

This article was downloaded by: [Gattis, Maurice N.]

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Access details: Access Details: [subscription number 926966336]

Publisher Routledge

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Literacy Research and Instruction

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t791817959>

Examining the Effects of New York Experience Corps® Program on Young Readers

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Online publication date: 15 September 2010

To cite this Article Gattis, Maurice N. , Morrow-Howell, Nancy , McCrary, Stacey , Lee, Madeline , Jonson-Reid, Melissa , McCoy, Henrika , Tamar, Kemba , Molina, Alina and Invernizzi, Marcia(2010) 'Examining the Effects of New York Experience Corps® Program on Young Readers', Literacy Research and Instruction, 49: 4, 299 – 314

To link to this Article: DOI: 10.1080/19388070903117948

URL: <http://dx.doi.org/10.1080/19388070903117948>

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Examining the Effects of New York Experience Corps[®] Program on Young Readers

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There are hundreds of tutoring programs that utilize community volunteers being implemented across the country; however, there are few rigorous efforts to evaluate their effectiveness. This article presents findings on reading achievement from an evaluation of the New York City Experience Corps[®], a program that uses older volunteers to work with students in public elementary schools. Two hundred and eighty-eight first- and second-grade students participated in a pre-test/post-test two group design with randomization to assess the impact of the program on their reading abilities. Reading was assessed using the Phonological Awareness Literacy Screening (PALS) and Early Childhood Literacy Assessment System (ECLAS). Results indicate that Experience Corps is effective at improving reading scores. This study provides evidence that older volunteers can be successfully utilized to tutor young readers.

Keywords at-risk readers, intergenerational tutoring, literacy program evaluation, older volunteers, supplemental reading programs

This project was funded by The Atlantic Philanthropies. The authors acknowledge the staff members at Mathematica Policy Research for assistance with randomization and with obtaining school records, the New York Experience Corps[®] staff members who conducted the PALS assessment, and Cal J. Halvorsen and Emily Dessem at Center for Social Development at Washington University for data cleaning and entry.

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Background

Students in America's public schools are doing significantly better in math since the federal No Child Left Behind law took effect in 2002, but gains in reading achievement have been marginal (Dillon, 2007). Reading achievement remains a national problem, and we are still searching for cost-effective interventions.

Over the years, the wide range of interventions that have been developed to improve reading abilities include supplemental tutoring programs. A review of research suggests that students at-risk for reading difficulties can benefit from tutoring programs that complement reading instruction in the classroom (Vadasy, Sanders, & Abbott, 2008; Ehri, Dreyer, Flugman, & Gross, 2007). A meta-analysis assessing the effectiveness of supplemental, one-to-one tutoring revealed that those receiving the intervention performed at a level 2/5 of a standard deviation higher than the average level of the comparison group (Elbaum, Vaughn, Hughes, & Moody, 2000). The tutors involved in these programs varied, and evaluations have not given close scrutiny to the outcomes produced by varying types of tutors—teachers, reading specialists, paraprofessionals/paraeducators, college students, or community volunteers.

In this study, we focus on community volunteers over the age of 55. Given population aging and the increase in health, income, and education of the older population, there is growing potential for the recruitment of older adults in response to community needs, including education. In addition to potential benefits for students, the use of volunteers in place of paid staff potentially reduces costs while offering an opportunity for the community to increase its civic engagement in public education (Morris, Shaw, & Perney, 1990). Experience Corps[®] (EC) was designed with this pool of tutors in mind, and for more than 10 years, the New York program has recruited, trained, and deployed large numbers of older adult volunteers in elementary schools. The intervention aims to positively affect the students, the teachers, and the older volunteers (Glass et al., 2004). While the program operates in 18 cities nationwide, this study focuses on the EC program in New York City.

Previous Studies of Tutoring Programs Using Community Volunteers

There are hundreds of tutoring programs that utilize community volunteers being implemented across the country, but unfortunately, there are few rigorous efforts to evaluate their effectiveness (Brent, 2000). In 1998, school/clinical psychologist Barbara Wasik presented a critical review of 17 volunteer tutor programs in reading. She concluded that three programs were evaluated using rigorous experimental designs, and that there was promising evidence to support the effectiveness of one-to-one tutoring using volunteers. The three programs were the Howard Street Tutoring Program, the School Volunteer Development Project, and the Intergenerational Tutoring Program. Wasik highlighted the weak evaluations associated with most volunteer tutoring program and called for more stringent methods.

