

Equipping Minds Cognitive Development Curriculum Pilot Program Report

Background: In January 2024, Grapevine Faith Christian School (GFCS) hosted Dr. Carol Brown, developer of Equipping Minds Cognitive Development Curriculum (EMCDC). Dr. Brown shared her research with faculty and family. Her work reflects evidence that the brain can actually change and that through her cognitive training exercises, students have reported greater academic score gains than their earlier educational diagnoses would predict. When administered through the EMCDC, the training exercises assembled by Dr. Brown have provided higher testing outcomes than previous attempts on standardized tests. This resulted in a surge of interest at GFCS in having students work through this program. Therefore, GFCS identified and recruited a small cohort of students to engage in a pilot program.

Population: The Pilot program included 5 total elementary students either as a small cohort or via 1:1 tutoring. The Pilot program also included 5 total junior high students as a cohort. This brought the Pilot program to 10 total students. Students were recruited from among those who were identified as having learning exceptionalities by the school's Academic Support Program (ASP). The Pilot program included 7 males and 3 females. Parents of these students provided permission and were engaged in the process and rationale of the Pilot program. Students in the Pilot program were rated by GFCS's internal system as needing the highest amount of academic support.

Process: Beginning in early February, students in the Pilot program engaged in daily, 30 minute facilitation of Dr. Brown's Cognitive Training Exercises for a period of approximately 9 weeks. Elementary Pilot students met with Mrs. Hillje before the beginning of the school day. Junior High Pilot students met with Mrs. Kirchhoff, Mrs. Gallegos, and Dr. Horner after the end of the school day. Students received a total of 23

hours of cognitive development exercises, facilitated on campus via live Zoom training from either Dr. Carol Brown or Dr. Patty Nason, who are each fully EMCDC certified. According to Dr. Brown's doctoral research protocols, a typical intervention had a recommended length of 60 hours. However, the timeline of the school calendar prevented a full-length intervention. Therefore in Spring 2024, the EMCDC training ended immediately prior to the annual spring administration of the Comprehensive Testing Program, Edition 5 (CTP5) in the Elementary School and Junior High School. The students took the various sub-tests over a series of days in late spring, and then our review team collected the scores and analyzed them over the summer.

Further Information on the CTP5:

GFCS administers the CTP5 which was developed by the Educational Records Bureau (ERB) every spring as a way to assess ongoing student learning progress and to evaluate our curriculum and pedagogy. The regularity of this testing program allowed for our data evaluation to be effective in showing the correlation between students who were in the ASP only and those who were in the EMCDC Pilot program (Pilot).

We compared all ASP student CTP5 Scale Scores and Independent School norm percentiles from Spring 2023 with Spring 2024. Students who received EMCDC training took the same tests under the same conditions as all other students in the ASP. For the purposes of this study, we omitted one outlier whose results skewed the data fairly significantly.

The parent company (ERB) [released guidance](#) in Summer 2024 that they have updated their Independent School norms to include only post-COVID data points. These Independent School (aka, private schools) norms are the standard against which GFCS student testing is compared. The reported norms are based on the performance of Independent School students across the United States who test in the Spring and are the closest to an apples to apples comparison for our students.

This year over year comparison allowed us to determine the comparative effectiveness of the therapies in each student enrolled in the Pilot program. However, there is some

measure of caution in interpreting the results, due to the fact that the Spring 2024 norms were updated to no longer include pre-COVID data and the Spring 2023 norms did include pre-COVID data. Still, we believe the comparison should be revelatory as to the overall effectiveness of the therapies.

Results:

After examining the data from before and after students went through the Pilot program, we believe that it is important to examine the year over year data for all ASP & CSP students. The first set of charts shows the students' average Scale Score gains. The ERB derives the CTP5 Scale Score from the combination of correct and incorrect answers, as well as a weighting based on difficulty of the questions. The version of the CTP5 we administer is adaptive (meaning that it changes the questions based on how accurately you are answering them) and strong performance at the beginning of the test results in more difficult questions coming in at the end of the test. Please keep in mind that for all these scores, they reflect the difference between ASP students in the Pilot program and ASP students who were not in the Pilot program.

