

Executive Summary

AN ANALYSIS OF THE EFFECTS OF AN ACADEMIC SUMMER PROGRAM FOR MIDDLE SCHOOL STUDENTS



**Marie-Andrée Somers
Rashida Welbeck
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Overview

This report examines the implementation and effects of the academic summer program for middle school students offered by Building Educated Leaders for Life (BELL). BELL's middle school program serves rising sixth- through eighth-grade students who are performing one to two years below grade level. The goals of the program are to increase students' literacy and math skills and to enhance their social development. To achieve these goals, BELL provides students with 6.5 hours of daily programming for approximately five weeks, five days per week. Several types of activities are provided: academic instruction in math and English Language Arts; social and academic enrichment activities; and field trips, guest speakers, and community service. BELL's contributions to summer learning began with its now well-established program for elementary school students. More recently, growing demand for programs serving older students has led BELL to expand into middle school.

In this study, which is funded by the Edna McConnell Clark Foundation's Social Innovation Fund, the impact of BELL's middle school program was evaluated using a random assignment research design — a lottery-like process used to assign eligible students either to a program group that was invited to participate in the BELL program or to a control group that was not. The study was conducted in summer 2012 in three school districts that were new partnerships for BELL. Due to various challenges related to student recruitment, the study's sample size is smaller than planned, and the margin of error around the impact findings is quite large. Even so, the results in this report can still be useful for generating suggestive or preliminary evidence about the potential effects of a full-day, academically oriented summer program model for middle school students.

Overall, the findings from this study indicate that BELL mounted a fairly well-run and well-staffed five-week summer program in summer 2012 and that students attended at a high rate even though the program was voluntary. The pattern of impact estimates suggests that, on returning to school in fall 2012, BELL students may have had stronger math skills than they would have had otherwise — equivalent to a little over one month of learning, which is the effect that one would expect from a five-week program during the regular school year. Though the magnitude of this effect is not statistically significant, it is similar in size to what has been found in prior evaluations of voluntary summer programs at the elementary school level. On assessments of reading skills, however, there is no indication that the BELL students outscored their counterparts in the non-BELL group.

Taken together, the findings provide suggestive preliminary evidence that voluntary academic summer programs can have positive effects on middle school students' math achievement but that improving their reading achievement is a more challenging task because it is harder to keep students in this age group engaged. While additional research would be required to confirm these preliminary findings, if true, this suggests that strategies for teaching reading skills to middle school students may need to be different than the approaches used with elementary school students.

Preface

Far too many children living in economically disadvantaged households are below grade level academically. While economically advantaged families can step in and provide needed academic support to their struggling children, this type of support is far less available to children in underserved neighborhoods. As a result, many school districts turn to programs, such as Building Educated Leaders for Life (BELL), to offer free summer services to students. The summer — a time when students have many free hours to fill — offers a perfect opportunity for schools to provide more instruction and, hopefully, improve students' academic outcomes.

Founded in 1992, BELL has been a pioneer in providing rigorous academic services during the summer to children living in low-income urban communities. It has also been a pioneer with respect to unflinchingly using data to examine and improve its program. For example, during summer 2005, BELL's elementary school summer program was evaluated using the most rigorous methodology: a randomized controlled trial. Because the elementary school program emphasizes reading, only reading (not math) was assessed. The evaluation found that BELL had a positive effect on elementary school students' reading ability.

Buoyed by these findings, and given the growing demand for middle school programs, BELL began to expand into middle school. Although it had good evidence indicating that the elementary school program was effective, it did not know whether its middle school program would be equally successful. Thus, in summer 2012, BELL embarked on a randomized controlled trial to evaluate its middle school program. To date, there has been very little evidence on the effectiveness of summer academic programs for middle school students, especially programs in which participation is voluntary. Thus, the present study is important not only to BELL but also to leaders of other middle school summer programs. The report concludes by offering lessons about implementing academic summer programs for middle school students and by making recommendations for further study.