Since Wasik's review, several more evaluations of volunteer tutoring programs have been published, and our conclusions remain the same: there is evidence that volunteering tutoring programs can benefit young readers but evaluation methods are weak. For example, Vadasy, Jenkins, Antil, Wayne, and O'Connor (1997) used community volunteers to work with students for about 100 thirty-minute sessions throughout an academic year. Ninety-five percent of the students were ethnic minority, but limited English proficient students were not included in the study. The tutors were parents, grandparents, high school, and college students, and they followed a structured lesson plan involving 6–8 prescribed

activities per session. Students made statistically significant gains on non-word reading and spelling measures compared to controls. Yet only 40 students were randomized into the program and a control group.

Baker, Gersten, and Keating (2000) used a randomized pre–post-test design to study the effects of a volunteer tutoring program, SMART. This program recruited members of the business community, with the modal age being between 30–45 years. The students in the study were largely European American (47%) or African American (30%) with American-Indian, Asian-American, and Latino children represented. At the end of two years and an average of 73 tutoring sessions, the experimental group ($n = 43$) scored higher on measures of reading fluency and word comprehension than the controls ($n = 41$). Al Otaiba, Schatschneider, and Silverman (2005) studied a volunteer tutoring intervention, TAILS, and focused on intensity of sessions. Students in the four-days-a-week condition outperformed those in the two-days-a-week and control conditions on word identification and passage comprehension. Although random assignment was accomplished, the sample size was small, in that each group had about 25 students. Ninety-six percent of the students in the sample were African American (only one student was English as a Second Language [ESL]). The volunteers were middle-aged adults, and some had backgrounds in education.

This review demonstrates that the knowledge base about tutoring programs using volunteers is not strong. Although there is encouraging evidence that the programs can improve young students' reading abilities, there are few experimental designs with large sample sizes and adequate specificity about the intervention. Notably, there is not much precision regarding the tutors and the training/supervision they received. The potential advantage of using community volunteers will remain ambiguous and evidenced-based programs will not be replicated as designed if specificity about the volunteers is not achieved.

Features of Successful Volunteer Tutoring Programs

Wasik and Slavin (1993) found that programs using certified teachers as tutors obtained larger average effect sizes than those using paraprofessionals and volunteers. They concluded that certified teacher/tutors delivered comprehensive, quality instruction because of their knowledge of the reading process and their ability to implement a sound reading curriculum, presumably knowledge that paraprofessionals and volunteers lack. Further, volunteers used rote, programmed instructional methods within a narrowly defined curriculum, whereas the teacher/tutor models used a more responsive approach that relied on teacher judgment and knowledge of how children learn to read. Positive work with paraprofessionals and volunteers has been reported in circumstances where a knowledgeable coordinator transferred the responsiveness of an experienced teacher through supervision and daily mentoring. As examples, the Howard Street tutoring model (Morris et al., 1990), Juel's cross-age tutoring program (Juel, 1996), and Book Buddies (Invernizzi, Rosemary, Juel, & Richards, 1997) have been shown to improve reading outcomes. All three of these models relied on knowledgeable coordinators to provide preliminary and ongoing training to the volunteer tutors, coordinate the program with classroom instruction, and fine-tune the delivery of a structured, comprehensive lesson plan in relation to individual student progress.

According to the Report of the National Reading Panel (NRP) (NICHD, 2000), beginning reading instruction should be comprehensive and contain practice in oral reading for fluency, alphabets (phonemic awareness and phonics), and comprehension. These

elements of the reading process are among the components included in the lesson plans of the more effective tutoring programs reviewed by Wasik and Slavin (1993) and articulated in *Preventing Reading Difficulties* (Snow, Burns, & Griffin, 1998). Comprehensive literacy instruction is consistent with developmental theories of reading growth in which increases in one component of the braid of literacy are related to increases with other components and are mutually beneficial (Bear, Invernizzi, Templeton, & Johnston, 2008).

