

Overview of the Validation and Effectiveness Of the StudyDog Reading Program: A Research- based Curriculum

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Overview of the Validation and Effectiveness Of the StudyDog Reading Program

The StudyDog Reading Program has been implemented with children, enrolled in Kindergarten through second-grade, who are struggling to learn to read in seventeen public schools in Oregon and Washington and in an after-school program in St. Louis, Missouri. Several studies of the reading performance of these children were undertaken to explore five critical questions about the StudyDog Reading Program. These questions are:

1. Are the critical reading skills included in the StudyDog Reading Program?
2. Do children show mastery of StudyDog's reading skills?
3. Is there experimental proof of StudyDog's effectiveness and what is the recommended frequency of instruction?
4. How does StudyDog's effectiveness compare to other teaching methods?
5. To what extent can StudyDog leverage teachers' time in order to provide one-on-one reading instruction?

Results

Evidence of the validity and effectiveness of the StudyDog Reading Program is reported in this document. Evidence that it effectively teaches children important reading skills, shows that:

1. The right skills are included in the reading curriculum;
2. Children learn to master the reading skills that are taught;
3. The mastery of skills is attributable to StudyDog and not other conditions;
4. StudyDog has a larger impact on children's reading than most other reading programs;
5. Teachers can provide one-on-one reading instruction to students for as many children as they can manage.

The following summarizes how we gathered evidence for each of the critical questions and what we found. **Collectively, StudyDog is shown to be a highly effective program for teaching young children basic reading skills they need to become successful readers.**

1. Are the critical reading skills included in the StudyDog Reading Program? (Appendix A)

The StudyDog Reading Program is built to teach research-proven reading content. First, the five critical areas of early reading recommended as research-proven by the National Reading Panel are incorporated into the organization of the StudyDog Reading Program. Second, the content of the curriculum is built from a synthesis of state-level reading standards in order to capture the specific reading skills children are being held accountable for as part of the No Child Left Behind requirements. Third, the StudyDog curriculum and lesson content were reviewed in comparison to nationally validated research curriculum. The resulting StudyDog Reading Curriculum is carefully aligned with the strongest, research-based content available. The lessons, instructional methods, and testing included in the StudyDog Reading Program are based on this carefully aligned curriculum, assuring the content validity of the program. Please refer to Appendix A for additional information.

2. Do children show mastery of StudyDog's reading skills? (Appendix B)

Children who complete the StudyDog Reading Program are expected to master the reading skills that they are taught. Skill mastery refers to children's ability to demonstrate that they understand and can use skills to successfully read. For example, achieving a *mastery* level of the beginning sounds of a simple word means that a child can use this skill to begin to sound out a new word. Mastery usually refers to a level of skill performance that suggests a child can use the skill without difficulty. For the StudyDog Reading Program, we teach with a minimum target of at least 70 percent mastery of any specific skill.

Skill mastery is measured by comparing pre-test and post-test scores of the skills that the StudyDog Reading Program teaches. We have found highly significant and substantial reading gains for the vast majority of children who have completed the StudyDog Reading Program. Ninety percent (90%) or more of the children have gained a year of reading skill development in ten to fourteen weeks they have worked with the StudyDog lessons. Please refer to Appendix B for additional information and specific quantitative results.

3. Is there experimental proof of StudyDog's effectiveness and what is the recommended frequency of instruction? (Appendix C)

To what extent is the StudyDog Reading Program responsible for the reading skill development we have found with children? A scientifically designed study, comparing a treatment sample of children who completed the StudyDog Reading Program with a control sample of children who did not work with the StudyDog lessons has been conducted to answer this question. The treatment sample participated in the StudyDog lessons for fourteen weeks and was tested at the end of that time. The recommended frequency of instruction is three 15-minute lessons per week. A randomly assigned control sample of children was not given access to the StudyDog lessons and was tested at the same time as the treatment sample. Highly significant differences were found between the reading growth of the StudyDog treatment sample and the control sample. At the end of the test, 92 percent of the children in the treatment group were proficient in reading skills at or above grade level. This gain was attributable to the StudyDog Reading Program. Please refer to Appendix C for additional information and the actual results.