Gordon L. Berlin
President

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This report is based on work supported by the Social Innovation Fund (SIF), a key White House initiative and program of the Corporation for National and Community Service (CNCS). The Social Innovation Fund combines public and private resources with the goal of increasing the impact of innovative, community-based solutions that have compelling evidence of improving the lives of people in low-income communities throughout the United States. The Edna McConnell Clark Foundation's SIF includes support from CNCS and 15 private co-investors: The Edna McConnell Clark Foundation, The Annie E. Casey Foundation, The Duke Endowment, The William and Flora Hewlett Foundation, The JPB Foundation, George Kaiser Family Foundation, The Kresge Foundation, Open Society Foundations, Penzance Foundation, The Samberg Family Foundation, The Charles and Lynn Schusterman Family Foundation, The Starr Foundation, Tipping Point Community, The Wallace Foundation, and Weingart Foundation. This report would not have been possible without these organizations' support and commitment to the well-being of youth in low-income communities in the United States.

We owe special thanks to BELL's national and local staff, whose dedication to helping children and to continuous program improvement allowed us to implement the evaluation with rigor and integrity. We are especially indebted to Tiffany Cooper Gueye, Lauren Gilbert, Bryan Hall, and the rest of BELL's national leadership team for their ongoing support and perceptive insights about the results of the study.

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The Authors

Executive Summary

The middle school years are a critical turning point for youth educationally. Numerous studies have shown that students' success in grades 6 to 8 has profound implications for their future.¹ Attendance, grades, and test scores during the middle school years all predict students' odds of graduating from high school, which, in turn, predicts future earnings.² Yet teaching middle school students who are behind is notoriously difficult because of the developmental changes that occur during this period.³ After years of relatively stable growth, middle school students begin to experience dramatic changes cognitively, physically, socially, and emotionally. Finally, in conjunction with all these struggles, middle school students are also striving to have more autonomy in their relationships with adults, especially with their parents. It is no wonder that middle school has been called the "Bermuda Triangle of education."⁴

Despite the difficulty of the task, strong pressure to perform well on standardized tests has led more school districts to respond to the struggles of their middle school students by providing them with extra help over the summer to enable them to start the new year with stronger basic skills. Some superintendents have made summer school mandatory for students who score particularly poorly on critical tests. Others, worried about discipline and the engagement of mandated students, strongly encourage struggling students to attend voluntarily. While there are many studies of elementary summer school programs (including some that have found positive impacts), there are few studies of the impact of summer programs on middle school students. This is problematic, given that summer school is a costly endeavor and districts are operating with increasingly tight budgets.

This report presents the findings from a study of the middle school academic summer program offered by Building Educated Leaders for Life (BELL). BELL's middle school program serves rising sixth- through eighth-graders who are identified by their school as performing one to two years below grade level, on average. The program operates five days a week for approximately five weeks during the summer. The program day is a traditional "full day" (6.5 hours), in which the morning is devoted to math and reading instruction and the afternoon provides enrichment through instruction in science, physical education, the arts, and other creative subjects — except on Fridays, when there are guest speakers or field trips.

¹See, for example, Reyes, Gillock, Kobus, and Sanchez (2000); Roderick (1995); Balfanz (2009); Balfanz, Herzog, and Mac Iver (2007); and Kieffer and Marinell (2012).

²Levin, Belfield, Muenning, and Rouse (2007).

³Eccles (1999), p. 36.

⁴Juvonen et al. (2004), p. xv.

BELL also operates an elementary school summer model, and an earlier randomized controlled trial of this program concluded that it had improved younger students' reading achievement by the equivalent of about one month of learning.⁵ Given the growing demand for middle school programs, BELL has more recently expanded into serving middle school students. As a mission-driven learning organization, BELL decided to rigorously investigate whether its middle school model was as effective as its elementary school model, by participating in another randomized controlled trial. This study — which is funded by the Edna McConnell Clark Foundation's Social Innovation Fund (SIF) — provides a unique opportunity to gain a better understanding of the potential effects of full-day academic summer programs for middle school students.

In this study, the impact of BELL's middle school model is evaluated using a random assignment research design, which is the most rigorous type of design for evaluating program effects. A lottery-like process was used to determine which eligible students would be invited to participate in the BELL middle school program (the BELL group) and which students would not be invited to participate in BELL (the non-BELL group). Importantly, because admission to the program was determined using random assignment, students in the BELL and the non-BELL groups were comparable with respect to their motivation and ability at the start of the program. This means that any subsequent difference between the two groups with respect to academic outcomes in the fall after participating in the program can be attributed to the impact of the BELL program.

