A Report by:
ARIZONA DEPARTMENT OF EDUCATION
RESEARCH & EVALUATION DIVISION
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EVALUATION OF THE 2012/2013 21ST CENTURY COMMUNITY LEARNING CENTER PROGRAM

Arizona's 21stCCLC
Afterschool Programs

Contents

Executive Summary

This program evaluation provides evidence that the 21st Century Community Learning Center (21st CCLC) program administered by the Arizona Department of Education (ADE) has the potential to make a positive difference in the academic performance of students that attend the program regularly. Regular participants of the 21st CCLC program showed significantly more growth in mathematics during the 2012/2013 school year than Non-Regular Program Participants regardless of the overall performance level of the schools. The reading growth of Regular Program participants was also somewhat higher than that of Non-Regular Program participants. While not statistically significant, the program did have a positive effect on the reading growth of Regular Program participants. Principals at high performing schools that had a 21st CCLC program during the 2012/2013 school year echoed that finding and voiced a strong positive opinion about the 21st CCLC program. *"We know that the [21st CCLC] program is having a positive impact on students because of the data."* The Alignment of 21st CCLC programming with what is going on in the regular classroom and the use of variety of data to target interventions were mentioned by principals as integral to improving academic achievement.

The 21st CCLC Program in Arizona supports the creation of community learning centers that provide high-quality academic enrichment opportunities during non-school hours for students and offers literacy and other educational services to the families of participating children. Principals at both high and low performing schools mentioned "autonomy" as a strength of the 21st CCLC program. *"It gave us a chance to really look at our program … and set it up in a way that was more beneficial for the students."* The number of students that can be served by the program and the variety of classes that can be offered were mentioned by principals as major strengths of the program. *"It [21st CCLC Program] provides ... the opportunity to provide tutoring and enrichment to so many students."* In addition, principals expressed that the program influenced school climate and school leadership in a positive manner.

A mixed method approach was used in this evaluation. The quantitative portion focused on determining the difference in reading and mathematics growth and performance-level between Regular Program and Non-Regular Program participants from 2012/2013 to 2013/2014. Propensity score matching (PSM) was used to match 21st CCLC Regular and Non-Regular Program participants within schools grouped by letter grade. The difference between the mean Student Growth Percentile (SGP) in reading and mathematics of Regular Program and Non-Regular Program participants within each letter-grade grouping were compared to determine if the 21st CCLC program implemented in Arizona during the 2012/2013 school year had a positive effect on academic growth. The qualitative portion summarized the perceptions of Principals regarding the 21st CCLC program implemented at their school during the 2012/2013 school year.

Glossary

AIMS: Arizona's **I**nstrument to **M**easure **S**tandards

Budgetary Enhancements: Additional funding to support special projects focused on improving academic achievement.

APTT: Academic **P**arent **T**eacher Team (APTT) replaces traditional parent-teacher conference with three group meetings throughout the year, where a teacher meets with all parents of her/his students together in their classroom. Each parent is provided with a folder of their child's performance indicators. Teachers then provide an in-depth coaching session on how to interpret this data based on overall classroom performance, school benchmarks, and state standards. Parents are provided with strategies and tools to help support learning at home. Parents and teachers set goals together for their students, individually and as a class.

STEM: Science, Technology, Engineering and Mathematics (STEM) education includes at least two of the STEM disciplines. Instruction is delivered in an inquiry-based, project-based format. STEM in 21st CCLC is designed to serve the "Excitement" and "Awareness" levels with a variety of topics. Family involvement and field trips are also components designed to sustain the interest in STEM**.**

Dosage: How often during the week a learning opportunity was offered and for how many hours.

Performance levels: Arizona's Instrument to Measure Standards (AIMS) performance levels. These levels are: Falls Far Below (FFB), Approaches, Meets or Exceeds academic standards.

Non-Regular Program Participants: Students who did not attend the 21st CCLC program or attended the program for less than 30 days during the school year.

Regular Program Participants: Students who attended the 21st CCLC program for 30 or more days during the school year.

Average Treatment Effect (ATE): The average difference between regular program participants and non-regular program participants in their performance level or academic growth.

Standard Error (SE): A statistical term that measures the accuracy with which a sample represents a population. The standard error of an ATE is how much the difference reported between the Regular Program Participant sample and the Non-Regular Program Participant sample deviates from the true difference of the two populations.

95% Confidence Interval (95%CI): A confidence interval is a range between two values that describes the uncertainty surrounding an estimate. A 95% confidence interval of an ATE means that we are 95% confident that the true difference between the two populations is within this range.

Student Growth Percentile (SGP): A SGP describes how much a student grew in a subject area from one year to the next as compared to their academic peers across the state. The academic peers are students in the same grade with the same exact history of test scores in previous years.

School Letter Grades: The data is disaggregated in this evaluation by groupings based on the school letter grade the school received from the Arizona Department of Education (ADE) Accountability Unit in 2012/2013 school year. These letter grades are publically available and posted on the ADE website.

Introduction

The 21st Century Community Learning Center (21st CCLC) program was set forth in the Elementary and Secondary Education Act (ESEA) of 1994 and the No Child Left Behind Act (NCLB) of 2001. The 21st CCLC program assists grantees to build and sustain comprehensive after school programs that provide high-quality academic enrichment opportunities to children and offer literacy and educational services to the families of program participants. The 21st CCLC program is the only federal funding source dedicated exclusively to afterschool programs. The 1994 ESEA act authorized the U.S. Department of Education (USED) to administer $25 million to Local Educational Agencies (LEAs) to fund a variety of after-school opportunities that benefited students and families in rural and inner-city communities. The reauthorization of ESEA to the NCLB Act in 2002 made significant changes to the 21st CCLC Act. NCLB legislation transferred the administration of the 21st CCLC Grant Program from the U. S. Department of Education (USED) to State Education Agencies (SEAs), increased funding by an additional $250 million, and changed the focus of the program from providing "educational and social services" to an emphasis on increasing academic achievement. Conversations are currently underway regarding the reauthorization of the ESEA and the future of 21st CCLC funding.

21st CCLC in Arizona

The purpose of the 21st Century Community Learning Center (21st CCLC) Program in Arizona is to improve the academic achievement of Regular Program participants in reading and mathematics by providing:

- Academic interventions and enrichment opportunities that help students meet state and local academic achievement standards in reading and mathematics.
- Additional services, programs and activities to students that complement regular academic programs.
- Literacy and student centered services to the families of participants so family members more readily support and engage in student learning activities.

21st CCLC programs in Arizona mainly serve students who attend high-poverty and low-performing schools. 21st CCLC programs focus on helping students meet core standards in academic subjects such as reading/language arts and mathematics. In addition, other educational services are offered to family members of students participating in the program in order to further engage parents in the learning process. Principals at both high and low performing schools mentioned that the family engagement requirement of the 21st CCLC program provided a rallying point to get parents involved in their child's education and build school community. One principal remarked, *"It has given us all a common vision, mission and goal … to improve student achievement of course, but also the parents, they don't see it as babysitting. They know it's purposeful, it's strategic."* A principal from a low performing school declared, *"Truthfully, there's more of a sense of community that every student is our student."*

Application and Award Processes

Grantees and sub-grantees are selected through a competitive application process that adheres to federal and state statutes, regulations and assurances. Eligible applicants/LEAs are required to target

schools where at least forty percent of students are eligible for a Free and Reduced Lunch (FRL) and are in need of academic improvement**.** Other considerations for funding included how well proposed program goals and objectives fit with the goals and objectives of the LEA and their school improvement plans. Each application goes through a rigorous review process. Grantees are awarded funds for five years based on approved budget requests. Program awards remain the same for the first three years of the grant cycle, are reduced by 25% during the fourth year and reduced by an additional 50% during the fifth year with the idea that LEA sustains the programs on their own.

ADE Program Staff

Seven 21st CCLC Education Program Specialists, one director, one administrative assistant and a part-time program evaluation specialist staff the 21st CCLC administrative program at the ADE. The 21st CCLC Program Specialists are assigned to a geographic region of the state and are dedicated to supporting and monitoring the same grantees throughout the five year funding cycle. This allows the specialist and sub-grantee staff the chance to collaborate and establish ongoing professional relationships which, in turn, lays the foundation and establishes the culture for effective compliance monitoring, technical assistance and professional development.

Compliance

Compliance is addressed using a compliance self-assessment and a compliance monitoring and reporting process. All sub-grantees are required to complete a Compliance-Self Assessment Form at least once a year and submit the completed form to ADE as part of a required, annual site-level evaluation. The compliance monitoring and reporting system is comprised of a Desktop and Site-visit form and an automated Compliance Tracking and Reporting System. 21st CCLC specialists identify a percentage of sub-grantees for onsite monitoring each year and complete a Desktop and Site-visit form for each identified sub-grantee. The data from the form are entered into the Compliance Tracking and Reporting System. The compliance reports are generated and shared with sub-grantees. Discrepancies between scores on a sub-grantee's self-assessment and the assessment completed by the 21st CCLC specialist are used as a springboard for discussion, technical assistance and professional development.

Program Evaluation

The purpose of this program evaluation was to determine the effectiveness of 21st Century Community Learning Center (21st CCLC) programs implemented in Arizona during the 2012/2013 school year to improve the mathematics and reading achievement of Regular Program participants. The goal was to design a robust evaluation that used valid and reliable methods to assess the mathematics and reading proficiency and growth of Regular Program participants compared to Non-Regular Program participants and to add context and clarity to these findings using the perceptions of principals with 21st CCLC Programs at high performing schools. Regular Program participants are students that attended the 21st CCLC program at their school for 30 or more days. Non-Regular Program participants are all other students that did not attend the program or attended the program for less than 30 days. Schools with a letter grades of 'A' or 'B' were considered high performing.

Schools with 21st CCLC programs during the 2012/2013 school year were grouped by school letter grade. Propensity score matching (PSM) on academic and demographic variables was used to match Regular Program participants to Non-Regular Program participants within each school letter-grade grouping. Student Growth Percentiles (SGP) were calculated to describe how much a student grew in a subject area as compared to their academic peers across the state. These three methods allowed for a more robust analysis and more confidence in the findings.

Changes from year to year in the percent of regular 21st CCLC program participants proficient in mathematics and reading compared to Non-Regular Program participants have been used in the past as a metric to measure the academic effectiveness of the program. This approach, however, was limited for two reasons:

- Students could not be randomly assigned to the program. Therefore no causal effects could be contributed to the program due to selection bias.

- Proficiency rates measure academic competence in a subject area in one specific year. In future research it is recommended to also assess how much a student has grown from year to year, which is an equally important indicator of program effects.

Research Questions

- Was the academic growth in mathematics and reading of Regular Program participants during the 2012/2013 school year greater than that of Non-Regular Program participants?

- Was the performance level of Regular Program participants in mathematics and reading greater than that of Non-Regular Program participants?

- What are the perceptions of principals regarding the 21st CCLC program implemented at their school during the 2012/2013 school year?

- How do the perceptions of principals regarding the 21st CCLC Program at their school clarify and validate the findings from the quantitative analyses?

Methodology

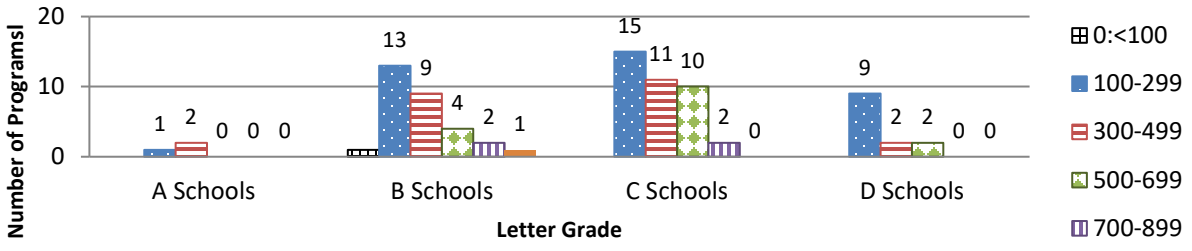
A mixed-method approach was used in this evaluation. Quantitative findings from a comparison of the academic growth and performance levels in mathematics and reading between Regular and Non-Regular program participants from 2012/2013 to 2013/2014 were integrated with qualitative findings from structured interviews with principals that were in the fourth year of implementing a 21st CCLC Program during the 2012/2013 school year. According to V. L. Plano-Clark in the 2010 article, *The Adoption and Practice of Mixed Methods*, a mixed method approach is considered best practice when seeking a more complete understanding of program effects and when there is a desire to validate result and provide context for understanding.

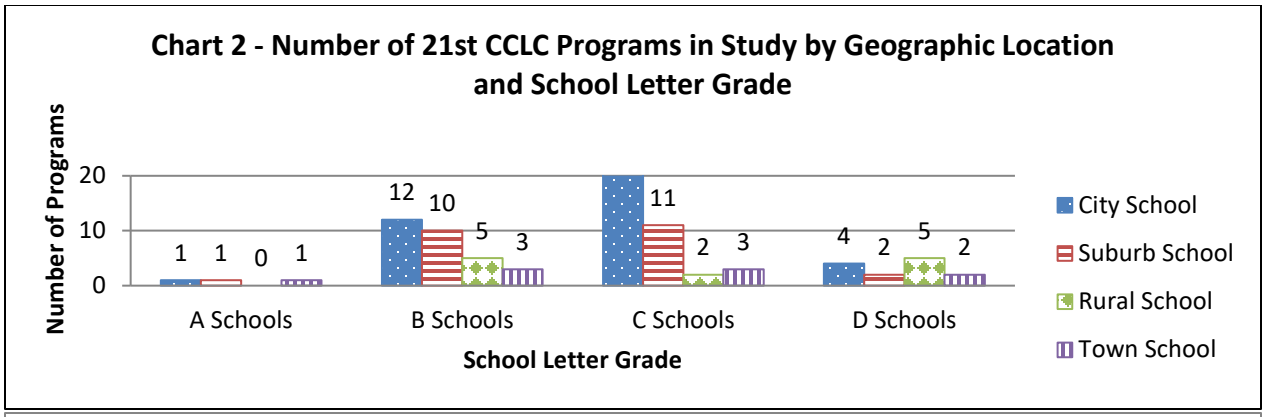
Sample for Quantitative Evaluation

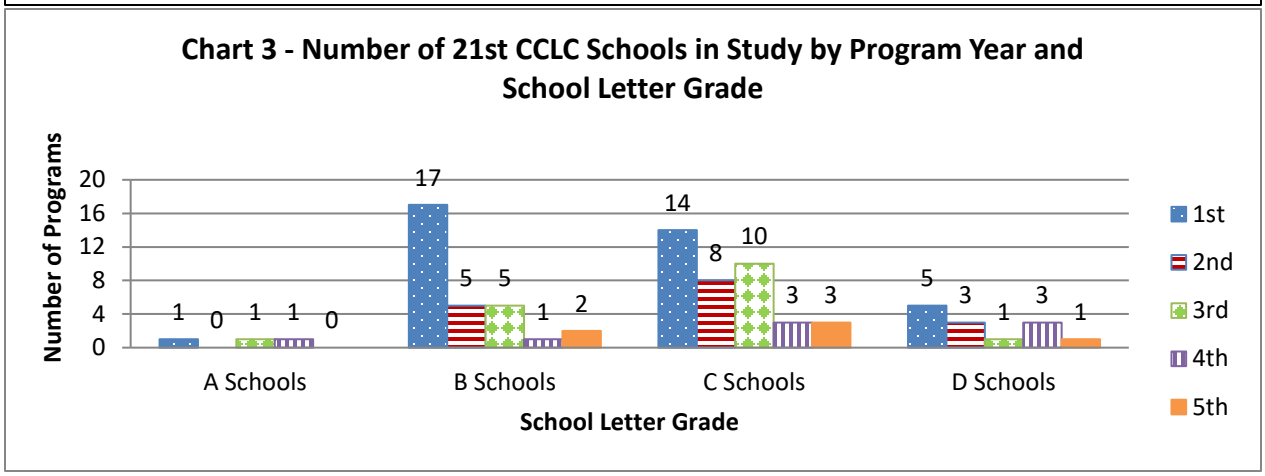
The quantitative analysis focused on a purposeful sample of eighty-four programs. All of the programs in the sample were held at Title I, non-charter public schools that served grades three through eight, had a letter grade of 'D' or above in the 2011/2012 school year, and submitted student identifiers and participation data for the 2012/2013 school year. Since school letter grades are an important indicator of school performance and school performance is highly correlated with student academic achievement, this evaluation was conducted separately within each school letter-grade grouping. That is, schools with a 21st CCLC program during the 2012/2013 school year were grouped by their 2011/2012 school letter grade. Regular Program participants within each group were compared to Non-Regular Program participants within the same group. When comparing performance levels, only students who had a scale score on record for the 2012/2013 school year were included. When comparing performance growth, only students who had a Student Growth Percentile (SGP) on record for the 2012/2013 school year were included. The total number of students enrolled during the 2011/2012 school year, the geographic location of the school and the program year for each grantee varied within each letter grade grouping.

