



Memphis Teacher Residency: Teacher Effectiveness in 2018–19

Prepared by the Department of Research & Performance Management

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Key Findings

- Among Shelby County Schools (SCS) teachers in their first three years of teaching, those who trained with Memphis Teacher Residency (MTR) outperformed their non-MTR counterparts on every measure analyzed in this study:
 - TVAAS (Tennessee Value-Added Assessment System) growth scores
 - TEM (Teacher Effectiveness Measure) observation scores
 - TEM professionalism scores
 - TEM student-perception scores
- Among SCS teachers with four to nine years of teaching experience, there were no statistically significant differences between MTR-trained teachers and their non-MTR counterparts on any of the above measures.
- A review of the previous seven years of MTR evaluations shows that MTR-trained teachers—especially those in the early years of their teaching career—have consistently outperformed their district counterparts on TVAAS and TEM measures over the years.
- Beyond being more effective teachers, MTR-trained teachers were shown to be more likely than their non-MTR counterparts to remain teaching in the district during the first three years of their career (the period during which teacher turnover is generally highest).
- The review of past evaluations also shows that MTR has consistently recruited top-performing teachers to mentor their residents over the years—likely a major contributing factor to the teaching effectiveness exhibited by the MTR graduates.

Introduction

Beginning not long after its establishment in 2009–10, Memphis Teacher Residency (MTR) has received an annual evaluation of its program from its primary partner, Shelby County Schools (SCS; formerly Memphis City Schools before the city–county schools merger in 2013–14). MTR and SCS were partners in a state-administered, federally funded grant from 2011–12 to 2013–14, which funded the evaluation for those years. Ever since the grant ended, MTR has hired SCS to continue evaluating the effectiveness of MTR-trained teachers working in SCS. This report presents the evaluation of MTR teacher effectiveness in SCS for 2018–19.

Memphis Teacher Residency

MTR is a teacher recruitment and training program working in collaboration with Union University. Those accepted into the MTR program first complete a residency year, for which they receive free tuition, free housing, and a stipend of \$1,000 per month. The residency year consists of a summer of intensive coursework, followed by a school year of apprenticing under an experienced mentor teacher in a high-need Memphis public school (regular or charter) every Monday through Thursday, and attending classes every Friday and most Saturdays.

Upon successful completion of the residency year, each MTR resident is awarded a Master of Urban Education. In exchange, MTR residents commit to teaching for three years in an MTR partner school. MTR currently has 29 partner schools, 27 of which are located in the five neighborhoods where MTR



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focuses its efforts. At least 60% of the students are economically disadvantaged in all the partner schools. Most of the schools are district-managed, but 11 are charter schools: two in SCS and nine in the Achievement School District (ASD). MTR graduates continue to receive formal and informal support and professional development throughout their three-year teaching commitment in an MTR partner school.

MTR requires graduates who do not fulfill their three-year teaching commitment to reimburse MTR in the amount of \$10,000 for each unfulfilled year—for a potential total of \$30,000. This provides strong incentive for MTR graduates to enter the teaching profession and remain in it for at least three years.

For most of its existence, MTR did not have a formal, codified partnership with SCS, even though the two organizations have worked with one another since MTR's inception. Beginning with the 2019–20 school year, however, SCS will start paying MTR \$5,000 per year for each graduate who teaches at an SCS-managed school, for the first three years of their post-residency teaching career. This will help offset the roughly \$50,000 that MTR invests to train and support a resident over the four years of residency plus graduate commitment.

Methods

This evaluation analyzed four measures to compare the teaching effectiveness of MTR-trained teachers with that of their counterparts who did not go through the MTR program. MTR/non-MTR comparisons were made for two groups of teachers: those with one to three years of SCS teaching experience and those with four to nine years. Three years is a logical cut-point because of: 1) the continued professional support MTR teachers receive for the first three years after graduating from the program, and 2) the financial arrangements mentioned above. The MTR graduates with more than three years of experience had been teaching between four and nine years, hence the 4–9 year category.

Independent samples t-tests were employed to make the comparisons. This method compares the mean score of one group to the mean score of another group and assesses the statistical significance of the difference between the two means. The four measures used for the MTR/non-MTR mean comparisons are discussed below.

Measures

TVAAS Scores

The first measure consists of teachers' scores from the Tennessee Value-Added Assessment System (TVAAS). Teacher-level TVAAS data are designed to show how much *growth* a teacher's students exhibited on achievement tests from one year to the next. A teacher's TVAAS scores are generated by assessing her students' performance on end-of-year state-mandated assessments in light of those students' past performance on such assessments. Students outpacing their past performance will raise the teacher's TVAAS score, while students falling short of their past performance will lower it.