4. How does StudyDog's effectiveness compare to other teaching methods?

The children who have completed the StudyDog reading program have shown highly significant and substantial gains in reading performance. **Ninety percent (90%) of the children improved their reading performance from a *non-proficient* level to a *proficient* level of performance**, mastering a year of reading skill development in fourteen to sixteen weeks. Our experimental study, using a treatment and control group of children in St. Louis, shows that this gain is attributable to StudyDog lessons.

These results showed that StudyDog, as a supplemental reading program, performed better than most of the reading programs taught by human instructors. According to the National Reading Panel Report, December 2000, thirty-two reading studies were compiled to represent the core set of research-proven reading programs. All were taught by a human instructor. By comparing the Effect Size achieved by these studies, StudyDog performed better than 81% (26) of the studies. It should be noted that the majority of the core reading programs cost thousands of dollars and were taught for a period up to 12 months and all of the programs required human teachers.

5. To what extent can StudyDog leverage teacher's time in order to provide one-on-one reading instruction?

StudyDog is designed to provide children explicit reading instruction in a one-on-one computer setting. Several reading researchers (e.g., Shaywitz, 2003) have suggested that children who are struggling to learn to read need one-on-one instruction and that more than three-on-one instruction is largely ineffective. The StudyDog Reading Program monitors children's reading development, plans the lesson sequences for each child, teaches the child and adjusts as needed and reports to teachers and parents the performance of each child. Further, the StudyDog Reading Program is highly engaging for children and avoids the disruptive behaviors that children who are struggling to read often display. Because the StudyDog Reading Program provides a complete teaching system, teachers can provide one-on-one reading instruction with StudyDog for as many children as they can manage in a classroom or computer center. In the implementation sites, we have observed teachers use StudyDog with 15 or more children in the school computer center. Some teachers have setup StudyDog as a learning center and cycle all of their children through the center at least twice each week. We have several Title 1 teachers using StudyDog to teach reading skills to ten to fifteen children at a time as part of their supplemental reading services. Because StudyDog is a complete supplemental reading program that monitors each child's reading development, it can be flexibly used to extend the teachers time, providing one-on-one instruction with large classes of children.

Is the StudyDog Reading Program a valid and effective program?

Unequivocally, yes, the StudyDog Reading Program teaches young readers the basic Reading skills they need to become successful readers. It focuses on research-proven reading skills, effectively teaches the skills to young children, and is scientifically shown to account for substantial reading gains in young children. StudyDog has shown treatment effects larger than many of the available reading programs reviewed by the National Reading Panel. As a supplemental reading program for teachers, StudyDog is flexible and can provide one-on-one reading instruction to children, even in large classrooms.

Appendix A

Overview of the Development Of The StudyDog Curriculum

The StudyDog reading standards coordinate the StudyDog lessons and assessments. They provide the backbone of the curriculum to assure that children are taught in a systematic way the skills and knowledge they need to be strong readers. We developed the standards from a synthesis of state reading standards and validated the resulting StudyDog standards by comparing them to national reading content recommendations and professional reviews.

The process began with the review of four states' kindergarten through third-grade reading standards, including New York, Florida, California, and Texas. We selected these states because of their geographic representation and the variety of standards they included in their curriculum. We have found strong similarities with other state standards we have worked with the national recommendations from several sources.

At each grade level, the standards from the four states were grouped by similar reading content and skills. The standards were first grouped by the state provided sub-headings, e.g., phonetic analysis, vocabulary, and comprehension. Each grouping was reviewed for similar content and skill focus. The specific skills and the limits of those skills were reviewed for each standard included in each group. Key questions of consensus among the states and unique qualities between the states were investigated. Similar standards were combined into a single statement, making minor adjustments to accommodate minor state dissimilarities. Such accommodations included extending the limits of a standard to include additional content suggested by some state standard, or modifying the skill activity to combine similar process skills. Every effort was made to keep the intended content and reading skills of all of the standards represented by the states in consolidated statements of the standards. Unique standards that could not be consolidated remained in the listings of the standards.