This analysis will focus on the comparative gains in Verbal Reasoning and Quantitative Reasoning. Those two areas are the main focus of the cognitive brain training that occurs in the Equipping Minds Cognitive Development Curriculum. Therefore, we would expect to see any improvement in scale scores or percentiles most clearly reflected there. Per guidance from the leadership of the ERB, their company expects to see an average of 40-70 point improvement annually per test per student. The next two charts will show the annual Scale Score gains for Elementary (Chart 1) and Junior High (Chart 2).

Chart 1 - Elementary Scale Score Annual Gains

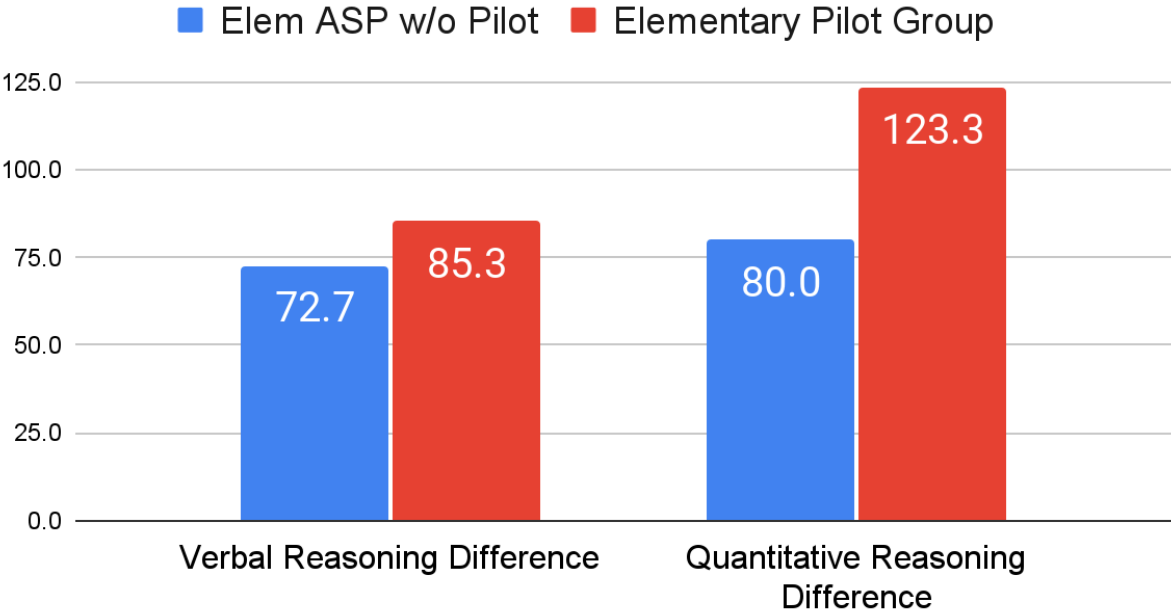


Chart 1 shows that students in the Pilot group gained an average of 85.3 points on their Verbal Reasoning scores compared to the previous year, while students who were not in the Pilot group gained an average of 72.7 points on their Verbal Reasoning compared to the previous year. Based on the information provided by the ERB, the Elementary Pilot group not only outperformed the non-Pilot group but they also exceeded annual expected gains from the ERB. With respect to their performance on the Quantitative Reasoning section of the test, the Elementary Pilot group gained an average of 123.3 points while students who were not in the Pilot group gained an average of 80 points compared to the previous year.