Despite its rigorous research design, this study has three important limitations that affect the generalizability and statistical power of its findings:

- **The study is underpowered.** Due to various challenges related to student recruitment, the margin of error around the impact findings from this study is quite large. Therefore, even though random assignment ensures that the study provides an unbiased picture of how BELL and non-BELL students differed at the end of the summer, these effects are unlikely to be statistically different from zero unless they are large in magnitude — much larger than would be expected from a five-week summer program. (For its effects to be statistically significant, BELL's five-week program would have to be three times more effective than five weeks of regular schooling or three times more effective than previously evaluated academic summer programs.)
- **The study districts may not be representative of BELL's other middle school sites.** Given the eligibility criteria for the study, the school districts

⁵Chaplin and Capizzano (2006).

that are included in this evaluation ended up being new partnerships for BELL in summer 2012, and they operated voluntary (rather than mandatory) summer programs. It is difficult to determine how these two district features affect the generalizability of the study's findings to BELL's more experienced middle school sites and/or to sites where student participation was mandatory.

- **The program has evolved since the evaluation.** This study is an evaluation of BELL's middle school model as it existed in summer 2012. As an organization that embraces continuous improvement, BELL has made changes to its middle school model since then, most notably with respect to staff training and the math and reading curricula that are used for instruction. Thus, the findings presented in this report may not generalize to the impact of BELL's middle school model in its present form.

Given these limitations, the present study of BELL's middle school program cannot provide a definitive or generalizable answer about the impact of summer programs for middle school students. Because of random assignment, however, the study's findings are unbiased; therefore, the results in this report can still be useful for generating *preliminary* evidence about the potential effects of middle school summer programs and for understanding the environment in which such programs operate. One goal of this report is to look for consistent patterns in the direction and magnitude of BELL's effect on students' summer activities and their academic outcomes in the fall. The report also analyzes impacts and program implementation by school district, to explore whether particular features of implementation might be associated with more positive effects. Such analyses can be useful in generating strategies for building stronger summer learning programs for middle school students.

Overall, the findings from this study indicate that BELL mounted a fairly well-run and well-staffed five-week summer program in summer 2012 and that students attended at a high rate, even though the program was voluntary. The pattern of impact estimates suggests that, on returning to school in fall 2012, BELL students may have had stronger math skills than they would have had otherwise — equivalent to a little over one month of learning beyond what was achieved by students in the non-BELL group. Although this effect is not statistically significant, its size is what one would expect from a five-week program during the regular school year. Its size is also similar to what has been found in prior evaluations of voluntary summer programs at the elementary school level. On assessments of reading skills, however, there is no indication that the BELL students outscored their counterparts in the non-BELL group.

Taken together, the findings provide suggestive preliminary evidence that BELL's voluntary academic summer programs could have positive effects on middle school students' math

achievement but that improving their reading achievement is a more challenging task because it is harder to keep students in this age group engaged. While additional research would be required to confirm these preliminary findings, if true, this suggests that strategies for teaching reading skills to middle school students may need to be different than the approaches BELL used with elementary school students. For instance, the content of reading materials may need to be tailored explicitly to the needs and interests of young adolescents, to keep them engaged.

The BELL Middle School Model

The goals of the BELL middle school program are to increase children’s literacy and math skills by providing them with engaging and age-appropriate instruction and to enhance their social development by giving them opportunities to be successful and to experience the broader community.

To achieve these goals, BELL provides middle school students with 6.5 hours of daily programming for approximately five weeks, five days per week. During this time, several types of activities are provided to students: academic instruction in math and English Language Arts (ELA); social and academic enrichment activities; community time; and field trips, guest speakers, and community service.

Instruction occurs Monday through Thursday mornings and is provided by a certified English Language Arts (ELA) or math teacher and an assistant (called a “mentor”). BELL academic teachers are certified teachers, and they receive training prior to the beginning of the program. In summer 2012, teachers received one full day of in-person training and were expected to complete nine hours of online training before the start of the program.

In any given week, students receive six hours of ELA and math instruction (twelve hours total). Monday through Thursday mornings, students receive an hour of literacy instruction and an hour of math instruction each day. During the week, students also participate in two hours of project-based literacy activities, anchored by a novel or writing assignment, and two hours of project-based math activities. In total, across all five weeks of the program, students are offered 30 hours of ELA instruction and 30 hours of math instruction.⁶ In summer 2012, the literacy curriculum was Houghton Mifflin Harcourt *Summer Success*, and the math curriculum was *On Core*, a new Common Core State Standards (CCSS) curriculum.