The following charts describe the programs in the evaluation disaggregated by enrollment by school letter grade, geographic location by school letter grade and program year by school letter grade.

Chart 1 - Number of 21st CCLC Programs in Study by Enrollment Category and Letter Grade





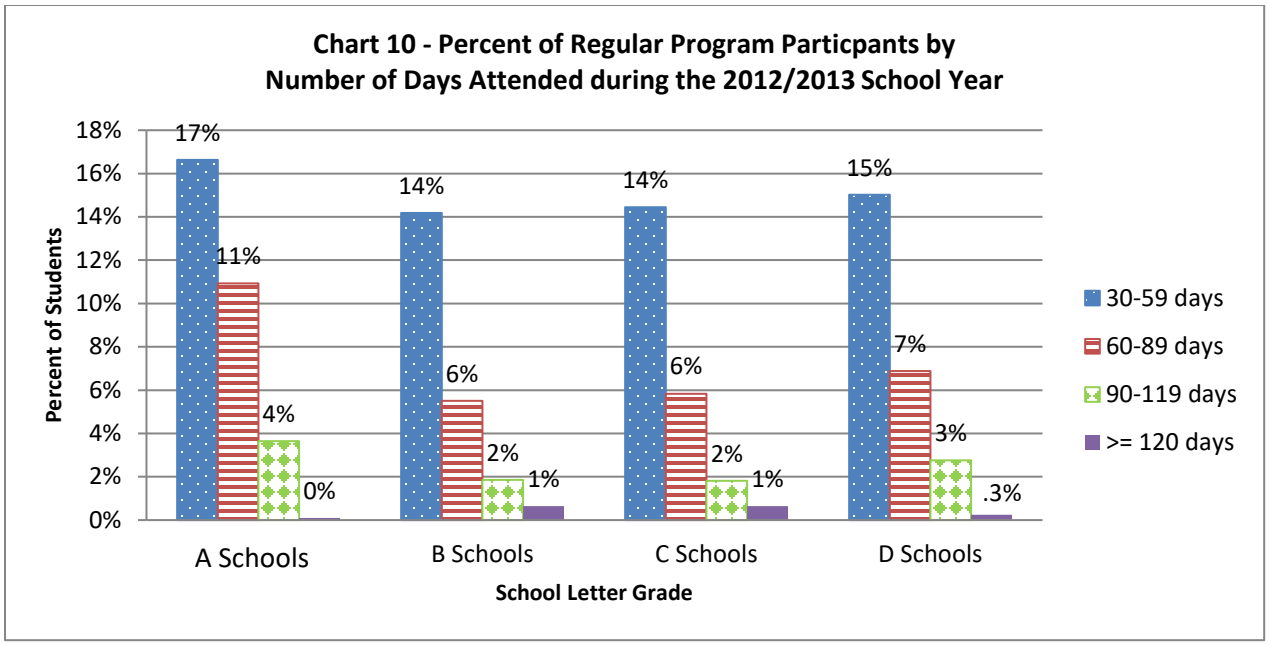


Program Characteristics

There was one 21st CCLC program in each of the 84 elementary schools in this evaluation. 21st CCLC programs were required to gauge their services and programming to meet the needs of participants and therefore may vary significantly in the types and dosage of programs offered. Charts 4 – 9, in Appendix A, present the characteristics of these programs including program dosage, operational frequency and additional funding for program enhancements. There was no apparent pattern of program characteristics, program operations or budgetary enhancements when schools were disaggregated by school letter grade except minor differences in program dosage.

Program Participation

21st CCLC staff used multiple approaches to recruit and retain students to the program. Some centers relied on referrals or recommendations from school staff. Some contacted the parents to encourage enrollments and others targeted programming to students with particular needs. Program attendance rates varied within each school letter-grade group with most students attending from 30 to 59 days (Chart 10 below). The second largest percentage of students attended the program from 60-89 days. A smaller percentage attended from 90-119 days within all letter grade groups. A very small percentage of Regular Program participants attending 'B', 'C' and 'D' schools participated for over 120 days.



There were notable differences between Regular Program and Non-Regular Program participants. Charts 11-15, in Appendix B**,** compare Regular Program participants with Non-Regular Program participants in terms of their demographics and academic performance in the prior year. A few notable differences between Regular and Non-Regular Program participants were consistent across letter grade groupings. There were a larger percentage of students with a Hispanic/Latino heritage among Regular Program participants, as well as, students who were enrolled for the full academic year, students with special educational needs, ELL students, and students who were eligible for free and reduced lunch.

Quantitative Evaluation Design

Schools with 21st CCLC programs during the 2012/2013 school year were grouped by their 2011/2012 letter grade. Propensity score matching (PSM) was used to identify Non-Program and Regular Program participants within each school letter-grade grouping that had similar academic and demographic characteristics in the prior year. Regular Program and Non-Regular Program participants were then matched within each letter-grade grouping based on performance levels and academic growth in prior school years, student and school demographic information, and characteristics of the 21st CCLC programs they attended. According to D. B. Rubin in his article *Using Propensity Scores to Help Design Observational Studies* (2001), propensity scores can be used as an alternative method to estimate the effect of receiving treatment when random assignment of treatments to subjects is not feasible. Propensity score matching (PSM) refers to the pairing of treatment and control units with similar values on the propensity score, and possibly other covariates, and discarding all unmatched units (Rubin, 2001). PSM is primarily used to compare two groups of subjects but can be applied to analyses of more than two groups.

Within-group comparisons were then made between Regular Program participants and matched Non-Regular Program participants in terms of academic growth and performance level in mathematics and reading in the 2012/2013 school year. The student growth percentile (SGP) was introduced as a

measure of academic growth. A SGP describes how much a student grew in a content area from one year to the next compared to their academic peers across the state. Academic peers are students in the same grade that had the exact same scale scores in previous years. The mean SGP can be used to summarize the actual growth made by a group of students, such as the students from a district, from a school or the students who did or did not participate in a program. If the 21st CCLC program was effective in improving the academic growth of Regular Program participants in the 2012/2013 school year, we would expect the mean SGP of Regular Program participants to be higher than their matched Non-Regular Program participants.

Quantitative Data Analysis

Student Growth Percentiles (SGP) were used to assess the academic success of students in mathematics and reading. We hypothesized that the mean SGP of Regular Program participants would be higher than the mean SGP of Non-Regular Program participants if the 21st CCLC program was effective. Student growth percentiles (SGP) indicate the percentage of academic peers whose academic growth from the prior year is less than that of the student. As shown in Charts 11-15, Appendix B, there were differences between the characteristics of Regular Program participants and Non-Regular Program participants. Some of these characteristics such as student performance level and academic growth in the prior year and any special student needs may be highly correlated with student academic success. For example, students whose performance level in the prior year was lower may perform consistently lower during the current year; and students who grew slower in the prior year may grow consistently slower in the current year. This not-easy-to-break trend could disguise the effectiveness of the program since most 21st CCLC programs target low-performing and special needs students

Propensity score matching was used to reduce the effects of multiple factors that could confound the causal relationship between the program and student academic achievement. Multiple confounding variables were put in a regression model to generate a propensity score for each Regular Program participant and for each Non-Regular Program participant. These multiple confounders included student performance levels and SGPs in the 2011/2012 school year, the prior year, and the student demographics as presented in Charts 11-15, Appendix B. Therefore, school demographic information and the characteristics of each program were also used to generate the propensity score. In this evaluation, a propensity score is the probability for a student to regularly attend the 21st CCLC program given their academic performance and growth in the prior year, as well as student demographics and school and program characteristics.

Logistic regression was used to generate the propensity score with the indicator of program participation (i.e., '1' for a Regular Program participant and '0' for a Non-Regular Program participant) as the binary outcome and the multiple confounders mentioned above as the predictors in the model. The main effects of these confounders were first included in the model to estimate the propensity score, their polynomial terms and interactions were added in the model as additional terms one after another. Several models were compared and the optimal model finally chosen was the model that best balanced the effects of confounders between Regular Program participants and Non-Regular Program participants who fell into the same stratum.

The overlap between the propensity score distribution of Regular Program participants and that of Non-Regular Program participants was then examined. The idea was to find Regular Program participants and Non-Regular Program participants who had similar propensity scores – the summary indicator for the multiple confounders. Regular Program participants and Non-Regular Program participants with

extreme propensity scores, outside the overlapping region of the two distributions, were deleted from the analyses since there were not enough comparison counterparts where propensity scores were the same or close.

The samples were then broken into strata based on their propensity scores. The number of strata was determined by the range of the propensity scores and the size of the sample. The 'A' school sample was divided into 10 strata, the 'B' school sample was divided into 26 strata, the 'C' school sample was divided into 39 strata, and the 'D' school sample was divided into 14 strata. Regular Program participants and the Non-Regular Program participants who fell into the same stratum had the same or similar propensity scores. If the propensity score was well estimated, Regular Program participants and Non-Regular Program participants in the same stratum should be similar in terms of the multiple confounders that were used to estimate the propensity score. In this case, the multiple confounders include the student performance level and SGP in the 2011/2012, the student and school demographic information, and the characteristics of the program at each school. The R package *PSAgraphics* (Helmreich & Pruzek, 2009) produces a *cbal.psa* plot that checks confounder balance. The plot presents the standardized differences in means (SMDs) before stratification and after stratification for each confounder. The SMD after stratification is defined as the difference in means divided by the pooled standard deviation. The plots in Appendix D, Figures 1-16 show that after stratification, the SMDs were less than 0.1 and less than the SMDs before stratification for most of the confounders, which indicates that confounder balance was well achieved. In other words, Regular Program participants and Non-Regular Program participants in the same stratum were similar in terms of the confounders.

Results

The samples were divided into strata based on their propensity score. The strata tables are located in Appendix C. Regular Program participants and the Non-Regular Program participants in each stratum were compared on (a) their average SGP of mathematics in the 2012/2013; (b) their average SGP of reading in the 2012/2013; (c) their average performance level of mathematics in the 2012/2013; and, (d) their average performance level of reading in the 2012/2013. The Average Treatment Effect **(**ATE) (Conniffe, Gash, & O'Connell, 2000) and its weighted standard error (SE) and 95% confidence interval were computed as summary measures of the effects of the 21st CCLC program in the school year 2012/2013. Tables 1-4 display the average of the statistics listed in Appendix C.

$$ATE = \frac{1}{S}\sum(mean_{it} - mean_{ic}) \qquad weightedSE = \frac{\sqrt{\sum\left(\frac{var_{ic}}{n_{ic}}\right)+\sum\left(\frac{var_{it}}{n_{it}}\right)}}{S}$$

$$95\%CI = ATE \pm 2.0 * weightedSE$$

Note: S: number of strata
i: stratum
c: control group – Non-Regular Program participants
t: treatment group – Regular Program participants

Table 1 - Average Treatment Effect (ATE) of the 21st CCLC Program on Mathematics Academic Growth with the Standard Error (SE) and 95% Confidence Interval for Each School Letter Grade Sample			
Academic growth (mean SGP) in mathematics 2012/2013			
	ATE	SE	95%CI of ATE
A schools	3.835*	1.557	(0.783, 6.887)
B schools	2.997*	1.127	(0.789, 5.205)
C schools	3.795*	0.96	(1.913, 5.678)
D schools	3.835*	1.557	(0.783, 6.887)

*Indicates statistical significance at the p < 0.05 alpha level.

Table 2 - Average Treatment Effect (ATE) of the 21st CCLC Program on Reading Academic Growth with the Standard Error (SE) and 95% Confidence Interval for Each School Letter Grade Sample			
Academic growth (mean SGP) in reading 2012/2013			
	ATE	SE	95%CI of ATE
A schools	1.379	2.983	(-4.468, 7.226)
B schools	1.131	1.101	(-1.027, 3.289)
C schools	1.5	0.964	(-0.389, 3.389)
D schools	2.918	1.588	(-0.195, 6.031)

*Indicates statistical significance at the p < 0.05 alpha level.

Table 3 - Average Treatment Effect (ATE) of the 21st CCLC Program on Mathematics Performance Levels with the Standard Error (SE) and 95% Confidence Interval for Each School Letter Grade Sample			
Mathematics performance level 2012/2013			
	ATE	SE	95%CI of ATE
A schools	0.051	0.095	(-0.135, 0.237)
B schools	0.047	0.037	(-0.026, 0.119)
C schools	0.063*	0.031	(0.002, 0.123)
D schools	0.056	0.053	(-0.047, 0.16)

*Indicates statistical significance at the p < 0.05 alpha level.

Table 4 - Average Treatment Effect (ATE) of the 21st CCLC Program on Reading Performance Levels with the Standard Error (SE) and 95% Confidence Interval for Each School Letter Grade Sample			
Reading performance level 2012/2013			
	ATE	SE	95%CI of ATE
A schools	0.013	0.068	(-0.12, 0.146)
B schools	0.005	0.026	(-0.047, 0.057)
C schools	-0.004	0.021	(-0.046, 0.038)
D schools	-0.01	0.038	(-0.084, 0.064)

*Indicates statistical significance at the p < 0.05 alpha level.

The ATE, as indicated by the formula on the previous pages, is the average difference in performance level or growth between the Regular Program participants and the Non-Regular Program participants across strata. Tables 1 and 2 display the ATE of the 21st CCLC program based on academic growth in mathematics and in reading. Tables 3 and 4 are based on performance level in mathematics and in reading. All tables also include the standard error (SE) and 95% confidence interval for all school samples grouped by their letter grade (i.e., A, B, C and D). The tables in Appendix C also provide detailed results including counts of students, means, standard deviations of outcomes and mean differences by strata. A positive ATE would indicate that the Regular Program participants on average had higher performance level or growth than the Non-Regular Program participants, while a negative ATE would indicate that the Regular Program participants on average had lower performance level or growth than their Non-Regular counterparts. The ATE confidence level indicates a range in which, we are 95% confident, contains the true difference between Regular Program participants and Non-Regular Program participants in the population. A 95% confidence interval with its upper end of the range below zero indicates that the 21st CCLC program had a statistically significant ($p < .05$) negative effect on the performance level or the growth of Regular Program participants. The converse is a 95% confidence interval with its lower end of the range above zero which would indicate that the 21st CCLC program had a statistically significant ($p < .05$) positive effect on the performance level or the growth of Regular Program participants. A 95% confidence interval that contains a zero indicates the program had no statistically significant ($p < .05$) effects.

Academic Growth

Regular Program participants and Non-Regular Program participants were also compared on their growth using the average SGP in the 2012/2013 school year. For mathematics, the ATEs were positive across all school groupings (i.e., 'A', 'B', 'C', and 'D'), and the lower ends of their 95% confidence intervals were above zero. The results show that the 21st CCLC program had a positive effect on the student academic growth in mathematics in the year 2012/2013 and the effect was significant at the $p < 0.05$ level. For reading, the ATEs were positive across the four samples but their 95% confidence intervals contained zero; therefore, the results show that the effect of the program on the student academic growth in reading was not significant at the $p < 0.05$ level.

Academic Performance Level

Regular Program participants were compared with Non-Regular Program participants on mathematics performance levels in the 2012/2013 school year. Minor positive effects, as indicated by the ATEs, were seen in all letter-grade groupings. However, only the 95% confidence interval of the 'C' school grouping was above zero. In other words, Regular Program participants had higher performance levels in mathematics than Non-regular Program participants and we are more than 95% confident that the higher performance level among Regular Program participants in the 'C' school grouping was due to the 21st CCLC Program. Please note that this part of the analysis measures the change in performance levels on AIMS. These performance levels contain large ranges of AIMS scores so although there was growth identified within the performance level we may not see movement from one performance level to the next. This could warrant a non-significant effect.

The 'A' school sample was divided into 10 strata. The ATE was 0.051 with a 95% confidence interval from -0.135 to 0.237, indicating a minor positive effect of the 21st CCLC program, but this effect was not significant at the $p < 0.05$ level. The 'B' school sample was divided into 26 strata; the average

performance level of Regular Program participants was not consistently higher or lower than that of the Non-Regular Program participants across strata. The ATE was 0.047 with a 95% confidence interval from -0.026 to 0.119, indicating a minor positive effect but not significant at the $p < 0.05$ level. The 'D' school sample was divided into 14 strata. The ATE was 0.056 with a 95% confidence interval from -0.047 to 0.16, indicating a non-significant positive effect similar to the school samples for 'A' and 'B' groups.

The 'C' school sample, however, showed slightly different results. This group was divided into 39 strata. The ATE was 0.063 with a 95% confidence interval from 0.002 to 0.123, indicating a statistically significant ($p < .05$) positive effect of the program. We are 95% confident that the change in AIMS performance levels of the Regular-Program participants was due to the 21st CCLC program.

Regular Program participants were also compared with the Non-Regular Program participants on reading performance level in the 2012/2013 school-year. The 95% confidence intervals for all groupings of schools contained zero, indicating the effect of the 21st CCLC program on the student reading performance level when compared to peers in 2012/2013 was not significant at the $p < 0.05$ level. This indicates that when comparing the two groups (i.e., Regular-Program participants to Non-Regular Program participants) there was no significant difference. Although, it is stated above that there was a positive significant effect of Regular Program participants this comparison to their peer group indicates that the Non-Regular students may have received other interventions to help improve their reading performance.