At this stage, the set of consolidated and unique standards were reviewed in light of a systematic flow of standards across grade levels. We identified where specific reading skills were introduced, taught to mastery, and reinforced. We looked for enabling skills being taught before higher-level skills. Standards were reorganized to facilitate the systematic flow of the curriculum. Again, these modifications were limited to preserve the intent of the original set of state standards. We organized the resulting ordering of the standards into their respective grade levels and into the following five groupings:

- [Phonemic Awareness](#) – understanding the sounds in spoken words
- [Phonics](#) – matching sounds in written words
- [Fluency](#) – reading smoothly, without hesitation
- [Vocabulary](#) – building sight word recognition and word meaning
- [Text Comprehension](#) – understanding, organizing, and using information from text

After the standards were organized into these five areas, we eliminated standards that reflected traditional study skills, including use of a dictionary, library skills, and environmental print. We eliminated these skills in order to keep a sharp focus on

skills and knowledge that directly support reading comprehension. A final StudyDog standard was written for each cluster of the state standards. In this final writing, either unique state standards were eliminated or a new cluster was developed. The criterion used for dealing with unique state standards was the same sharp focus on directly supporting reading comprehension.

Following the final draft of the StudyDog standards, we began a series of validation reviews. We compared the standards to the national recommendations for research proven reading content and sequencing. The comparisons included reference to (1) *Preventing Reading Difficulties in Young Children* (edited by Snow, et. al. 1998); (2) The National Reading Panel, *Reports of the Subgroups*, 2000, and (3) University of Oregon, *Big Ideas In Beginning Reading*, 2002. Recommendations for reading curriculum, both the scope and sequence, were extracted from these sources and matched to the StudyDog standards. We found strong support for the StudyDog standards reflected in each of these research-proven resources. In addition, we found the Big Ideas curriculum particularly helpful in verifying the specific skills placements in grade levels and sequencing within grades. This review, particularly, encouraged a few minor adjustments of the grade-level sequencing of the StudyDog standards.

Drs. Roland Good, University of Oregon and Arlene Hett, University of Portland, two StudyDog Advisory Board members reviewed the final set of StudyDog standards. Dr. Hett reviewed the standards from a child behavioral perspective and the developmental appropriateness for young children. She confirmed the sequencing of the standards from this perspective. She provided additional guidance on the specific instructional needs and limits for some of the standards, guiding StudyDog to keep the subsequent lessons concrete and directly focused on the reading skills.

Dr. Good, an author of the Dynamic Indicators of Basic Early literacy Skills (DIBELS), offered a review of the standards from a proven-research perspective. He also confirmed the sequencing of the StudyDog standards, suggesting clarifying language for some of the standards and providing specific suggestions about the instructional strategies we should use to teach several of the standards. Following the recommendations of the StudyDog advisors, we completed the final set of StudyDog standards. The standards were reviewed with the creative and engineering staff of StudyDog and approved for the next phase, lesson design and animation.

The StudyDog lessons follow a simple learning model. Explicit instruction is included at the beginning of each lesson and provided throughout each lesson, as the child needs. Included with instruction is concrete modeling of the skill the lesson is teaching. This modeling includes how the child uses the skill and how the lesson *device* works. The child has the opportunity to practice the skill. Throughout the practice, StudyDog records and analyzes every response the child makes. If the child provides a wrong response, StudyDog indicates the answer was wrong and gives the child a second chance. If the child still does not get the correct response, instructional guidance is given and the child gets a third chance. If the child response with a wrong answer on the third attempt, the specific practice item becomes part of the item-review pool and is repeated at the end of the lesson. Children must achieve at least 80 percent mastery to automatically move to the next lesson. This process of error detection and reinstruction provides each child with the time and practice they need to master each specific skill. This information is recorded and future lessons are adapted to best teach a reading skill to a child.

The lessons have animated, engaging characters and an overall story-adventure. The children are drawn into the lessons by the interesting activities and settings on Lost Island. The children receive frequent encouragement and help when they need it. Students are encouraged to replay the lessons. This practice, as well as, work on new lessons, greatly enhances the learning experience of each child.

Teachers receive reports of their student's progress. Along with the specific performance of their student on the reading skills, the reports include suggested reading activities and "outside" reading books that the student may enjoy.

