

Academic Gains over a Three Year Period through the use of Fluency Based Instruction

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School age students at the Judge Rotenberg Center complete bi-annual testing to determine if progress is being made in the areas of letter word identification, spelling, math computation and math fluency. We will be showing our data for each subject area over the past three years. Discussion of the teaching methodology for each subject area will be included, as will how this methodology affected academic gains over time.

Method

Participants and Setting

There were a total of seventy three participants in this study. Of the seventy three participants, forty one were male, while thirty two were female. Ages ranged from 12.4 to 22.3, with the average age being 18.8. Participants' IQ ranged from 40-122, with the average IQ being 72. Diagnosis included ADHD, Oppositional Defiance Disorder, Emotionally Disturbed and Learning Disabled.

Seventy two participants attended school at the Judge Rotenberg Center and lived in one of JRC's group homes, while one participant attended school at JRC, but lived at home.

While at the school, participants completed schoolwork that was aligned with the school's and their sending states' curriculum standards. Instruction was delivered in many different ways, to include 1-1 instruction, group lessons, independent study, videos, bookwork and computer instruction. Curriculum was modified when the participants needed it to be.

Measures and Instruction

All school age students at JRC complete informal testing every 6 months in letter word identification, spelling, math computation and math fluency. The letter word identification, spelling and math computation sections are from the Kaufman Test of Educational Achievement. The math fluency section is from the Woodcock-Johnson III Tests of Achievement. These scores were collected over a three year period. Due to various factors to include behaviors, home visits, admission and discharge, it proved difficult to obtain scores every six months for all participants. The data that was used for this project represents scores from one consecutive year of testing, or two sets of tests.

The subject areas that were used for this study are the subject areas that are instructed using mainly fluency based instruction. Fluency based instruction required participants to learn material to a pre-set mastery level. The material used was broken down into small steps. Curriculum materials included Teach Your Children to Read Well, Morningside Whole Number Computation and Math Facts. Proprietary software, which was developed by Dr. Matthew Israel, was used also, to teach Math Facts, Spelling and Phonics. Other instruction methods, which were not fluency based, were used to supplement as needed.

Results

Letter Word Identification

Out of forty four participants, nine decreased in grade level(s), seven stayed the same, eight increased between one month and six months, three increased between seven months to one year, five increased between one year one month to two years and twelve increased between two years one month and seven years. This is shown in Exhibit one. Overall, twenty percent of the participants decreased in grade level(s), sixteen percent of the participants stayed the same and sixty four percent of the participants increased in grade level(s). This is shown in Exhibit two.

