



Reading Plus® National Research Project

Fourth Grade Study Overview

2005 – 2006

Introduction

This fourth grade study was conducted as part of the Reading Plus® National Research Study during the 2005-2006 school year. Fourth grade students from five elementary schools in five different states participated as part of this study: Clinton Elementary in Montana, Carr Elementary in Florida, Churchill Elementary in Illinois, Edgerton Elementary in Michigan, and Del Rio Elementary in California. Three of these schools are located in the suburbs and two in rural locations. A total of 145 fourth grade students were randomly selected to participate in the study, 68 students in the treatment group and 77 students in the control group. Reading abilities in both groups varied from reading below grade level to reading above grade level. Data from 42 students in the treatment group was excluded due to insufficient use of Reading Plus®. Twenty-six treatment students who used Reading Plus® based on the minimum recommendation of 40 Reading Plus® sessions and 40 Guided Reading™ lessons were considered in the final analysis.

Purpose of Research

This research project was conducted to investigate whether the use of Reading Plus® contributes significantly to students' gains made in the standardized test scores of the Gates-MacGinitie Reading Tests and Visagraph™ eye movement appraisals. Many individual studies have been conducted in the past using Reading Plus®, and standardized test results have proved to be promising; however, no scientific studies prior to this have been conducted with fourth grade students using the Reading Plus® system. Hence, the present study was conducted to show the effectiveness of Reading Plus® on these lower reading levels.

Methodology

All 103 fourth grade students considered for final analysis (26 treatment, 77 control) were administered the Gates-MacGinitie Reading Tests, Level 4, Pre (Form S) and Post (Form T) to measure reading achievement along with Pre and Post Visagraph™ eye movement recordings to measure reading efficiency. The Reading Plus® usage of the 26 treatment students ranged from 1-3 times per week. All schools used Reading Plus® for almost the entire school year. The treatment group students included in this report had completed the minimum required 40 or more sessions of Reading Plus® programs, including 40 or more lessons in Guided Reading™ fluency development.

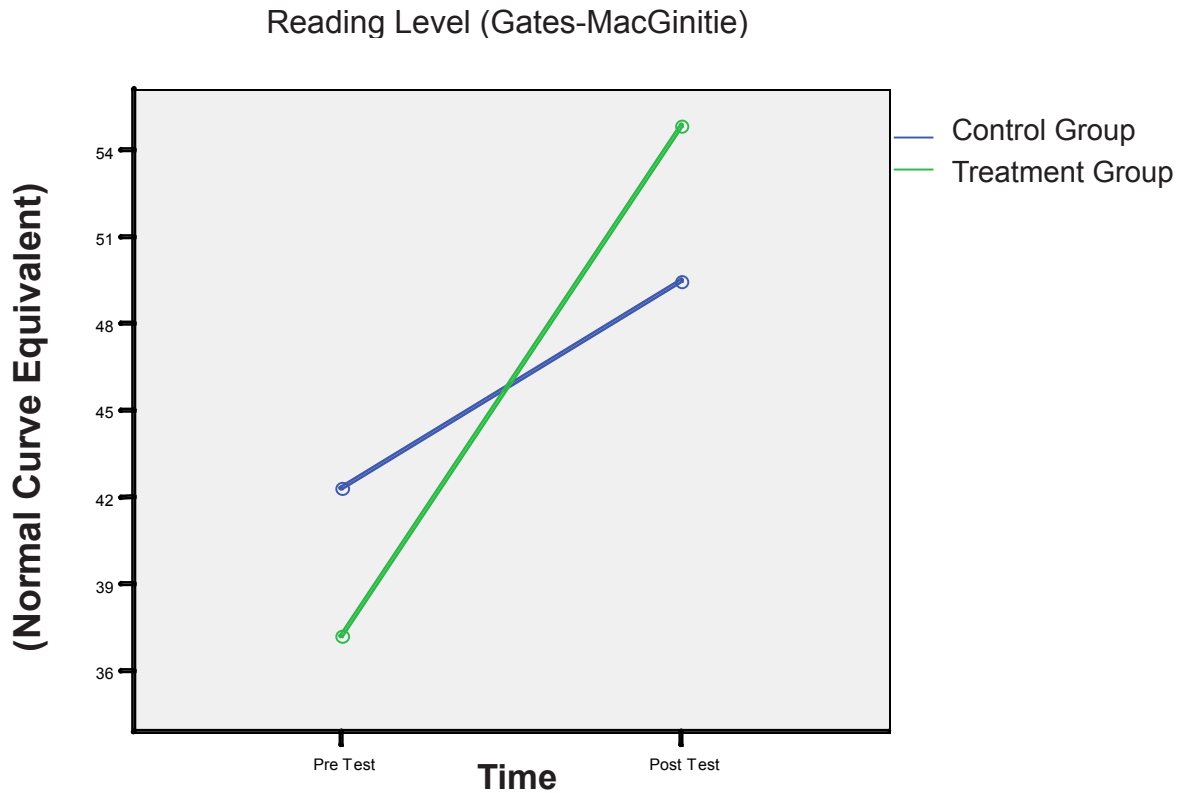
The control group used various forms of reading instruction for periods of time equal to the time spent in Reading Plus® by the treatment group. Instruction included reading instruction from the basal reading series *Macmillan/McGraw Hill Leveled Readers* and *Houghton Mifflin California Traditions 4*, and the following computerized reading programs: *Lexia Strategies for Older Students* by Lexia, *Orchard Reading* by Siboney Learning Group, *Successmaker* by Pearson Education, *Read Naturally (SE Network Version)* by Read Naturally, Inc., and *Destination Success: Destination Reading Course II* by Riverdeep.