Because the program is remedial and is intended to help students catch up if they are below grade level, teachers cover material from the prior school year. To help each class stay on

⁶Each week for five weeks, students receive six hours of instruction per subject area, for a total of 30 hours per subject area.

track with the learning objectives, teachers are given a pacing guide that shows them the material that they should be covering each week. Students' reading and math skills are also tested at the beginning of the five-week program, to help teachers assess the strengths and weaknesses of each student, and then are tested again at the end of the program so that changes in students' test scores can be measured and reported to the district. In summer 2012, BELL used the Stanford Diagnostic Reading Test and the Stanford Diagnostic Math Test for diagnostic assessments.

Monday through Thursday afternoons, students participate in two hours of fun and engaging social or academic enrichment activities to broaden their interests, develop positive teamwork and leadership skills, and allow them to discover and demonstrate their strengths in different ways. The enrichment activities are either designed by teachers (such as playing steel drums, cooking, or journalism), are requested by the district, or are grade-specific thematic enrichment curricula offered by BELL. On Fridays, students participate in field trips and community service projects — and, in some sites, attend guest lectures by community leaders — to broaden their interests and extend their learning beyond the classroom.

To achieve its goals, BELL aims to hire staff who will be strong positive adult role models. At each school, the operation of the BELL program is overseen by a program manager (who is typically a principal or assistant principal in the district during the regular school year), an assistant program manager, and a lead teacher who acts as a resource for teachers and their teaching assistants.

As noted above, the BELL middle school model has evolved since the time of this evaluation. The structure of the program and the amount of instruction provided remain the same, but some of the features related to instructional quality — most notably, the curriculum and the way in which teacher training is provided — have changed since summer 2012. A description of how the model has changed is provided at the end of this Executive Summary.

Overview of the Study's Design

The present study of BELL's middle school program was conducted in summer 2012 in three school districts. (Box ES.1 presents an overview of the study's key features.) Districts that partner with BELL usually have more eligible students than BELL has the capacity to serve. In a typical summer, BELL fills its limited program slots on a "first-come, first-served" basis. For the purposes of this study, however, random assignment was used to select which students would be admitted to BELL. To make this possible, schools in the study continued to identify students who were below grade level and to encourage applications from these students until shortly before the start of the program. A lottery-like process was then used to determine which students would be invited to participate in the BELL middle school program (the BELL group)

Box ES.1

Overview of the BELL Evaluation

Intervention. The Building Educated Leaders for Life (BELL) middle school program is a full-day academically oriented summer program that serves rising sixth- through eighth-graders who are identified by their school as performing one to two years below grade level, on average. The program operates five days a week for approximately five weeks during the summer. Its day is a traditional “full day” (6.5 hours), in which the morning is devoted to math and reading instruction and the afternoon provides enrichment through activities in science, physical education, the arts, and other creative subjects — except on Fridays, when there are guest speakers or field trips.

Study sample. Three of BELL’s partner districts were eligible for the study in summer 2012 and agreed to participate. Schools in these districts identified students who were performing below grade level and encouraged them to apply to the program. In total, 1,032 rising sixth-, seventh-, or eight-grade students applied to the middle school program and agreed to be part of the study.

Research design. Random assignment was used to determine which students would be invited to participate in the BELL program (the BELL group) and which students would not be invited to participate in BELL (the non-BELL group). Students and BELL staff were informed of the decision shortly before the program began. Because group membership was determined using random assignment, the impact of the program can be estimated by comparing the outcomes of students in the BELL group and those in the non-BELL group. Because non-BELL students were free to participate in any other summer activities instead, this is a test of BELL’s middle school program relative to the “business as usual” summer activities that students would have experienced otherwise.

Data collection and the analysis sample. Information about students’ characteristics at baseline was obtained from the application form for BELL. Schools also provided data on students’ scores on state tests in the spring before program participation. Classroom observations, interviews, and focus groups with staff were conducted in the third and fourth weeks of the program. Attendance data were obtained from BELL. In the fall after the summer program, students in both groups took a reading achievement test (Group Reading Assessment and Diagnostic Examination, or GRADE) and a math achievement test (Group Mathematics Assessment and Diagnostic Examination, or GMADE), and they completed a survey. The analysis of impacts is based on 919 students (89 percent of the study sample) for whom fall 2012 achievement and survey data are available.