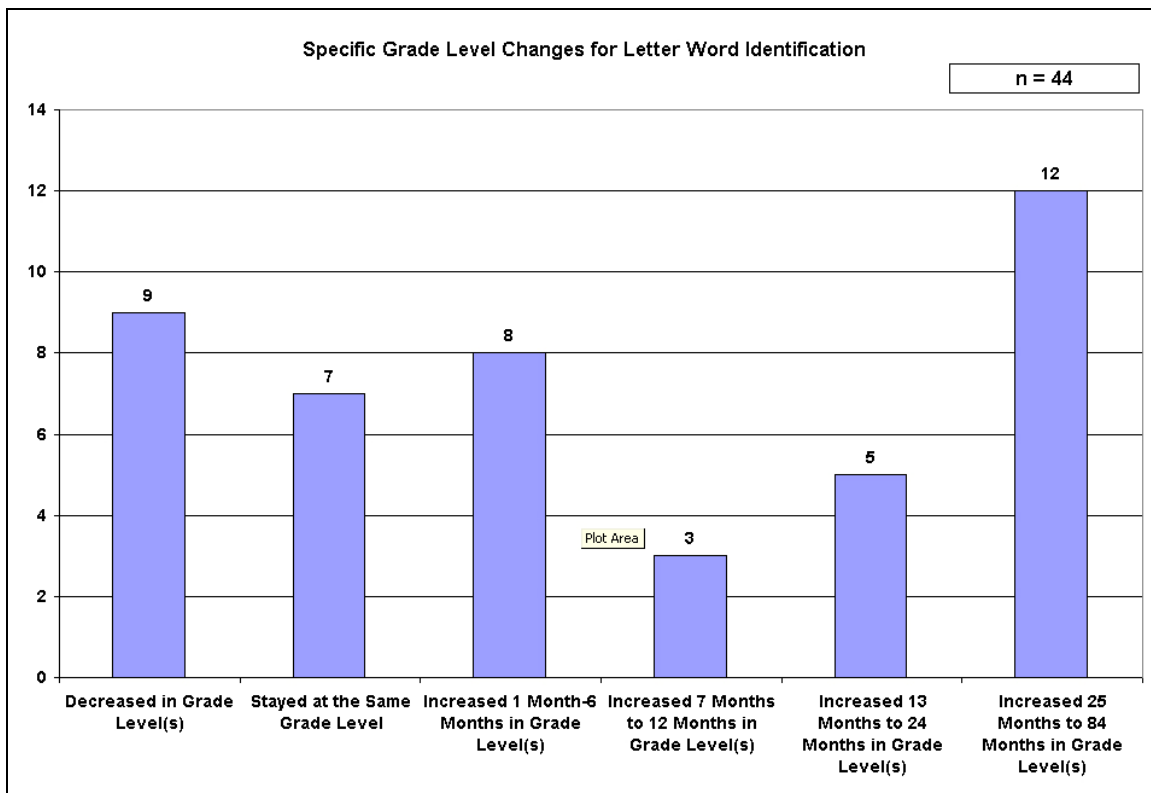


Exhibit 1

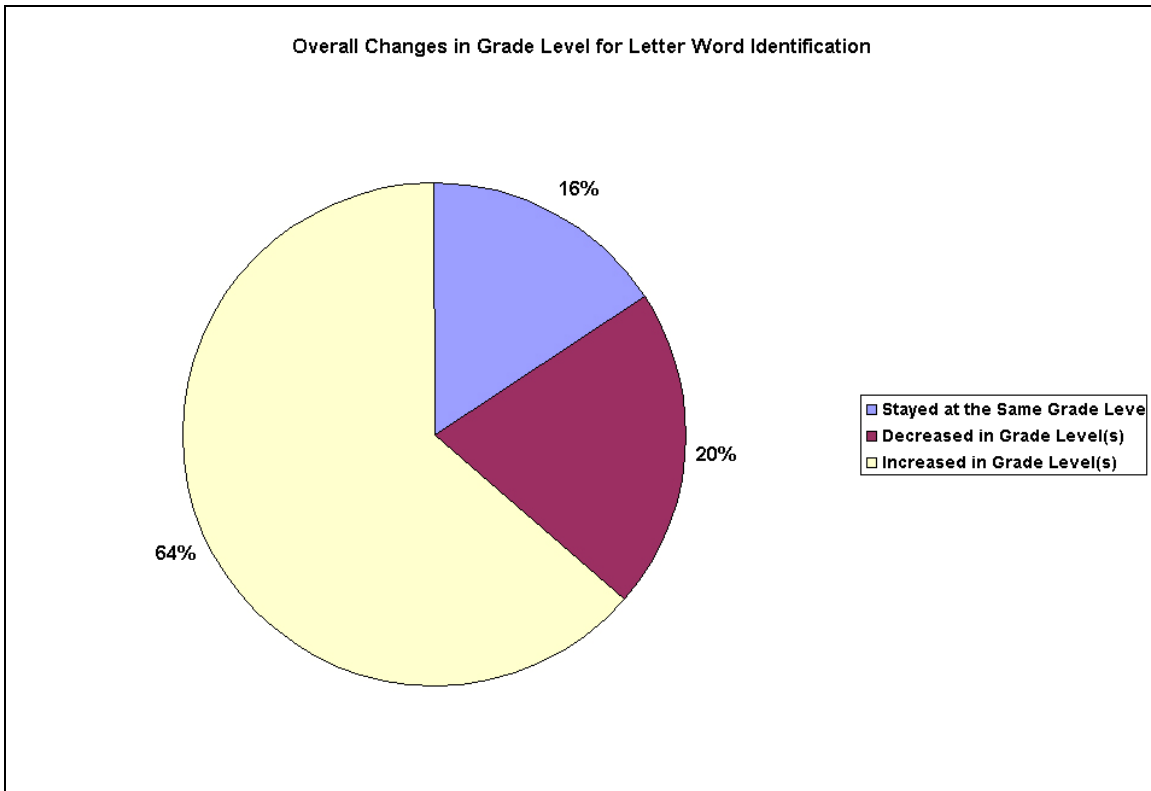


Exhibit 2

Spelling

Out of the fifty nine participants, nine decreased in grade level(s), ten stayed the same, seven increased between one month and six months, five increased between seven months to one year, eleven increased between one year one month to two years and seventeen increased between two years one month and four years four months. This is shown in Exhibit three. Overall, fifteen percent of the participants decreased in grade level(s), seventeen percent of the participants stayed the same and sixty eight percent of the participants increased in grade level(s). This is shown in Exhibit four.