Results

An analysis was conducted to determine the relative effectiveness of Reading Plus® in producing changes in Reading Comprehension scores, as measured by Gates-MacGinitie scores. Data from all fourth grade participants was entered into repeated measures ANOVA performed on the mean Gates-MacGinitie Normal Curve Equivalent (NCE) scores for treatment ($n = 26$) and control ($n = 77$) participants separately using the pre and post-treatment scores. For this analysis, a main effect of time appeared as $f(1,101) = 39.594$, $p < .001$, but an additional interaction between Time and Group also appeared, $f(1,101) = 7.071$, $p = .009$, indicating that the Reading Plus® treatment group improved in reading significantly more than the control group on the Gates-MacGinitie Test.

The following graph shows the results of the pre and post Gates Reading Tests for both Treatment and Control groups.

The metric used for ANOVAs is the Normal Curve Equivalent:

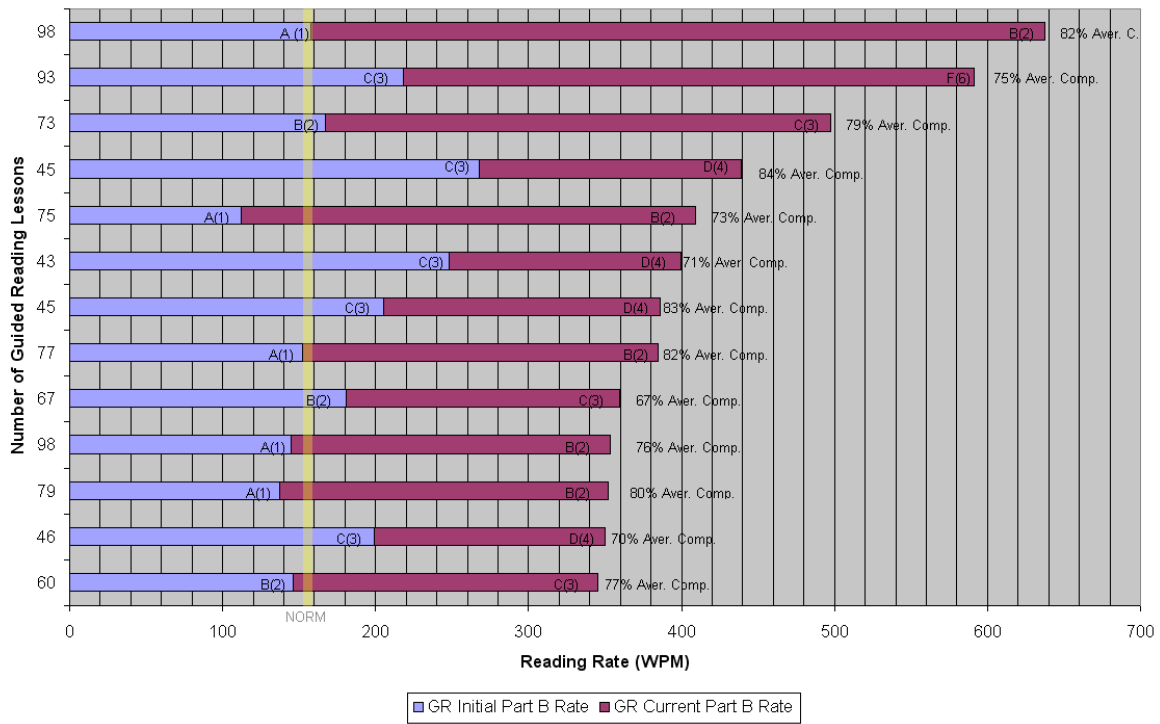


The Average Grade Equivalents (Gates-MacGinitie) are as follows:

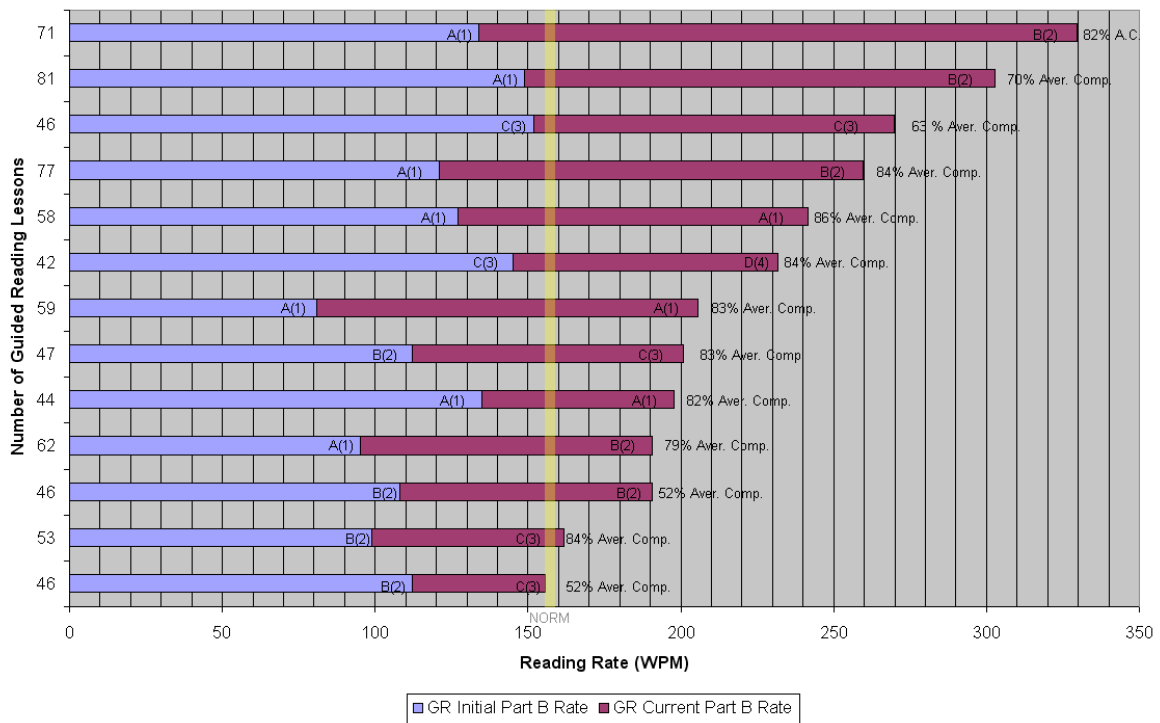
	PreTest Mean	PostTest Mean
Control	4.2	4.8
Treatment	4.4	6.2

The following bar graphs show the treatment group's Reading Plus® Guided Reading™ rate changes. The treatment students read an average of 58 Guided Reading™ lessons with an average comprehension of 75%. On average, the students initially read at 134 words per minute. Upon completion of the study, students were reading during training an average of 277 words per minute, an average rate gain of 110%. The majority of the students also increased their reading levels by one grade level above their initial assigned reading level, while others increased by two or more grade levels.

