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## **Summary of Analyses Related to Nashville After Zone Alliance Program Outcomes**

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# Summary of Analyses Related to Nashville After Zone Alliance Program Outcomes

As schools and communities struggle to close the persistent achievement gaps as well as meet the social and emotional needs of young people, a growing body of research has focused in recent years on the impact that afterschool programs are having on the youth who attend them. Although there is a great deal of research pointing toward the benefit of afterschool programs, questions remain about which types of programs are most effective and how often young people need to attend them in order to reap the benefits.

With those questions in mind, American Institutes for Research (AIR), with support from the David P. Weikart Center for Youth Program Quality (Weikart Center), has begun to explore the relationship between program attendance, program quality, and school-related outcomes for youth participating in afterschool programs associated with the Nashville After Zone Alliance (NAZA). AIR developed several questions to guide the work:

1. Do youth who participate in afterschool programming for a greater number of days demonstrate better youth outcomes than youth participating in programming for a fewer number of days?
2. Do youth participating in higher quality programs demonstrate better youth outcomes than youth participating in lower quality programming?
3. Is there a significant interaction between participation in higher quality programming, levels of afterschool program attendance, and education-related outcomes? For example, is the effect of participating in higher quality programming intensified as the number of days attended increases?

The research team used a two-step approach to answer these questions. First, we assigned afterschool programs enrolled in the NAZA initiative to higher and lower quality profiles using data from the Youth Program Quality Assessment (Youth PQA). Second, we used statistical techniques to explore the relationship between program quality, levels of program attendance, and education-related outcomes.

## Defining Quality, Attendance, and Outcomes

Before diving into the analyses and findings, it is important to understand how the research team defined the three key constructs in question—program quality, program attendance, and education-related outcomes. In this section, we briefly describe how each was defined for the purposes of analysis.

### Quality

One of the central hypotheses driving the analysis of data in this report is that youth are likely to demonstrate better education-related outcomes if they attend higher quality programs. Cultivating afterschool program quality is an important goal of the NAZA initiative. To support this effort, Youth PQA has been adopted to help programs measure the quality of their offerings and engage

in intentional improvement efforts. Youth PQA data collected as part of this quality improvement process was used to classify programs into different tiers or program quality profiles.

A first step in creating those quality profiles was to run a series of analyses on the psychometric functioning of Youth PQA. In other words, did the assessment tool perform the way it was supposed to and provide useful data? The research team looked at things like the Youth PQA rating scale, whether self-assessment scores were higher than external assessment scores, and whether the scores were different enough to allow the team to create higher and lower quality profiles.

After completing these analyses and looking at the data, the research team ultimately created two profiles—a higher quality and a lower quality profile. Eight programs were identified for inclusion in each profile, giving the research team 16 programs to include in the assessment of youth outcomes relative to program quality.

## **Attendance**

Program attendance has been defined in a variety of ways by researchers in the afterschool field. Rather than just choosing one definition, in order to ensure the most accurate look at attendance, the research team defined it in several different ways:

1. *Youth attending programming for 30 days or more.* The 30-day attendance threshold is commonly used in evaluations of afterschool programs given that this level of attendance serves as the definition of regular attendance employed by the U.S. Department of Education for the 21st Century Community Learning Centers program. AIR also has found consistent positive program effects among youth participating in programming for 30 days or more relative to similar youth not participating in programming.
2. *Youth attending program for 1–29 days, 30–59 days, 60–89 days, or 90 days or more (also referred to as attendance gradation).* This approach allows us to consider various levels of program participation directly. The possible limitation of this approach is that segmentation of the youth population by these categories results in relatively small *n* sizes in each category.
3. *Youth attending 60 days or more and youth attending less than 30 days.* This approach to defining attendance allowed us to explore the possible interaction of high-quality programming and high program attendance on youth outcomes relative to youth participating relatively infrequently in lower quality programming.

## **Education-Related Youth Outcomes**

Four youth outcomes were examined for the middle-school-aged youth participating in NAZA programs, all in relation to the 2012–13 school year:

1. The number of school-day tardies
2. The percentage of school days attended
3. The number of disciplinary incidents occurring during the school year
4. Youth grades in language arts, mathematics, social studies, and science

## Preexisting Differences

Before examining the relationship between participation in higher and lower quality programs and youth outcomes, we took preliminary steps to understand any preexisting differences between youth participating in higher and lower quality programs—that is, in what ways were the youth enrolled in higher and lower quality programs already different, before programming (or “treatment”) began? To look for these differences, the research team examined youth data from the 2011–12 school year (i.e., the year prior to treatment). We then examined both the type of program they were enrolled in (lower or higher quality) and their program attendance. We found the following differences:

- Youth enrolled in lower quality programs during the 2012–13 school year had twice as many disciplinary incidents on average during 2011–12 than youth enrolled in higher quality programs and received lower language arts grades in the fourth quarter of 2012 as compared to youth enrolled in higher quality programs.
- Youth who attended a greater number of program days during the 2012–13 school year had fewer disciplinary incidents, higher school-day attendance rates, and higher mathematics and science grades on average during 2011–12 than youth who participated in fewer days.