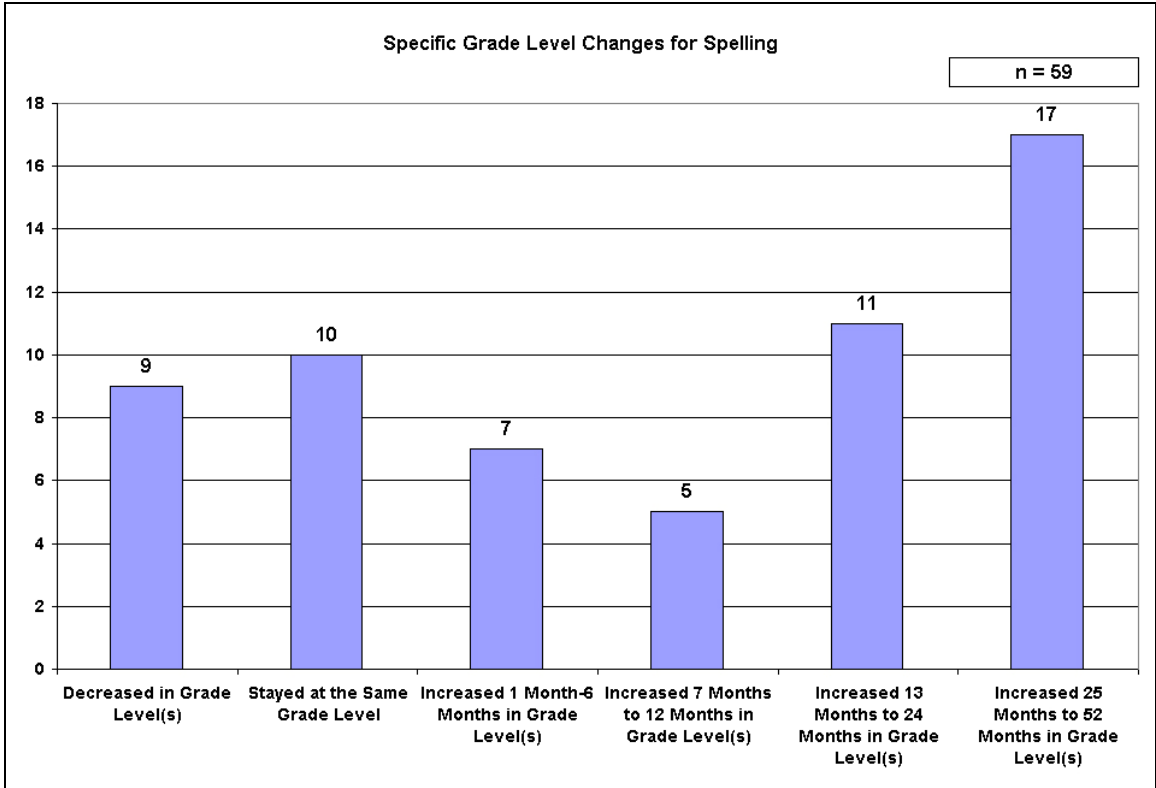


Exhibit 3

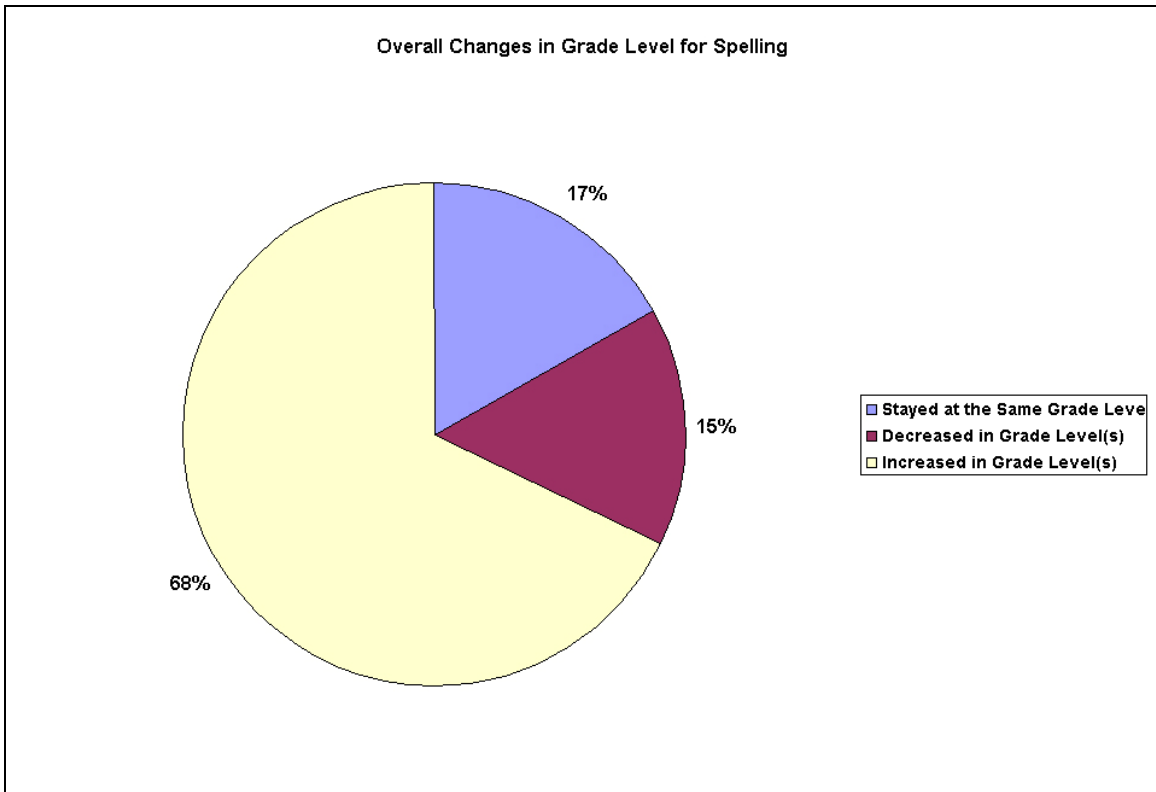


Exhibit 4

Math Computation

Out of the fifty three participants, nine decreased in grade level(s), four stayed the same, ten increased between one month and six months, seven increased between seven months to one year, ten increased between one year one month to two years and thirteen increased between two years one month and six years eight months. This is shown in Exhibit five. Overall, seventeen percent of the participants decreased in grade level(s), eight percent of the participants stayed the same and seventy five percent of the participants increased in grade level(s). This is shown in Exhibit six.