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Teachers of tested subjects received a separate 2018–19 TVAAS effectiveness score for each subject or grade level tested, so if a teacher taught eighth-grade mathematics and Algebra I, he received two effectiveness scores. Teachers were also assigned an overall composite score, calculated as a 3-year, 2-year, or 1-year average, depending on the number of years of data available for each teacher. This inconsistency in composite scores is unfortunate, because it is important to be able to look at a teacher's overall TVAAS performance from year to year, without influence from previous years. This is especially important for the first few years of a teacher's career, when we expect the most dramatic improvements to occur.

Since the focus of this evaluation is on MTR teachers' performance specifically in 2018–19, it was necessary to create a single-year composite score for each teacher in the study. This was accomplished by using a weighted average, taking into account the number of students in each tested grade/subject. So if a teacher taught eighth-grade mathematics to 30 students and Algebra I to 120 students, the calculation gives the Algebra I score four times more weight than the eighth-grade mathematics score.

Each teacher's 2018–19 TVAAS composite was computed using the standardized, continuous index variable that underlies the ordinal TVAAS levels of 1 to 5 with which most Tennessee educators are familiar. The index variable consists of an estimate (produced by the TVAAS statistical model) divided by its standard error. The TVAAS effectiveness levels are derived from the values of the index variable as indicated in Table 1.

Table 1. Designation of TVAAS effectiveness levels based on TVAAS index

| Level | Label | Underlying index |
|-------|-----------------------------------|-----------------------------|
| 1 | Least effective | index < -2 |
| 2 | Approaching average effectiveness | $-2 \leq \text{index} < -1$ |
| 3 | Average effectiveness | $-1 \leq \text{index} < 1$ |
| 4 | Above average effectiveness | $1 \leq \text{index} < 2$ |
| 5 | Most effective | $2 \leq \text{index}$ |

TEM Component Scores

The other three measures employed in this evaluation are all components of the TEM (Teacher Effectiveness Measure), which is SCS's teacher evaluation system. Every teacher receives a TEM score each year (unlike TVAAS, which applies only to teachers of tested subjects). The TEM comprises multiple measures: observations, professionalism, student perceptions, student achievement, and student growth. The TEM components are each rated on a 1–5 scale, as indicated in Table 2.

Table 2. TEM effectiveness ratings

| Rating | Label |
|--------|----------------------------------|
| 1 | Significantly below expectations |
| 2 | Below expectations |
| 3 | Meeting expectations |
| 4 | Above expectations |
| 5 | Significantly above expectations |



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The components of the TEM are combined to create an overall TEM score. However, this evaluation separately analyzes three of the individual TEM components, because much of the overall TEM score consists—in varying degrees according to circumstance—of TVAAS performance. Since some teachers are assigned schoolwide TVAAS scores because they do not teach tested subjects, it is much more desirable to analyze separately: 1) TVAAS scores (for teachers of tested subjects), and 2) components of the TEM that are not related to achievement tests (for all teachers). The three non-achievement-related TEM components are discussed below.

Observation scores. Certified TEM observers conduct announced and unannounced observations of all SCS teachers (and other certified staff) throughout each school year. Principals, vice principals, assistant principals, PLC (professional learning community) coaches, content specialists, district coaches, National Board Certified Teachers, and specialty teachers are among the designated positions eligible to become certified TEM observers. New hires were to be observed four times throughout the year: once announced and three times unannounced. All other teachers were to have one announced and one unannounced observation, unless they had scored less than a 3 on any one of several TEM components the previous year. In that case, they were to have one announced and two unannounced observations. A teacher's final score on the observation component of the TEM consists of the average of all her observation scores for the year.

Professionalism scores. From the 2018–19 TEM Manual (p.12):

The Professionalism component is designed to capture a teacher's efforts to enhance their practice through professional learning and growth, use of data, school and community involvement, and leadership....

Teachers and school administrators will collect and document evidence of a teachers' [sic] professionalism throughout the course of the school year. The school administrator will then review the evidence and determine a final score during [a conference at the end of the school year...].

Administrators and teachers are encouraged to use the Professionalism Rubric Scoring Guide... to assist in evidence, artifact collection, and assigning ratings. Teachers should submit 3-5 relevant artifacts per indicator from the current school year.

Student-perception scores. From the inception of the TEM through 2017–18, the district surveyed students twice a year using the Tripod survey instrument “to assess observable teaching practices in their classroom” (2017–18 TEM Manual, p.11). However, beginning in 2018–19, the district switched to the Panorama platform for its student-perception surveys. According to the Panorama Student Survey User Guide, “the survey measures student perceptions of teaching and learning, culture and climate, and student experiences in the classroom.... Schools and districts can customize the survey by selecting the topics they value most” (p. 2). SCS customized its surveys (grades K–2, 3–5, and 6–12) to focus on assessing student perceptions of teaching and learning in a particular class.