The current study contributes to literature by offering a stringent evaluation of a supplemental tutoring program utilizing older adult volunteers, the New York EC Program. The conceptual framework underlying the evaluation is one presented by Wasik (1998) in which she identifies the characteristics of a successful tutoring program. Three features are key: a designated coordinator who knows about reading and reading instruction, the presence of structure in the tutoring sessions, and providing ongoing training to the tutors. In this article, we review how these key features operate in the EC program. In addition, the volunteer work force is homogenous in a few major ways: they are over the age of 55 and they commit to 16 hours a week of service for a small stipend to offset cost of participation. This program feature offers some control over the type of volunteer providing the tutoring and allows us to study the effects of using older community volunteers, when the host program meets Wasik's criteria for a successful tutoring program.

The New York Experience Corps Program

The Community Service Society of New York established the EC program in 1996. Through the program, adults aged 55+ assist public elementary school students who have poor reading skills. At the time of the study, the EC program operates in 16 elementary schools in four boroughs where more than 160 volunteers serve 400 students. The tutors are volunteers who are recruited, trained, and monitored by EC staff members, and the tutoring sessions are structured around the *Book Buddies* curriculum reviewed below (Johnston, Invernizzi, & Juel, 1998).

The EC Staff

Nineteen EC personnel are involved in coordinating the program, and recruiting, training, and monitoring the tutors. Two supervisors provide oversight to the staff members, each of whom is assigned to an EC school. Staff members are trained in the *Book Buddies* curriculum and are familiar with all *Book Buddies* materials. They are also trained in other relevant topics, like assessing children, working with school staff, and volunteer management. The education of the staff members varies. Many are degree seeking/continuing education students and some are college graduates. Many are community residents in the neighborhoods they serve which is important for tutoring diverse at-risk learners because the tutors serve as important role models and examples of people from their neighborhood who have succeeded (Sinatra, 2004). A large number first served in the program as AmeriCorps members, assisting EC staff during their service year before moving into a paid position. Each EC school has a staff person who is present every day and performs daily observations of about 10–12 tutors and formally evaluates tutors 2 times per year. EC staff also maintains contact with the teachers and handles any concerns that arise with the integration of the EC tutor into the daily classroom routine. Staff members also facilitate communication between the teacher and tutor to make sure the tutor is working effectively with students with limited English proficiency as well as with students with behavior issues.

The Volunteer Tutors

The volunteer tutors are recruited from the local neighborhoods of the school through word of mouth and public advertising. In order to participate, potential volunteers must submit an application, writing samples, and references. They must pass a background check. Two EC staff members review the adequacy of the writing samples and references and conduct personal interviews with the applicants. Volunteers must commit to 16 hours a week and work with 2 to 3 students. For this effort, they receive a monthly stipend of up to \$277 to offset costs associated with participation.

In the data set for this study, we have descriptive data on 42 of the tutors who provided data. Ninety-five percent were African American and 5% white; 28% were married, and the remainder single. Fifty-two percent were between the ages 65–74, 31% were under the age of 65 and 17% were age 75 and over. The volunteers were recruited directly from the neighborhood surrounding the schools and were, by and large, residents of the neighborhood. Although the educational and occupational background of these specific tutors is not known, they are part of a national sample with the following characteristics: Most (96%) of the participants finished high school, and over 42% have a college degree, with the average being 14 years of school. In general, EC volunteers are more educated than the older population as a whole. Over 20% of the tutors were former teaching professionals (teacher, teacher's aide, education administrator, professor); the next largest professions represented were administration assistants/clerks, nursing, management, and social services (Morrow-Howell et al., 2008).

Training and Monitoring

Training is provided by EC staff (described earlier). All volunteers receive 2 weeks of classroom training (32 hours), which includes an introduction to the program, Book Buddies, lesson plans, and other materials. Next, there is an additional week of on-the-job training (16 hours), which includes shadowing of EC staff and other volunteers in the school. After placement with the students, EC staff provides ongoing assistance.

The Program Process

Teachers identify students in need of the EC program. At the beginning of each academic year, teachers refer students in need of reading assistance to the EC staff members. EC staff members test each student to confirm their low reading abilities and establish a baseline measure. The measurement tool used is the Phonological Awareness Literacy Screening (PALS), a tool associated with the Book Buddies program. The program serves as many referred students as possible, but to date, the number has been constrained by the number of available volunteers. Teachers establish a schedule with the tutors, who then work with the student one-on-one in a separate space provided by the school.

