Project Change the Curriculum: Addressing the Health Disparities in Education of Children with Learning Disabilities

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Abstract

Health disparities reflect the differences in health within different population groups due to sociodemographic factors such as socioeconomic status (SES), race, and gender. Health disparities exist also in academia as past research have shown a clear poverty-related trend of a higher dropout rate of children from low socioeconomic statuses. Despite the similar prevalence of learning disabilities affecting children from all income levels throughout all races and ethnicities, minority children of color and low-income children are more susceptible to being identified as having a learning disability and are three times more likely to dropout of school. This shows that combined factors of low socioeconomic backgrounds, lack of resources provided by many school districts, and bias in the underrepresented students create a notable influence on this particular population.

With the clear health disparity present in education, this study focuses on a new academic curriculum called Project Change Curriculum, otherwise known as Project CC. Project CC is a modified curriculum designed to provide the additional accommodations in learning skills to students with LD. This curriculum is considered to be a preliminary experiment that is targeted at elementary students as they could be provided the skills for academic success early on as they progress into higher education. During this preliminary round, our goal to find the ideal curriculum that aids the improvement of educational success in this certain population and to alleviate the drop-our epidemic.

Background

- Prevalence of reported LD is higher among the people living poverty (2.6 percent) compared to those living above poverty (1.5 percent).

- Prevalence of LD among all ethic groups is about equal

- 2.4 million American public school students identified with learning disabilities

- Sixty-eight percent of students with LD exit high school with a regular diploma, nineteen percent drop out, and twelve percent receive a certificate of completion.

- Minority students of color with disabilities experience a higher rate of drop out and lower rates of graduation.

Methods and Materials

Twenty participants in the age groups 6-8 were selected to undergo a 4 week study in order to see the effects of Project CC on their academic performances. All participants were identified by their guardians or by themselves with LD that ranged from dyslexia, ADD, ADHD, or difficulty in learning. Participants attended the study with twice a week for 3 hours each with 15 minute breaks in between each session.

The curriculum includes using activities that specifically targets a particular learning disabilities with the focus of math, writing, and reading. We will conduct weekly tests to assess the progress of the students with learning disabilities and track the effectiveness of the Project CC. By assessing the Curriculum's impact on these students, we can discover the learning techniques and education style that caters to their needs, ultimately reducing the health disparity within education.

Curriculum

	Week 1	Week 2	Week 3	Week 4
Math 9:00 - 10:30 AM	Learning Objectives: Demonstrate the use of graphic organizers, schematics, and visual imagery.	Learning Objectives: Using the RIDE strategy to assist students with solving word problems	Learning Objectives: Use mnemonic instruction and "think aloud" procedures to improve memory of new information to solve equations.	Learning Objectives: Teach algebraic concepts through key vocabulary and models for identifying and extending patterns.
Reading 11:00 – 12:00 PM	Learning Objectives: Introduce "Buddy Reading" and "Popcorn Reading" to have students read aloud in order to foster phonological development	Learning Objectives: Model how to break short sentences into individual words to develop students' phonological awareness.	Learning Objectives: Teach students to blend phonemes into words by identifying just one phoneme. Then work toward blending all the phonemes in words	Learning Objectives: Teach students to identify the separate phonemes within words. Then teach them to break up words into component sounds.
Writing 12:30 – 1:30 PM	Learning Objectives: Utilize graphic organizers and effective note taking skills through the "Three-Paragraph Essay Organizer."	Learning Objectives: Use mind-mapping of visual representations as organizational reminder during writing to reduce cognitive over-load.	Learning Objectives: Introduce story-mapping strategy to help students read a story and generate a map of its events and ideas.	Learning Objectives: Introduce Reciprocal Teaching in which students interact with the text through questioning and summarizing.

Figure 1. Learning Objectives of Project CC during the 4 weeks of the study.