These results indicated that there were some fundamental differences between youth who enrolled in higher and lower quality programs and youth who attended programs more or less often. We needed to account or control for those differences as much as possible when conducting the analyses. To do that, we included only some youth in the analyses—that is, those who had two or more disciplinary incidents during 2011–12, attended less than 95 percent of school days in 2011–12, and scored below a 75 in a given subject area during the first grading period during the 2012–13 school year. By limiting the youth population that was included in the study, we were able to account to some extent for the preexisting differences between program types. As we note in the conclusion to this brief, however, this only partially addresses the potential differences between groups of youth. A more rigorous research design with a random selection of students is required to definitely attribute quality or attendance to youth outcomes.

## Findings

In conducting analyses of NAZA youth participants with both high and low levels of attendance in both higher and lower quality programs, AIR was able to make a few preliminary conclusions about the relationship between afterschool program attendance, program quality, and youth outcomes:

- There is substantial evidence to suggest that a relationship exists between youth enrollment in higher quality programs and fewer disciplinary incidents incurred during the 2012–13 school year. The effect sizes were relatively small (ranging from .058 to .087).<sup>1</sup>

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<sup>1</sup> Effect sizes can be difficult to interpret and are dependent on the field of study. One common interpretation is that .2 is considered a small effect, .5, a medium effect and .8, a large effect (Cohen, 1988). However, it is typical that effect sizes can be much smaller and still be considered substantial. For example, an oft-cited study of the impact of aspirin on heart disease that transformed prevention of the disease showed an effect size of only .03. The effect sizes found in this study are small but are still consistent and substantial enough to conclude that a relationship exists and further study is warranted.

- There is also evidence of a relationship between higher levels of afterschool program attendance and fewer disciplinary incidents incurred during the 2012–13 school year, again, with relatively small effect sizes (ranging from .039 to .064).
- There is consistent evidence that higher levels of afterschool program attendance, sometimes combined with youth enrollment in higher quality programming, was related to greater improvement in mathematics and science grades during the span of the 2012–13 school year. Here again, effects sizes were small (ranging from .027 to .066).

In addition to these findings, we found some evidence that higher program quality and high program attendance were associated with fewer school-day tardies, a higher percentage of school days attended, and greater improvement in social studies grades. However, these results were not as consistently found across multiple analyses or were characterized by very small effect sizes.

It is important to note that there are several limitations associated with the findings described in this brief. First, the research team only partially explored demographic differences between youth enrolled in higher or lower quality programs or who attended programs more frequently. It is possible that if significant differences in outcomes are found to exist between youth in higher and lower quality programs, the differences may have more to do with the demographic differences associated with youth enrolled in each type of program than the level of quality. In other words, although the findings described in this report demonstrate a relationship between program quality, attendance, and outcomes, we cannot definitively say that program attendance or program quality caused a given outcome to happen.

That being said, the analysis does suggest a relationship between program quality, attendance, and youth outcomes that is worth pursuing in further research. It also suggests that continued emphasis on improving program quality and increasing the number of days youth participate in programming may be worthwhile pursuits for NAZA. The research team believes these results will be helpful in crafting reports to be housed in the district’s data warehouse to explore whether NAZA programs are on track in supporting the growth and development of participating youth. Results from this report will be used to craft parameters for the data warehouse reports, including criteria for defining higher and lower quality programs, what thresholds should be used for attendance, and what youth should be included in further exploration of program effectiveness.

## Reference

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.

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It is important to note that effect sizes are based on the partial eta-squared statistic, which summarizes the proportion of the variance accounted for by a given factor (i.e., quality status or attendance level) or interaction based on the non-error variation in the dependent variable (i.e., youth outcome) that has not been accounted for by other factors in the analysis, as opposed to the total non-error variation in the dependent variable. As a result, reported effect sizes will be slightly higher than those that would be obtained calculating effect sizes using other common effect size statistics such as Cohen’s *d*.