The Structured Curriculum

The tutors are trained to use the Book Buddies program to structure their sessions with the students (Invernizzi, Juel, & Rosemary, 1997). The Book Buddies Program includes four structured sessions each week in which students practice oral reading and work on

phonemic awareness, alphabet, and phonics (word study), in addition to comprehension. Each 45-minute tutoring lesson includes rereading a familiar book for fluency, word study, writing for sounds, and learning a new book. These structural components reflect the recommendations of the NICHD (2000). Oral reading fluency is one of the critical ingredients necessary for reading comprehension and is cultivated mainly through practice. Rereading of familiar texts is a hallmark beginning reading activity for many one-on-one tutorials (Pikulski, 1998) as it develops accurate automatic word recognition (Samuels, 1979), oral expression, and comprehension (Dowhower, 1987). Word study refers to systematic instruction in phonemic awareness, alphabet recognition, and letter sounds, phonics, and spelling (Invernizzi & Hayes, 2004) and incorporates direct instruction in the systematic correspondence between sounds and letters, and spelling patterns through sorting tasks known as word sorts (Bear et al., 2008). Word sorting uses a process of comparing and contrasting categories of sound and spelling patterns to teach specific words and to encourage generalization to other words within the same category. The instructional approach is theoretically driven by developmental spelling research and has been shown to be at least as effective as Elkonin boxes in teaching phonemic awareness and the alphabet code, and more effective than traditional approaches in the primary grades (Joseph, 2000; Weber & Henderson, 1989). In the Book Buddies lesson plan, students are also asked to apply their growing alphabetic knowledge by writing a dictated sentence in each lesson that contains the sounds and phonics features they have been learning (Juel, 1996). Comprehension is addressed in each lesson during the introduction of the new book and includes such comprehension strategies as activating background knowledge and introducing vocabulary, predicting, questioning, and pointing out story structures which are all evidence-based strategies (Kamil, 2004).

The Book Buddies program has undergone several evaluations (Invernizzi, 2000; Invernizzi, Rosemary, et al., 1997; Meier & Invernizzi, 2001). In the first evaluation (Invernizzi, Rosemary, et al., 1997), 358 first and second graders received two tutoring sessions for a minimum of 20 weeks. Although there was no control group, students who received the full intervention of 40 sessions demonstrated more gains in word recognition and contextual reading than those who received less than 40 sessions. Volunteers came from a variety of backgrounds, with ages ranging from 20 to more than 60 years of age and professions including service workers, school board members, and retired professors.

Another study of the Book Buddies program took place in the New York EC program almost 10 years ago and provides a base on which we build our study. Meier and Invernizzi (2001) studied the effects of the program at an elementary school in the Bronx. Three teachers were asked to identify the 55 first-grade students most at risk for reading difficulties. The students were matched on reading scores and randomly assigned to two groups. The first group received tutoring structured around the Book Buddies curriculum from EC volunteers from September to January, and the second group received tutoring in the EC program from January to June. Each student received 40 lessons from volunteer tutors recruited from the school community and over the age of 55 years.

The first group of children was tested after they completed 40 lessons and their reading skills were significantly stronger than those in the second group, who had not yet received the intervention. After the second group completed the intervention, their reading skills were found to be equal to those of the first group. Thus, there was no difference between the two groups at the end of the school year. In addition to this, the first group showed the greatest amount of increase between September and January

(the months they were tutored); and the second cohort showed the greatest amount of increase between January and June (the months they were tutored). The fact that statistically significant intervention effects were obtained using a group of older community volunteers to deliver instruction was promising (Meier & Invernizzi, 2001). Because the evaluation was limited to a single site and because the number of lessons was highly controlled, questions remain about the intervention's effectiveness under normative conditions.

The purpose of this article is to present findings on reading achievement from a larger-scale evaluation of EC. The current study builds on Meier and Invernizzi's (2001) study in several ways. This evaluation used a randomized controlled design, followed children for an entire school year, and did not insure that all students got the same number of sessions. This evaluation included both first and second grade students who participated in the program at elementary schools in three boroughs of New York City (Manhattan, Brooklyn and the Bronx) during the 2006–2007 academic year. In addition to the standardized reading measure used in the previous study, we included the reading assessment used district-wide in New York.

Evaluation Methods

The evaluation team used a pre–post-test two group design with random assignment to assess the effects of the program.