The ATE of the 'A' and 'B' school samples showed a minimal non-significant positive effect, while the ATE of the 'C' and 'D' school samples showed non-significant negative effects. Since the effects are not significant (at $p<.05$), we are not confident that the effects seen with the Regular Program participants were due to the 21st CCLC program or due to errors.

The ATE of the 'C' and 'D' school samples showed non-significant negative effects. This finding indicates that the Non-Regular Program participants showed more improvement in performance levels than the Regular Program participants, even though the improvement of the Regular Program participants was statistically significant as well as indicated in the previous section of this report.

Qualitative Evaluation Design

Structured interviews with principals were used to determine whether the perceptions of principals regarding the 21st CCLC program at their school were similar for principals at high and low performing schools in their fourth year of the grant cycle. Structured interviews are considered most useful when looking for specific information. They do not require the development of rapport between interviewer and interviewee and produce consistent data that can be compared across a number of respondents.

There were thirteen schools in their fourth year of implementing the 21st CCLC program during the 2012/2013 school year. A list of these schools along with their 2012/2013 letter-grade was compiled. Schools with a letter grade of C were removed from the list, leaving schools with a letter grade of A, B, or D. None of the schools had a letter grade of F. This list was circulated among program specialists that work directly with the schools and the 21st CCLC programs. Six schools designated as successful 21st CCLC programs, three high performing schools (letter grade = A or B) and three low performing schools (letter grade = D) were selected. Principals at the six schools were interviewed in February, 2014.

A structured interview protocol and interview questions were developed and followed. Each principal was interviewed by the researcher and research assistant in the principal's office for 25-35 minutes and asked to respond to nine open-ended questions. Questions regarding the educational background of principals, their role in relation to the 21st CCLC program, their perceptions regarding the effect of the program on academic achievement, leadership, innovative changes in the regular classroom, school climate and the strengths and weaknesses of the program were asked. A copy of the interview protocol and questions are available as Appendix A. Interviewees were assured prior to and after the interviews that their responses and comments would not be associated with their name, Local Education Agency (LEA), school or 21st CCLC program.

Qualitative Data Analysis

All interviews were recorded with the permission of the principal being interviewed. The recordings were transcribed in Microsoft Word format and transferred to QSR NVivo 9 application. Responses were grouped by research question and whether the responses were from a high or low performing school. Grouped transcripts were read, segmented, coded and analyzed for themes. The researcher and research assistant compared codes and verified the accuracy of themes. Findings were then enumerated for number of respondents and number of comments.

Findings

All principals interviewed shared similar educational backgrounds having previous experience as teachers and coaches. They all:

- Mentioned that the family engagement requirement helped to create a greater sense of school community and increased parent involvement in the classroom and at home,
- Agreed that the 21st CCLC program had a positive effect on school climate and leadership, and
- Concurred that the autonomy to offer a variety of learning opportunities that focused on student needs was a strength of the program.

The Influence of Educational Background on the 21st CCLC School Program

The educational backgrounds of principals at high and low performing schools were similar. All principals interviewed had previous experiences as teachers and principals with most of them having academic coaching experience. There were some differences in how principals at low and high performing schools described their role with the 21st CCLC program, however, no predominant theme emerged. Two principals at high performing schools and one principal at a low performing school described their role as a coach, evaluator and a facilitator, making sure the program was integrated with what was is going on in the regular classroom. These principals described their role as being integral to the success of the program.

> "It's my responsibility to make sure … that we plan and implement a very … well-rounded program that … actually works and does the functions that it was created for."

Two principals at low performing schools and one principal at a high performing school described their role as an observer and communicator who provides feedback or as a problem solver with the coordinator being essential to program success. "I do weekly walk-throughs in my 21st Century program, as far as observations and give feedback to my teachers."

Perception of the Effect of the 21st CCLC School Program on Academic Achievement

All Principals at high performing schools indicated that the 21st CCLC program had a positive effect on academic achievement. One said, *"We know that it [21st CCLC Program] is having a positive impact on students because of the data …"* The Alignment of 21st CCLC programming with what is going on in the regular classroom and the use of variety of data to target interventions were mentioned by the principals at high performing schools as fundamental to improving academic achievement. Conversely, principals at low performing schools did not see the program as having much effect, if any, on academic achievement. As one principal from a low performing school mentioned *"… the results from 21st century have not been there … I don't feel it has served its purpose."*

The Effect on School Leadership

Whether at a low or high performing school, principals agreed that some of the best and strongest teachers have come forward to lead the 21st CCLC program. One principal at a high performing school mentioned that their *"teachers and support staff have taken more initiative."* Another principal at a high performing school said that the 21st CCLC program helped teachers to *"think outside the box. ... The constraints are here, I have this, what can I do to make my vision come true for this class? I can apply for this, or I can call a community partner and get this.' It's been a lot of fun to watch."* One principal mentioned that the 21stCCLC program provided leadership opportunities for teacher that they would not otherwise have.

Transfer of Innovative Practices to the Regular Classroom

Principals at low performing schools had little to say about innovative changes in the regular classroom that could be directly attributed to implementing the 21st CCLC program. Principals at high performing schools, on the other hand, spoke about many innovative practices from 21st CCLC programming that were being used in the regular classroom. "They call it the Friendship Club and now they are tutoring two kids to one kiddo with autism afterschool in that half hour, pretty neat." It is interesting to note

that principals at high performing schools mentioned using data to target students for the 21st CCLC program as an innovation they were also using in the regular classroom. "Now that our teachers from the regular classroom and after school collaborate on what is being taught, the isolated silos are kind of a thing of the past."

School Climate

Principals at both high and low performing schools mentioned that the family engagement requirement of the 21st CCLC program provided a rallying point to get parents involved in their child's education and build school community. One principal remarked, *"It has given us all a common vision, mission and goal … to improve student achievement of course, but also the parents, they don't see it as babysitting. They know it's purposeful, it's strategic."* A principal from a low performing school declared, *"Truthfully, there's more of a sense of community that every student is our student. There is not, 'this is my class and my kids and my group.' There's much less of that now because everybody is responsible for different students."* A principal from a high performing school said it best;

> *"It's impacted in this way. The English classes get the parents into the school so that they aren't as afraid … and they're learning English …, and then they're coming back and volunteering their time in my classrooms. So I'm also getting more parent involvement in my school through the program, because the parents now have a little bit more English and feel a little bit more confident and comfortable. But it's also helping in the home … the parents feel like they can read the books with their kids and can assist their child. Or the children are helping their parents learn, so it's also adding that kind of self-confidence in the child themselves so that they're knowledgeable and capable."*

Program Strengths and Weaknesses

Principals at both high and low performing schools mentioned "autonomy" as a strength of the 21st CCLC program. "It gave us a chance to really look at our program … and set it up in a way that was more beneficial for the student." The number of students that can be served by the program and the variety of classes that can be offered were discussed as major strengths of the program by principals at high performing schools. "It provides us the opportunity to provide tutoring and enrichment for so many students." The availability of program funding and the flexibility to compensate teachers to work with students after school were mentioned as strengths of the program by principals at low performing schools.

The gradual decrease in funding over the last two years of the five-year grant was indicated as a weakness by all principals interviewed. One principal commented that, "I completely disagree about the funding, how it's allocated. The program should be in existence. It should be fully funded and continuously, as opposed to less and less, trying to do the same with less." Rigid program requirements were also mentioned as a weakness by all but one principal. Two principals from low performing schools said they would not reapply for the grant because it was just too much work and it did not make any difference. "[We] don't want anymore. Because it's not working, it turns into babysitting."

Additional Comments from Principals at High Performing Schools:

- *"It would be really cool to see a lot more training from 21st Century that parallels STEM in technology. … More of the engineering, more of the technology, blended partnerships with big industries…. baseball [with the Diamondbacks] was real great."*
- *"It would be interesting to look at what national partnerships we might be able to blend in with STEM and the 21st Century Program."*
- *"I used to go to the [21st CCLC Annual] conferences and that changed. So this year, is there going to be a conference? I enjoy it. I loved the conference the times I was able to go. "*

Additional Comments from Principals at Low Performing Schools

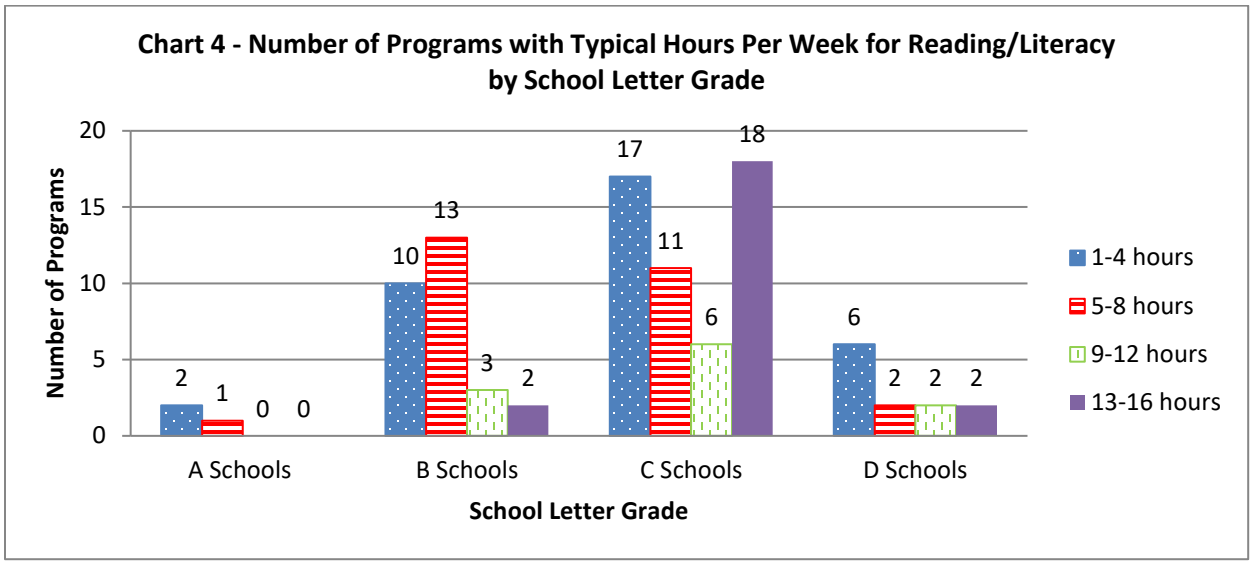
- *"I really did appreciate having someone … from ADE come take a look at what we're doing - because with no feedback, there's a little trepidation about trying new things. … When you're being innovative and trying new things, it's nice to have someone come in and say you're doing things right or incorrectly and we like or don't like what you are doing …"*
- *"It was really good to have someone come in and take a look and see what we're actually trying to pull off, see what's happening in the classrooms, and actually talk to us about what we're doing. It was very comforting."*

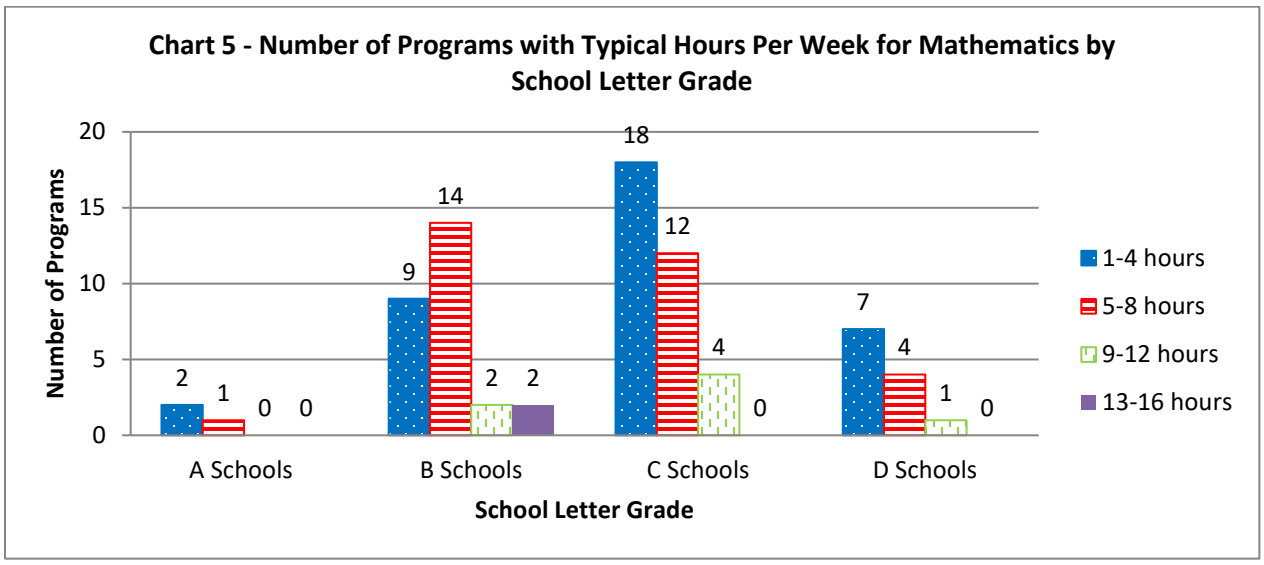
Discussion

The principals interviewed for this report requested more information on what makes up a successful after school program, how to create an outstanding parent volunteer component and how to begin implementing Academic Parent Teacher teams (APTTs). Synthesis of the qualitative findings with the quantitative results makes it apparent; when school leadership is a proponent of the 21st CCLC program and administers a program that targets the needs of the students, then this program can be utilized to improve students' academic growth – especially in the content area of mathematics. This program evaluation provides evidence that the 21st CCLC has the potential to make a real difference in students' academic performance.

Appendices

Appendix A – Charts Presenting Program Characteristics





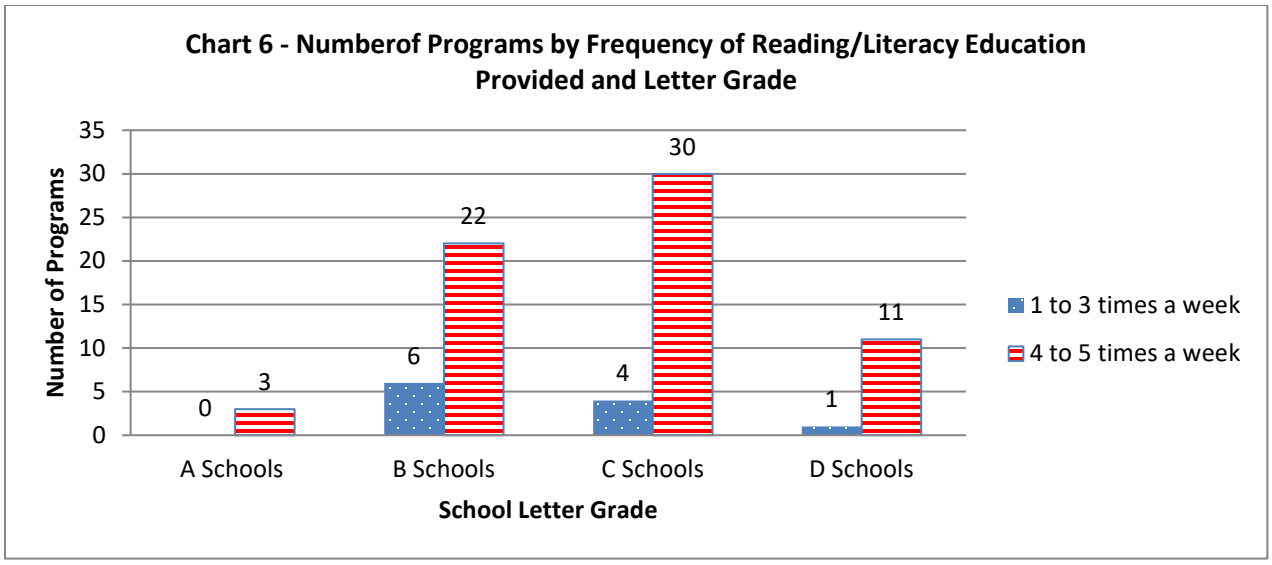


Chart 6 - Numberof Programs by Frequency of Reading/Literacy Education Provided and Letter Grade
Number of Programs
35
30
25
20
15
10
5
0
0
3
6
22
4
30
1
11
A Schools
B Schools
C Schools
D Schools
School Letter Grade
1 to 3 times a week
4 to 5 times a week