How 4th Grade Students With and Without Disabilities Perform

Students with disabilities in Reading: Below Basic 68, Advanced 2
Students without disabilities in Reading: Below Basic 27, Advanced 9
Students with disabilities in Math: Below Basic 45, Advanced 2
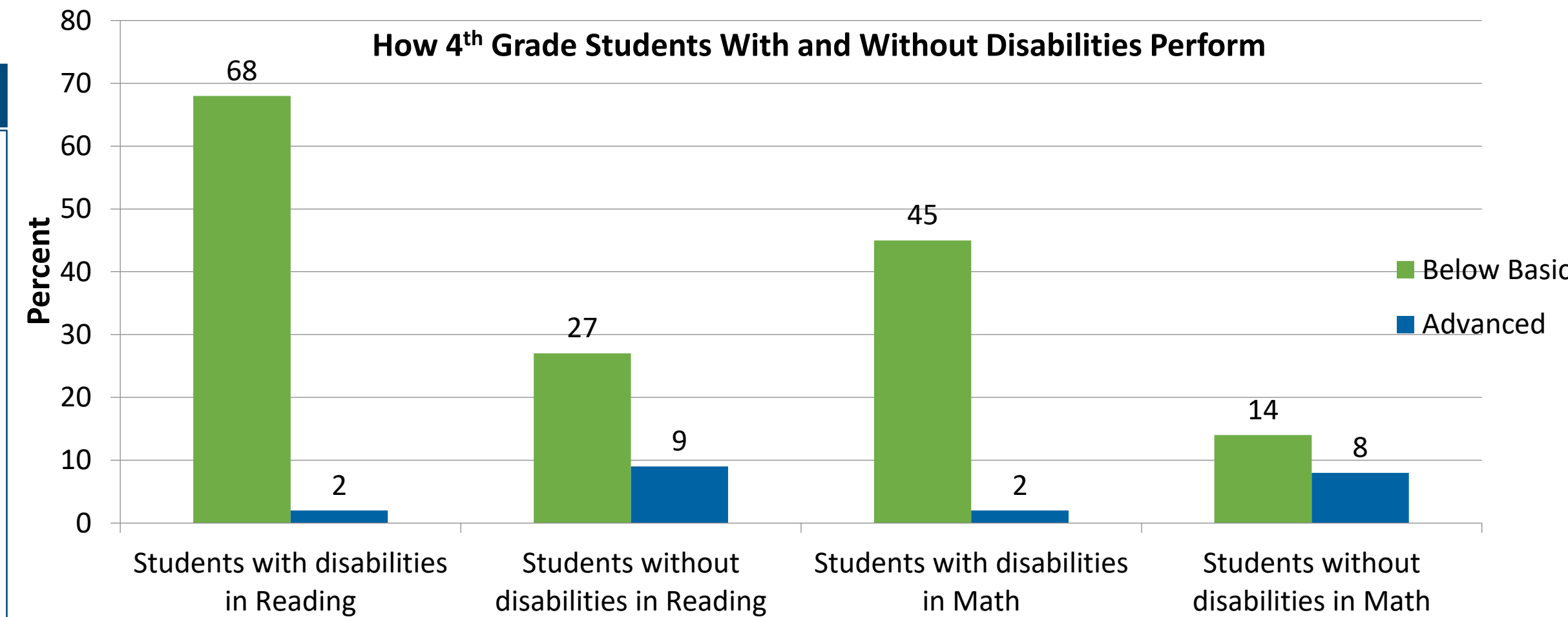Students without disabilities in Math: Below Basic 14, Advanced 8

Figure 2. Source: National Assessment of Educational Progress, Reading and Mathematics Grade 4 National Results, 2013. Students with disabilities includes students with IEPs(Individualized Education Programs)and 504 plans.