Sample Selection

Six elementary schools in the New York School District that hosted the EC program agreed to participate in the evaluation. Approval was obtained from Washington University Institutional Review Board, the New York School District and principals of all participating schools prior to beginning the study. The evaluation was limited to first and second graders because the EC program focuses primarily on these grades. In August and September 2006, all first- and second-grade teachers participating in the EC program were asked to refer students with reading difficulties. The EC staff then assessed each referred student with the PALS (described below). Next, students were randomly assigned to the EC program, and those students who could not be accommodated in the program became the control group. Students in the control group received the usual classroom instruction provided to all the students. Parental permission to participate in the evaluation was secured. A total of 288 students completed the pre-test and were randomly assigned to the EC program and to the control group. At the end of May 2007, EC staff re-administered the PALS. Research staff also recorded demographic information and standardized reading scores from school records.

Of the original 288 students, 33 did not complete the post-test (18 in control group; 15 in the EC program). These were not statistically different from the rest of the sample in terms of gender, grade, or pre-test PALS score. The attrition was equally distributed across groups and does not appear to have affected the findings of this evaluation. In addition to attrition, one observation was dropped because of incomplete data. This left a total of 254 students, with 123 in the EC program and 131 in the control group. There were 168 first graders and 86 second graders. Sixty-four percent were African American, 31% white/Hispanic, 2% Hispanic, 2% African American/Hispanic, 1% other, and 15% were limited English proficient.

Pre-Test and Post-Test Measures

To assess reading ability in the beginning of the year, EC staff members used the PALS (Invernizzi, Meier, Swank, & Juel, 1998), a standardized measurement tool developed in conjunction with the Book Buddies Program. The PALS is designed to identify students who are below grade-level expectations in literacy fundamentals: phonological awareness, alphabet knowledge, knowledge of letter sounds, spelling, concept of word, word recognition in isolation, and oral passage of reading. The test yields three sub-scores (Orthographic Knowledge, Alphabetics, and Phonemic Awareness) as well as a total PALS score (sum of Orthographic Knowledge, Alphabetics, and Phonemic Awareness subsections). Reliability coefficients documented using Cronbach's alpha for individual entry level tasks range from .81 to .96, which is adequate for internal consistency. Also, Pearson correlation coefficients have ranged from .93 to .99, which demonstrates that PALS tasks can be scored consistently across individuals (Invernizzi, Meier, & Juel, 2004–06). There are also established benchmark scores. The overall Entry Level Score indicates risk status; students scoring below the "cut score" are at risk for reading difficulties (Invernizzi et al., 2004–06). Benchmarks are also set for minimal competencies within specific skill areas. For first grade, the benchmark for the Fall Entry Level Score is 39 out of a possible score of 78 and for second grade, it is 35 out of a possible score of 60. The Spring Entry Level score for first grade is 35 out of a possible 60 and 54 out of a possible 68 for second grade.

In addition to the PALS, fall and spring scores from the Early Childhood Literacy Assessment System (ECLAS) were obtained at the end of the academic year. The ECLAS is a tool used to assess literacy development in students in the New York City School System. The ECLAS measures phonemic awareness, phonics, reading and oral expression, and listening and writing, and each of these "strands" contain subscales. For example, the reading and oral expression strand contains nine sub-scales, one of which is reading comprehension. For the purpose of this evaluation, only the reading comprehension sub-scale was used. Reading comprehension is assessed by story re-telling, scripted comprehension questions, and by asking a prediction question. Results of the evaluation are presented as levels (1–8). Levels 1 and 2 correspond to kindergarten, Levels 2 and 3 to first grade, Levels 5 and 6 to second grade, and Levels 7 and 8 to third grade. To the authors' knowledge, psychometric properties of ECLAS have not been published.

Data Analysis

Data were entered and cleaned. Univariate statistics were calculated to describe the sample. Bivariate tests were used to compare students in the EC program and the control group on demographics as well as on reading scores. Given that students were clustered by school and teacher, analyses had to adjust for the correlation between students in a given classroom and in a given schools. Generalized estimating equations (GEE) (Liang & Zeger, 1986) were used to accommodate correlated data. GEE is robust to violations of key assumptions (i.e., when multivariate non-normality is found). The coefficients produced by GEE are asymptotically unbiased and normally distributed, even when estimated using observations that statistically are not independent (Norton, Bieler, Ennett, & Zarkin, 1996).