Outcomes. The study focuses on reading achievement test scores, math achievement test scores, and student engagement in fall 2012, after participating in the program.

Limitations. The study has three main limitations. First, the margin of error around the impact findings is quite large; therefore, though the study does provide an unbiased picture of how BELL and non-BELL students differed at the end of the summer, the differences cannot be confidently attributed to BELL unless the impacts are large in magnitude. Second, the three school districts in the study were new partnerships for BELL in summer 2012, and they operated voluntary (rather than mandatory) programs; therefore, the findings may not be representative of the effect of BELL’s program in districts that have more experience with it or in districts where student participation is mandatory. Finally, BELL’s middle school model has changed since summer 2012 — especially with respect to teacher training and the math and literacy curricula; thus, the findings may not be representative of the impact of the model as it now exists. Given these limitations, this study cannot provide conclusive evidence of impacts, and its findings may not be generalizable. Because of random assignment, however, the findings can still be useful for generating *preliminary* evidence about the potential effects of middle school summer programs and for understanding the environment in which they operate.

and which students would not be invited to participate (the non-BELL group). Students and BELL staff were informed of the decision shortly before the program began.

In early June 2012, a total of 1,032 rising sixth-, seventh-, or eighth-grade students had applied to the middle school program in the three study districts and had agreed to be part of the study. Of these students, 643 were randomly assigned to the BELL group, and the remaining 389 were placed in the non-BELL group. Non-BELL students were, of course, free to participate in any other summer activities instead. Thus, this study is a test of BELL's middle school program relative to the "business as usual" summer activities that students would have experienced otherwise.

Several types of information were collected to measure impacts on student outcomes and to understand the context in which the program was operated. On their return to school in fall 2012, students in the study were encouraged to take standardized tests in math and reading, as well as to complete a short survey asking them to describe what they had done over the summer and the extent to which they were engaged in school in the fall. To understand program implementation, the evaluation team also visited each district in the third or fourth week of the program to observe several classrooms and to interview teachers, mentors (teaching assistants), program managers, and assistant program managers.

Program Implementation, Student Attendance, and the Summer Activities of Students

To better understand the context in which the BELL program was implemented, this study examined several features of the program's implementation in the three study districts. Prior research has shown that some summer programs produce positive effects but that many do not. Thus, learning more about the conditions that can facilitate or challenge a summer program's success is important for advancing the field of summer learning. The study's key findings are summarized below.

- **How well was the BELL program implemented in the study districts?** Overall, in summer 2012, the program was well implemented relative to the BELL middle school model. In all three districts, program leaders (program managers, assistant program managers, and lead teachers) expressed that teachers were of high quality and were performing strongly in the program. The academic instruction offered by BELL was also strong relative to national quality standards of summer learning programs.
- **Were there any challenges to program implementation?** In summer 2012, there were two main challenges to implementation. First, all the BELL program leaders reported delays in receiving program materials and diagnostic

testing data. This start-up challenge may have been exacerbated by the fact that student recruitment for the study continued until shortly before the start of the program, and the curriculum vendor was experiencing a backlog of orders to fill. Second, BELL teachers — all of whom are certified — reported that they would have benefited more from the staff training if it had focused on the BELL curricula, rather than on instructional practices and pedagogy. (BELL has made several changes to its model since summer 2012, and some of them aim to address these challenges.)

- **How often did students attend the program? How many hours of instruction did they receive?** In the average study district in summer 2012, the attendance rate among students who attended at least one day of the program was 82 percent, which is above BELL’s internal monitoring target of 80 percent. Students in the BELL group received, on average, about 23 hours of academic instruction in each subject area.
- **How do the summer activities of BELL students differ from the experience of non-BELL students?** In summer 2012, BELL students in the average study district received about 18 more hours of formal instruction (per subject area) than non-BELL students. Although BELL students did not write poems, letters, or stories more often than non-BELL students, they did report playing math games or doing math problems more often. Also, participating in BELL did not prevent students from engaging in other summer activities: BELL students were not less likely than non-BELL students to play sports, watch TV, go to camp, read a book, or go the library during free time.

In general, the study’s findings indicate that BELL implemented a well-run and well-attended program in summer 2012 and that students in the BELL program received more academic instruction than they would have received otherwise. The findings also suggest that the program may have been more effective at changing middle school students’ math behaviors than their writing behaviors.