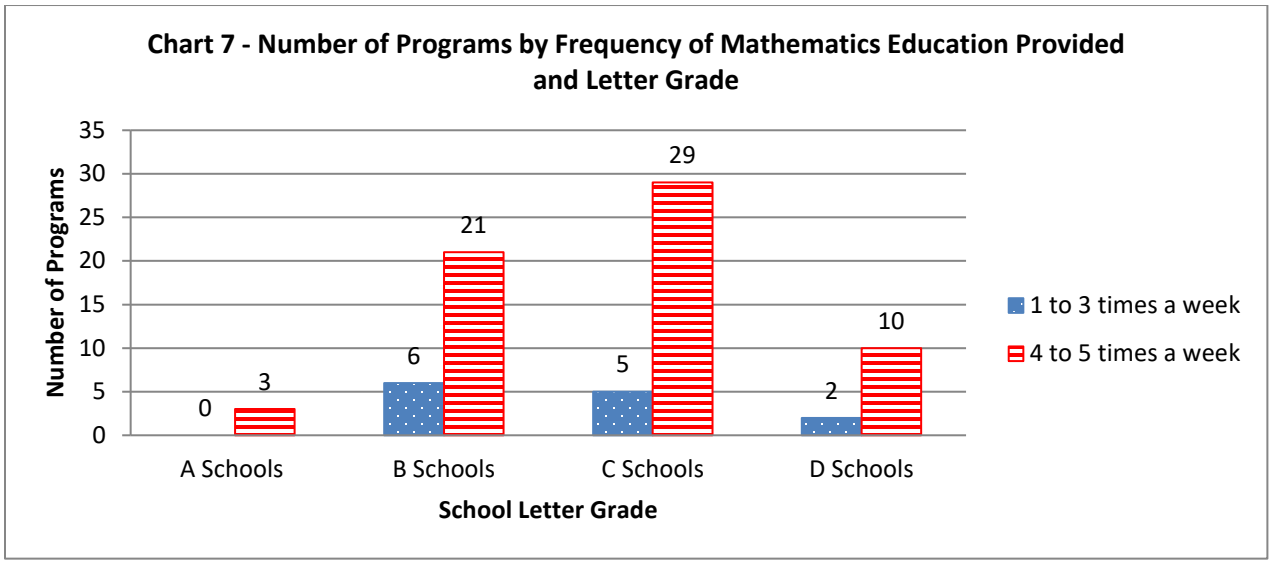


Chart 7 - Number of Programs by Frequency of Mathematics Education Provided and Letter Grade
Number of Programs
35
30
25
20
15
10
5
0
0
3
6
21
5
29
2
10
A Schools
B Schools
C Schools
D Schools
School Letter Grade
1 to 3 times a week
4 to 5 times a week

Chart 8 - Number of 21st CCLC Programs that Received Budgetary Enhancements for STEM Education and Academic Parent Teacher Teams (APTT) by School Letter Grade

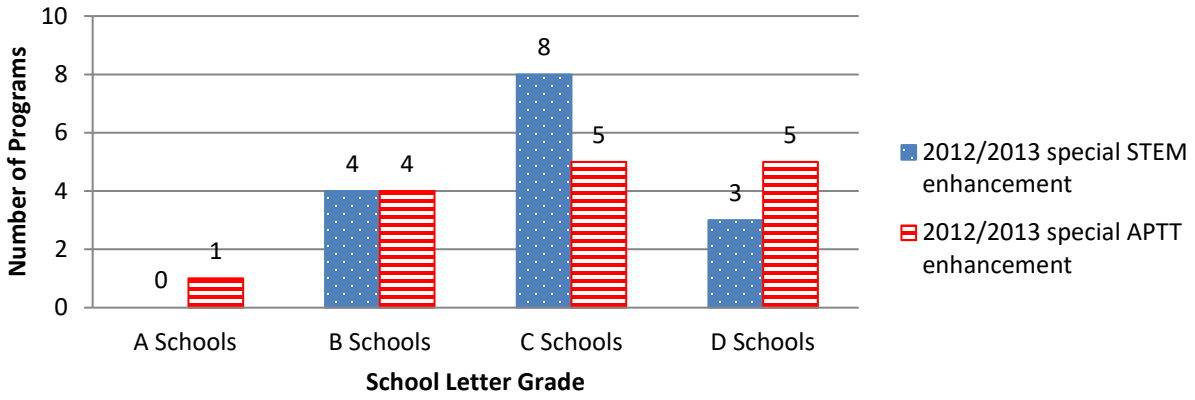
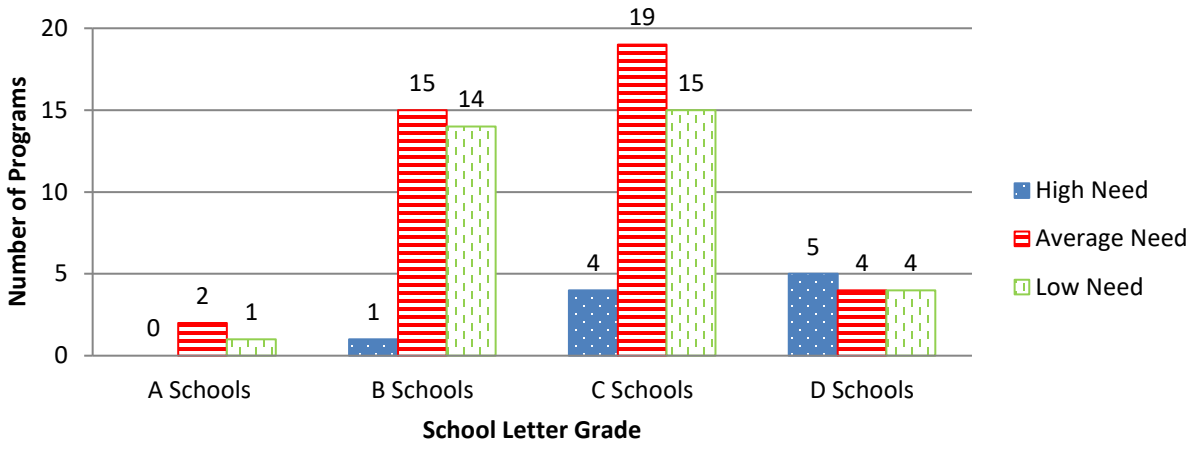
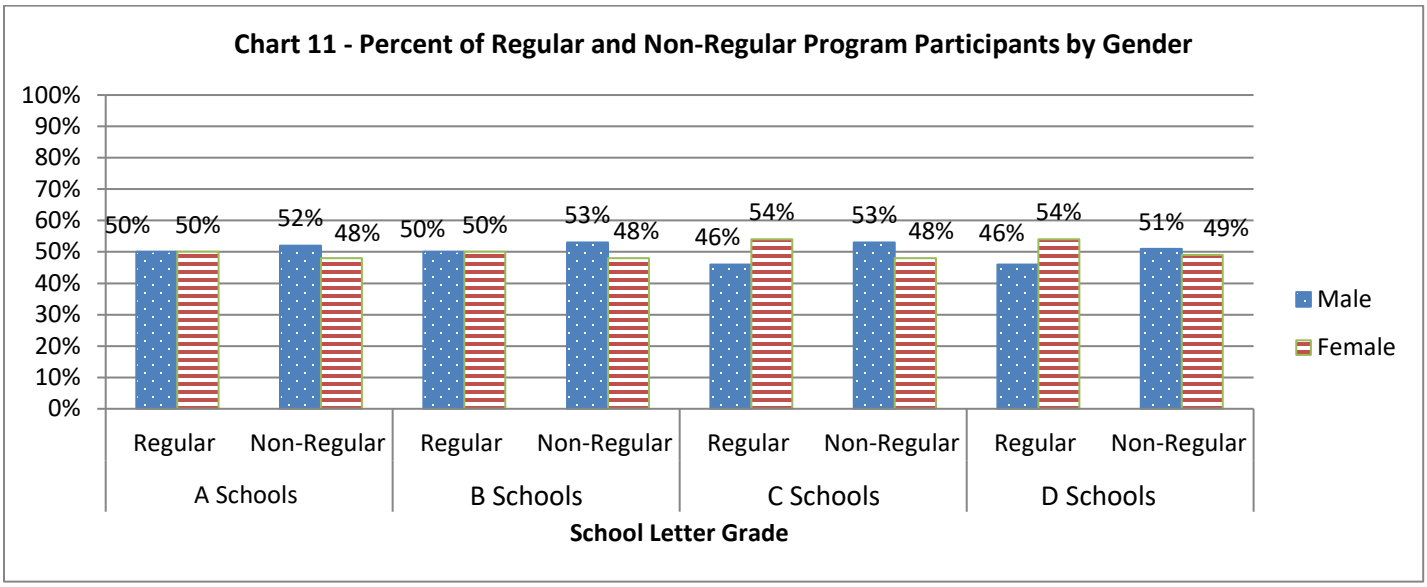
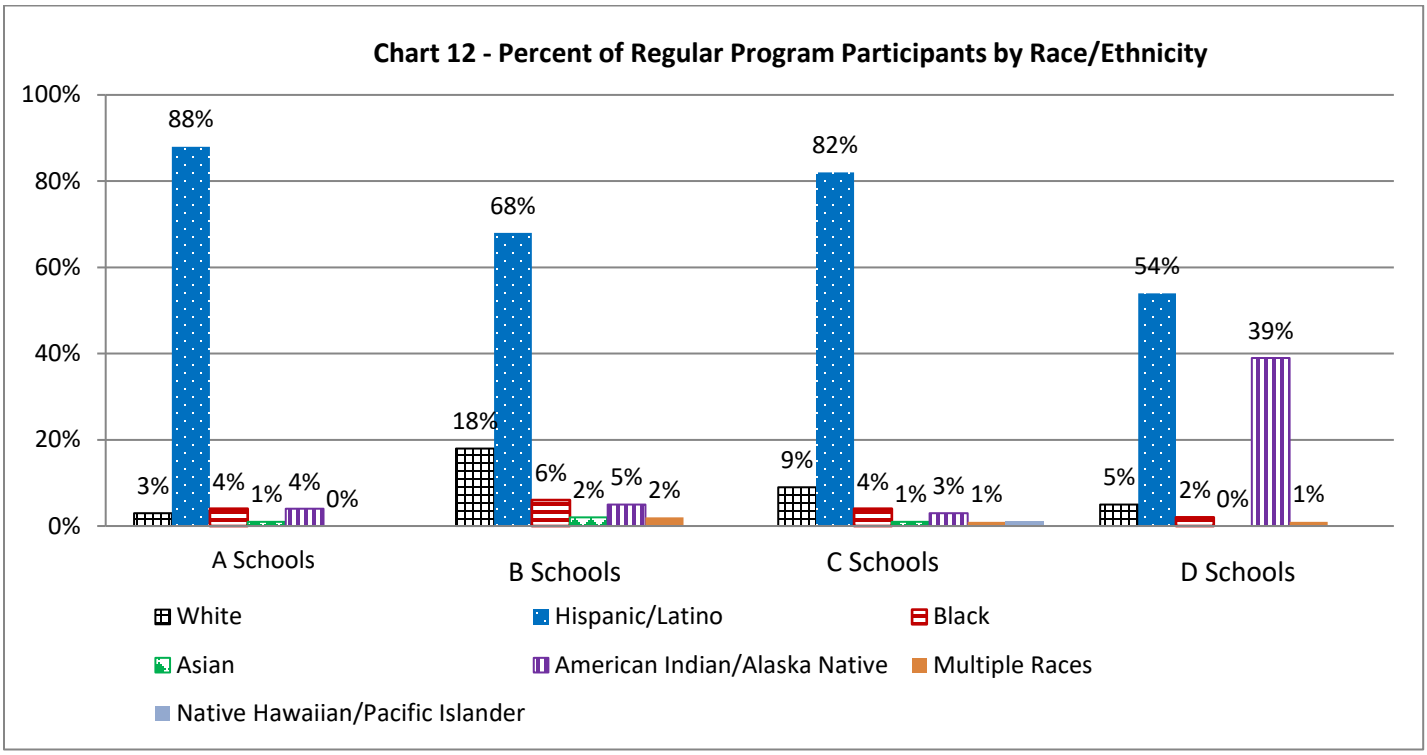


Chart 9 - Number of 21st CCLC Programs by Need for Technical Assistance and School Letter Grade



Appendix B – Charts Presenting Characteristics of Regular and Non-Regular Program participants





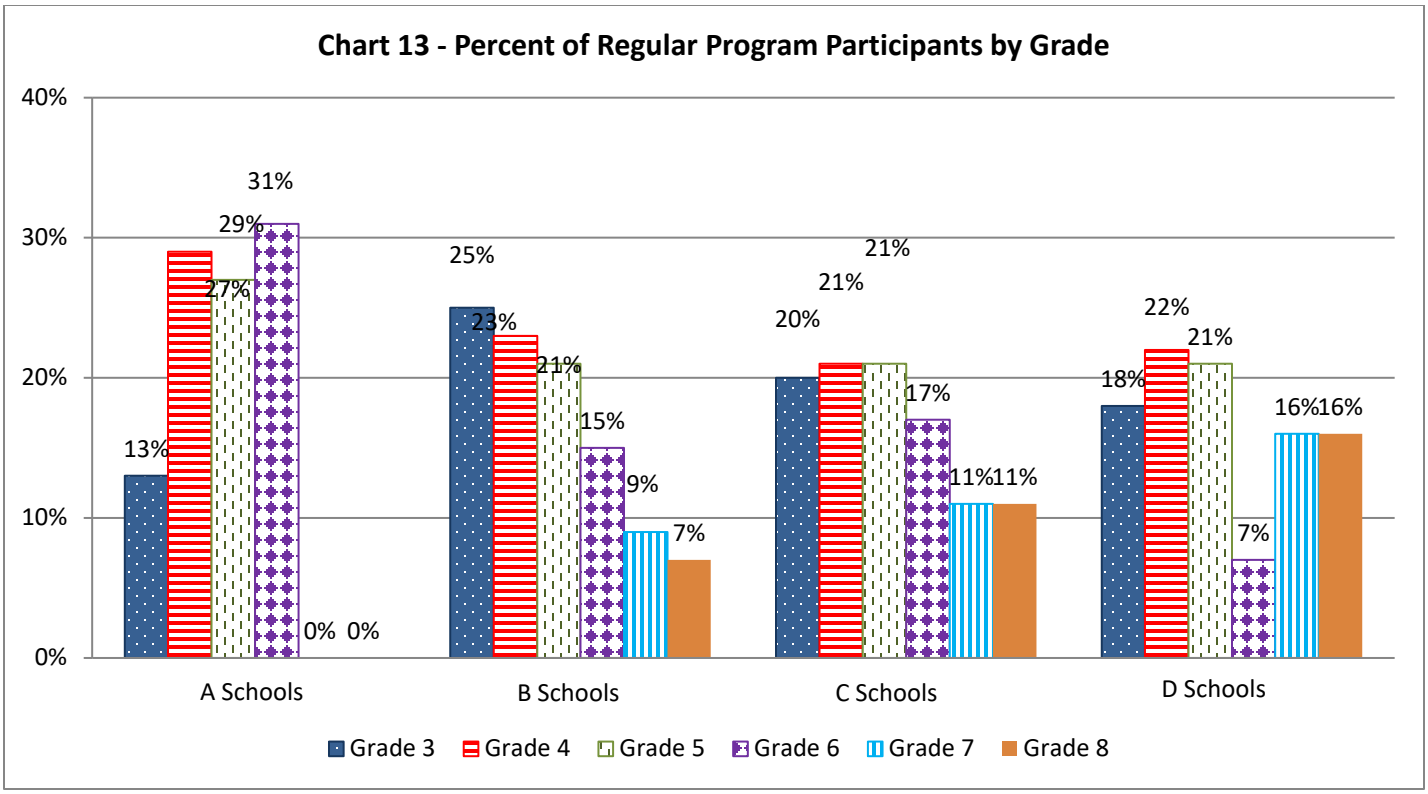


Chart 13 - Percent of Regular Program Participants by Grade
40%
30%
20%
10%
0%
13%
29%
27%
31%
0%
0%
25%
23%
21%
15%
9%
7%
20%
21%
21%
17%
11%
11%
18%
22%
21%
7%
16%
16%
A Schools
B Schools
C Schools
D Schools
Grade 3
Grade 4
Grade 5
Grade 6
Grade 7
Grade 8

Appendix C - Propensity Score Matching Tables

Table 5. 'A' Schools - Counts of students, means of mathematics performance level, from 2012/2013 record, standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	27	2.67	1	104	2.98	0.68	-0.31
2	8	2.5	0.93	53	2.43	0.95	0.07
3	13	2.31	1.18	28	2.21	0.99	0.1
4	10	2.5	1.27	19	2.58	0.96	-0.08
5	9	3.56	0.53	17	3.29	0.92	0.27
6	41	3.12	0.71	46	3.39	0.74	-0.27
7	55	2.85	0.85	67	2.97	0.87	-0.12
8	29	2.52	1.06	31	2.32	0.87	0.2
9	24	1.92	0.83	21	1.71	0.85	0.21
10	19	2.32	0.89	8	1.88	0.83	0.44
ATE							0.051
SE of ATE							0.095
95% CI of ATE							(-0.135. 0.237)

