

Title Registration for a Systematic Review: Teach For America (TFA) for Improving Math, Language Arts, and Science Achievement of Primary and Secondary Students in the United States: A Systematic Review

**Herbert Turner, Robert Boruch, Michèle Muñoz-Miller, &
Mackson Ncube**

Submitted to the Coordinating Group of:

| | |
|-------------------------------------|---------------------------|
| <input type="checkbox"/> | Crime and Justice |
| <input checked="" type="checkbox"/> | Education |
| <input type="checkbox"/> | Disability |
| <input type="checkbox"/> | International Development |
| <input type="checkbox"/> | Nutrition |
| <input type="checkbox"/> | Social Welfare |
| <input type="checkbox"/> | Other: |

Plans to co-register:

| | | | |
|-------------------------------------|-------|-----------------------------------|--------------------------------|
| <input checked="" type="checkbox"/> | No | | |
| <input type="checkbox"/> | Yes | <input type="checkbox"/> Cochrane | <input type="checkbox"/> Other |
| <input type="checkbox"/> | Maybe | | |

Date Submitted: 3 September 2014

Date Revision Submitted: 25 September 2014

Approval Date: 6 October 2014

Publication Date: 1 November 2014

*Campbell Collaboration Systematic Review Title Registration Template version date:
9 February 2014*

TITLE OF THE REVIEW

Teach For America (TFA) for Improving Math, Language Arts, and Science Achievement of Primary and Secondary Students in the United States: A Systematic Review

BACKGROUND

Briefly describe and define *the problem*

Teacher effectiveness is considered to be among the most influential factors influencing student achievement in America's public schools (Rivkin, Hanushek, & Kain, 2005; Sanders & Rivers, 1996). One way to measure teacher effectiveness is through improvements in student achievement. Measured in this way, effective teachers are estimated, over the duration of a single school year, to advance student academic achievement by a full grade level or more (Clotfelter, Ladd, & Vigdor, 2007, 2010; Hanushek, 1992; Hanushek & Rivkin, 2012; RAND, 2012; Rockoff, 2004). Further, students being taught by a more effective teacher have experienced academic improvement up to three times greater than that of students taught by a less effective teacher (Kane, Rockoff, & Staiger, 2008). Yet, there continues to be a shortage of highly effective teachers across the United States, especially in the most high-need areas. This shortage has persisted for decades and is well documented (Darling-Hammond, 1984; Ingersoll 2001; Ingersoll & Perda, 2010; National Commission on Teaching and America's Future, 1997). Research shows that this shortage is most pervasive in US public schools serving the highest proportions of at-risk and high-need students (Clotfelter, Ladd & Vigdor, 2006; Monk, 2007; Peske & Haycock, 2006).

The shortage of effective teachers in US public schools and the potential long-term impact of effective teachers on student academic achievement are two reasons why it is critically important to understand which alternative teacher preparation programs, in particular, can produce highly effective teachers for difficult-to-staff, high-need public schools in America. One such alternative teacher preparation program is Teach For America (TFA).

Briefly describe and define *the population*

TFA serves the highest-needs students in the country. Students in their schools are 90% African American or Latino/Hispanic, and approximately 80% receive free or reduced price lunches. According to a study conducted by Mathematica Policy Research (2004), students in classrooms taught by TFA teachers began the year, on average, at the 14th percentile compared to the national norm (Decker, Mayer, & Glazerman, 2004). As of 2010, TFA teachers represented between 10% and 15% of new teachers hired in high-needs schools across 35 regions, representing most of the country's urban and rural districts.

Briefly describe and define *the intervention*

TFA is a program designed to address the growing teacher shortage in public schools with high-needs students by identifying high-achieving college graduates and highly-qualified adults from various professional fields, training them in a short period of time, and placing them in the classroom with mentors and continued support. TFA recruits recent graduates from colleges and universities through undergraduate programs across America and recruits working professionals through its national infrastructure and reputation. From these graduates and professionals, TFA selects corps members who demonstrate competency in areas such as leadership and perseverance. Selected corps members then participate in a 5-week intensive training program the summer before beginning their two-year teaching assignment. During their teaching assignment, TFA corps members receive on-going support, peer mentoring, and professional development.