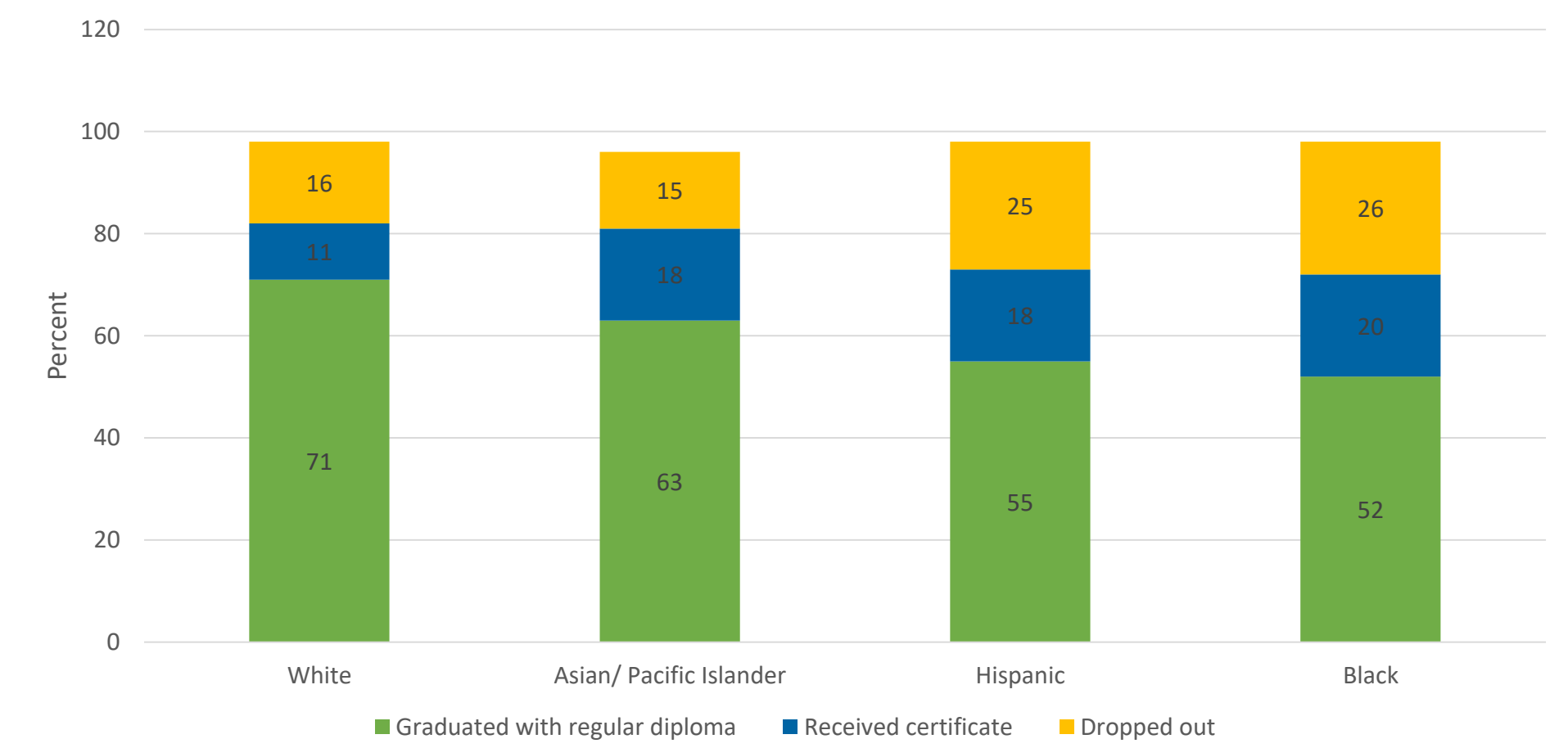How Students with Disabilities Leave High School by Ethic Group in the School Year 2010 - 2011

White: Graduated with regular diploma 71, Received certificate 13, Dropped out 16
Asian/ Pacific Islander: Graduated with regular diploma 63, Received certificate 20, Dropped out 15
Hispanic: Graduated with regular diploma 55, Received certificate 19, Dropped out 25
Black: Graduated with regular diploma 52, Received certificate 20, Dropped out 26

Figure 3. Source: IDEAdata.org, Exiting by Race/Ethnicity and Basis of Exit, Ages 14-21, 2010

