

# **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 students, 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 students 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 students 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 students important reading skills, shows that:

1. The right skills are included in the reading curriculum;
2. Students 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 students' reading than most other reading programs;
5. Teachers can provide one-on-one reading instruction to students for as many students as they can manage.

The following summarizes how evidence was collected for each of the critical questions and what we found. **Collectively, StudyDog is shown to be a highly effective program for teaching young students 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 students are being held accountable for as part of the No Student 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 students show mastery of StudyDog's reading skills? (Appendix B)**

Students who complete the StudyDog Reading Program are expected to master the reading skills that they are taught. Skill mastery refers to students' 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 student can use this skill to begin to sound out a new word. Mastery usually refers to a level of skill performance that suggests a student can use the skill without difficulty. For the StudyDog Reading Program, we teach with a minimum target of at least 80 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 students who have completed the StudyDog Reading Program. Ninety percent (90%) or more of the students 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 found with students? A scientifically designed study, comparing a treatment sample of students who completed the StudyDog Reading Program with a control sample of students 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 20-minute lessons per week. A randomly assigned control sample of students 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 students in the treatment group were proficient in reading skills at or above grade level; all students were tested at Below Basic initially. 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 students who have completed the StudyDog reading program have shown highly significant and substantial gains in reading performance. **Ninety percent (90%) of the students 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. This experimental study, using a treatment and control group of students 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 instructors.

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

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

### **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 students, and is scientifically shown to account for substantial reading gains in young students. 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 students, 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 students are taught in a systematic way the skills and knowledge they need to be strong readers. The curriculum was developed from a synthesis of state reading standards and the resulting StudyDog standards were validated 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. These states were selected because of their geographic representation and the variety of standards they included in their curriculum. Strong similarities with other state standards have been found.

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.

The set of consolidated and unique standards were then 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. The resulting ordering of the standards were organized 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, standards were eliminated that reflected traditional study skills, including use of a dictionary, library skills, and environmental print. These skills were eliminated 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, a series of validation reviews were initiated. The standards were compared to the national recommendations for research proven reading content and sequencing. The comparisons included reference to (1) *Preventing Reading Difficulties in Young Students* (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. Strong support was found for the StudyDog standards reflected in each of these research-proven resources. In addition, the Big Ideas In Beginning Reading curriculum was found 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 student behavioral perspective and the developmental appropriateness for young students. 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, the final set of StudyDog standards were completed. 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 student needs. Included with instruction is concrete modeling of the skill the lesson is teaching. This modeling includes how the student uses the skill and how the lesson *device* works. The student has the opportunity to practice the skill. Throughout the practice, StudyDog records and analyzes every response the student makes. If the student provides a wrong response, StudyDog indicates the answer was wrong and gives the student a second chance. If the student still does not get the correct response, instructional guidance is given and the student gets a third chance. If the student 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. Students must achieve at least 80 percent mastery to automatically move to the next lesson. This process of error detection and reinstruction provides each student 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 student.

The lessons have animated, engaging characters and an overall story-adventure. The students are drawn into the lessons by the interesting activities and settings on Lost Island. The students 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 student.

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 student. The students 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**

**Students**

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

**Oregon Scholarship Schools**

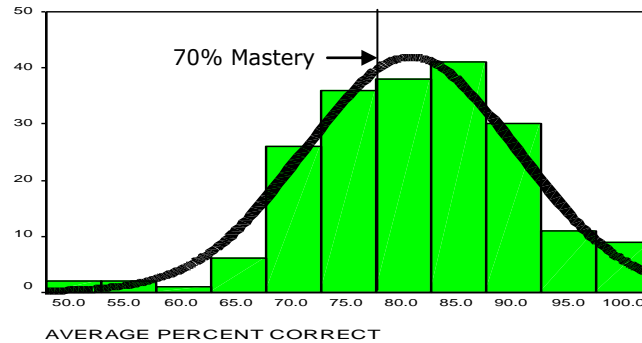
| School                           | School District                | Number of Scholarships |
|----------------------------------|--------------------------------|------------------------|
| Brattain Elementary School       | Springfield Public Schools     | 10                     |
| Dry Hollow Elementary 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 students 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 students 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 students in St. Louis, shows that this gain is attributable to StudyDog lessons.

Across all of the Oregon scholarship students, 85.8% of the scholarship students 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 students reach higher levels of performance and begin to "pile-up" on the high side of the curve.