Table 6. 'B' Schools - Counts of students, means of mathematics performance level, from 2012/2013 record, standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	39	3.08	0.9	611	3.07	0.89	0.01
2	67	3.13	0.87	620	2.93	0.97	0.2
3	73	2.81	1.02	520	2.86	0.99	-0.05
4	82	2.74	1.08	464	2.84	1.02	-0.1
5	84	2.71	1.02	451	2.86	0.92	-0.15
6	81	2.64	0.97	368	2.71	.96	-0.07
7	68	2.78	0.97	317	2.6	1.05	0.18
8	77	2.62	0.92	272	2.54	0.98	0.08
9	74	2.68	0.97	219	2.32	0.93	0.36
10	73	2.62	0.84	188	2.51	1	0.11
11	72	2.35	0.94	143	2.55	1.01	-0.2
12	50	2.48	0.99	134	2.39	0.87	0.09
13	81	2.3	0.81	92	2.54	0.86	-0.24
14	63	2.27	0.88	89	2.45	0.94	-0.18
15	73	2.18	0.92	94	2.45	0.97	-0.27
16	62	2.08	0.98	66	2.33	0.87	-0.25
17	41	2.46	0.84	63	2.33	0.76	0.13
18	53	2.25	0.85	60	2.2	0.99	0.05

19	54	2.09	0.94	52	1.98	0.92	0.11
20	44	1.82	0.92	38	2	0.87	-0.18
21	36	2.28	1.06	27	1.81	0.74	0.47
22	36	1.92	0.91	25	1.96	0.93	-0.04
23	24	2.29	1.12	20	2.25	0.91	0.04
24	28	2.14	0.89	14	1.86	0.77	0.28
25	32	2.53	1.02	14	2.21	0.8	0.32
26	28	2.21	0.88	10	1.7	1.16	.51
ATE							0.046
SE of ATE							0.037
95% CI of ATE							(-0.026. 0.119)

Table 7. 'C' Schools - Counts of students, means of mathematics performance level, from 2012/2013 record, standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	15	3	1.07	192	3.08	0.9	-0.08
2	37	3.51	0.65	294	2.9	0.99	0.61
3	57	3.21	0.84	337	2.81	0.93	0.4
4	69	2.67	1.05	439	2.61	1	0.06
5	70	2.69	1.08	386	2.49	1.02	0.2
6	86	2.74	1.1	414	2.41	1.02	0.33
7	81	2.56	1.05	390	2.33	1.08	0.23
8	73	2.45	1.07	352	2.49	1.07	-0.04
9	105	2.43	0.98	402	2.58	1.03	-0.15
10	87	2.4	1.1	367	2.63	1.03	-0.23
11	101	2.49	0.99	333	2.52	1.01	-0.03
12	88	2.36	0.94	284	2.47	1.01	-0.11
13	104	2.32	0.91	279	2.54	0.98	-0.22
14	91	2.46	1.01	287	2.46	0.98	0
15	84	2.29	1	233	2.37	1.01	-0.08
16	99	2.14	0.96	197	2.28	0.93	-0.14
17	95	2.17	0.9	181	2.11	0.87	0.06
18	81	2.14	0.93	155	2.15	0.93	-0.01
19	61	2.2	0.98	107	2.14	0.96	0.06
20	57	1.96	0.94	112	2.12	0.96	-0.16
21	70	2.06	1.01	84	1.89	0.99	0.17
22	57	2.05	1.01	78	2.05	0.99	0
23	32	2.09	0.93	66	2.27	1.09	-0.18
24	36	2.14	0.83	67	2.03	0.98	0.11
25	39	2.21	0.95	51	2.06	0.88	0.15
26	30	2	0.98	38	1.63	0.97	0.37
27	25	2.16	1.07	36	2.17	1.08	-0.01
28	36	2.03	0.97	38	2.29	0.98	-0.26
29	24	2.67	0.87	27	2.19	1	0.48
30	43	2.4	0.95	33	2.61	1	-0.21
31	44	2.66	1.08	22	2.27	0.94	0.39
32	43	2.74	0.85	16	2.56	0.89	0.18
33	33	2.52	0.97	18	2.78	0.73	-0.26
34	56	2.39	0.8	25	2.52	1.05	-0.13
35	43	2.37	0.79	26	2.65	0.98	-0.28
36	43	2.19	0.88	21	1.95	0.8	0.24
37	54	2.35	0.95	12	1.67	0.78	0.68
38	38	2.05	0.84	10	1.7	0.67	0.35
39	29	1.83	0.97	15	1.87	0.99	-0.04
ATE							0.063
SE of ATE							0.031
95% CI of ATE							(0.002. 0.123)

Table 8. 'D' Schools - Counts of students, means of mathematics performance level, from 2012/2013 record, standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	**n**	**mean**	**sd**	**n**	**mean**	**sd**	
1	15	2.67	0.9	197	2.76	0.95	-0.09
2	39	1.85	0.96	182	1.98	1.01	-0.13
3	31	1.94	1.12	129	2.02	0.99	-0.08
4	38	2.45	0.95	106	2.35	0.87	0.1
5	66	2.39	0.99	110	2.34	0.93	0.05
6	73	2	1	143	1.94	0.94	0.06
7	84	1.75	0.93	168	1.83	0.95	-0.08
8	71	2.13	0.97	115	1.83	0.91	0.3
9	52	2.38	0.91	73	2.14	0.92	0.24
10	55	2.13	.088	45	2.04	1.07	0.09
11	40	2.02	0.83	35	2.17	0.95	-0.15
12	37	1.95	0.91	36	2.11	0.95	-0.16
13	28	1.96	0.96	22	1.82	0.85	0.14
14	23	2.43	0.73	15	1.93	0.88	0.5
ATE							0.056
SE of ATE							0.053
95% CI of ATE							(-0.047. 0.16)

Table 9. 'A' Schools - Counts of students, means of reading performance level, from 2012/2013 record, standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	27	2.89	0.42	104	2.93	0.54	-0.04
2	8	2.62	0.52	53	2.72	0.63	-0.1
3	13	2.38	0.96	28	2.43	0.74	-0.05
4	10	2.2	0.92	19	2.63	0.83	-0.43
5	9	3	0	17	2.94	0.43	0.06
6	41	2.98	0.47	46	3	0.42	-0.02
7	55	2.85	0.36	67	2.91	0.42	-0.06
8	29	2.69	0.6	31	2.58	0.72	0.11
9	24	2.54	0.66	21	2.29	0.56	0.25
10	19	2.53	0.7	8	2.12	0.83	0.41
ATE							0.013
SE of ATE							0.068
95% CI of ATE							(-0.12. 0.146)

Table 10. 'B' Schools - Counts of students, means of reading performance level, from 2012/2013 record, standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	39	2.9	0.68	607	2.98	0.49	-0.08
2	68	3.06	0.45	617	2.95	0.57	0.11
3	72	2.93	0.48	523	2.9	0.56	0.03
4	84	2.81	0.59	469	2.9	0.58	-0.09
5	85	2.84	0.61	450	2.89	0.55	-0.05
6	78	2.79	0.59	374	2.82	0.58	-0.03
7	69	2.8	0.61	313	2.71	0.64	0.09
8	81	2.74	0.57	274	2.75	0.63	-0.01
9	74	2.68	0.66	222	2.59	0.64	0.09
10	70	2.86	0.46	183	2.72	0.65	0.14
11	74	2.62	0.61	146	2.68	0.61	-0.06
12	49	2.51	0.58	129	2.71	0.65	-0.2
13	79	2.67	0.57	100	2.67	0.64	0
14	64	2.66	0.51	87	2.74	0.58	-0.08
15	77	2.57	0.68	92	2.71	0.6	-0.14
16	57	2.47	0.68	68	2.66	0.56	-0.19
17	42	2.62	0.62	64	2.77	0.53	-0.15
18	53	2.55	0.64	59	2.49	0.7	0.06
19	52	2.42	0.7	49	2.43	0.61	-0.01
20	46	2.28	0.66	39	2.62	0.67	-0.34
21	34	2.53	0.61	28	2.43	0.63	0.1
22	37	2.43	0.69	25	2.36	0.76	0.07
23	25	2.48	0.82	19	2.42	0.77	0.06

24	27	2.52	0.7	12	2.42	0.51	0.1
25	35	2.69	0.53	16	2.44	0.51	0.25
26	26	2.46	0.65	11	2	1	0.46
ATE							0.005
SE of ATE							0.026
95% CI of ATE							(-0.047. 0.057)

Table 11. 'C' Schools - Counts of students, means of reading performance level, from 2012/2013 record, standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	15	3	0.53	191	2.95	0.51	0.05
2	38	3.11	0.51	295	2.9	0.57	0.21
3	55	3.09	0.62	344	2.88	0.59	0.21
4	72	2.83	0.63	432	2.77	0.62	0.06
5	68	2.74	0.64	386	2.7	0.65	0.04
6	87	2.86	0.68	418	2.76	0.63	0.1
7	78	2.77	0.7	383	2.65	0.73	0.12
8	78	2.69	0.73	356	2.74	0.66	-0.05
9	103	2.65	0.68	397	2.8	0.64	-0.15
10	88	2.72	0.71	368	2.78	0.6	-0.06
11	99	2.69	0.63	341	2.72	0.68	-0.03
12	88	2.74	0.63	279	2.76	0.61	-0.02
13	105	2.61	0.61	279	2.77	0.63	-0.16
14	89	2.69	0.65	287	2.72	0.62	-0.03
15	86	2.67	0.68	234	2.69	0.7	-0.02
16	98	2.57	0.64	196	2.57	0.66	0
17	94	2.49	0.65	183	2.55	0.65	-0.06
18	82	2.39	0.78	156	2.52	0.64	-0.13
19	61	2.51	0.62	104	2.57	0.68	-0.06
20	56	2.48	0.71	111	2.49	0.71	-0.01
21	71	2.48	0.61	84	2.27	0.75	0.21
22	56	2.46	0.69	81	2.48	0.71	-0.02
23	33	2.42	0.66	65	2.48	0.77	-0.06
24	36	2.42	0.69	67	2.39	0.7	0.03
25	39	2.44	0.79	52	2.42	0.78	0.02
26	30	2.5	0.73	35	2.4	0.65	0.1
27	24	2.5	0.78	35	2.4	0.77	0.1
28	35	2.31	0.8	40	2.58	0.71	-0.27
29	25	2.64	0.64	29	2.48	0.69	0.16
30	42	2.83	0.54	29	2.72	0.7	0.11
31	44	2.84	0.57	23	2.7	0.63	0.14
32	45	2.78	0.6	17	3.06	0.56	-0.28
33	32	2.81	0.69	17	2.88	0.6	-0.07
34	55	2.78	0.57	26	2.69	0.74	0.09
35	44	2.7	0.59	27	2.85	0.66	-0.15
36	42	2.6	0.66	19	2.74	0.65	-0.14
37	53	2.72	0.6	11	2.55	0.52	0.17
38	38	2.53	0.65	12	2.58	0.51	-0.05
39	30	2.4	0.67	14	2.64	0.63	-0.24
ATE							-0.004
SE of ATE							0.021
95% CI of ATE							(-0.046. 0.038)

Table 12. 'D' Schools - Counts of students, means of reading performance level, from 2012/2013 record, standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	15	2.73	0.46	197	2.83	0.5	-0.1
2	39	2.23	0.78	182	2.48	0.72	-0.25
3	31	2.26	0.82	129	2.48	0.66	-0.22
4	38	2.63	0.67	106	2.69	0.54	-0.06
5	66	2.65	0.62	110	2.72	0.61	-0.07
6	73	2.55	0.67	143	2.61	0.69	-0.06
7	84	2.29	0.72	168	2.41	0.72	-0.12
8	71	2.55	0.6	115	2.49	0.67	0.06
9	52	2.71	0.64	73	2.59	0.64	0.12
10	55	2.62	0.68	45	2.44	0.69	0.18
11	40	2.65	0.53	35	2.51	0.74	0.14
12	37	2.49	0.61	36	2.44	0.61	0.05
13	28	2.5	0.75	22	2.36	0.73	0.14
14	23	2.52	0.67	15	2.47	0.64	0.05
ATE							-0.01
SE of ATE							0.038
95% CI of ATE							(-0.084. 0.064)

Table 13. 'A' Schools - Counts of students, means of mathematics student growth percentile (SGP), standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	26	52.42	29.94	104	51.88	28.72	0.54
2	9	63.22	28.81	52	54.04	28.92	9.18
3	13	64.38	28.45	29	55.83	30.54	8.55
4	8	58.88	25.9	18	57.67	28.74	1.21
5	11	73.36	26.12	18	57.39	25.6	15.97
6	40	60.88	31.99	44	70.16	25.37	-9.28
7	50	73.96	24.78	67	59.87	29.55	14.09
8	34	62.5	30.21	30	72.57	24.27	-10.07
9	24	58.71	29.46	18	42.28	19.67	16.43
10	20	72.65	26.34	12	61.25	31.52	11.4
ATE							5.802
SE of ATE							2.758
95% CI of ATE							(0.397. 11.207)

Table 14. 'B' Schools - Counts of students, means of mathematics student growth percentile (SGP), standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	39	46.51	28.1	610	47.42	27.82	-0.91
2	68	49.51	28.97	608	47.92	28.74	1.59
3	73	49.73	27.59	503	51.46	28.49	-1.73
4	81	54.81	29.01	480	52.47	28.97	2.34
5	81	54.11	30.01	440	53.58	29.3	0.53
6	75	54.85	28.84	366	54.88	28.13	-0.03
7	72	56.96	29.03	318	51.86	29.29	5.1
8	78	55.6	30.66	261	54.14	28.92	1.46
9	70	57.71	27.65	226	50.68	28.87	7.03
10	71	59.15	28.02	191	55.43	29.38	3.72
11	83	53.61	27.58	143	52.43	28.21	1.18
12	47	55.3	28.63	123	56.15	29.07	-0.85
13	82	55.5	31.91	103	52.77	29.56	2.73
14	66	50.79	31.27	81	54.36	30.11	-3.57
15	64	51.94	31.37	88	45.07	32.99	6.87
16	57	46.82	30.13	75	54.43	29.54	-7.61
17	46	58.89	29.33	60	57.68	24.9	1.21
18	52	56.31	31.15	61	47.13	32.14	9.18
19	54	53.65	29.63	58	59.78	28.48	-6.13
20	42	54.79	31.41	32	45.94	29.51	8.85
21	33	61.91	29.63	25	52.12	26.88	9.79
22	36	47.36	31.2	25	56.2	33.06	-8.84
23	29	56.52	25.95	16	54.88	19.8	1.64
24	24	49.12	27.58	12	37.58	26.36	11.54
25	34	67.09	29.13	19	54.42	28.99	12.67
26	28	54.43	25.49	11	34.27	27.66	20.16
ATE							2.997
SE of ATE							1.127
95% CI of ATE							(0.789. 5.205)

Table 15. 'C' Schools - Counts of students, means of mathematics student growth percentile (SGP), standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	14	52.5	23.35	188	48.11	29.05	4.39
2	39	62.36	27.19	289	49.79	28.91	12.57
3	54	51.87	29.66	351	49.05	27.84	2.82
4	74	51.2	31.01	438	49.7	30.28	1.5
5	65	53.03	30.44	390	49.77	28.59	3.26
6	94	48.82	29.39	424	47.23	29.43	1.59
7	78	55.03	27.42	394	47.66	28.31	7.37
8	66	48.26	27.87	349	51.11	29.11	-2.85
9	114	51.31	29.68	396	51.94	29.21	-0.63
10	85	51.05	29.02	355	54.38	28.24	-3.33
11	101	52.73	27.95	324	53.56	29.21	-0.83
12	87	59.55	27.14	300	55.24	28.59	4.31
13	103	51.34	29.47	275	50.72	27.8	0.62
14	90	49.14	27.85	274	54.06	28.27	-4.92
15	75	53.96	31.2	240	51.83	29.31	2.13
16	102	48.82	30.15	191	49.74	28.04	-0.92
17	95	50.67	28.98	176	46.81	29.42	3.86
18	81	54.12	28.71	157	49.13	27.94	4.99
19	62	57.44	30.81	108	48.25	27.42	9.19
20	57	45.18	29.46	106	48.07	25.33	-2.89
21	64	55.22	27.7	88	49.59	28.47	5.63
22	58	47.86	28.13	73	49.73	29.44	-1.87
23	34	50.5	27.96	65	47.51	31.55	2.99
24	34	57.41	28.03	66	46.42	30.08	10.99
25	39	58.79	29.48	55	43.93	26.95	14.86
26	32	40.88	33.03	37	43.89	30.55	-3.01
27	23	49.04	31.86	34	50.41	28.51	-1.37
28	34	47.32	27.48	38	51.63	29.41	-4.31
29	25	56.24	24.99	29	49.07	33.1	7.17
30	40	47.1	27.99	27	46.81	27.08	0.29
31	43	42.81	29.26	26	36.35	24.43	6.46
32	50	53.42	30.88	17	35.65	26.74	17.77
33	32	46.97	31.9	17	48.82	35.91	-1.85
34	48	52.06	28.67	27	50.44	27.22	1.62
35	43	51.72	28.27	23	49.96	29.69	1.76
36	47	47.68	27.97	20	40.7	36.42	6.98
37	52	46	32.19	13	30.23	24.3	15.77
38	40	50.55	27.86	11	35.91	25.99	14.64
39	26	57.12	24.89	13	45.85	31.59	11.27
ATE							3.795
SE of ATE							0.96
95% CI of ATE							(1.913. 5.678)