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Results

The findings of the TVAAS analyses are presented in Table 3, which displays results first in the units of the index variable (i.e., standard errors) and then converted into effectiveness levels as described in Table 1. While the index units show the group comparisons more precisely, the effectiveness levels may be more readily understandable. The TVAAS effectiveness levels of 1 through 5 are well known to most Tennessee educators, so seeing the standard error units translated into the effectiveness levels can help provide substance and context to the results.

Table 3. Mean differences[†] between MTR and non-MTR teachers' 2018–19 TVAAS composites

| Years of experience | Teacher group | Mean TVAAS composite [‡] | Mean difference [^] | N | Statistical significance |
|---------------------|---------------|-----------------------------------|------------------------------|-----|--------------------------|
| 1 to 3 | MTR | 0.06 | Level 3 | 56 | YES (p=.002) |
| | Non-MTR | -0.99 | Level 3 | 587 | |
| 4 to 9 | MTR | 0.69 | Level 3 | 25 | NO (p=.355) |
| | Non-MTR | 0.14 | Level 3 | 385 | |

[†] assessed via independent-samples t-test

[‡] method for obtaining TVAAS composites described in “TVAAS Scores” section; conversion of TVAAS index into effectiveness levels explained in Table 1; first column: TVAAS index (standard error units); second column: corresponding TVAAS effectiveness level

[^] mean differences shown two ways:

- TVAAS index: the given MTR group’s mean TVAAS composite minus that of the non-MTR group
- TVAAS effectiveness level: the given MTR group’s mean effectiveness level minus that of the non-MTR group

As Table 3 illustrates, MTR teachers with 1–3 years of teaching experience outperformed their non-MTR counterparts by 1.05 standard error units. Although both groups’ mean TVAAS composite fell within the Level 3 effectiveness category, a difference of more than one standard error unit is nonetheless substantial. Note that the non-MTR teachers were just over a hundredth of a point away from averaging Level 2 (*approaching average effectiveness*), while their MTR counterparts were in the middle of Level 3 (*average effectiveness*).

As for the teachers with 4–9 years of experience, the MTR teachers outperformed their non-MTR counterparts by more than half a standard error unit, but the difference was not statistically significant, likely owing to the small MTR sample size.

The results for the analyses of the three TEM components are presented in Table 4, which shows that MTR teachers with 1–3 years of teaching experience outperformed their non-MTR counterparts on all three measures. Those MTR teachers averaged 0.45 points higher (almost half of an effectiveness rating) on observations, 0.61 points higher (more than half of an effectiveness rating) on professionalism, and 0.20 points higher (a fifth of an effectiveness rating) on student perceptions, as compared to their non-MTR counterparts.



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As for the TEM results for the teachers with 4–9 years of experience, none were very large or statistically significant. The two groups did not differ significantly on observations, professionalism, or student perceptions.

Table 4. Mean differences[†] between MTR and non-MTR teachers' 2018–19 TEM component scores

| Years of experience | TEM component | Teacher group | Mean score [‡] | Mean difference | N | Statistical significance |
|---------------------|-----------------|---------------|-------------------------|-----------------|-------|--------------------------|
| 1 to 3 | Observations | MTR | 4.16 | 0.45 | 83 | YES |
| | | Non-MTR | 3.71 | | 1,593 | (p=.000) |
| | Professionalism | MTR | 4.55 | 0.61 | 83 | YES |
| | | Non-MTR | 3.94 | | 1,592 | (p=.000) |
| | Student surveys | MTR | 4.32 | 0.20 | 76 | YES |
| | | Non-MTR | 4.12 | | 1,181 | (p=.045) |
| 4 to 9 | Observations | MTR | 4.42 | 0.16 | 25 | NO |
| | | Non-MTR | 4.26 | | 1,317 | (p=.170) |
| | Professionalism | MTR | 4.50 | 0.11 | 25 | NO |
| | | Non-MTR | 4.39 | | 1,317 | (p=.390) |
| | Student surveys | MTR | 4.17 | -0.02 | 23 | NO |
| | | Non-MTR | 4.19 | | 890 | (p=.904) |

[†] assessed via independent-samples t-test; [‡] on a scale of 1 to 5

Review of Past Evaluations

This evaluation marks the eighth year in a row that the district has evaluated the effectiveness of the MTR program. It makes sense at this juncture to present a review of the findings of the seven previous evaluations, in conjunction with the results presented above, to provide a comprehensive overview of MTR's performance since it began. Table 5 presents the major findings of all eight evaluations.

As shown, MTR-trained teachers in the early years of their teaching career consistently outperformed their early-career non-MTR-trained counterparts on TVAAS and TEM measures. Moreover, they were more likely than their counterparts to remain in the teaching field in the first three years, when teacher turnover is generally highest.