Chart 2 - Junior High Scale Score Annual Gains

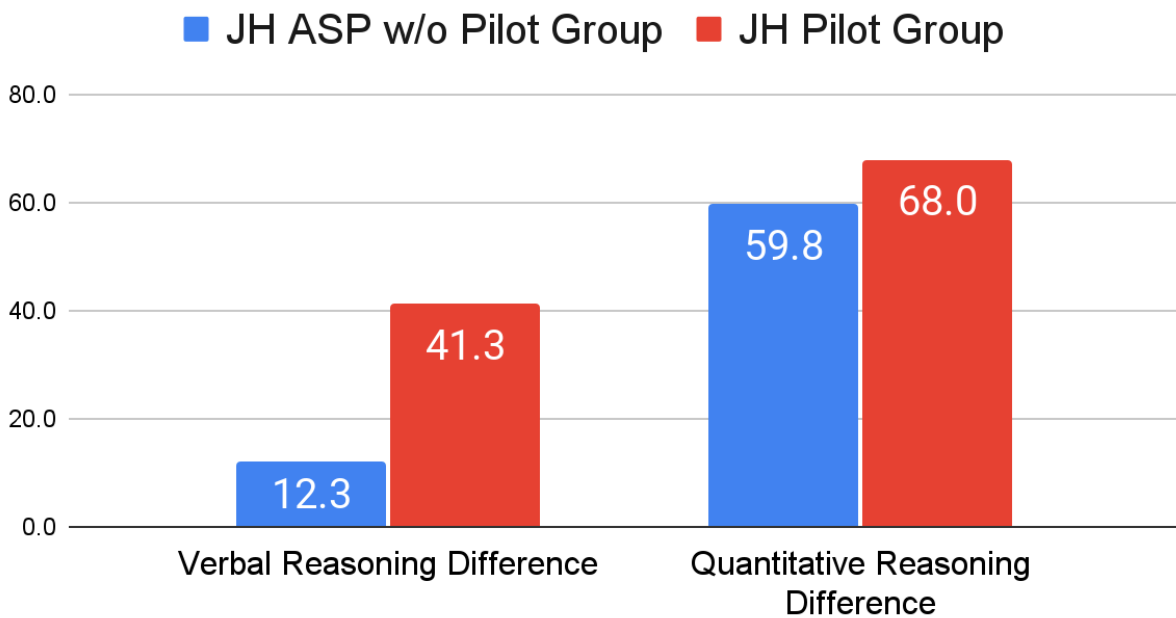


Chart 2 shows that students in the Junior High Pilot group gained an average of 41.3 points on their Verbal Reasoning scores compared to the previous year, while students who were not in the Pilot group gained an average of 12.3 points on their Verbal Reasoning compared to the previous year. With respect to their performance on the Quantitative Reasoning section of the test, the Junior High Pilot group gained an average of 68 points while students who were not in the Pilot group gained an average of 59.8 points compared to the previous year. The next chart demonstrates the numeric outperformance in both Verbal Reasoning and Quantitative Reasoning by the Elementary and Junior High Pilot groups, respectively.