Critics of TFA argue that a 5-week training (or teacher preparation) program—which is often the only teacher experience corps members have prior to classroom placement—is not sufficient to prepare them for teaching in high-needs public schools and classrooms in the United States. From the critics perspective, the primary argument against the use of TFA corps members in high needs public schools is that these corps members lack the preparation and training to handle the challenges they face as new teachers in the most impoverished and at-risk school districts in the United States. Critics also argue that the two-year commitment does not require TFA corps members to stay in schools long enough for students to realize the improvements in academic outcomes that are hypothesized in the TFA theory of change. TFA recently responded to these criticisms by announcing through the TFA blog that they will be offering year-long training to college seniors and support to corps members and Alumni that stay in teaching in years 3, 4, and 5 (D. Goodman, personal communication, March 07, 2014).

TFA is a branded teacher preparation program that is well recognized, intensely debated, and widely studied in the United States. Remarkably, the fourteen studies we identified in our cursory search have not been systematically reviewed by the Campbell Collaboration or by the What Works Clearinghouse—although the Clearinghouse has conducted reviews of single studies on TFA. Our systematic review will apply rigorous and transparent systematic review procedures to objectively review the evidence and thereby inform the current and vigorous public policy debate on the effects of TFA on student academic outcomes. Now, more than ever, what is needed is the use of rigorous systematic review procedures that will enable us to document, and when statistically possible control for, differences in study, school, teacher, and student characteristics that could mask the estimated effect of TFA on student academic outcomes.

Outcomes: What are the intended effects of the intervention?

The TFA theory of change is based on the theory that the TFA recruitment, selection, training, and support for corps members work synergistically to produce corps members who are equipped to provide high-quality instruction to students in their classrooms. This

high quality instruction, in turn, leads to students with higher achievement and better academic outcomes in subject areas such as math, English language arts, and science relative to the achievement and academic outcomes that these students would have experienced if taught by non-TFA teachers. For the English language arts outcome domain, we will focus on student achievement in reading or writing or both.

OBJECTIVES

We propose to use a series of procedures that will minimize bias in the identification, critical appraisal, and statistical synthesis of all relevant and internally valid studies on TFA. Our proposed systematic review will attempt to answer the following eight questions:

1. What are the study characteristics of RCTs and QEDs conducted on TFA?
2. What are the sample characteristics of the schools, teachers, and students in these RCTs and QEDs?
3. What are the main effects of TFA on elementary, middle, and high school students' Math, English Language Arts, and Science outcomes? (The main effects will be estimated separately for each grade level)
4. Are the main effects of TFA statistically significantly different between RCTs and QEDs? If not, what is the combined main effect of TFA for RCTs and QEDs?
5. Do the main effects of TFA differ by group contrast? (e.g., TFA corps member group vs. novice "traditional route teachers" control group; or TFA corps member group vs. veteran "alternative preparation route teachers" control group.)
6. Do the main effects of TFA differ by student subgroups?
7. Does the main effect of TFA differ by fidelity of TFA implementation (if such information is reported in the studies)?
8. Is there sufficient cost information in TFA studies, or a subset of studies, to evaluate whether TFA is cost effective? If so, is TFA cost effective?

METHODOLOGY

What types of study designs are to be included and excluded?

Studies that use random assignment to form intervention and control groups and studies that use matching to form a counterfactual group comparable to the intervention group on measured characteristics will be included. The expected counterfactual groups will include teachers who pursued training via traditional teacher education programs or via other alternative certification routes other than TFA. Because TFA serves all grades from

Kindergarten through 12th grade, studies that examine any grade from K-12 will be considered for inclusion, provided that they meet additional criteria described below. Expected student outcomes are Math, English Language Arts, and Science standardized assessment scores, although depending on the state in which the TFA study was conducted, science standard assessment scores may not be available in the early elementary grades and may not be available for some of the high school grades. The reason is that states vary in the use of their assessments to evaluate the academic achievement of students in different grades and in different subjects.