Impacts on Academic Achievement and Engagement

As explained above, this evaluation lacks the ability to statistically detect effects of the magnitude seen in prior evaluations of summer programs. This means that effects on academic achievement must be very large (equivalent to about 14 to 17 weeks of regular schooling) in order to conclude that they are not due simply to chance. However, the impact estimates themselves are still rigorous and unbiased, and thus the results can be used to identify suggestive or

preliminary patterns of effects to inform the field of summer learning. The key findings follow and are summarized in Table ES.1.

- **What was BELL’s impact on middle school students’ reading achievement when they returned to school in the fall?** In the average study district in fall 2012, BELL students did not have higher reading test scores than non-BELL students (effect size = 0.01; p-value = 0.929). These results are consistent across reading subtests. Thus, it cannot be concluded that BELL had a positive impact on students’ reading scores. In one of the three study districts, the effect on reading scores is negative and statistically significant, which further supports the hypothesis that the program did not improve students’ reading achievement.
- **What was BELL’s impact on middle school students’ math achievement when they returned to school in the fall?** In the average study district in fall 2012, BELL students outperformed non-BELL students in math by an effect size of 0.07, which is equivalent to a little over one month of additional learning and is the amount by which students are expected to grow during a five-week period during the regular school year. The magnitude of this effect is also similar in size to what has been found in prior evaluations of voluntary summer programs at the elementary school level. On the one hand, this difference is not statistically significant, which means that this result could simply be due to chance rather than to the effect of BELL. On the other hand, some of the study’s ancillary findings support the hypothesis that BELL had a small but positive effect on math achievement. For instance, in one of the study districts, BELL had a statistically positive impact on students’ math scores in one subdomain. BELL also had a statistically significant effect on students’ participation in math-related activities during the summer, which is an important precursor to impacts on math achievement.⁷
- **What was BELL’s impact on middle school students’ emotional and behavioral engagement when they returned to school in the fall?** In the average study district in fall 2012, BELL students appear to have been no more (or no less) engaged than non-BELL students when they returned to school (effect size = -0.01; p-value = 0.927). Thus, despite having attended an academically focused program for five weeks during the summer, the BELL group did not “burn out” and return to school with less motivation to learn.

⁷Furthermore, BELL’s effect on students’ math-related summer activities is largest in the study district that also had statistically positive effects on one of the math subdomains.

The Evaluation of Building Educated Leaders for Life (BELL)

Table ES.1

**Impacts on Academic Achievement in the Fall:
Fall 2012 Analysis Sample**

Outcome	BELL Group	Non-BELL Group	Estimated Impact	Effect Size	P-Value for Estimated Impact
<u>Reading achievement (standard score)^a</u>	91.6	91.5	0.1	0.01	0.929
Corresponding grade equivalent	5.2	5.2			
Corresponding percentile	32	32			
Corresponding normal curve equivalent (NCE)	38	38			
<u>Math achievement (standard score)^a</u>	87.6	86.6	0.9	0.07	0.286
Corresponding grade equivalent	5.1	4.9			
Corresponding percentile	27	25			
Corresponding normal curve equivalent (NCE)	33	32			
Sample size (N = 919)	585	334			

SOURCES: MDRC calculations based on the GRADE and GMADE assessments administered in fall 2012.

NOTES: The analyses reported in this table are based on the sample of students who took the GRADE and GMADE assessments and who responded to the student survey in fall 2012 (Fall 2012 Analysis Sample). Estimated impacts are regression-adjusted using ordinary least squares, controlling for the blocking of random assignment by school and grade level in spring 2012, as well as random differences between the BELL and non-BELL groups with respect to the following variables: a student's score on state reading and math tests taken in spring 2012, whether a student has an individualized education plan (IEP), whether the student has English as a Second Language (ESL), whether a student is eligible for free or reduced-price lunch, parent education, race/ethnicity, and gender. The values in the column labeled "BELL Group" are the observed means for students randomly assigned to the BELL group. The "Non-BELL Group" values in the next column are the regression-adjusted means for students randomly assigned to the non-BELL group, using the observed mean covariate values for the BELL group as the basis for the adjustment. Each of the three study districts is given an equal weight when estimating the results reported in this table. Rounding may cause slight discrepancies in calculating sums and differences.

Effect sizes are calculated by dividing the impact estimate by the standard deviation of the outcome measure for students in the Fall 2012 Analysis Sample who are in the non-BELL group.