Chart 3 - Pilot Student Overperformance

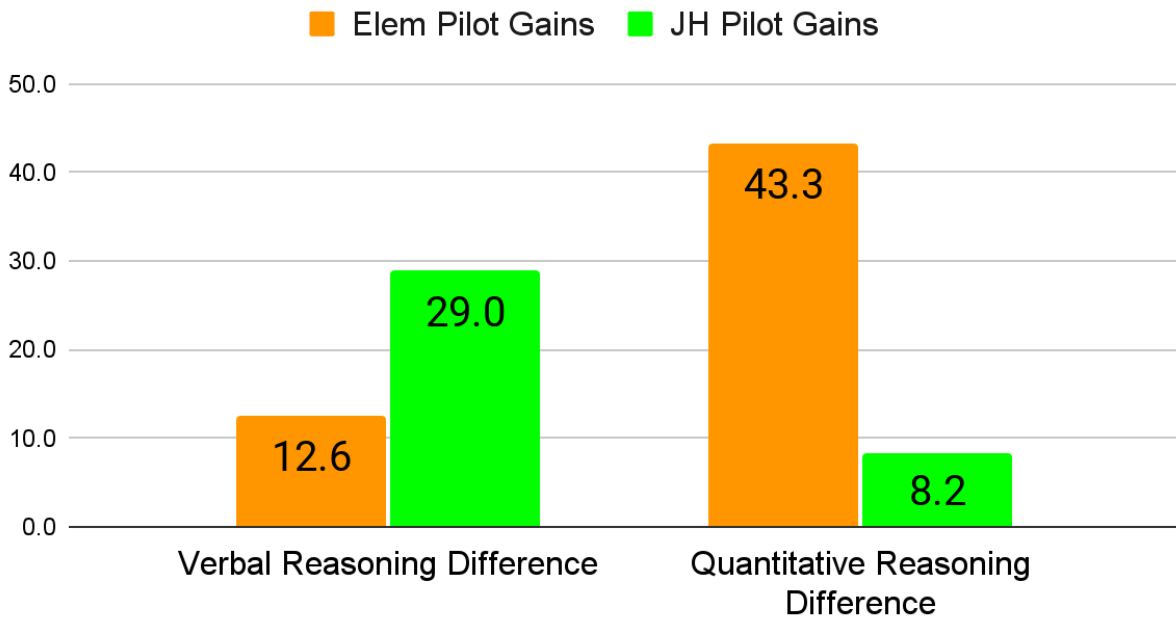
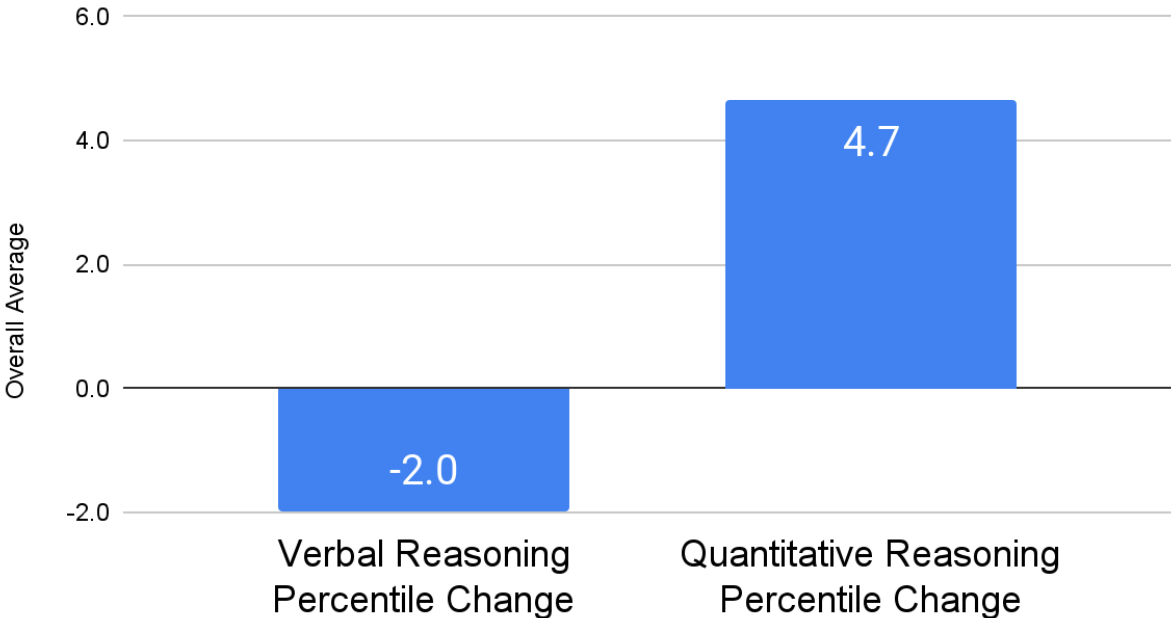


Chart 3 shows the difference in scale scores between students in the Pilot program versus students who were not in the Pilot program. Most notably, Junior High Pilot students outgained their ASP peers on average in verbal reasoning and Elementary Pilot students outgained their ASP peers on average in quantitative reasoning. Junior High Pilot students outperformed by an average of 29 Scale Score points. Elementary Pilot students outperformed by an average of 43.3 Scale Score points.

The next set of charts relates some similar information, but with respect to the gains in terms of percentiles compared to the scores of students at other independent (private) schools. Chart 4 shows the average annual change in terms of percentile growth by all ASP students against their peers in independent (private) schools across the country.

Chart 4 - ASP Student Average Annual Percentile Change



Overall, Chart 4 shows that all students in the ASP program saw a 2% point decline against their peers in independent schools across the United States. This information has caused our data review team to share these results with our school leadership with recommendations for ways to improve student performance on this test in Spring 2025. However, all students in the ASP program saw a 4.7% point increase against their peers in independent schools across the United States. Chart 5 will compare the annual percentage point changes by both the Pilot group and the rest of their ASP peers.

