes to complete. You may answer any, all, or none of the questions. If you are willing to participate, please complete and turn into my mailbox by Friday, March 22, 2002.

Thank you for your help with this research project.

Sincerely,

Nelda Baker
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