Results

Weekly Progress Test Scores

Math: Week 1: 55, Week 2: 61, Week 3: 60, Week 4: 63
Writing: Week 1: 67, Week 2: 68, Week 3: 62, Week 4: 63
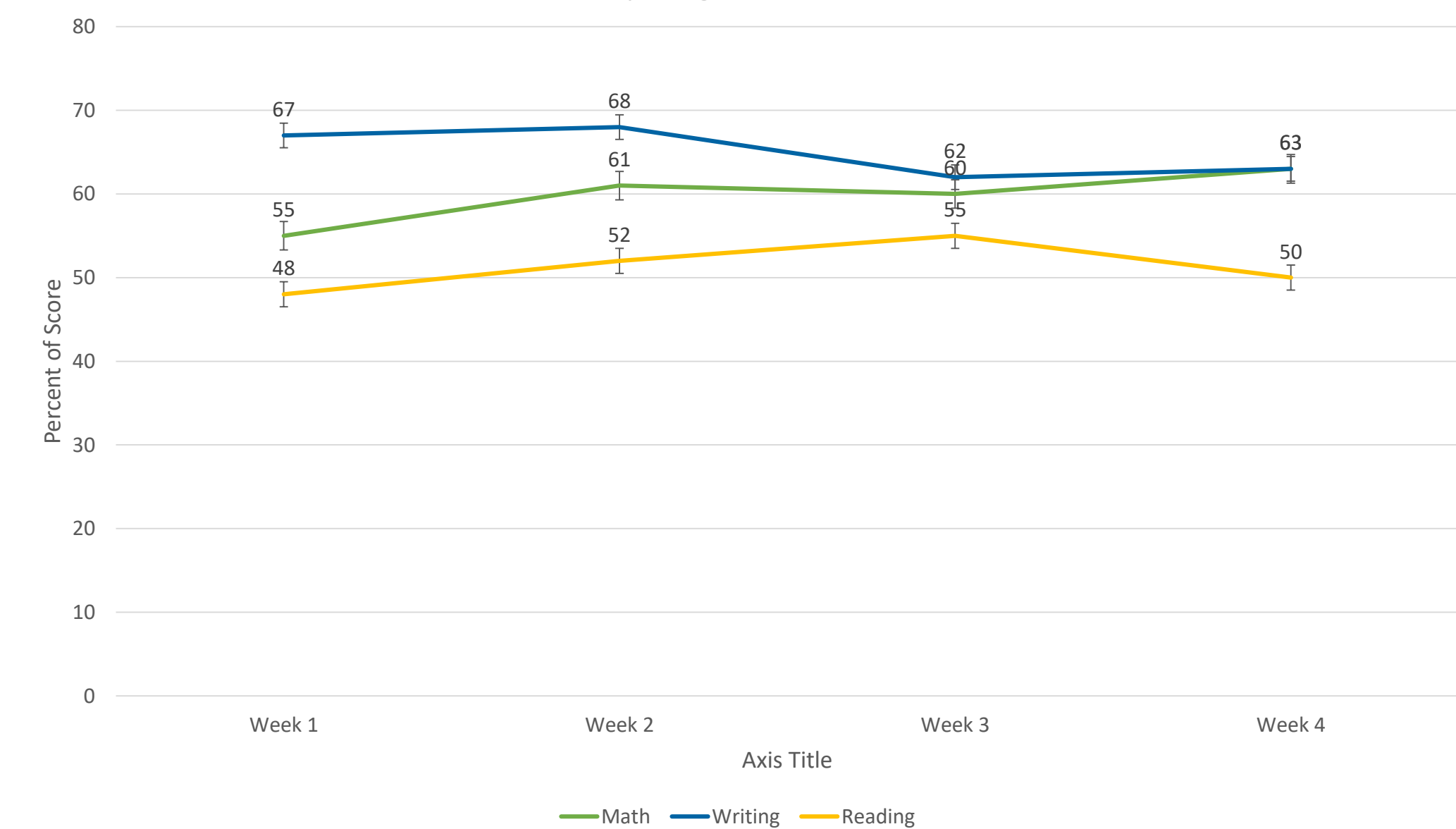Reading: Week 1: 48, Week 2: 52, Week 3: 55, Week 4: 50

Figure 4. The averaged weekly test scores of the students in the study during the 4 weeks of the study.

Conclusions

This project will serve as the ground to implement such ideas in public schools as advocacy and more research is done. This Project CC overall had students receiving higher test scores at the end of the 4 weeks study in math and reading, but a lower score in writing. We believe the scores could be further increased with more exposure to our lesson plan since the students only received a total of 6 hours per week during the 4 weeks study. Project CC is critical to the success of children from low SES with learning disabilities because it is vital for every child to have access to a curriculum that fits their unique needs to succeed in academia.

The overall impact of Project CC is to close the gap prevalent in education and to end the stigma around learning disabilities present in minority communities. By having a curriculum that is more inclusive of students with learning disabilities, education will become more equitable for all students and may address further issues such as the low employment rate of adults with LD.

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