Chart 5 - Annual Change by Sub-Test

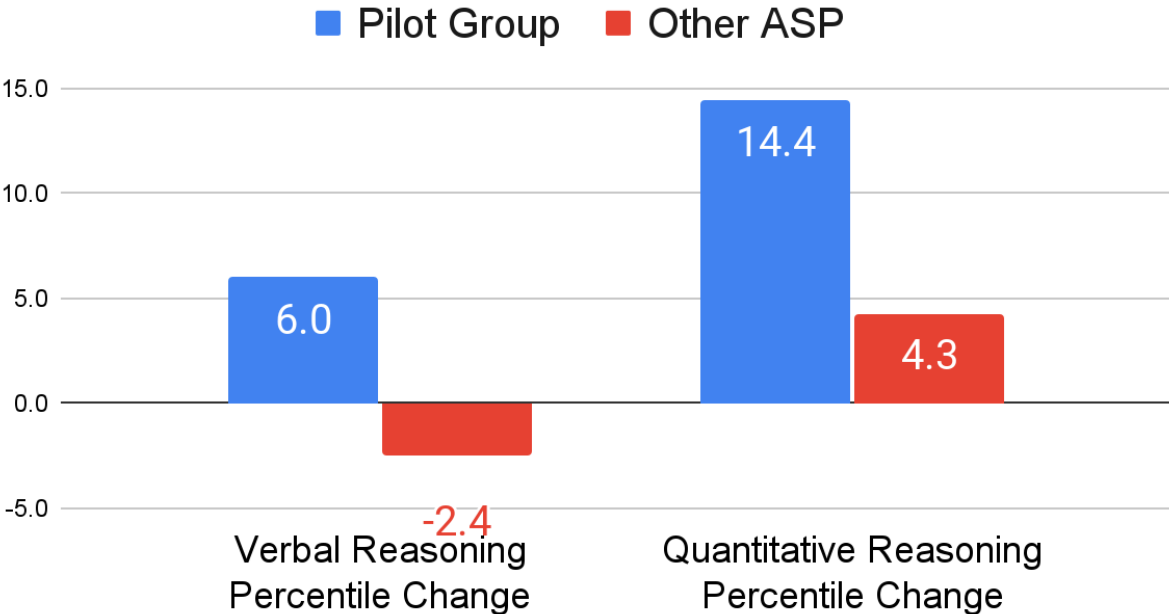


Chart 5 shows that all students in the Pilot group saw an average 6% point increase in their Verbal Reasoning scores compared to the previous year, contrasted with an average 2.4% point decrease by students who were not in the Pilot program. Similarly, students in the Pilot group saw an average 14.4% point increase in their Quantitative Reasoning Scores compared to the previous year, contrasted with an average 4.3% point increase by students who were not in the Pilot program. Chart 6 will provide more specific analysis of the impact on Elementary students.