StudyDog has built a strong, research-based curriculum and lessons for teaching basic reading skills. The lessons are framed in a fun, engaging environment for the child. The children are encouraged to what to do the lessons by praising their work, having them earn rewards, and keeping learning entertaining and engaging.

**Appendix B
Renaissance Foundation
StudyDog Scholarship Report --
Oregon Schools
March 30, 2004**

Children

In Oregon, 213 scholarships have been awarded to children in fourteen schools. The schools participating in the program include the following:

Oregon Scholarship Schools

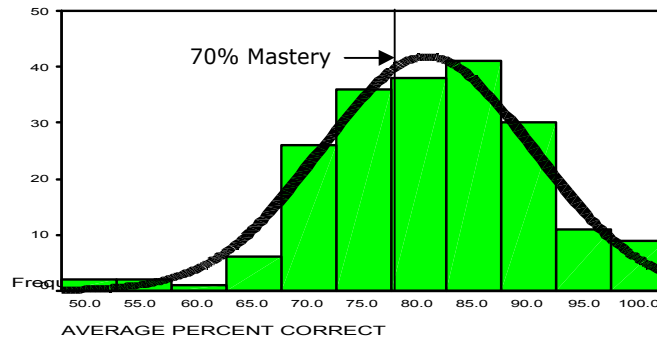
School	School District	Number of Scholarships
Brattain Elementary School	Springfield Public Schools	10
Dry Hollow Elementary School	The Dalles School District	63
Falls City Elementary School	Falls City School District	12
Gearhart Elementary School	Seaside School District	8
Greenway Elementary School	Beaverton School District	3
Highland Elementary School	Gresham-Barlow School District	3
McNary Heights Elementary School	Umatilla School District	14
Peninsula Elementary School	Portland Public Schools	6
River Road Elementary School	Eugene School District	33
Riverside Elementary School	Grants Pass School District	28
Sams Valley Elementary School	Central Point School District	9
Vernon Elementary School	Portland Public Schools	15
Wolf Creek Elementary School	Three Rivers School District	7
Woodlawn Elementary School	Portland Public Schools	2

Results

The children who have completed the StudyDog reading program have shown highly significant and substantial gains in reading performance. Collectively, they have raised their average performance on the StudyDog reading test from an average performance of 65% on the pre-test to 77.5% on the post-test. This represents a statistically significant gain in performance ($t = 7.1$, $df = 39$, significant at .000). **In real terms, it represents 90 percent of the children improving their performance from a *non-proficient* level of reading performance to a *proficient* level of performance**, mastering a year of reading skill development in fourteen to sixteen weeks. Our validity study, using a treatment and control group of children in St. Louis, shows that this gain is attributable to StudyDog lessons.

Across all of the Oregon scholarship children, 85.8% of the scholarship children have reached or exceeded the 70% level mastery of the reading skills, 59.4% have reached or exceeded the 80% level of mastery (Figure 1). The distribution of lesson performance is becoming increasingly positive as more children reach higher levels of performance and begin to "pile-up" on the high side of the curve.

Figure 1
Distribution of Average Lesson Performance



We continue to receive strong endorsements from teachers about the effects of StudyDog on children. Many teachers have commented upon how children become highly engage in the StudyDog lessons and looking forward to the next time they can work on a new lesson. For many of the scholarship children, becoming engaged in learning to read is a huge gain and allows StudyDog to teach the reading skills they need. From the teachers' perspective, StudyDog has been a very useful supplemental reading program. The following is a sample of the comments we have received from teachers whose children are using StudyDog:

"I managed an after school program for 8 first and second grade students who are experiencing difficulty with reading. My students looked forward to StudyDog each day. Over the course of their studies I witnessed it having a multitude of effects on each child. They were each able to return to their regular classroom and move up to at-grade level reading group. I am convinced that without StudyDog and the excitement it creates for students, this would not have occurred. Their confidence grew, they rarely missed an after school StudyDog session, their reading ability increased as did their comprehension and word attack skills and, most importantly, they felt better about themselves. I cannot attest to all StudyDog experiences, but I can tell you that it became an integral part of my curriculum and the students had fun, felt good about themselves, and could witness their own growth blossoming with each new lesson they were able to master. I was so pleased with the program that it was referred to our director of special education as a possible supplemental program to our summer school."