Inclusion criteria:

Impact evaluations that include K-12 students and teachers in the United States, form a TFA program group and at least one control or comparison group using random assignment, matching, or other statistical methods, and estimate the effect of TFA on academic outcomes in Math, English Language Arts, or Science will be eligible for review.

Exclusion criteria:

Impact evaluations based on the TFA program group only or estimate the effect of TFA on non-cognitive outcomes *only* will be excluded from the review.

Your method of synthesis:

Individual study effects will be synthesized statistically using Comprehensive Meta-Analysis (CMA) software. The primary goal of the meta-analysis is to address review questions 3 through 8 by estimating the average effect of TFA on student academic outcomes, quantifying its precision (with confidence intervals), evaluating whether the effect is real or due to chance using the actual p-value compared to the alpha level, and determining whether TFA is cost effective. Related to this goal, the CMA software will allow us to quantify the amount of heterogeneity in the individual effect sizes that comprise the average effect size. This involves empirically distinguishing between variation in the individual effect sizes that is due to sampling error and variation in the individual effects that is due to true differences among studies. If we are able to quantify the true variation among study effect sizes, we can use study characteristics to try to explain this variation. Finally, we will evaluate whether the overall estimate of TFA’s average effect is affected by publication bias.

SOURCES OF SUPPORT

External funding:

The Campbell Collaboration Education Coordinating Group mini-grant.

DECLARATIONS OF INTEREST

Dr. Turner completed an impact evaluation of TFA that was funded by the organization, and serves on the i3 Technical Assistance team that provides technical assistance to the TFA scale-up grant evaluators. However, Dr. Turner is not presently working on any studies of TFA, does not receive funding from TFA, and has no financial interest in TFA.

REQUEST SUPPORT

We do not require additional support beyond the C2 Education Coordinating Group mini-grant award.

AUTHOR(S) REVIEW TEAM

Lead author:

Name: Dr. Herbert Turner, III
Title: President and Principal Scientist/Adjunct Associate Professor
Affiliation: ANALYTICA, Inc. /University of Pennsylvania
Address: 35 Goldfinch Circle
City, State, Province or County: Phoenixville, PA
Postal Code: 19460
Country: USA
Phone: 610.933.1005
Mobile: 215.808.8880
Email: herb@analytica-inc.com

Co-author(s):

Name: Dr. Robert Boruch
Title: Trustee Professor of Education and Professor of Statistics
Affiliation: Wharton School, University of Pennsylvania
Address: 3700 Walnut Street
City, State, Province or County: Philadelphia, PA
Postal Code: 19104-6216
Country: USA
Phone: 215.898.0409
Email: robertb@gse.upenn.edu

Name: Dr. Michèle Muñoz-Miller
Title: Senior Scientific Researcher
Affiliation: ANALYTICA, Inc.
Address: 35 Goldfinch Circle
City, State, Province or County: Phoenixville, PA
Postal Code: 19460
Country: USA
Phone: 484-321-1198
Email: michele@analytica-inc.com

Name: Mackson Ncube
Title: Scientific Researcher

Affiliation: ANALYTICA, Inc.
Address: 35 Goldfinch Circle
City, State, Province or County: Phoenixville, PA
Postal Code: 19460
Country: USA
Phone: 215-801-3584
Email: mackson@analytica-inc.com

ROLES AND RESPONSIBILITIES

Content:

- *Review team:* Dr. Herbert Turner, and Dr. Robert Boruch
- *Content Advisory:* David Goodman

Systematic review methods:

- *Review team:* Dr. Herb Turner, Dr. Robert F. Boruch, Dr. Michèle Muñoz-Miller, & Mr. Mackson Ncube
- *Methodological Advisor:* Dr. Michael Borenstein

Statistical analysis:

- *Review team:* Dr. Michèle Muñoz-Miller & Mr. Mackson Ncube
- *Statistical Advisor:* Dr. Michael Borenstein

Information retrieval:

