



After-School Programs: Finding the Right Dose

If the dose of time and activity are right, after-school programs can impact student learning.

By Ronald Dietel

I was falling asleep at my desk. By lunch, I felt so tired that on some days I would lie down on my office floor, close the door, and take a nap.

My first doctor thought that I had developed allergies. Soon I was pounding down over-the-counter allergy pills, which had no effect other than to dry up my sinuses. A second doctor asked me if I'd ever had my thyroid tested. No, I replied. A simple blood test quickly revealed that my thyroid was underperforming. I would need to take a small thyroid-booster pill every day to help. During the next six months, my doctor slowly adjusted my dosage until my thyroid had the extra push it needed. What a difference. My energy was back. Years later, I still feel great.

In medicine, the right dosage is clearly important. But what about after-school programs, where federal funding has grown to more than \$1 billion each year and will continue to grow under the American Recovery and Reinvestment Act of 2009? California alone spends \$550 million annually. With some 6.5 million K–12 students participating in after-school programs, policy makers and the public are rightfully asking if such programs improve achievement, attendance, and other outcomes.

So far, results are mixed. Some evaluations have found small or even moderate effects attributed to after-school programs. Others have found few, none, or nonsignificant effects. Could there be a problem with how evaluators measure and report the amount of time that students actually spend in their after-school program, sometimes called “the dose”?

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In a comprehensive review of after-school evaluations, the Harvard Family Research Project found that nearly 70% of after-school evaluations counted any attendance as full participation in the program (Chaput, Little, and Weiss 2004). In other words, widely different after-school attendance rates weren't even considered.

"Unlike regular school, where students who show up in the morning are usually at school for the entire day, after-school students may attend a program for 30 minutes a day or as much as four hours," explains Denise Huang, a senior researcher at the National Center for Research on Evaluation, Standards, and Student Testing (CRESST). The after-school dose could be very small, very large, or anyplace between, she added.

Huang, who has spent nearly a decade evaluating after-school programs, believes such attendance reporting methods may at least partially explain why many after-school evaluations have found only small or no effects on such outcomes as student behavior, attendance, and achievement. Catherine Scott-Little and her colleagues found that the average achievement effect size across multiple after-school evaluations was .19 in reading and .14 in mathematics (Scott-Little, Hamann, and Jurs 2002). Those are both very small effects.

Another reason for modest effects is that the primary goal of most after-school programs is usually to provide a safe and nurturing environment for students while their parents are at work. Expecting after-school programs to have major effects on more distal goals might be a bit like expecting a thyroid pill to improve cardiovascular fitness.

EVALUATIONS USING PROGRAM DOSAGE

In its latest after-school evaluation, a CRESST research team led by Huang

examined the effects of the Los Angeles' Better Educated Students for Tomorrow (LA's BEST) after-school program based on program dosage. Controlling for student background factors, the researchers analyzed achievement using the following after-school attendance doses: less than 20 days, 21 to 50

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days, 51 to 100 days, and more than 100 days. The research team found a significant effect on mathematics achievement for students who attended the program for more than 100 days (Huang et al. 2008).

According to Seth Leon, who worked on the CRESST evaluation, the results were consistent across two groups of students. Tight control of background factors further supported results from the quasi-experimental study, in which researchers tracked students for four years.

Steven Frankel and Glenn Daley (2007) used similar attendance intervals in their evaluation of the Beyond the Bells Partner Agencies after-school program. They found an association between after-school attendance and scores in math and language arts, as well as regular school attendance. Again, after-school attendance needed to reach a relatively high level to produce a significant effect.

"The minimum annual attendance levels at which improvements in the California Standards Test (CST) scores and improvements in school daily attendance occur," conclude Frankel and Daley, "are 100 days per year for elementary students and 50 days per year for middle school students. Improved teacher-assessed behavior ratings for

middle school students also occur at the 50-day level" (2007: 3).

Neither the LA's BEST nor Beyond the Bells evaluations examined how many "hours" students spent in the program each day, each week, or each month. But in an evaluation of The After-School Corporation (TASC) pro-

grams in New York, Megan Welsh and colleagues from Policy Study Associates sliced their dosage levels into thirds. They defined 60 days out of a school year and at least 60% of the total available time as an *active* participant and 80 days and 80% of the total available time as a *highly active* participant (Welsh et al. 2002).

"Students who participated in TASC after-school activities the most consistently and for the longest period of time," concluded the authors, "experienced the greatest math gains, when compared to similar nonparticipants." After-school dose was key to improved achievement.

SOME DIFFERING RESULTS

Unlike the Frankel-Daley study, neither the Welsh nor Huang study found significant improvements in language arts. Similarly, evaluations of other after-school programs have found dosage effects on some outcomes, but not others.

In a study of the Cooke Middle School After School Recreation Program, for example, Sherri Lauver of the University of Pennsylvania did not find a significant relationship between students randomly assigned to an after-school program and a matched control group on grade point average,

standardized test scores, or in-school behavior (Lauver 2002). But Lauver did find that students with high after-school attendance were more likely to attend school and spend more time on homework. Again, high dosage was important.

Future studies of after-school programs will likely benefit from improved software programs that accurately and efficiently track after-school attendance. Fiester, Simpkins, and Bouffard

and Frankel studies that the minimum intensity number might be somewhere between 50 to 100 days in a school year. David Silver and other researchers are examining similar dosage effects in a CRESST study of California-sponsored after-school programs.

The minimum duration time may be one to two years, as the first year of a new program is nearly always a time for sorting out implementation issues as well as collecting baseline data.

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mention several web-based software programs, including YouthServices.net, the Quality School Portfolio (from CRESST), and KidTrax (2005). They also note the growing use of swipe cards, which should further simplify taking attendance.

THREE TYPES OF DOSES

The Harvard Family Research Project, an agency that devotes considerable resources to the study of after-school programs, recommends three categories for measuring dosage: *intensity*, *duration*, and *breadth*. “Intensity,” write Chaput, Little, and Weiss (2004: 2), “is the amount of time youth attend a program during a given period,” similar to the Welsh study. Duration is the history of attendance, often expressed as the number of total years in an after-school program. “Breadth of attendance,” say the researchers, “refers to the variety of activities that youth attend within and across programs.” An academic activity, for example, might be a series of field trips to a zoo, park, forest, lake, or ocean to observe and discuss animal and plant species. A different activity might be a regular sports program.

For intensity, duration, and breadth, a central question is how much dose is necessary to detect an effect? One might cautiously conclude from the Huang

To date, far fewer studies have measured breadth of activities. Baker and Witt (1996) found that students with higher after-school activity, usually three to five activities or more, had significantly higher math, science, and reading grades than nonparticipants, and that “participants in five or more activities had higher Texas Assessment of Academic Skills (TAAS) math scores than both nonparticipants and those who only participated in one or two activities. . . . Participants in five or more activities had higher TAAS reading scores than nonparticipants and those who participated in less than five activities.” Measuring breadth of activities, together with intensity and duration, seems a worthwhile approach to future after-school evaluations.

Like many metaphors, my medical dosage analogy oversimplifies a very complex process. Learning is much more than taking a pill. But if policy makers, after-school supporters, and researchers will push for some common agreement on dosage levels and methods, we might substantially increase our knowledge of what works in after-school programs. Applying that knowledge to a growing number of after-school programs could lead to more consistent achievement improvements. **K**

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