Jennifer Glasson, Teacher
Gearhart Elementary
Seaside, OR

"The StudyDog reading program is highly motivational. The consistency of the format allows students quality practice in learning reading skills. Classroom teachers see improvement. They have commented that students have made great progress towards increasing their reading ability. StudyDog has great graphics, upbeat music and catchy sayings. The students are always eager to participate in the program - asking "Is it StudyDog time?"

Renee Nichols, Reading Specialist
Portland Public Schools
Portland, OR

"We have been very pleased with StudyDog. It is integrated well into our reading curriculum and is helping keep children interested in reading. We are planning a summer school with the ESD to offer children StudyDog each day. StudyDog will be offered in two sessions, one in the morning and one in the afternoon to help children continue to develop their reading skills. We are expecting about 80 children to participate."

Zenaida Lyles
Umatilla School District

Umatilla, OR

"Lindsey [a second-grader] has struggled to learn to read. She is easily distracted and loses interest in reading tasks. StudyDog has helped her increase her focus on reading and is helping her develop reading skills. I have talked with Ms. Stiper, her teacher at school, and much of her improvement in reading this year is due to StudyDog. Thank you for helping our children learn to read."

Wanda Brownridge
Coordinator
Dignity House After School Program
St. Louis, MO

Appendix C

Validation Study of the StudyDog Reading Program Within the Neighborhood Houses, St. Louis, Missouri

**Dr. Dean Arrasmith
Chief Learning Officer
StudyDog, Inc.**

Critical Findings

The purpose of this study was to demonstrate if StudyDog actually increased reading growth in children and, if so, how much and to what extent the increase was influenced by StudyDog versus other reading instruction.

Highly significant and substantial results were found in comparison between the treatment group (StudyDog) and the control group. At the beginning of the test period, the treatment group included 24 children, all of whom were reading substantially below grade level. At the end of the test, fourteen weeks later, 22 children (92%) were proficient in reading skills at or above grade level. This increase in reading success was found to be directly attributable to the StudyDog program.

The results also showed that StudyDog, as a supplemental reading program, performed better than most of the reading programs taught by human instructors. According to the National Reading Panel Report, December 2000, thirty-two reading studies were compiled to represent the core set of research-proven reading programs. All were taught by a human instructor. By comparing the Effect Size, StudyDog performed better than 81% (26) of those studies.

Introduction

In mid-November, the Neighborhood Houses, a non-profit, after-school program in St. Louis, received the first 27 scholarships funded by The Renaissance Foundation: 17 at Dignity House and 10 at Caroline Mission. The Neighborhood Houses are located in the extremely depressed areas of Northern St. Louis, Missouri. They serve mostly African-American children and their families, providing a safe, welcoming, after-school environment and community services to economically deprived families. The StudyDog Reading Program was adopted as the literacy strand for the kindergarten, first and second-grade children attending the after school program.

This study examines the effect of the StudyDog reading program on a treatment group of children in comparison to the control group of children who delayed participating in StudyDog until the treatment group substantially completed their work with the reading lessons. The results were very encouraging, showing that StudyDog substantially contributed to mastery of reading skills for the treatment group in comparison to the reading performance for the children in the control group.