The impact of the EC program was analyzed based on difference-in-difference estimates, which compares change scores in outcomes from pre- to post-test between the EC and control group. Although the groups were randomly assigned and were equal on all measured characteristics at pre-test, the use of difference-in-difference estimates removes the effect of other confounding factors that changed during the evaluation and isolates the

net program effect (Meyer, 1995). Change scores were created by calculating the difference between the pre-test and post-test scores. The difference in change scores was calculated between the two groups and compared to zero, using GEE to correct for correlation of the error terms. This technique produces *z*-scores with probability values for statistical significance. To understand clinical significance, we calculated effect sizes, using Hedge's *g* (Rosenthal & Rubin, 1986), which compares the difference in the gain scores to the pooled standard deviation of the post-test scores. Finally, chi-square analysis was used to assess the differential likelihood that treatment and control students scored over the benchmark for the three PALS subsections (Orthographic Knowledge, Alphabeticity, and Phonemic Awareness).

Results

Descriptive

Table 1 presents a description of the sample. Randomization of the students into the EC program and the control group was effective in creating two equal groups in terms of age, gender, race/ethnicity, special education, English language proficiency, and free lunch status. The sample is overwhelming low-income, given that almost all qualify for free lunch.

Table 1
Sample description at Pre-Test*

	Total	EC control	
	287	137 (48%)	150 (52%)
Gender			
Male	142 (49%)	69 (49%)	73 (51%)
Female	145 (51%)	68 (47%)	77 (63%)
Race			
African American	167 (64%)	80 (48%)	87 (52%)
White/Hispanic	81 (31%)	39 (48%)	42 (52%)
Hispanic	5 (2%)	3 (60%)	2 (40%)
African American/Hispanic	4 (2%)	0 (0%)	4 (100%)
Other	2 (1%)	0 (0%)	2 (100%)
White	1 (.4%)	1 (100%)	0 (0%)
Age	6.34 (1)	6.33 (0.81)	6.35 (0.80)
IEP (Individualized Education Plan)			
Yes	39 (18%)	17 (44%)	22 (56%)
No	177 (82%)	89 (50%)	88 (50%)
LEP (Limited English Proficient)			
Yes	34 (15%)	18 (53%)	16 (47%)
No	194 (85%)	95 (49%)	99 (51%)
Free lunch			
Yes	243 (95%)	114 (47%)	129 (53%)
No	14 (5%)	7 (50%)	7 (50%)

*None of the differences between the EC and control group are statistically significant.

Fifteen percent of the students have limited English proficiency, with Spanish, French, and Haitian Creole being common languages in the school system. Eighteen percent of the students had Individualized Education Programs (IEPs), indicating that they had academic challenges beyond reading. On average, each EC student received 48 tutoring sessions, although there was quite a wide range. Seventy percent of the EC students had at least 40 sessions.

PALS Outcomes

The students in the EC program and those in the control group were similar on the pre-test PALS in the fall (Table 2). For example, the 124 EC students had a total PALS score (sum of Orthographic Knowledge, Alphabetics, and Phonemic Awareness subsections) of 87.2 and the 131 control students had a total PALS score of 91.0. When comparing students as a whole as well as by grade on the PALS, none of the pre-test scores are statistically different between the experimental and comparison groups.

Table 2 displays the change in PALS scores over the school year for the EC and comparison groups. At post-test, EC students had higher scores on the PALS than the comparison students. For example, the EC students had a post-test total PALS of 156.8 while the comparison group averaged 140.8. Students in the EC program improved their total PALS scores by 69.6 points while students in the control group improved by 49.8 points, and the difference between these two gain scores is 19.86, which is statistically significant at the $<.0001$ level. The effects of the EC program are consistent across grade, where the difference in gain scores between the two groups of first graders is 21.12 ($p < .001$) and 17.37 ($p < .03$) for second graders. Effect sizes range from .45 to .49.

Table 2
PALS Outcomes

Outcome variable	Group	Pre-test	Post-test	Program impact	Effect size
Total PALS score	Experience Corps <i>n</i> = 123	87.22 (43.03)	156.85 (37.80)	19.86 [4.47]	0.45
	Control <i>n</i> = 131	90.95 (47.55)	140.76 (47.05)	<i>z</i> = 4.45 <i>p</i> < .0001	
Total PALS 1st grade	Experience Corps <i>n</i> = 82	80.49 (41.65)	150.67 (40.85)	21.12 [5.11]	0.47
	Control <i>n</i> = 86	80.01 (47.64)	129.16 (47.55)	<i>z</i> = 4.14 <i>p</i> < .0001	
Total PALS 2nd grade	Experience Corps <i>n</i> = 41	100.68 (43.09)	169.20 (27.28)	17.37 [8.18]	0.49
	Control <i>n</i> = 45	111.86 (40.20)	162.93 (37.52)	<i>z</i> = 2.12 <i>p</i> = .03	