A two-tailed t-test was applied to differences between BELL and non-BELL groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

^aStudents enrolled in fifth grade in spring 2012 were given Level 5 of the GRADE and GMADE; students in sixth grade were given Level 6; and students in seventh grade were given Level M. The national average for GRADE and GMADE standard scores is 100, and the standard deviation is 15. No statistical tests or arithmetic operations were performed on grade equivalents and percentiles because these are not equal-interval scales of measurement.

In general, these findings provide suggestive preliminary evidence that the BELL middle school program did not have an impact on students' reading skills but that it may have had positive effects on students' math skills.

Discussion and Next Steps

This study provides several encouraging findings with respect to the potential of full-day academically oriented summer programs to engage middle school students. First, it is possible to implement such a program well, relative to the intended model and relative to standards in the field of summer learning. Second, voluntary academic summer programs for middle school students can have high attendance rates, even though these students have more control over their time than when they were younger. Thus, a five-week summer program can substantially increase the amount of academic instruction received by students — in BELL’s case, about 18 extra hours per subject area. Third, participating in an academic summer program does not prevent students from doing other, “fun” summer activities, like playing sports or watching TV, nor does it make them less engaged in their schoolwork when they return to school in the fall. Finally, there is suggestive preliminary evidence that BELL’s summer program for middle school students may have an impact on students’ math achievement, equivalent to a little more than one month of regular schooling. Though not statistically significant, the magnitude of this effect is similar in size to what has been found in prior evaluations of voluntary summer programs at the elementary school level.

Findings from this study of BELL’s middle school model also point to several challenges that academic summer programs for this age group may face. First, strong start-up is important for summer programs because they are short in duration; yet it can be difficult to hit the ground running on the first day.⁸ The exact number of students is often uncertain until shortly before the program starts, so teachers are sometimes hired and materials are ordered within days of the program’s start. Thus, summer program staff should make a concerted effort to be ready to start on Day One of the program. Second, staff training should be tailored to the qualifications of the teaching staff. If teachers are certified, for instance, then the teaching staff may benefit more from a training that focuses on the summer program’s curricula, rather than on general pedagogy or instructional practices. Finally, it may be more difficult for summer programs to improve middle school students’ reading achievement than their math achievement. Prior research has shown that summer programs for elementary school students (including BELL’s elementary program) can have a positive effect on the reading achievement of younger students. The findings for middle school students from this study are not as encouraging. One lesson that may be drawn from these findings is that serving middle school students (especially in the area of reading and writing instruction) may require a different approach. To keep them engaged, for instance, interactive activities and hands-on tasks are recommended.⁹

⁸Beckett et al. (2009).

⁹Beckett et al. (2009).

As a continuous learning organization, BELL has made several changes to its middle school model since summer 2012, with the goal of improving instructional quality. Teacher training has been strengthened and decentralized to allow for greater individualization of the training to the local staff's needs. BELL has also replaced its previous curricula with new ELA and math curricula that are aligned with Common Core standards. These new curricula are structured in a way that provides teachers with opportunities to individualize instruction (through one-on-one and small-group activities), and they include hands-on project-based activities that are more engaging to middle school students. BELL is also using a different diagnostic tool to assess students' math and reading achievement, which allows teachers to identify specific skill deficiencies. Lead teachers are also now expected to serve as an "instructional coach": They observe classrooms each week; they provide advice to teachers about how to improve instruction and better engage students; and they give teachers feedback on their weekly lesson plans. Finally, BELL has made changes to the distribution process for delivering materials to sites, which has resulted in the more timely arrival of key material resources at the start of summer.

These programmatic enhancements are in line with the best practices recommended by the field of summer learning and are a positive step toward strengthening BELL's middle school model. In the coming summers, BELL intends to continue to strengthen and refine its program. With the support of long-standing funders, the organization has embarked on a multi-year process to look for ways to better engage and teach struggling middle school students. As part of this process, BELL has created a Middle School Advisory Board whose membership includes researchers and practitioners with expertise in middle school interventions and summer programs, who will advise BELL on best practices for teaching middle school students. BELL plans to implement further modifications to its program, based on the board's recommendations, and to assess whether these modifications have the potential to improve student outcomes. Given that there are so few examples of effective models for middle school summer programs, these changes to the BELL model — and the evaluation of their implementation and effects — will be of interest to the larger field.

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