Subjects

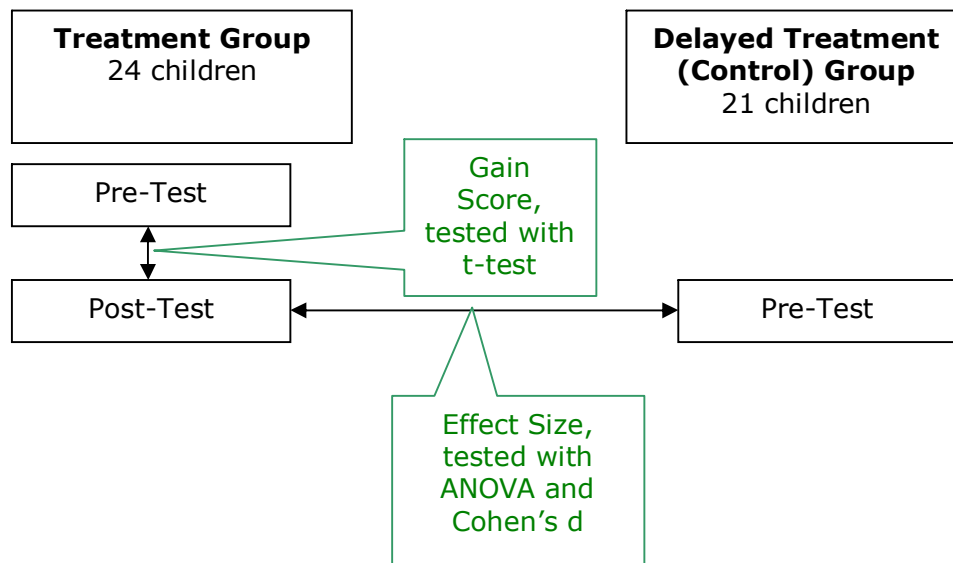
Kindergarten, first and second-grade children attending the Neighborhood Houses' after school program, in St. Louis, Missouri, received StudyDog scholarships. The scholarships provided each child access to StudyDog's Internet-delivered reading program. In addition to the appropriate grade level, two additional criteria were required for each child to receive a scholarship. First, they had to come from a family of poverty and second, they were struggling to learn to read. For both criteria, we relied on the program coordinators to attest to the needs of each child as part of the scholarship application.

The treatment sample included 24 children who completed pre-test and post-test. Three additional children left the program before completing the post-test and are not included in this study. A delayed treatment model was used to provide a control sample within both of the Neighborhood Houses participating in this study. The control sample included 21 students who delayed treatment until the original treatment sample completed their reading programs. Both the treatment and control groups completed assessments in March 2004.

Design

A treatment and delayed treatment design was used to compare the performance of the treatment group with a control (delayed treatment) group (Figure 1).

Figure 1
Treatment Group and Delayed Treatment (Control) Group Validation Model



The following steps were taken to implement the validation study outlined above:

1. The StudyDog reading test was validated for Kindergarten and First-grade reading skills, including letter recognition, sound segmentation, rhyming words, letter blends, spelling, word families, complex word segmentation, and oral and independent-reading comprehension. A separate report of the

- validity of the StudyDog reading test is available and includes evidence of content and predictive validity of the test.
2. Each participating coordinator was asked to identify twice the number of children to be included in the first instructional (treatment) group.
 3. The children were then assigned to two groups, the treatment group and the delayed treatment (control) group.
 4. In November 2003, the treatment group was pre-tested using the StudyDog reading test.
 5. After completing the course in mid March 2004, the treatment group was post-tested using the StudyDog reading test.
 6. At the same time, the delayed treatment (control) group was pre-tested using the StudyDog reading test.
 7. The gain score (the difference between the pre-test and the post-test) of the treatment group as tested for a significant difference from zero using Student's t-test.
 8. The difference in performance between the treatment group and the control group were tested with a one-way Analysis of Variance (using SPSS for Windows, Release 9.0.1). The effect size $[(\text{Mean (Treatment)} - \text{Mean (Control)}) / 0.5 (\text{SD (Treatment)} + \text{SE(Control)})]$ was calculated to examine the size of the treatment effect.

Treatment

StudyDog is an Internet delivered series of reading lessons. Each lesson last about 15 minutes and tracks children's responses to lesson activities, providing additional instruction and guided practice as needed. Each child received three lessons per week. Each child started in one of three places in the curriculum, at the beginning of our Kindergarten curriculum, half way through the Kindergarten curriculum and at the beginning of first grade curriculum, depending on the reported level of reading skill development included in the scholarship application. Each child's lesson performance was monitored and adjustments in lessons were made as necessary.

The StudyDog lessons followed a simple learning model. Explicit instruction was included at the beginning of each lesson and provided throughout each lesson, as each child needed. Included with instruction was concrete modeling of the skill the lesson was teaching. This modeling included how to use the skill and how the lesson *device* worked. The child had the opportunity to practice the skill. Leveraging the power of the Internet, StudyDog recorded and analyzed every response the children made as they practiced and mastered each reading skill. If the child provided an incorrect response, StudyDog immediately indicated the answer was wrong and gave the child a second chance. If the child still did not get the correct response, additional instructional guidance was given and the child got a third chance to respond. If the child responded with a wrong answer on the third attempt, the specific practice item became part of the item-review pool and was repeated at the end of the lesson. Children achieved at least 70 percent mastery to move to the next lesson. This process of error detection and reinstruction provided each child with the time and practice they needed to master each specific skill.

