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Exploring the 2022-2023 Academic Performance of Students Taught by the Teach For America Members

The goal of this Research Brief is to estimate the instructional effectiveness of the Teach for America (TFA) members in 2022-2023 as compared to that of other teachers in the District by examining how well students who were taught by TFA members performed academically compared to other Miami-Dade County Public Schools (M-DCPS) students.

Data

There were 42 TFA members who had student schedules in both the October 2022 and February 2023 periods. Of those, 33 teachers instructed grades and subjects where students participated in the statewide assessment. Table 1 below shows the number of TFA members by the 2022-2023 grade and assessment.

Table 1

Counts of 2022-2023 TFA Members by Student Grade and Assessment

Grade	Assessment	Number of TFA Members
8	Algebra 1 EOC	1
9	Algebra 1 EOC	1
8	Biology EOC	2
9	Biology EOC	1
10	Biology EOC	2
3	FAST ELA	5
5	FAST ELA	3
6	FAST ELA	4
7	FAST ELA	2
8	FAST ELA	3
10	FAST ELA	1
5	FAST Mathematics	1
7	FAST Mathematics	2
K	FAST STAR Reading/Early Literacy	2
1	FAST STAR Reading/Early Literacy	3
2	FAST STAR Reading/Early Literacy	2
K	FAST STAR Mathematics	1
1	FAST STAR Mathematics	1
2	FAST STAR Mathematics	1
11	US History EOC	2

Note: Certain counts of teachers in the table above are duplicated because a teacher could have taught students in more than one combination of grade level and assessed area.

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Method

To enable comparisons of the academic performance of students taught by the TFA members vs. other students in the District, students taught by TFA members were matched with academically and demographically similar students in the District not taught by TFA members in 2022-2023. The matching was done separately for each combination of student grade and assessment. Propensity score and multivariate matching techniques were used to select students who were similar to the students taught by the TFA members based on certain academic and demographic variables. The academic variables were the scores on the same type of assessment administered at the beginning of the 2022-2023 school year or, in the case of EOCs, the scores on the spring 2022 assessment; these scores were also used as pretest scores in the data analysis. In the case of Algebra 1 EOC, the prior year mathematics scores were used in the matching process while in the case of Biology and US History, the ELA scores were used. The student demographic variables used for matching purposes are shown in the list below.

- Student attendance in 2022-2023
- English Language Learner (ELL) status
- Exceptional Student Education (ESE) status
- Free or Reduced-Price Lunch (FRL) Status
- Gifted status
- Relative age

The analysis of the matching process revealed that the student groups were well-matched on pretest variables and most demographic characteristics across all grade levels and assessed areas.

Table 2 below shows an example of the results of this matching process for one grade and assessed area.

Table 2

An Example of the Results of the Matching Process for Grade 2 FAST STAR Reading

	Students Taught by TFA Members	Matched Students
Number of Students	47	47
Mean Scale Score on the Fall 2022 FAST STAR Assessment	829.8	830.0
Mean Number of Days Absent in 2022-2023	16.0	16.5
Percentage of ELL Students	6	6
Percentage of ESE Students	6	6
Percentage of FRL Students	83	85
Percentage of Gifted Students	13	13
Percentage of Overage Students	6	21

It can be seen in this example that students in the two groups were well matched on all characteristics except the percentage of overage students.

After the matching process was completed, multiple linear regression was used to further adjust the outcomes for the pre-existing differences in student groups and to gauge whether the adjusted scores of students taught by TFA members were statistically different from those of students in the matching group. The regression analysis was done for all grade levels combined in the case of the EOC assessments, but separately for each grade level in all other cases (FAST or FAST STAR assessments). In this regression, the outcome was the scores on the spring 2023 assessment as shown in Table 1. The relevant pretest scores

were used as predictors as mentioned above. In addition, all demographic variables were entered into the multiple linear regression model initially; subsequently, only the statistically significant predictors of the outcome were retained in the final model. All statistical analyses were conducted at the 0.05 level of statistical significance.

For students in grades K-2, the combinations of pre- and post-tests in the Reading/Early Literacy were as follows:

	Pre-Test	Post-Test
Grade K	FAST STAR Early Literacy	FAST STAR Early Literacy
Grade 1	FAST STAR Early Literacy	FAST STAR Reading
Grade 2	FAST STAR Reading	FAST STAR Reading

Results

Altogether, 17 multiple linear regression analyses were conducted. The number of student records used in these analyses varied from a low of 32 (Grade 1, FAST STAR Mathematics) to a high of 464 (US History EOC) with 144 as the median. Generally, the models exhibited a good fit: the coefficient of multiple determination varied from 0.509 (Grade 7 FAST Mathematics) to 0.842 (Grade 1 FAST STAR Mathematics) with 0.666 as the median value.

Of the 17 analyses conducted, 5 analyses showed a statistically significant difference between the adjusted scores of students taught by TFA members and those of matched students. In one of these, students taught by TFA members had significantly higher adjusted mean scale score than their matched counterparts, while in four other cases, students not taught by TFA members had their adjusted mean scores higher than students taught by TFA members. Table 2 below shows the summary of these results. Because the scales used on different assessments are dissimilar, the differences in the adjusted mean scale scores were converted to standard deviation (SD) units by dividing those score differences by the population standard deviations of the outcome scores. This conversion also assists in judging the practical importance of these results.

Table 3

Summary of the Statistically Significant Findings

Grade/Assessment	Difference in Standard Deviation Units: TFA – Matched Students
Biology EOC	0.26
Grade 3 FAST ELA	-0.46
Grade 1 FAST STAR Reading	-0.35
Grade 1 FAST STAR Mathematics	-0.49
US History	-0.22

All these differences in adjusted mean scale scores expressed in SD units fall into what is generally considered small-to-medium size.

Discussion

The data analysis found a statistically significant difference in student academic performance in favor of students taught by TFA members in one of the 17 comparisons (6%), and those in favor of matched students in four of the 17 comparisons (24%). It should be noted that in the reading/ELA area many students in both the TFA and matched groups were enrolled in more than one course. For example, many elementary students were enrolled in the Fundamental Basic Skills in Reading course while many students in secondary grades were enrolled in the Intensive Reading course in addition to the general reading/ELA courses. In those cases, students in the TFA group were taught by not only the TFA members, but also by non-TFA teachers.

The list below shows the average number of courses/teachers for the two cases where statistically significant differences in student academic achievement were found in the reading/ELA area.

	TFA Group	Matched Group
Grade 3 FAST ELA	1.2	1.3
Grade 1 FAST STAR Reading	1.7	1.1

Since in these two cases, students in both groups were instructed by both TFA and non-TFA teachers, the differences in student academic achievement cannot be attributed solely to the lower instructional effectiveness of the TFA members because it is impossible to disentangle the impacts of individual teachers on student achievement.

If we were to discount statistically significant findings in these two cases, we would be left with only three of the 17 comparisons where statistically significant differences in student academic performance can be plausibly attributed, at least in part, to the difference in instructional effectiveness of teachers. One of these favors TFA members and two favor other teachers in the District. It is important to note that while the TFA members were beginning teachers, the mean number of years of experience of other teachers across the 17 comparisons in this study varied from 11 to 17 with a median of 14 years.

In summary, in the majority of the comparisons, students of teachers taught by TFA members, who were the beginning teachers, performed academically on par with similar students who were taught by the District teachers with about 14 years of teaching experience on average. Of course, in the absence of a true educational experiment with random student selection/assignment as well as experimental controls, the findings of quasi-experimental studies, such as the present one, are never 100% definitive.