Chart 6 - Percentile Change - Elementary Pilot vs. Elementary Students w/o Pilot

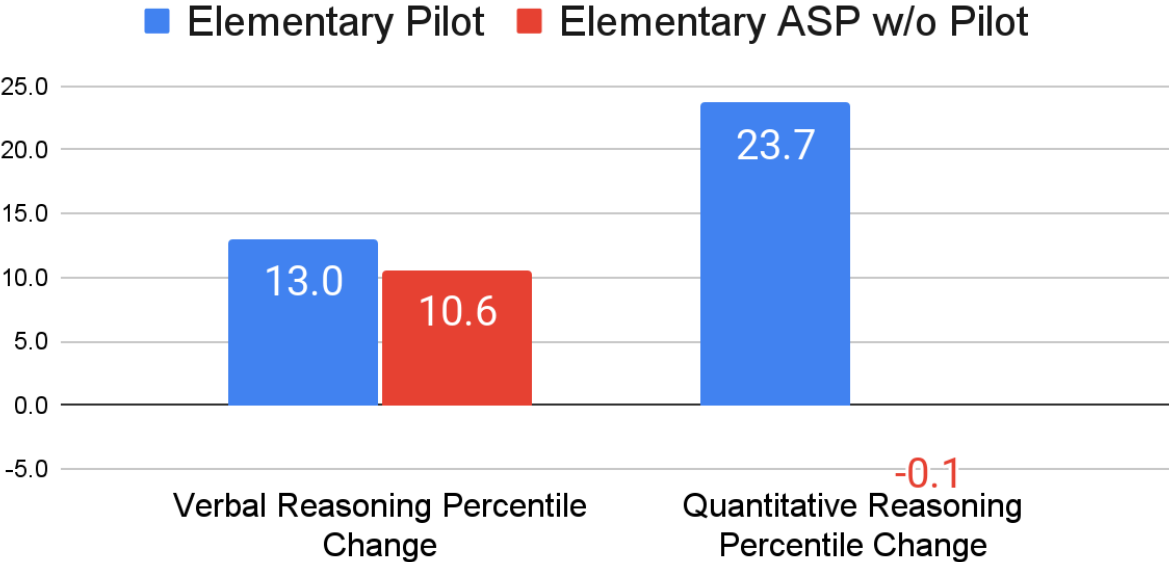


Chart 6 shows that Elementary students in the Pilot group saw an average 13% point increase in their Verbal Reasoning scores compared to the previous year. This is in contrast to the average 10.6% point increase among students who were not in the Pilot program. Most notably, Elementary students in the Pilot group saw an average 23.7% point increase in their Quantitative Reasoning scores compared to the previous year. This is in contrast to the average 0.1% point decrease among students who were not in the Pilot program. Chart 7 will provide more specific analysis of the impact on Junior High students.

Chart 7 - Percentile Change - JH Pilot vs JH ASP w/o Pilot

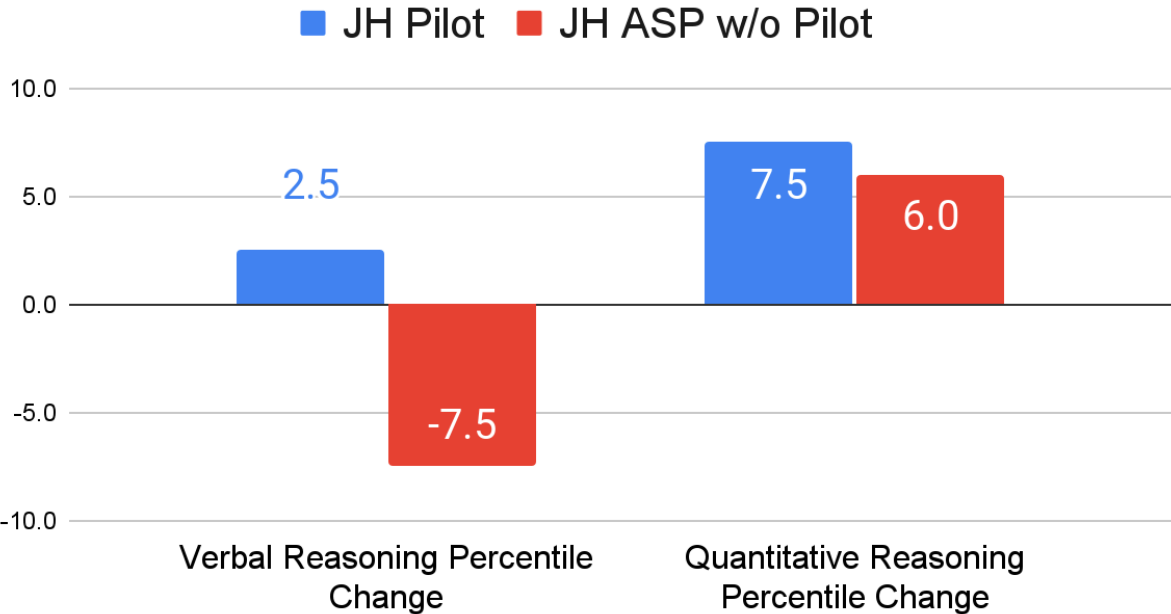


Chart 7 shows that Junior High students in the Pilot group saw an average 2.5% point increase in their Verbal Reasoning scores compared to the previous year. This is in contrast to the average 7.5% point decrease among students who were not in the Pilot program. Junior High students in the Pilot group saw an average 7.5% point increase in their Quantitative Reasoning scores compared to the previous year. This is in contrast to the average 6% point decrease among students who were not in the Pilot program. Chart 8 will provide more specific comparisons on the gaps between the Pilot group and those students not in the Pilot group broken down by grade division.