2005-2006 4th Grade Research Study (1)



2005-2006 4th Grade Research Study (2)



The results of the Visagraph™ eye movement recordings, which measure reading efficiency or fluency in silent reading, for both treatment and control groups are as follows:

Visagraph™ Average Grade Level Equivalent (GLE):

	Pre GLE	Post GLE
Control	4.2	4.3
Treatment	4.2	6.4

On average, the treatment group made a substantial gain of 2.2 GLE, or over a two year grade level gain when post tested on the Visagraph™. By contrast, the control group made little grade level gain, averaging only a 0.1 GLE increase.

Visagraph™ Average Fixations:

	Pre Fixations	Post Fixations
Control	144	148
Treatment	157	134

While the treatment group improved by making fewer fixations after using Reading Plus®, the control group showed no improvement at all. On average, fixations decreased by 14.65% in the treatment group, and actually increased by 2.78% in the control group.

Visagraph™ Average Regressions:

	Pre Regressions	Post Regressions
Control	25	23
Treatment	24	19

The treatment group made fewer regressions after using Reading Plus® than the control group. On average, regressions decreased by 20.83% in the treatment group, and only by 8% in the control group.

Visagraph™ Average Reading Rate (WPM):

	Pre Rate	Post Rate
Control	137	151
Treatment	144	179

Although the treatment and control groups' average Visagraph™ pre reading rates were both below a fourth grade reading rate, by completion of the study, the treatment group increased their reading rate by 24.31% while the control group experienced a smaller increase of 10.22%. For perspective, according to the study conducted by Taylor, Frackenpohl, and Pettee (1960) to establish National Grade Level Norms, the National Norm Rate for fourth grade at mid year is 158 wpm. By the end of the school year, the treatment group had reached an adequate reading rate of 179 wpm (approximately 5th grade level rate), while the control group was still reading below the average rate for fourth graders at 151 wpm.

Conclusions and Summary

This study examined the benefits of implementing Reading Plus® with fourth grade students with varying reading abilities. The treatment group used the following programs in Reading Plus®: PAVE™, Word Memory™, Guided Reading™, Cloze Plus™, Reading Around Words™, and Comprehension Power™. Reading Plus® usage ranged from 1-3 times per week, for the minimum required forty sessions, including forty or more lessons of Guided Reading™. The control group used basal readers or computerized reading programs from Lexia, Orchard Reading, Successmaker, Read Naturally, and Destination Success. Both groups spent equal time in their reading instruction.

Reading Plus® was designed to help students develop foundational silent reading fluency skills which involve achieving adequate reading rates, reading efficiently, reaching or exceeding grade level content, and improving vocabulary and comprehension skills. The results of this study clearly show that the treatment group students who used Reading Plus® according to the required and recommended usage of at least 40 sessions with 40 or more Guided Reading™ lessons did significantly better in achieving these goals than the control group who used other reading instructional methods. The Reading Plus® treatment group made a more substantial gain than the control group in all forms of analyses in each of the testing variables. In the Gates-MacGinitie Reading Test, the treatment group made a significant improvement in reading achievement with average grade equivalent gains of over 1.8 grade levels, while the control group made a 0.6 grade level gain. The Visagraph™ results, after pre and post recordings, also indicated a much greater improvement in the treatment group's reading efficiency, Grade Level Equivalent (i.e. number of fixations and regressions, and reading rate) than the control group's.

While both groups at the start of the study were reading, on average, below the fourth grade reading rate, the Reading Plus® students advanced to approximately 5th grade reading rates by the end of the year, while the control group made very little improvement in achieving higher reading rates. The average number of fixations and regressions also decreased in the treatment group, while the control group actually experienced an increase in average number of fixations and very little change in the number of regressions. These results are also compatible with the Visagraph GLE results, which show the treatment group's readiness for 5th grade, while the control group lags in achieving these necessary goals.