**Figure 1**  
**Distribution of Average Lesson Performance**



Strong endorsements from teachers about the effects of StudyDog on students were received. Many teachers have commented upon how students become highly engaged in the StudyDog lessons and looking forward to the next time they can work on a new lesson. For many of the scholarship students, 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 students 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 student. 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 students interested in reading. We are planning a summer school with the ESD to offer students StudyDog each day. StudyDog will be offered in two sessions, one in the morning and one in the afternoon to help students continue to develop their reading skills. We are expecting about 80 students 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 students 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 students 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 students, all of whom were reading substantially below grade level. At the end of the test, fourteen weeks later, 22 students (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 students and their families, providing a safe, welcoming, after-school environment and community services to economically deprived families (95% of the students are African-American). The StudyDog Reading Program was adopted as the literacy strand for the kindergarten, first and second-grade students attending the after school program.

This study examines the effect of the StudyDog reading program on a treatment group of students in comparison to the control group of students 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 students in the control group.

## Subjects

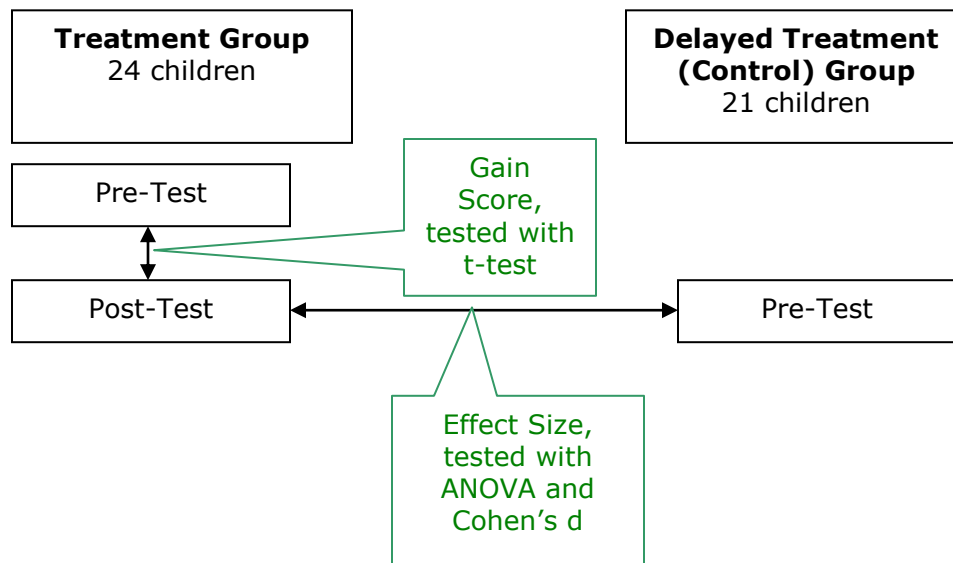
Kindergarten, first and second-grade students attending the Neighborhood Houses' after school program, in St. Louis, Missouri, received StudyDog scholarships. The scholarships provided each student access to StudyDog's Internet-delivered reading program. In addition to the appropriate grade level, two additional criteria were required for each student 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 student as part of the scholarship application.

The treatment sample included 24 students who completed pre-test and post-test. Three additional students 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 students to be included in the first instructional (treatment) group.
  3. The students 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 lasts about 15 minutes and tracks students' responses to lesson activities, providing additional instruction and guided practice as needed. Each student received three lessons per week. Each student 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 student'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 student 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 student had the opportunity to practice the skill. Leveraging the power of the Internet, StudyDog recorded and analyzed every response the students made as they practiced and mastered each reading skill. If the student provided an incorrect response, StudyDog immediately indicated the answer was wrong and gave the student a second chance. If the student still did not get the correct response, additional instructional guidance was given and the student got a third chance to respond. If the student 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. Students achieved 80 percent mastery to move to the next lesson. This process of error detection and reinstruction provided each student 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 student. Students were consistently surrounded in a very encouraging and

interesting environment that highly engaged their interests. Thus, students 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 students. Since StudyDog teaches a student on a one-to-one basis, a large group of students can be taught at one time while still focusing attention on each student's instructional needs.

The lessons had animated, engaging characters and an overall story-adventure. The student was drawn into the lessons by the interesting activities and settings on Lost Island. The students received frequent encouragement and help when they needed it. This encouraged students to replay many lessons 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 student.