Chart 8 - Difference between Pilot group Percentile Change and other ASP Percentile Change by Division

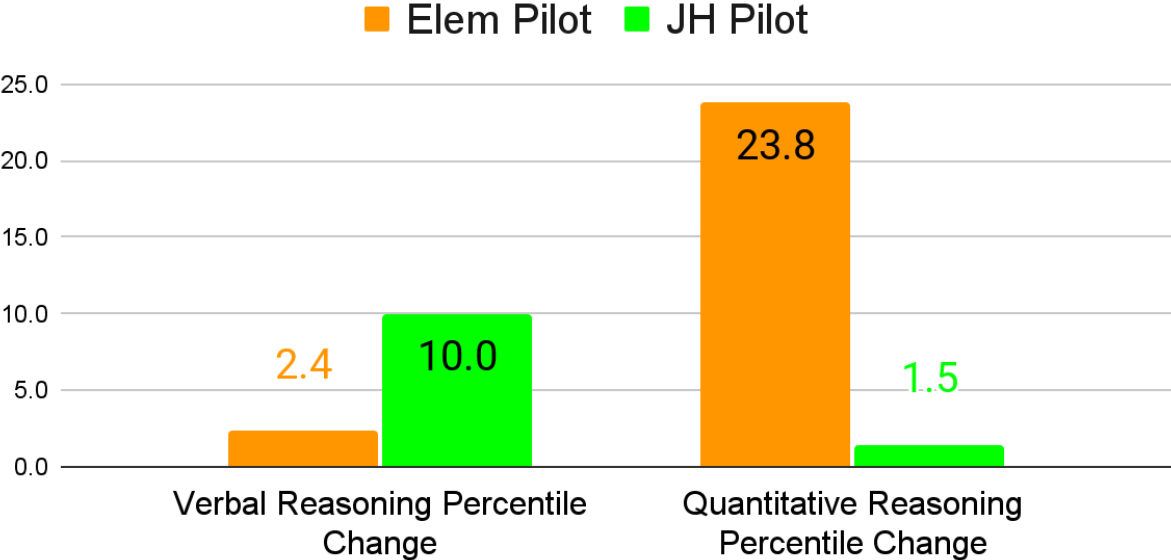


Chart 8 shows that Elementary students in the Pilot group saw an average 2.4% point increase in their Verbal Reasoning scores compared to the students not in the Pilot group. Junior High students saw an average 10% point increase in their Verbal Reasoning scores compared to the students not in the Pilot group. Elementary students in the Pilot group saw an average 23.8% point increase in their Quantitative Reasoning scores compared to the students not in the Pilot group. Junior High students saw an average 1.5% point increase in their Quantitative Reasoning scores compared to the students not in the Pilot group. The next section will provide some final thoughts and analysis.

Conclusion:

Overall, the comparison of GFCS Pilot program students to their ASP peers who were not in the Pilot program demonstrates that participation in the EMCDC training program correlated with higher CTP5 test scores in the Verbal and Quantitative Reasoning portions of that test. Interestingly, Elementary students saw much greater average gains in their Quantitative Reasoning scores while junior high students saw much greater average gains in their Verbal Reasoning scores. Certainly, individual student results vary based on a variety of factors, but there is a demonstrable average student gain overall when the scores are examined collectively. This set of gains was even more interesting when considering the fact that students received a little more than $\frac{1}{3}$ of the typical training time. We are guardedly optimistic that a full 60 hours of training would correlate with even greater gains for students.

Late last spring, based on the preliminary examination of student results, GFCS decided that it would be best to dig further into this program as a means for training students for greater academic success. The school hired a new faculty member, Sydney Reynolds, with the intention of having her receive full Level 1 training in the Equipping Minds Cognitive Development Curriculum. She will be available to train students on a 1:1 or 1:2 basis throughout the school year and will engage students on a quarterly basis for this tutoring.

We, the GFCS EMCDC Pilot team, would like to thank you for helping us engage with this exciting initiative, and we look forward to further potential partnership with you in the future.