Table 16. 'D' Schools - Counts of students, means of mathematics student growth percentile (SGP), standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	16	60.38	25.98	199	52.84	29.83	7.54
2	38	57.08	25.83	186	49.89	27.86	7.19
3	31	58.52	27	130	55.07	27.49	3.45
4	43	47.56	28.61	109	52.77	27.98	-5.21
5	63	47.3	26.38	107	45.13	26.74	2.17
6	67	43.72	27.14	131	42.24	27.32	1.48
7	89	44.47	28.39	173	46.36	27.7	-1.89
8	66	53.29	28.55	110	43.75	26.22	9.54
9	55	55.75	25.86	69	46.3	25.44	9.45
10	53	49.06	25.2	50	47.2	28.11	1.86
11	37	57.38	25.85	31	52.1	26.44	5.28
12	39	48.38	25.93	38	50.53	26.22	-2.15
13	26	59.12	23.68	21	54.14	28.56	4.98
14	23	54.87	27.84	15	44.87	31.35	10
ATE							3.835
SE of ATE							1.557
95% CI of ATE							(0.783 . 6.887)

Table 17. 'A' Schools - Counts of students, means of reading student growth percentile (SGP), standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	26	46.92	25.05	104	53.73	30.52	-6.81
2	9	62.56	27.81	52	59.96	29.09	2.6
3	13	44.31	29.56	29	58.14	29.59	-13.83
4	8	45.12	37.81	18	50.28	30.94	-5.16
5	11	50	30.28	18	49.67	32.26	0.33
6	40	57.77	28.22	44	60.14	28.54	-2.37
7	50	59.76	30.3	67	52.94	25.24	6.82
8	34	60.35	27.49	30	58.43	27.78	1.92
9	24	64.88	26.7	18	46.11	22.38	18.77
10	20	65.6	29.65	12	54.08	28.65	11.52
ATE							1.379
SE of ATE							2.983
95% CI of ATE							(-4.468 . 7.226)

Table 18. 'B' Schools - Counts of students, means of reading student growth percentile (SGP), standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	38	48.45	25.79	614	50.37	27.81	-1.92
2	69	54.43	30.65	609	49.69	27.99	4.74
3	74	54.76	29.93	503	53.75	27.4	1.01
4	80	51.55	29.79	476	51.32	28.41	0.23
5	83	51.73	29.66	447	52.79	28.87	-1.06
6	75	52.89	26.23	365	53.7	28.81	-0.81
7	70	54.46	28.92	320	50.19	28.81	4.27
8	80	53.77	28.99	263	51.14	28.2	2.63
9	72	48.71	26.08	223	50.68	28.37	-1.97
10	73	52.18	27.74	192	49.22	29.62	2.96
11	79	43.66	30.07	142	54.37	29.97	-10.71
12	48	45.77	28.32	123	55.52	29.5	-9.75
13	83	49.1	28.65	103	50.87	26.9	-1.77
14	64	49.5	27.14	81	54.49	26.15	-4.99
15	64	51.12	29.96	86	50.65	30.41	0.47
16	56	44.89	27.59	73	53.12	29.65	-8.23
17	47	60.02	23.99	68	53.94	28.27	6.08
18	50	54.38	31.52	55	51.53	32.61	2.85
19	56	54.07	29.72	54	56.89	29.05	-2.82
20	42	56.62	27.06	36	60.67	24.53	-4.05
21	32	59.03	28.11	25	50.24	29.48	8.79
22	35	50.8	30.73	26	54.54	27.21	-3.74
23	31	58.58	23.16	16	46.5	30.96	12.08
24	22	53.77	28.11	13	41	27.2	12.77
25	38	50.26	28.81	19	53.74	24.88	-3.48
26	24	55.33	29.88	10	29.5	21.2	25.83
ATE							1.131
SE of ATE							1.101
95% CI of ATE							(-1.027 . 3.289)

Table 19. 'C' Schools - Counts of students, means of reading student growth percentile (SGP), standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	15	57.4	31.59	191	49.69	30.04	7.71
2	39	61.49	27.52	286	51.23	29.3	10.26
3	53	53.98	27.9	352	52.95	28.76	1.03
4	73	52.11	28.32	440	51.02	29.37	1.09
5	71	52.99	29.89	397	50.37	28.9	2.62
6	88	54.31	30.47	410	49.66	29.93	4.65
7	78	56.53	26.72	402	48.03	29.4	8.5
8	68	51.35	26.55	352	55.74	28.47	-4.39
9	114	49.77	29.52	390	52.84	27.59	-3.07
10	85	56.16	29.05	358	51.4	28.76	4.76
11	99	49.71	26.96	319	50.54	28.57	-0.83
12	86	55.53	28.38	298	54.79	28.74	0.74
13	106	49.75	27.45	274	52.15	29.38	-2.4
14	87	52.45	28.02	278	53.12	28.83	-0.67
15	80	54.35	29.2	240	48.92	28.82	5.43
16	99	48.07	27.74	193	46.65	28.99	1.42
17	94	46.44	28.79	178	47.26	29.02	-0.82
18	81	50.65	30.34	154	48.26	28.09	2.39
19	61	55.36	28.23	104	46.01	29.81	9.35
20	54	46.74	30.74	112	48.41	29.16	-1.67
21	69	50.64	28.97	88	49.17	28.85	1.47
22	58	51.84	26.29	72	46.61	27.4	5.23
23	35	49.46	24.34	67	51.19	28.58	-1.73
24	32	57	26.78	67	46.7	30.8	10.3
25	40	51.4	29.92	52	51.87	31.04	-0.47
26	31	43.03	26.9	38	51.71	28.99	-8.68
27	24	44.25	31.62	34	45.06	27.77	-0.81
28	33	43.24	26.03	33	53.3	27.45	-10.06
29	24	47.38	28.5	34	53.18	29.51	-5.8
30	44	54.7	28.46	27	57.67	28.53	-2.97
31	38	51.21	31.19	24	44.88	31.63	6.33
32	52	52.67	28.44	16	51.75	27.96	0.92
33	29	51.66	27.12	18	63.56	29.08	-11.9
34	52	53.56	28.23	24	45.92	33.7	7.64
35	41	56.17	22.76	24	53.71	33.42	2.46
36	47	49.21	27.43	22	50	33.31	-0.79
37	51	47.14	28.05	14	39.79	28.44	7.35
38	39	59.03	30.72	10	43	25.13	16.03
39	30	51.17	29.4	14	53.29	32.48	-2.12
ATE							1.5
SE of ATE							0.964
95% CI of ATE							(-0.389 . 3.389)

Table 20. 'D' Schools - Counts of students, means of reading student growth percentile (SGP), standard deviations (sd), average treatment effect (ATE), standard error (SE) and 95% confidence interval (CI) for the Regular Program participants and the Non-Regular Program participants by stratum.

Regular Program Participant				Non-Regular Program Participant			Difference in mean
stratum	n	mean	sd	n	mean	sd	
1	16	57.5	22.36	199	55.84	27.89	1.66
2	38	51.84	27.31	186	52.17	28.89	-0.33
3	31	49.58	24.77	130	55.32	27.74	-5.74
4	43	38.84	28.47	109	48.55	28.94	-9.71
5	63	49.11	27.33	107	46.7	28.98	2.41
6	67	45.85	27.91	131	44.23	29.81	1.62
7	89	44.92	28.56	173	46.02	28.4	-1.1
8	66	47.8	26.09	110	46.71	25.38	1.09
9	55	60.27	28.12	69	45	25.29	15.27
10	53	50.91	28.1	50	53.68	28.12	-2.77
11	37	60.65	24.5	31	41.35	29.08	19.3
12	39	56.44	29.34	38	46.05	29.98	10.39
13	26	45.85	27.41	21	46.86	31.16	-1.01
14	23	52.3	25.54	15	42.53	31.89	9.77
ATE							2.918
SE of ATE							1.588
95% CI of ATE							(-0.195 . 6.031)

Appendix D - cbal.plots to check confounder balance

Figure 1: 'A' Schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the 'A' schools who had their 2012/2013 mathematic performance level record.

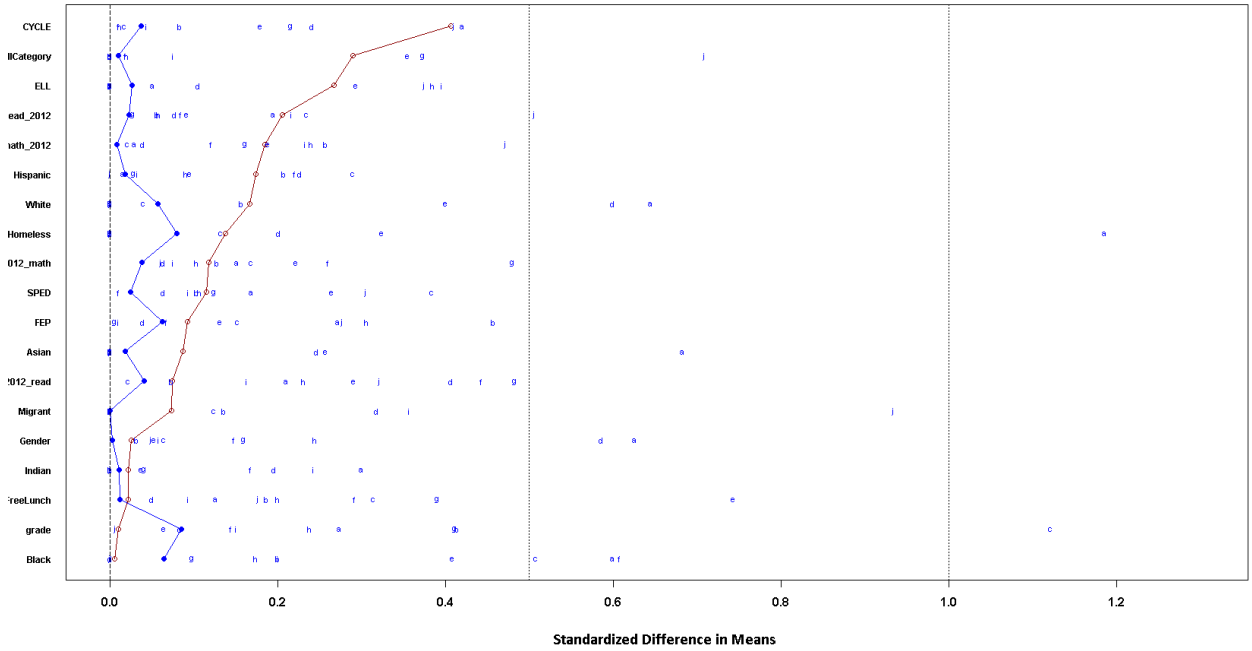


Figure 2: 'B' Schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the 'B' schools who had their 2012/2013 mathematic performance level record.

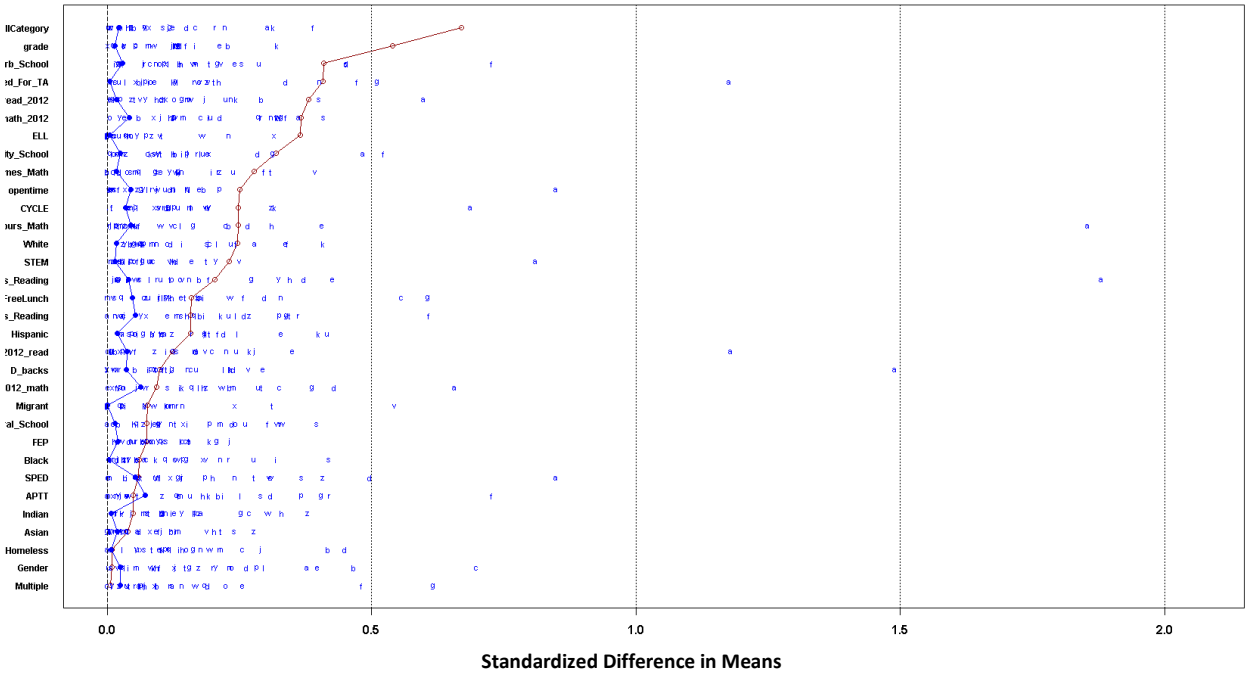


Figure 3: 'C' Schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the 'C' schools who had their 2012/2013 mathematic performance level record.

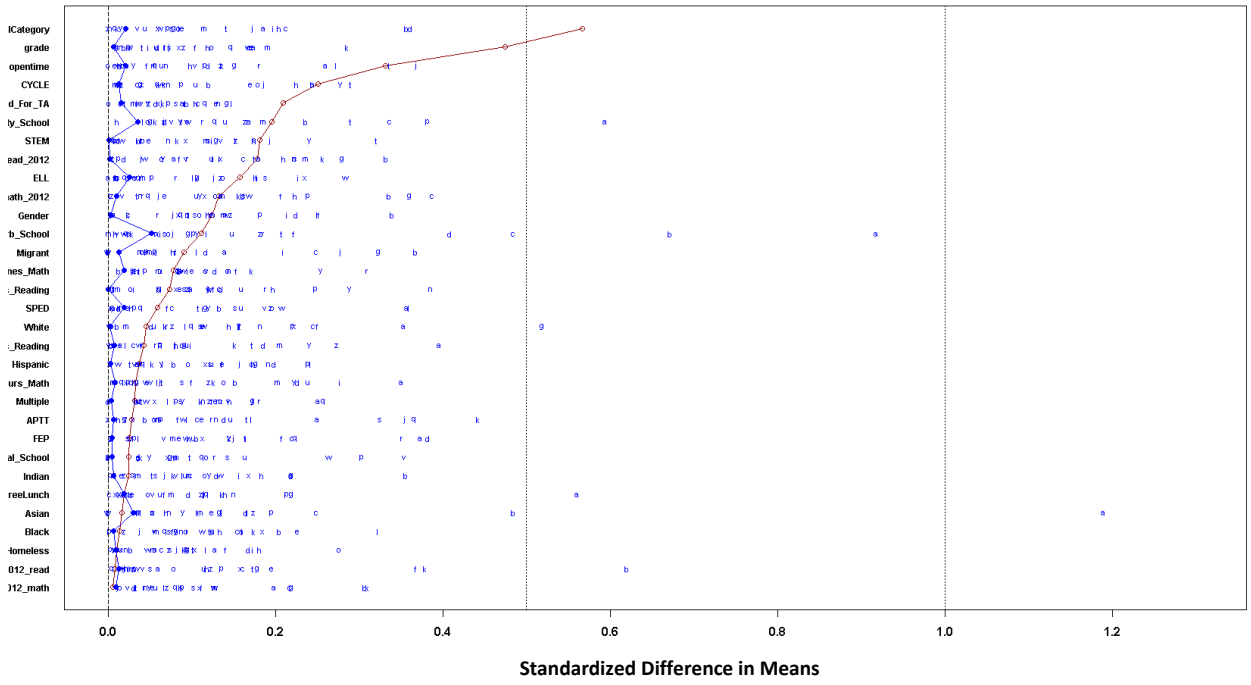


Figure 4: 'D' Schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the 'D' schools who had their 2012/2013 mathematic performance level record.