Weekly progress reports were provided to the coordinators. Along with the specific performance of each student, the reports included suggested reading activities and "outside" reading books that the student may enjoy.

## **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 students during the time they were working with the StudyDog lessons.

**Table 1**  
**Analysis of the Treatment Group's Gain Scores**

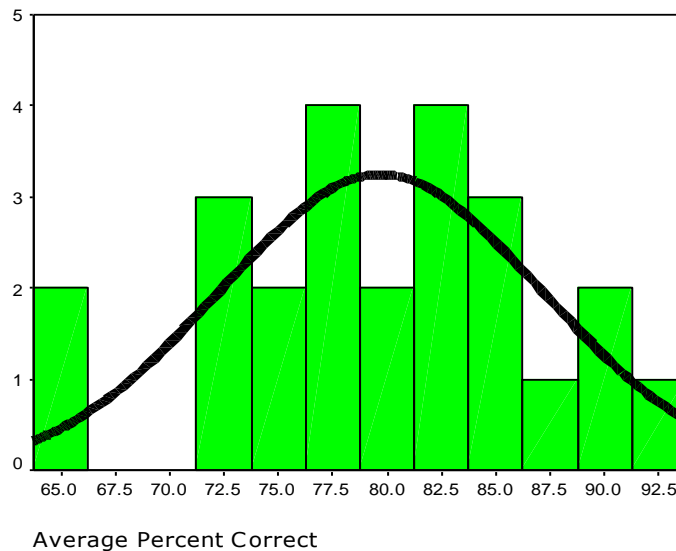
|                   | <b>Mean</b> | <b>Std. Deviation</b> | <b>Std. Error Mean</b> | <b>t</b> | <b>df</b> | <b>Sig. (2-tailed)</b> |
|-------------------|-------------|-----------------------|------------------------|----------|-----------|------------------------|
| <b>Pre-Test</b>   | 66.5        | 17.7                  | 3.9                    |          |           |                        |
| <b>Post-Test</b>  | 75.7        | 16.0                  | 3.5                    |          |           |                        |
| <b>Gain Score</b> | 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 students achieved average performance on reading skills they studied. The treatment group had an average performance of 80 percent across the lessons.

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

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

**Figure 3**  
**Students' 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

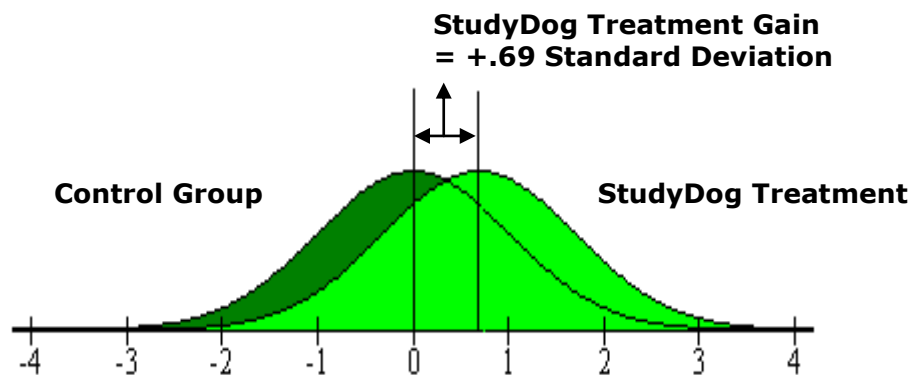
two groups completed the testing in March 2004. A one-way Analysis of Variance (ANOVA) was performed to test that the difference between the treatment and control groups were significantly different from zero. The results of the ANOVA are presented in Table 2 and show a highly significant difference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

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

The treatment group of students achieved an effect size in excess of two-thirds of a standard deviation in comparison to the control (delayed start) group of students (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 students 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 students 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 students. This report documents that the vast majority of StudyDog scholarship students 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 students. The staff reports excitement and anticipation for students 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 students.

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

- "The positive feedback and encouragement the students receive from StudyDog."
- "The program allows students to work at their own speed."
- "The program and animation is a different way of learning to read and intrigues the students."

The effects of StudyDog have been evident in school, also. Ms. Stiper, a teacher of one of the study students, was interviewed by the Neighborhood Houses staff and attributed the student'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 students in reading and effectively teaches students in a supportive, friendly environment.

The program staff rated the quality of the lessons as "excellent." They report that students 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 students. 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 student 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.

Contact: Roxanne Crawford, M. Ed.  
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