We assessed how many students in the evaluation made enough gains over the year to surpass the benchmark scores of the three PALS subscales. On two subsections (Alphabetics and Phonemic Awareness), EC students were more likely to get over benchmark than control students. For example, on Alphabetics, 226 of the 255 students were under benchmark in the fall. In the spring, 147 of these students were at or over the benchmark. EC students were more likely to achieve the benchmark than controls ($\chi^2 = 7.4$, $p = .01$). On the Phonemic Awareness subsection, this difference was even stronger, ($\chi^2 = 11.5$, $p = .001$). On the Orthographic Knowledge subsection, there was a slight, but non-significant, trend toward an increased likelihood of EC students getting over benchmark ($\chi^2 = 2.4$, $p = .12$).

ECLAS Outcomes

Table 3 displays the change of the ECLAS Reading Comprehension scores at pre-test and post-test for the EC and control groups. In the full sample, the EC students had slightly lower scores (2.77 compared to 2.94) than those in the control group on the pre-test ECLAS. At post-test, EC students had higher scores on the ECLAS than the control students (4.32 compared to 4.24). In addition, students in the EC program improved their ECLAS scores by .26 points more than the control group. This varied by grade level, however. While EC first graders made statistically greater gains in ECLAS scores than first graders in the control group ($p < .001$; effect size = .39), there was no significant difference in scores for second grade students.

Table 3
ECLAS reading comprehension outcomes

Outcome variable	Group	Pre-test	Post-test	Program impact	Effect size
ECLAS full sample	Experience Corps $n = 74$	2.77 (1.09)	4.32 (1.18)	0.26 [0.13]	0.20
	Control $n = 71$	2.94 (1.40)	4.24 (1.42)	$z = 2.00$ $p = .05$	
ECLAS 1st grade	Experience Corps $n = 46$	2.14 (0.79)	3.98 (0.91)	0.38 [0.11]	0.39
	Control $n = 42$	2.17 (0.85)	3.52 (1.02)	$z = 3.35$ $p < .001$	
ECLAS 2nd grade	Experience Corps $n = 28$	3.64 (.95)	4.89 (1.37)	0.04 [0.24]	0.03
	Control $n = 29$	4.07 (1.28)	5.28 (1.28)	$z = .17$ $p = .86$	

Numbers in parentheses are standard deviations.

Discussion

Strengths and Limitations

A major strength of this study is its design—a two group pre–post-test design with randomization. It is extremely difficult to achieve a successful randomized control trial in real-world practice settings. This success speaks to the commitment of the EC staff and schools that recognized the need for stringent evaluation. Indeed, the commitment of public and private funds increasingly depends on evidence of effectiveness.

There are two noteworthy limitations to the study. First, the sampling of schools was purposive, rather than random. Of the 16 EC schools in New York, 6 were chosen as potential participants in the evaluation. The principals of all six gave permission for their school to participate in this evaluation, which provided a sufficient sample size. The other 10 schools were not in a position to participate due to administrative uncertainties. The participating schools, however, are geographically dispersed throughout the district and adequately represented all the schools that host the EC program according to overall school characteristics. For example, the average number of students at the schools involved in the study is 520 and the average number of students at the non-study EC schools is 538. Also, at 10 of the 16 EC schools, more than 90% of the students are on free or reduced lunch (the data was not available for one of the schools). The range of teacher/student ratio in schools involved in the study is 1:9–1:14 and it was 1:11–1:17 in the non-study schools.

A second limitation is that the PALS, at both pre-test and post-test, was administered by EC staff members who were not blinded to the status of the students in the evaluation. On the other hand, the ECLAS was administered to all students in the district and thus offers a second assessment that was more objectively administered.