StudyDog used the advantages of the computer and Internet to enhance its supplemental reading skill instruction. The computer and the Internet allowed us to deliver instruction in a very consistent way that was tailored to the needs of each child. Children were consistently surrounded in a very encouraging and interesting

environment that highly engaged their interests. Thus, children performed their best, without the usual behavioral distractions associated with other reading instruction. Additionally, the use of computers and the Internet provided affordable access to high-quality instruction for all children. Since StudyDog teaches a child on a one-to-one basis, a large group of children can be taught at one time while still focusing attention on each child's instructional needs.

The lessons had animated, engaging characters and an overall story-adventure. The child was drawn into the lessons by the interesting activities and settings on Lost Island. The children received frequent encouragement and help when they need it.

Each child earned rewards for their performance, Lost Island coins that they exchange for prizes they receive in the mail. The coins encouraged children to replay many lessons and earn the coins they missed the first time they tried the lesson. This practice, in addition to work on new lessons, greatly enhanced the learning experience of each child.

Weekly progress reports were provided to the coordinators. Along with the specific performance of each child, the reports included suggested reading activities and "outside" reading books that the child may enjoy. While a child could earn more coins for completing these extra activities, they were not required to successfully complete the StudyDog curriculum.

Results

Very significant results were found for the gain scores of the treatment group (Table 1). These results are significant and represent increased reading performance that was achieved by the StudyDog scholarship children during the time they were working with the StudyDog lessons.

Table 1
Analysis of the Treatment Group's Gain Scores

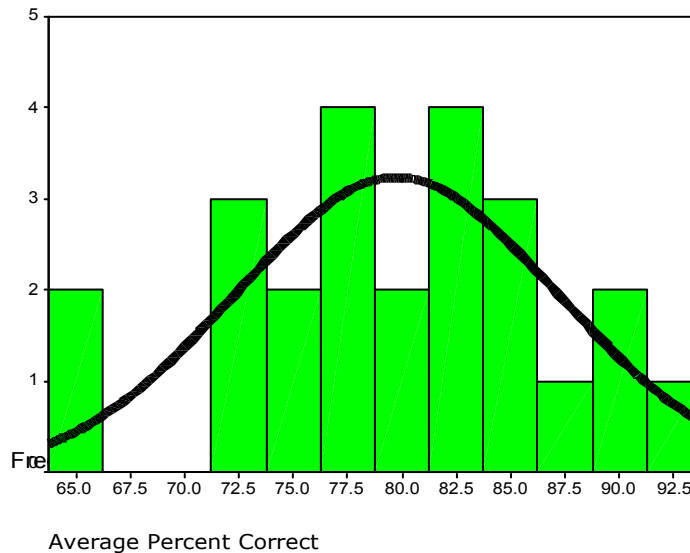
	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Pre-Test	66.5	17.7	3.9			
Post-Test	75.7	16.0	3.5			
Gain Score	9.2	12.5	2.7	3.4	23	.000

The highly significant gain scores for the treatment group reflect performance shifting from a failing level of reading performance to an average and above average performance in reading skills. As shown in Figure 3, 92 percent of the children achieved average performance on reading skills they studied. The treatment group had an average performance of 80 percent across the lessons.

Two children showed weaker performance, averaging 65 percent correct. These two children did not complete a significant portion of the reading curriculum in the 14 weeks of instruction.

Overall, the scholarship children substantially improved their reading skills performance using StudyDog lessons.