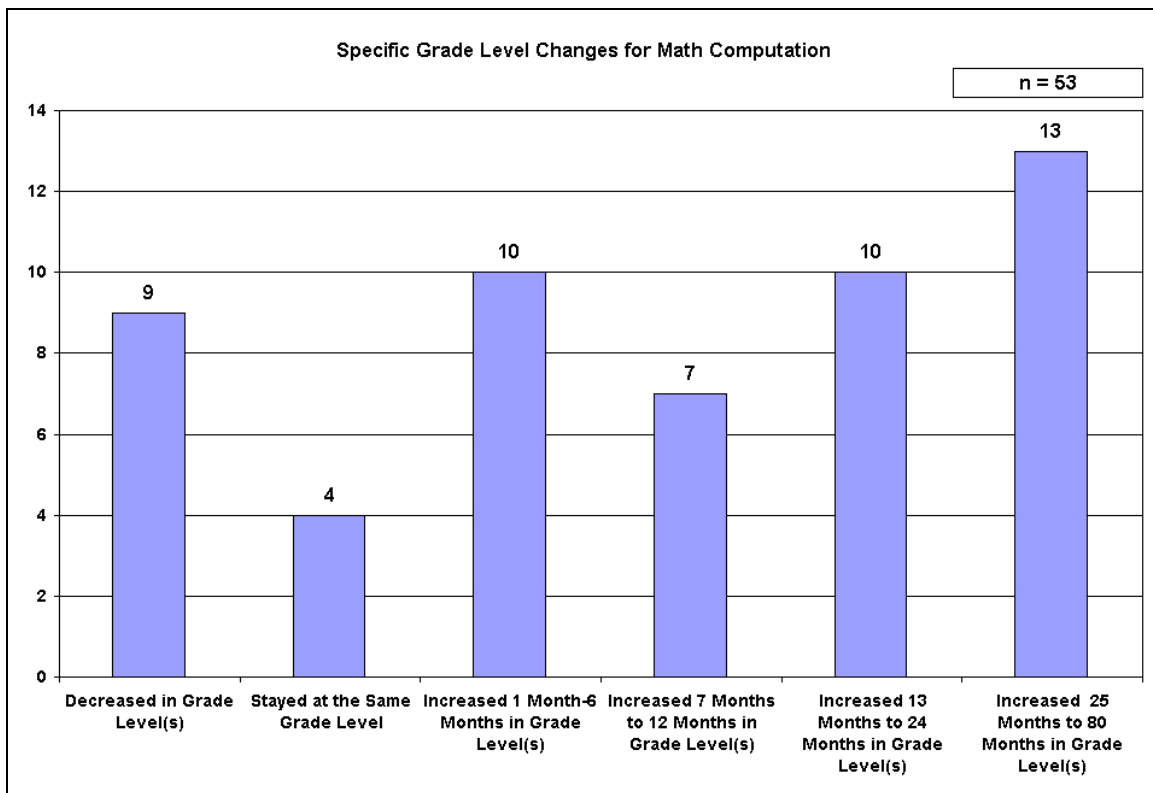


Exhibit 5

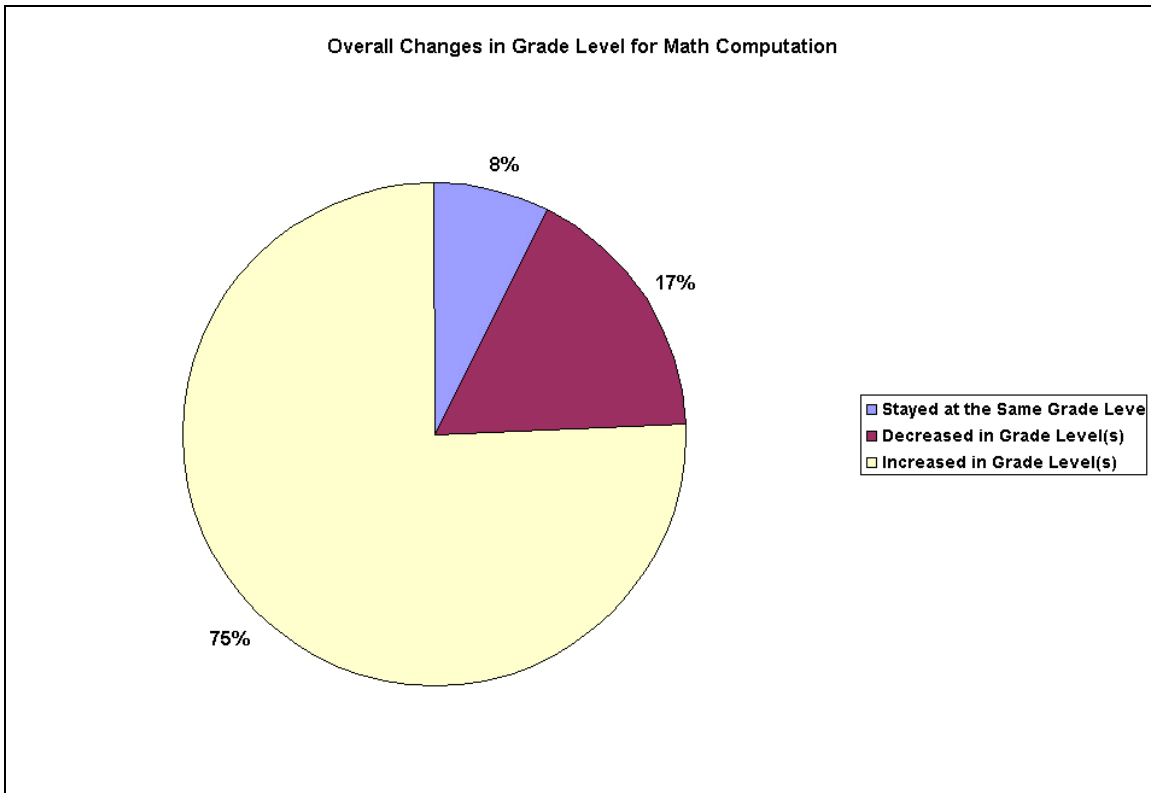


Exhibit 6

Math Fluency

Out of the fifty four participants, nine decreased in grade level(s), two stayed the same, eight increased between one month and six months, four increased between seven months to one year, five increased between one year one month to two years and twenty six increased between two years one month and twelve years two months. This is shown in Exhibit seven. Overall, seventeen percent of the participants decreased in grade level(s), four percent of the participants stayed the same and seventy nine percent of the participants increased in grade level(s). This is shown in Exhibit eight.