- *Review team:* Dr. Herb Turner, Dr. Michèle Muñoz -Miller & Mr. Mackson Ncube
- *Content group:* David Goodman

PRELIMINARY TIMEFRAME

| Stage | Month of Completion |
|--------------------------------|---------------------|
| Title Registration Submitted | September 2014 |
| Draft Protocol Submitted to C2 | December 2014 |
| Review Submitted to C2 | August 2015 |

REFEREMCES

- Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L., (2006). The academic achievement gap in grades 3 to 8, *NBER Working Papers No. 12207*, National Bureau of Economic Research, Inc.
- Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2007). Teacher credentials and student achievement: Longitudinal analysis with student fixed effects. *Economics of Education Review*, 26, 673–682.

- Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2010). Teacher credentials and student achievement in high school: A cross-subject analysis with student fixed effects. *Journal of Human Resources*, 45, 655–681.
- Darling-Hammond, L. (1984). *Beyond the commission reports. The coming crisis in teaching*. Santa Monica: RAND. (No. R-3117-RC)
- Darling-Hammond, L., Holtzman, D. J., Gatlin, S. J., & Heilig, J. V. (2005). Does teacher preparation matter? Evidence about teacher certification, Teach For America, and teacher effectiveness. *Education Policy Analysis Archives*, 13(42), 1–51.
- Decker, P. T., Mayer, D. P., & Glazerman, S. (2004). *The effects of Teach For America on students: Findings from a national evaluation*. Mathematica Policy Research, Inc. Retrieved from <http://www.mathematica-mpr.com/publications/pdfs/teach.pdf>
- Hanushek, E. (1992). The trade-off between child quantity and quality. *Journal of Political Economy*, 100(1), 84–117.
- Hanushek, E., & Rivkin, S. (2012). The distribution of teacher quality and implications for policy. *Annual Review of Economics*, 4, 131-157.
- Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal*, 37(3), 499–534.
- Ingersoll, R.M., & Perda, D. (2010). Is the supply of mathematics and science teachers sufficient? *American Educational Research Journal*, 43(3), 563-594.
- Ingersoll, R. M., & Strong, M. (2011). The impact of induction and mentoring programs for beginning teachers: A critical review of the research. *Review of Educational Research*, 81(2), 201-233.
- Kane, T. J., Rockoff, J. E., & Staiger, D. O. (2006). What does certification tell us about teacher effectiveness? Evidence from New York City. *NBER Working Paper No. 12155*, National Bureau of Economic Research, Inc.
- Kane, T. J. & Rockoff, J. E., & Staiger, D. O. (2008). What does certification tell us about teacher effectiveness? Evidence from New York City. *Economics of Education Review*, 27(6), 615-631.
- Monk, D. H. (2007). Recruiting and retaining high-quality teachers in rural areas. *Future of Children*, 17(1), 155-174.
- National Commission on Teaching and America's Future. (1997). *What matters most: Teaching for America's future*.
- Peske, H. G., & Haycock, K. (2006). *Teaching Inequality: How Poor and Minority Students Are Shortchanged on Teacher Quality: A Report and Recommendations by the Education Trust*. Washington, DC: The Education Trust.
- RAND. (2012). *Teachers matter: Understanding teachers' impact on student achievement*. Doc: CP-693/1 (09/12) Retrieved from http://www.rand.org/pubs/corporate_pubs/CP693z1-2012-09.html
- Rivkin, S. G., Hanushek, E. A., & Kain, J.F. (2005). Teachers, schools, and academic achievement. *Econometrica*, 73(2), 417-458.
- Rockoff, J.E. (2004). The impact of individual teachers on student achievement: Evidence from panel data, *American Economic Review*, 5, 247-252.
- Sanders, W. L., & Rivers, J. C. (1996). *Cumulative and residual effects of teachers on future student academic achievement*. Research Progress Report. Knoxville: University of Tennessee Value-Added Research and Assessment Center.
- Turner, H., Goodman, D., Adachi, E., Brite, J., & Decker, L. (2012). *Evaluation of Teach For America in Texas schools*. San Antonio, TX: Edvance Research, Inc.