Figure 3
Children's Average Reading Skill Performance Following Instruction



In order to test the amount of gain attributable to the StudyDog reading program, we compared the reading performance of the treatment group's post-test performance with the pre-test performance of the delayed start (control) group. The

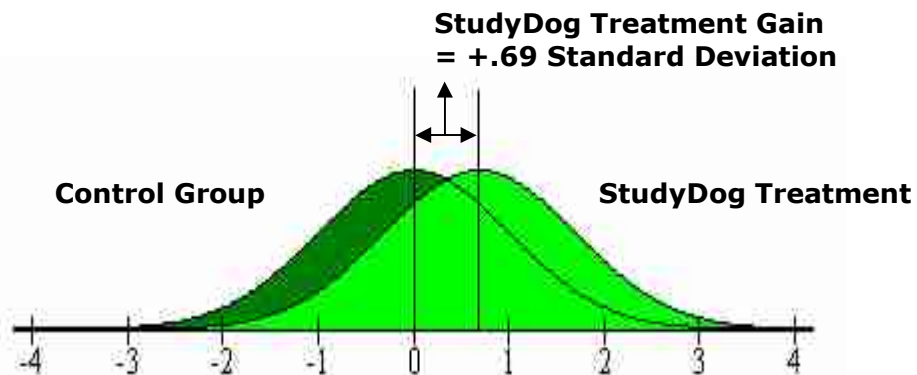
two groups completed the testing in March 2004. A one-way Analysis of Variance (ANOVA) was performed to test that the difference between the treatment and control groups were significantly different from zero. The results of the ANOVA are presented in Table 2 and show a highly significant difference in performance. The treatment group had a significantly higher level of performance than the control group.

Table 2
One-way Analysis of Variance and Treatment Effect

	Sum of Squares	df	Mean Square	F	Sig.	Effect Size (d)
Between Groups	1206.3	1	1206.3	4.6	.038	0.69
Within Groups	11262.8	43	261.9			
Total	12469.1	44				

The treatment group of children achieved an effect size in excess of two-thirds of a standard deviation in comparison to the control (delayed start) group of children (Figure 4). This means that the treatment group moved their distribution of the StudyDog reading test scores substantially higher than the control group did in the fourteen weeks the children worked with StudyDog. Providing a perspective on the size of this gain, StudyDog produced a gain greater than 81% of the core research-proven studies reviewed by the National Reading Panel (December 2000).

Figure 4
StudyDog Treatment Gain



Summary

The results are very encouraging. This report has documented that substantial gains were made in reading by the vast majority of children working with StudyDog lessons (92% of the treatment group). Further, StudyDog contributed significantly

to this improvement, showing a substantial improvement between the treatment and control groups of children. This report documents that the vast majority of StudyDog scholarship children have mastered a year of reading skills, and that their achievement is directly attributable to StudyDog's reading program.

Qualitative Results

From a qualitative point of view, StudyDog has been a huge success for the Neighborhood Houses. The program is the core of their literacy efforts with young children. The staff reports excitement and anticipation for children who participate in the lessons. They reported that parents are very supportive of the effort and would like to see a similar program available for older children.

From interview with the project staff, the most positive aspects of the program are:

- "The positive feedback and encouragement the children receive from StudyDog."
- "The program allows children to work at their own speed."
- "The program and animation is a different way of learning to read and intrigues the children."
- "The prizes are a strong encouragement for the children. They like to spend their Lost Island coins."

The effects of StudyDog have been evident in school, also. Ms. Stiper, a teacher of one of the study children, was interviewed by the Neighborhood Houses staff and attributed the child's progress in reading this school year to StudyDog. Another teacher suggested that StudyDog helped one of her students who struggled to learn to read. These testimonies reinforce the way StudyDog engages children in reading and effectively teaches children in a supportive, friendly environment.

The program staff rated the quality of the lessons as "excellent." They report that children are eager and excited to work with StudyDog and they are readily learning new reading skills.

Parents have taken notice of the StudyDog reading program and heartily support its use in the Reading Program. Ms. Crawford, M. Ed., Program Director, reported that the parents first raised the need for a similar program for their older children. The StudyDog Scholarships have been a very positive expansion of the services offered.

The program staff also reports that the StudyDog reading program has been effective in extreme cases. For example, one child they are working with has been identified with attention deficit/hyperactivity disorder (ADHD). They are using StudyDog to successfully extend her attention in reading tasks. The engaging StudyDog lessons have increased the time she is spending learning to read.

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