Later career MTR-trained teachers (those with more than three years of experience) occasionally outperformed their district counterparts, and never underperformed them. But the differences between the two groups were usually non-significant. Small MTR sample sizes were sometimes the likely cause of the lack of statistically significant differences, but in some cases the substantive differences between the MTR and non-MTR teachers were just not very large. In light of the early-career findings discussed above, it may be that the MTR experience puts teachers on the fast track to effective teaching, such that it takes the average non-MTR-trained teacher a number of years of classroom experience to catch up with their MTR peers.



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Table 5. Mean differences¹ between MTR-affiliated teachers and non-MTR-affiliated teachers from 2011–12 to 2018–19

| School year evaluated | Group evaluated | Cohorts evaluated | Years of experience | TVAAS ² | TEM composite ³ | TEM observations ⁴ | TEM professionalism ⁴ | TEM student perceptions ⁴ |
|-----------------------|-----------------|-------------------|--|--------------------|----------------------------|-------------------------------|----------------------------------|--------------------------------------|
| 2011–12 | Graduates | 2010 to 2011 | 1 to 5 | 0.78** | N/S | | | |
| | Mentors | 2012 | more than 5 | 0.85** | N/S | | | |
| 2012–13 | Graduates | 2010 to 2012 | 1 to 5 | 1.73** | | | | |
| 2013–14 | Graduates | 2010 to 2013 | 1 to 5 | N/S | N/S | | | |
| | Mentors | 2014 | N/A | 2.97*** | 50*** | | | |
| 2014–15 | Graduates | 2010 to 2014 | 1 to 5 | 1.10* | N/S | | | |
| | Mentors | 2014 to 2016 | N/A | 2.62*** | 54*** | | | |
| 2015–16 ⁵ | Graduates | 2010 to 2015 | Newly hired MTR teachers were more likely than their non-MTR counterparts to teach a second and third year. ⁶ | | | | | |
| 2016–17 | Graduates | 2010 to 2016 | 1 to 3 | 1.43*** | | 0.35*** | 0.40*** | 0.22* |
| | | | 4 to 7 | N/S | | N/S | N/S | N/S |
| 2017–18 | Graduates | 2010 to 2017 | 1 to 3 | 1.33*** | | 0.43*** | 0.48*** | 0.29* |
| | | | 4 to 7 | N/S | | N/S | 0.27* | N/S |
| | Mentors | 2018 | N/A | 1.72** | | 0.38*** | 0.57*** | 0.38** |
| 2018–19 | Graduates | 2010 to 2018 | 1 to 3 | 1.05** | | 0.45*** | 0.61*** | 0.20* |
| | | | 4 to 9 | N/S | | N/S | N/S | N/S |

*p<.05, **p<.01, ***p<.001 (all two-tailed); N/S = not statistically significant; N/A = not applicable

¹ assessed via independent-samples t-tests; differences computed as MTR-affiliated teachers' mean score minus mean score of non-MTR-affiliated counterparts; statistical significance not originally reported for 2012–13 to 2014–15, but is reported here

² all in standard error units (see Table 1 for interpretation) except for 2011–12, which is on a scale of 1 to 5

³ on a scale of 100 to 500

⁴ on a scale of 1 to 5; see Table 2 for interpretation

⁵ Teacher retention, rather than teacher effectiveness, was the focus of the 2015–16 MTR evaluation.

⁶ Because of an ASD takeover that disproportionately affected MTR teachers, confidence in the fourth- and fifth-year retention-rate comparisons between MTR and the rest of the district is limited. Therefore, those results are not reported here.



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One probable reason for the consistently positive findings for the MTR-trained teachers over the years is that the program has reliably recruited top-performing teachers as mentors for the MTR residents. The year of apprenticeship under a mentor teacher is the backbone of the MTR program model, making mentor quality a necessary condition for program success. Whenever mentor teaching effectiveness has been assessed, the MTR mentors outperformed the rest of the district by large (or enormous) margins on all measures. Moreover, they always averaged in the top two categories of effectiveness on all measures. The perennial ability to recruit high-quality mentors is surely one of MTR's major keys to success.

Conclusion

The analyses presented here show that in 2018–19, MTR teachers in their first three years of SCS teaching outperformed their non-MTR counterparts by significant margins on four very different measures of teaching effectiveness: student growth on achievement tests, observation of practice, professionalism, and student perceptions. These findings are consistent with those of the previous seven MTR evaluations. Taken as a whole, the empirical record on MTR's program effectiveness indicates that MTR has been dependably achieving its primary mission since its establishment a decade ago: that is, to provide Memphis high-need schools with *effective* teachers.