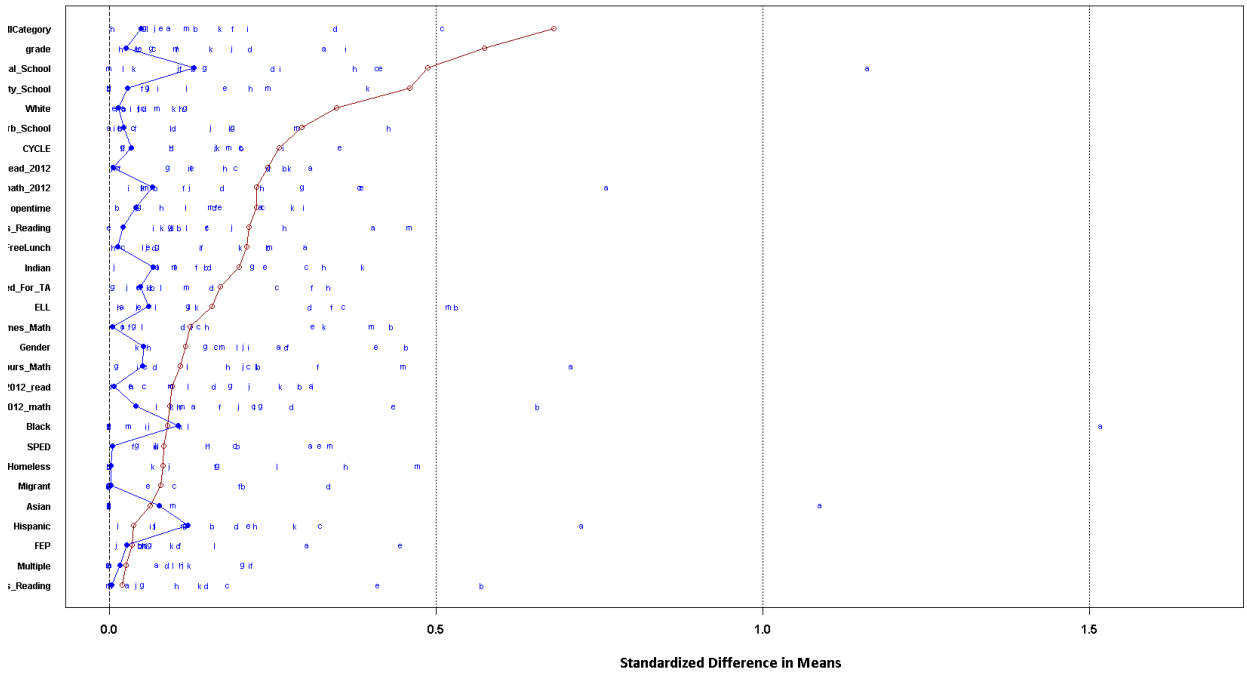


Figure 5: 'A' Schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the 'A' schools who had their 2012/2013 reading performance level record.

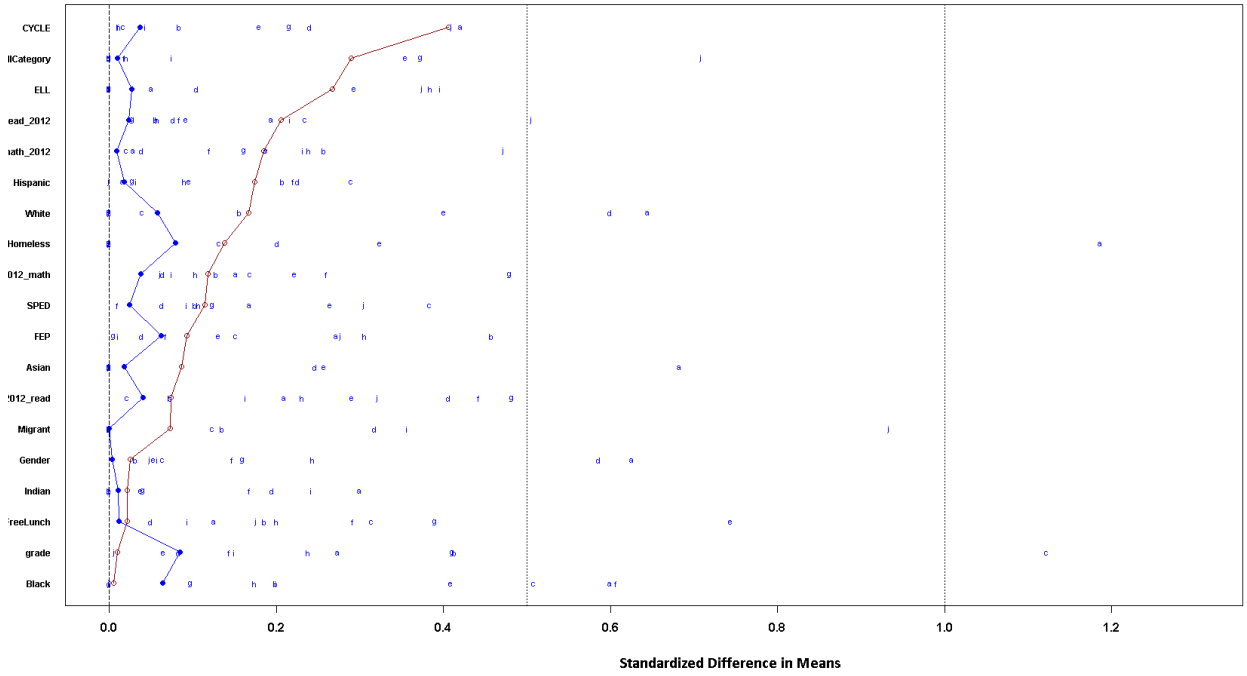


Figure 6: 'B' Schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the 'B' schools who had their 2012/2013 reading performance level record.

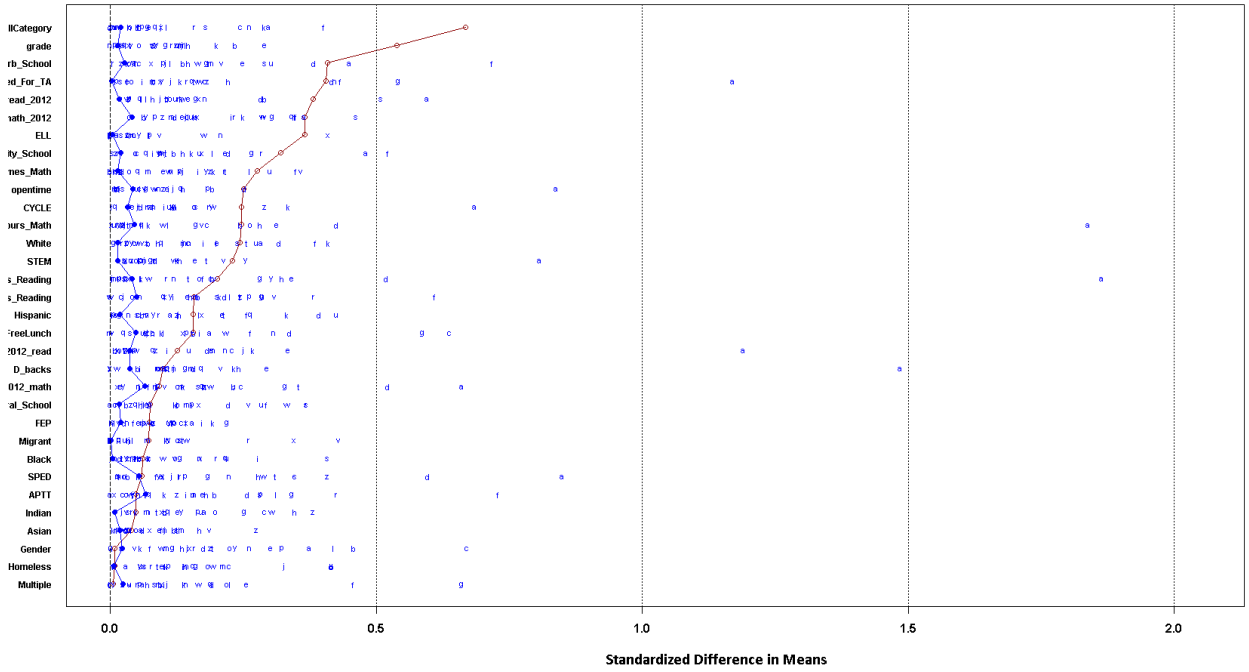


Figure 7: 'C' Schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the 'C' schools who had their 2012/2013 reading performance level record.

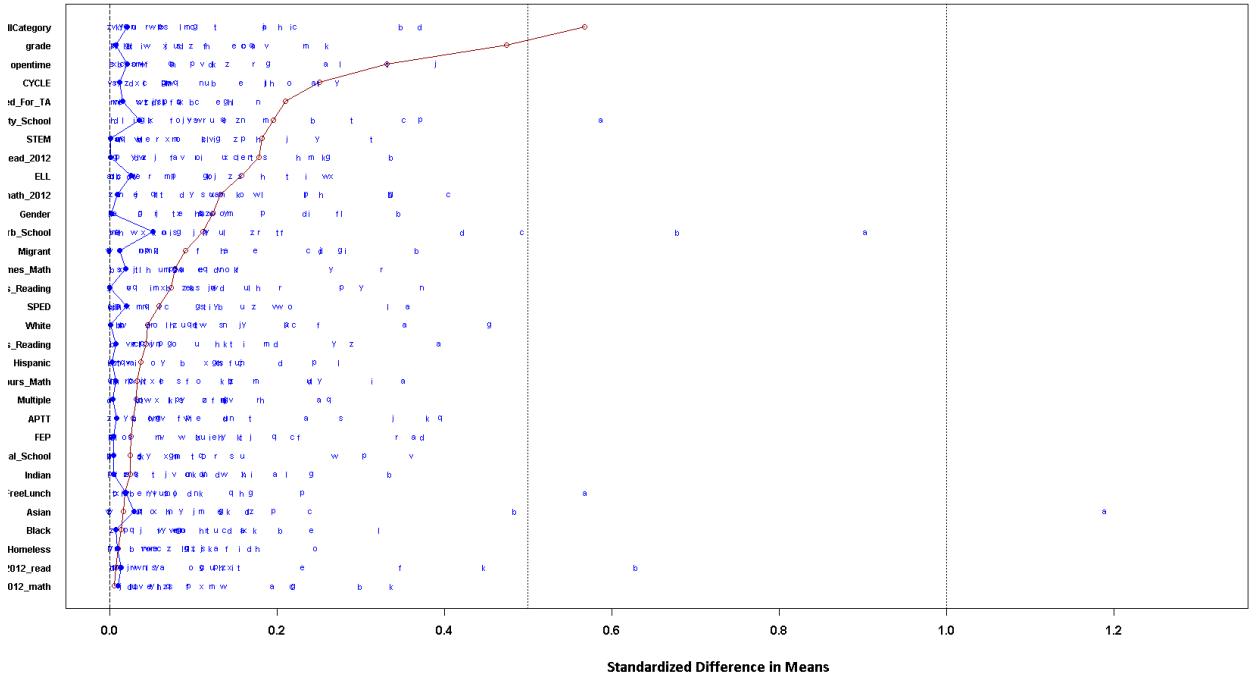


Figure 8: 'D' Schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the 'D' schools who had their 2012/2013 reading performance level record.

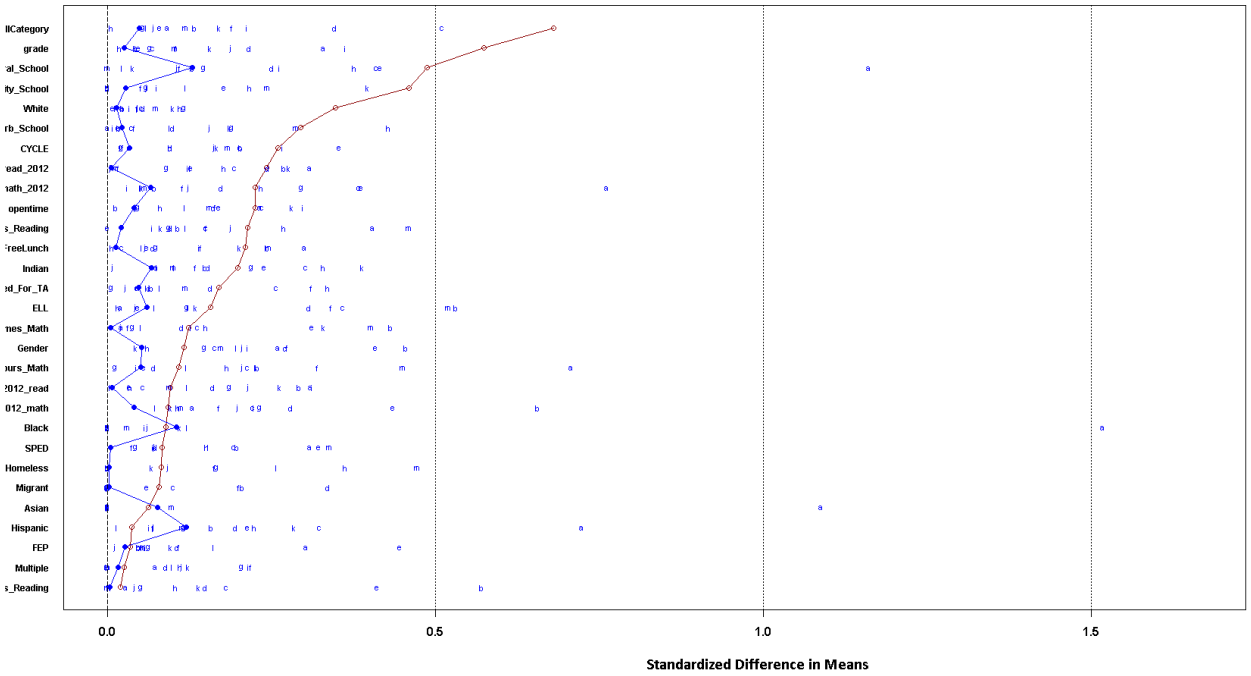


Figure 9: 'A' schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the 'A' schools who had their 2012/2013 mathematics student growth percentile (SGP) record.

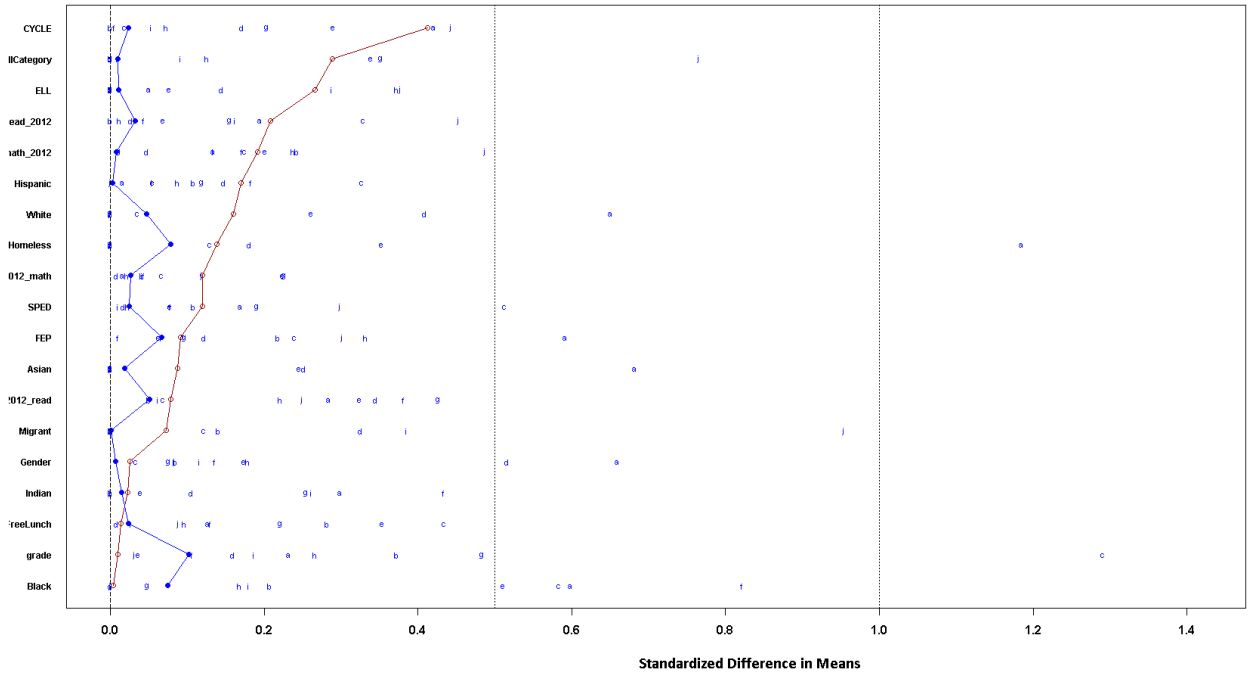


Figure 10: ‘B’ schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the ‘B’ schools who had their 2012/2013 mathematics student growth percentile (SGP) record.