Program Outcomes

The findings of this evaluation indicate that the EC program is effective in improving reading performance, and they are very consistent with the meta-analysis assessing the effectiveness of adult-delivered, one-to-one tutoring (Elbaum et al., 2000). To understand the impact of the EC program, we can compare the effect sizes to those of other reading interventions. Reading Recovery[®] (RR) is a one-to-one intensive tutoring program, employing certified teachers specifically trained in the intervention. The *What Works Clearinghouse* (Institute of Education Sciences, U.S. Department of Education, 2007) reports effect sizes around .80. The Tennessee Star program reduced class size to improve reading achievement as assessed by the Stanford Achievement Test for word study skills and reading (SAT) and the Tennessee Basic Skills First (BSF) test for reading; and the effect size associated with change in reading achievement scores was .26 (Nye, Hedges, & Konstantopoulos, 2000; Mosteller, 1995). In this context, the magnitude of the reading improvements associated with the EC program, which range from .20–.49 on statistically significant findings, are substantial and even remarkable in that the intervention is implemented by community volunteers.

Although EC second graders improved over the control group on the PALS assessment, there was no program effect detected with the ECLAS. It is possible that the ECLAS tapped skills that the Book Buddies curriculum did not address for this group of students. That is, in the ECLAS, comprehension is measured *after* the student reads and asks the student to retell and answer questions. Yet the Book Buddies curriculum does not follow this sequence, and instead focuses on making comprehension possible through the new book

introduction (preview and predict) *before* reading. It is also possible that there is measurement error in the ECLAS comprehension score, given that the validity of using retellings as a comprehension assessment as opposed to a technique for comprehension instruction has not been established (Gambrell, Koskinen, & Kapinus, 1991). Further research could focus on the interaction of the tutors with the first versus second graders to see if outcomes are affected by their relationships.

Engaging Older Adult Volunteers

The contribution of this study is the focus on this type of volunteer. The EC program conforms to Wasik's (1998) conceptualization of successful volunteer tutoring programs in that the program trains and continually supervises volunteer tutors and the tutors employ structured lesson plans. Specific to this program is the focus on older volunteers living in the school community. Thus, this study offers solid evidence that this type of volunteer can be effective in improving reading outcomes for young students.

The involvement of older community volunteers is significant for several reasons. First of all, the demographic revolution in this society has doubled the size of the older population, and the Baby Boomers will further swell these reserves of human capital (Freedman, 1999). There is ample evidence that these older adults seek ways to contribute to their communities and that serving younger generations is a high priority (Peter D. Hart Research Associates, 2002). Thus, supplemental tutoring programs may be well served to target this type of volunteer, given their sheer number, motivations, and continually increasing educational levels. Second, older workers are known to be more reliable in that they have better attendance. They also have better attitudes toward a job, find more meaning, and have higher levels of job satisfaction (Smyer & Pitt-Catsoupes, 2007). These characteristics most probably extend to high-intensity volunteer positions, like EC, and such programs benefit from a more stable, mature labor force (Civic Ventures, 2004). Third, older adults are known to be more active politically and more experienced in community affairs (Binstock, 2006). They are more likely than younger volunteers to become valuable advocates for the social causes that service programs connect them to and more likely to have financial resources to make contributions to these important causes (Morrow-Howell & Tang, 2007). Thus, the civic engagement of older adults in public education may have a wider benefit to the schools.

Additional Benefits of Experience Corps[®]

The effectiveness of the New York EC program in improving at-risk students' reading abilities should be understood in a larger context, where not only the students, but also the schools and older adult tutors themselves potentially benefit. At the *school level*, research on the Baltimore EC program indicated that third graders made significantly greater gains in reading abilities over the school year than third graders in non-EC schools. Further, the Baltimore evaluation documented that office referrals for misbehavior were significantly lower for EC schools (Rebok et al., 2004). There is also evidence that the EC volunteers benefit from participation in the program. In the Baltimore evaluation of program effects, older volunteers increased physical and cognitive activity (Fried et al., 2004). More than 200 older volunteers participating in EC programs in 18 cities across the country reported improved self-esteem, an enlarged circle of friends, and more productive use of time (Morrow-Howell & McCrary, 2007). These total effects must be considered to

accurately capture the full benefits of a volunteer tutoring program that focuses on the utilization of older adults.

Conclusion

In conclusion, this rigorous evaluation adds to a growing evidence base about the usefulness of engaging older volunteers to address the critical problem of low reading abilities of our country's children. It is important to note that these volunteers served in a program where they were trained and supervised in delivering structured lessons with the young students, key features of successful supplemental tutoring programs (Wasik, 1998). Further research is needed to clarify the cost–benefit ratio of these types of volunteer programs.

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