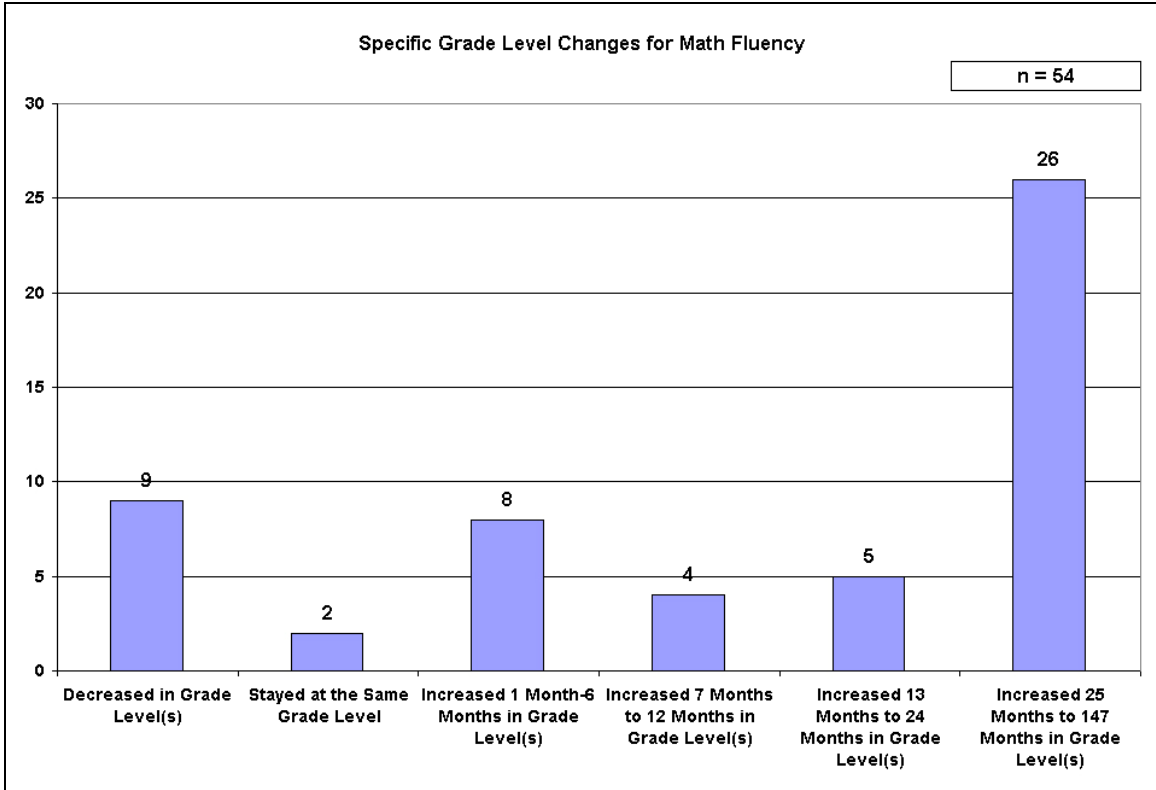


Exhibit 7

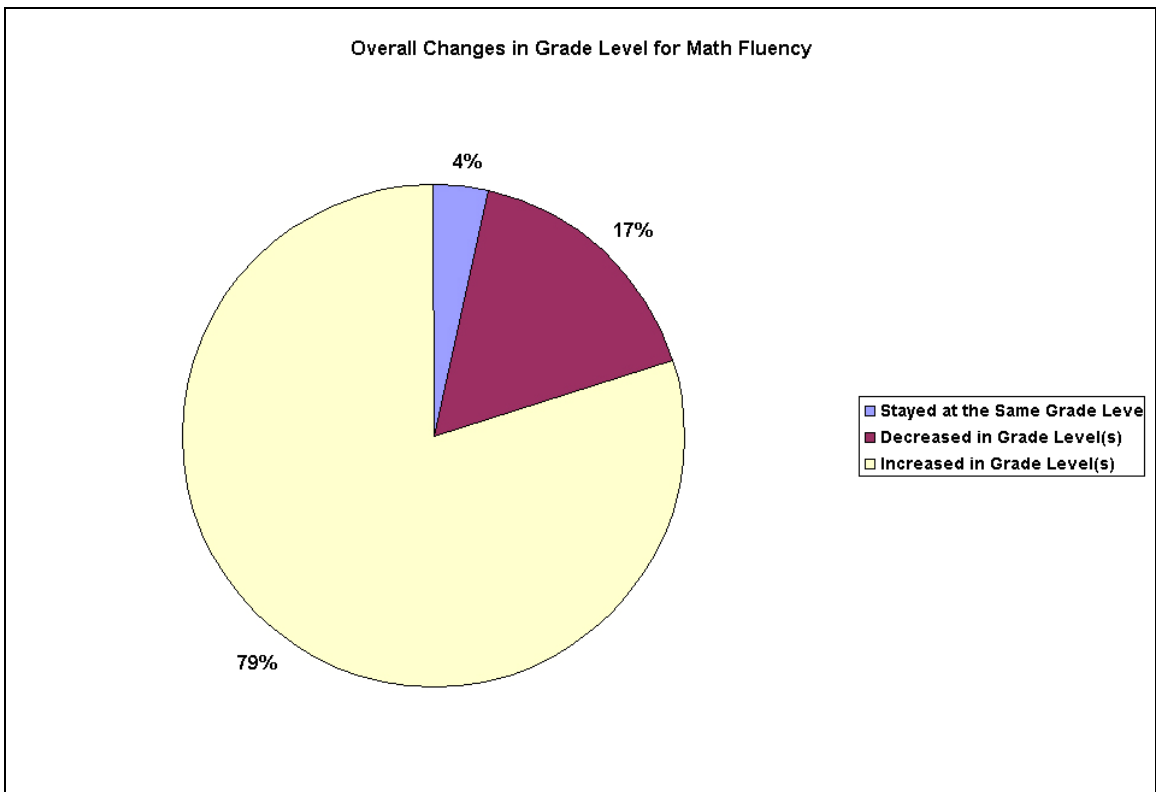


Exhibit 8

All Subjects

Overall, in the areas of Letter Word Identification, Spelling, Math Computation and Math Fluency, seventeen percent of participants decreased in grade level(s), eleven percent stayed the same, and seventy percent increased in grade levels.

Discussion

Fluency based instruction has proven to be an effective method of teaching at JRC. The majority of participants gained grade levels at a rate that was similar to a typical peer, if not at an accelerated rate. Participants were able to catch up to the grade level that they should be in, according to their age. This often took place over a shorter amount of time, increasing many grade levels over a one year period.

We saw similar increases in all subject areas, with the highest being in math fluency. We attribute this to the use of the computer software that is able to be configured to each participants specific needs and the powerful rewards that reaching mastery gave each participant access to.

Certain participants were already at grade level, or testing at the twelfth grade level. For those participants, they were not able to advance beyond the highest grade level used in the test. This accounts for the eleven percent of the participants whose grade level stayed the same over the course of the study.

In the future, we hope to look at other subject areas and compare the use of fluency based instruction with other teaching methodologies. We also would like to look at the difference adding fluency based instruction to a curriculum makes to the overall participants' success in state assessments such as the Regents exam and the MCAS.

We also hope to look at rate of increase in grade levels, as compared to their time at JRC. Is there a higher rate of increase in the first year at JRC, or does that rate maintain over the years? Lastly, we hope to spend more time looking at specific individuals and their growth over time.

Overall Changes in Grade Level in all Subject Areas
Letter Word Identification, Spelling, Math Computation, Math Fluency