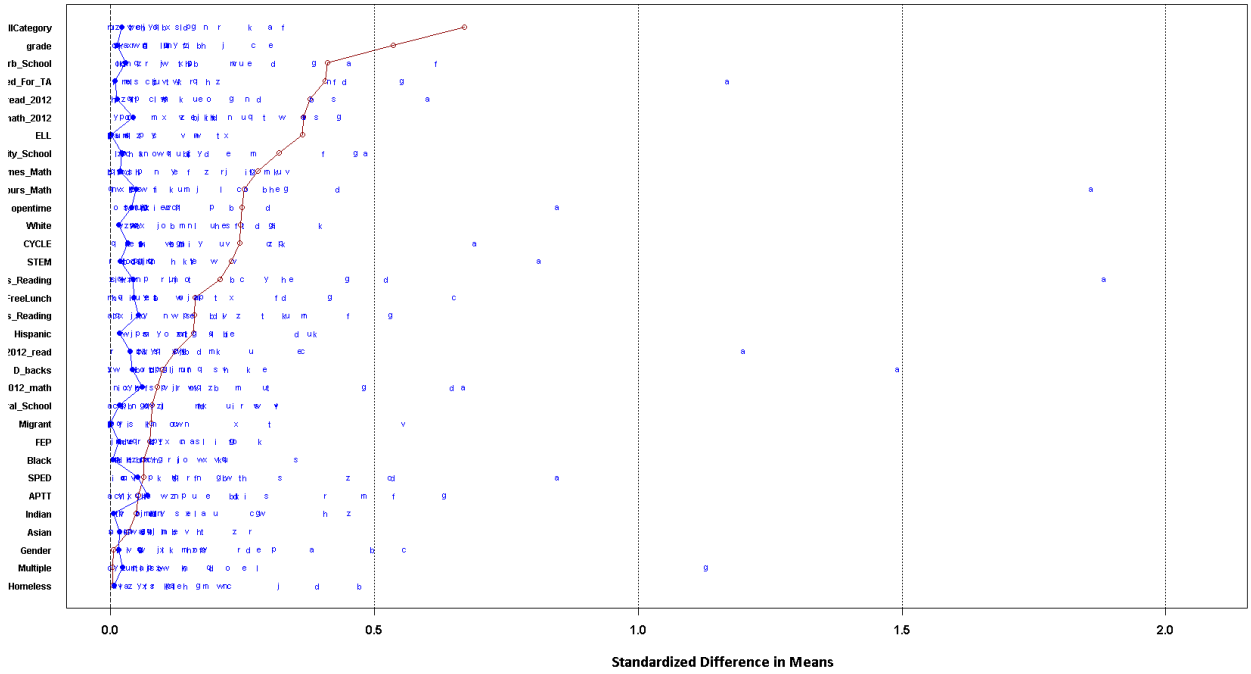


Figure 11: 'C' schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the 'C' schools who had their 2012/2013 mathematics student growth percentile (SGP) record.

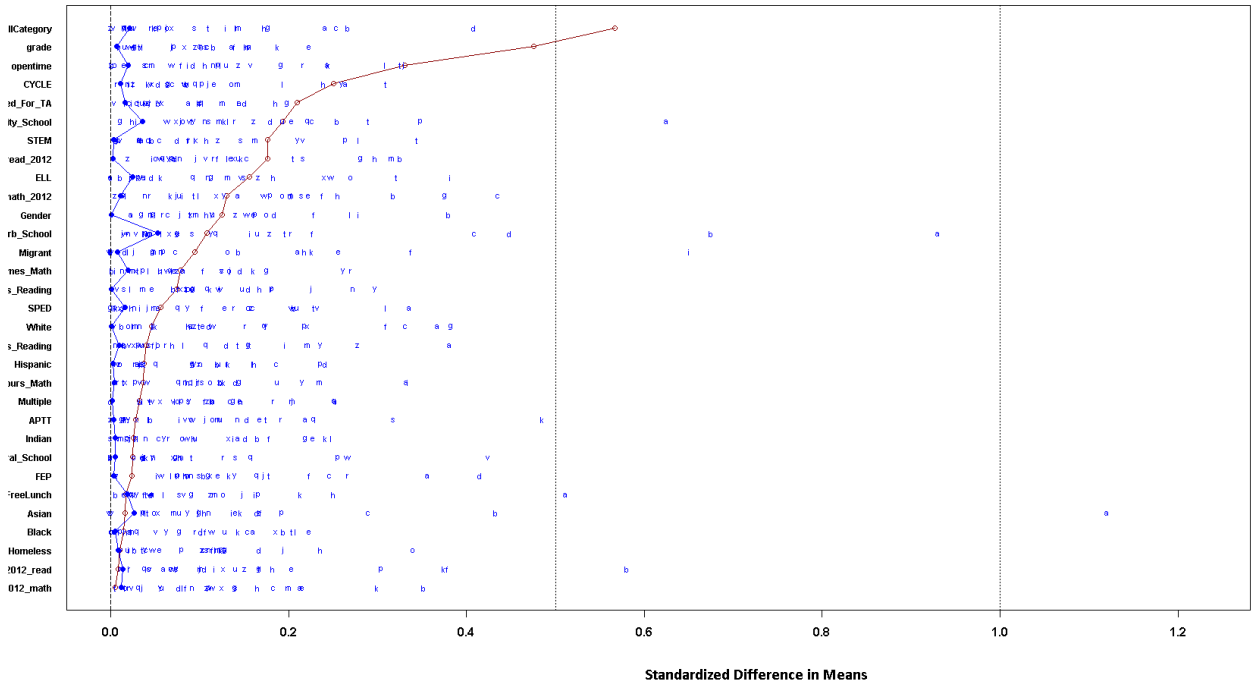


Figure 12: 'D' schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the 'D' schools who had their 2012/2013 mathematics student growth percentile (SGP) record.

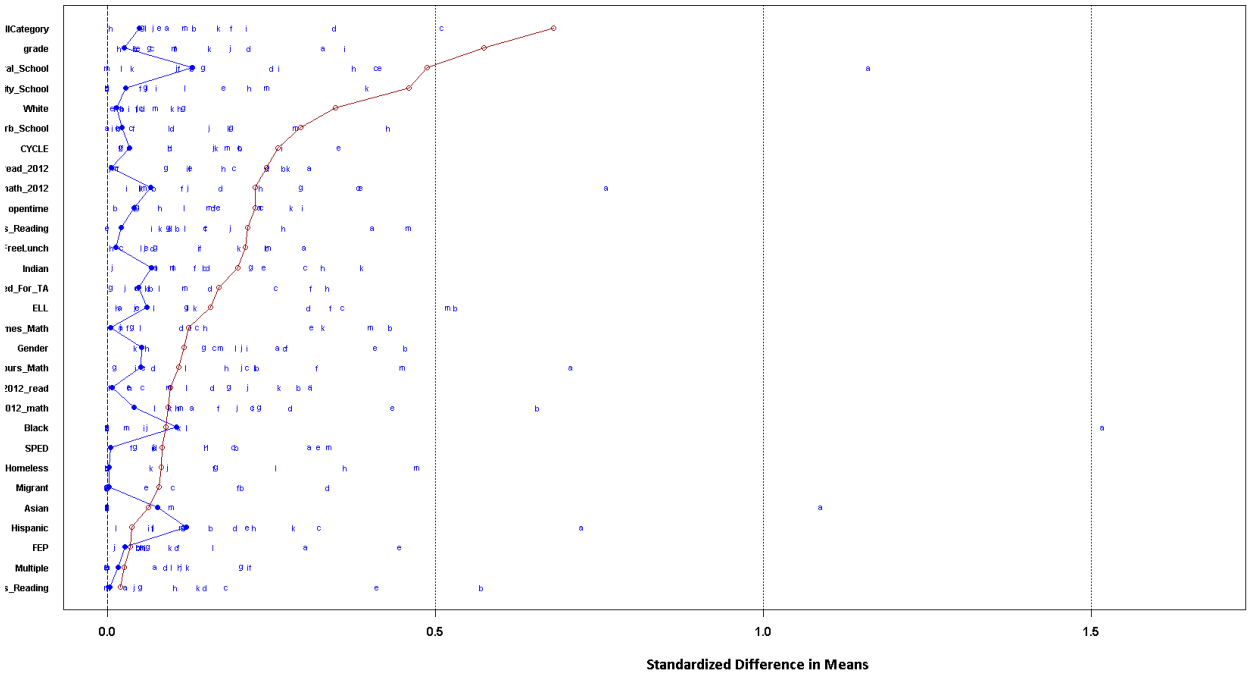


Figure 13: 'A' schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the 'A' schools who had their 2012/2013 reading student growth percentile (SGP) record.

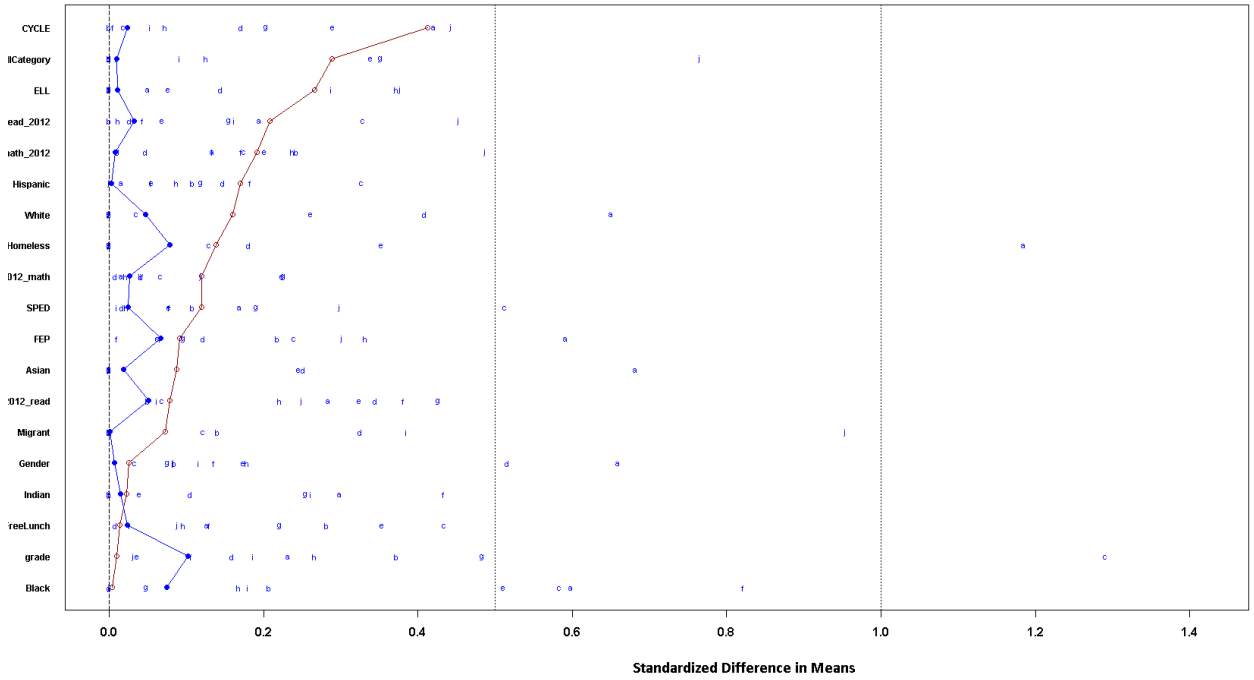


Figure 14: 'B' schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the 'B' schools who had their 2012/2013 reading student growth percentile (SGP) record.

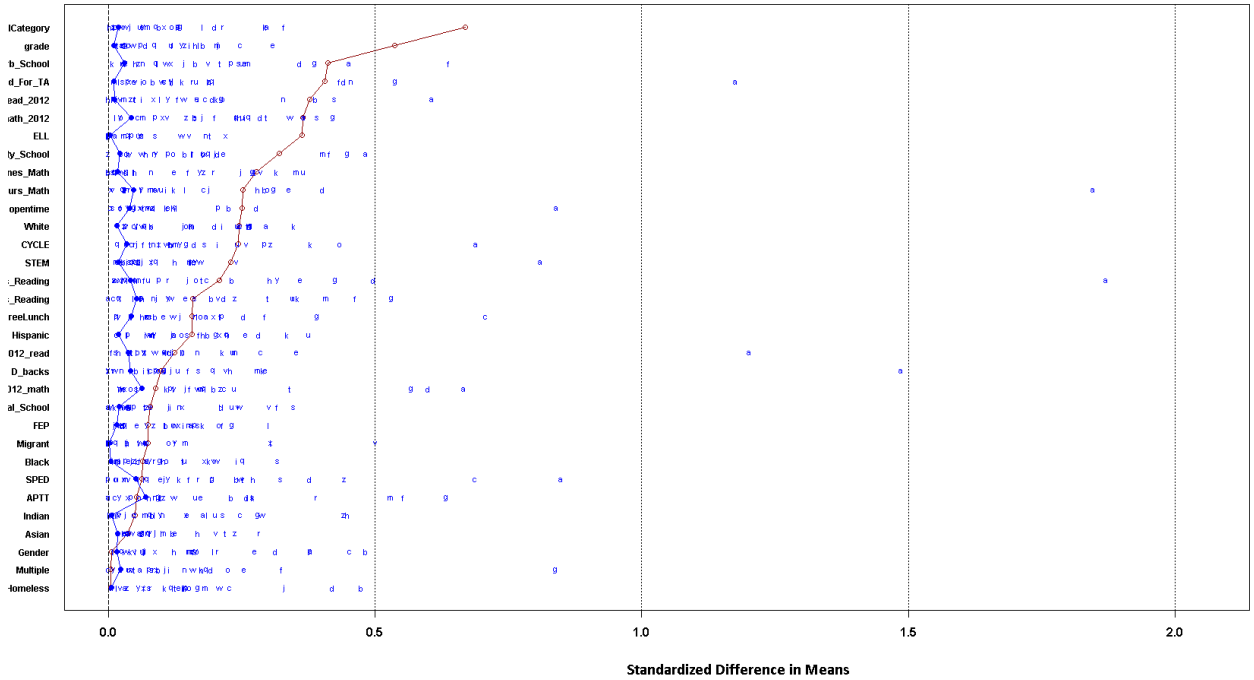


Figure 15: ‘C’ schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the ‘C’ schools who had their 2012/2013 reading student growth percentile (SGP) record.

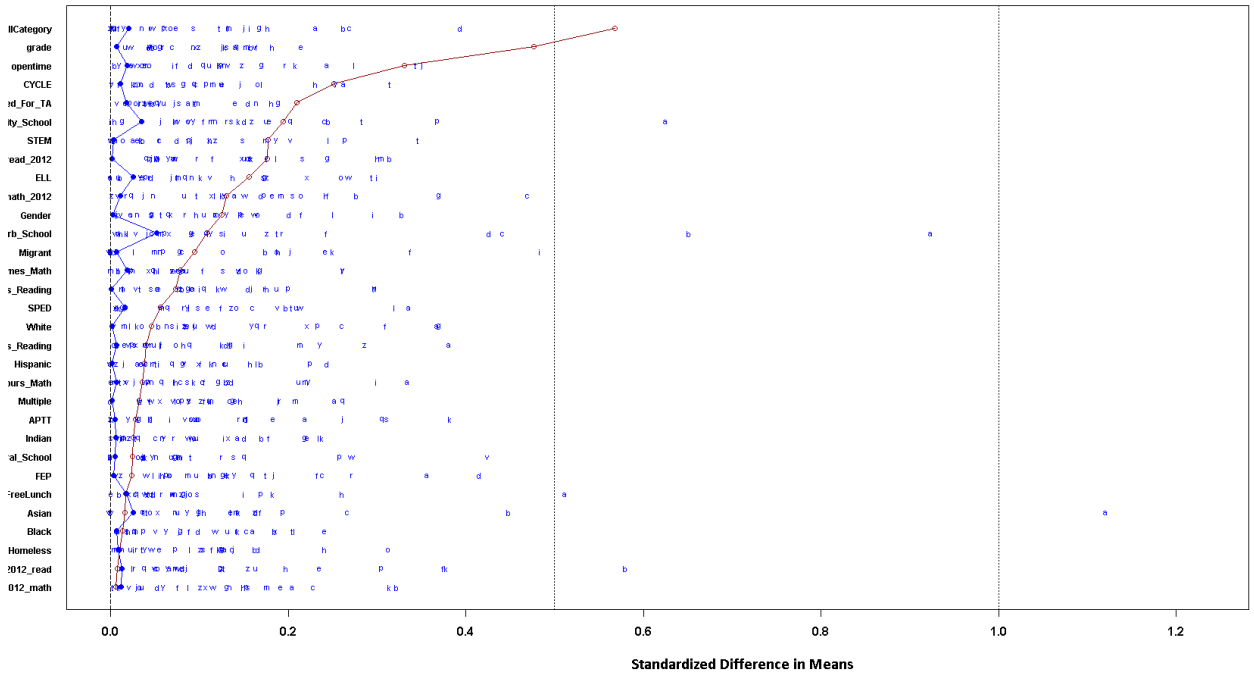


Figure 16: 'D' schools - cbal.plot to check confounder balance after stratification between Regular Program participants and Non-Regular Program participants in the 'D' schools who had their 2012/2013 reading student growth percentile (SGP) record.