TEXAS IMPACT 2023: Evaluation Report For Teach For America

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Center on Research & Evaluation

EXECUTIVE SUMMARY

The Center on Research & Evaluation (CORE) at Southern Methodist University conducted this impact evaluation of Teach for America (TFA) corps members and alumni teachers in five Texas regions - Austin, Dallas-Fort Worth (DFW), Houston, the Rio Grande Valley (RGV), and San Antonio. The evaluation replicates parts of existing TFA evaluations and expands both the scope of existing evidence. Analyses span ten grade levels (3rd grade to 12th grade) and nine content areas (Reading, Math, Science, Social Studies, Algebra 1, English 1, English 2, Biology and U.S. History) and utilize the State of Texas Assessments of Academic Readiness (STAAR) standardized assessment. These evaluations compare academic outcomes for students of TFA corps members and alumni compared to matched teachers with no TFA affiliation and with commensurate classroom experience.

The current study focused on two school years: 2020-21 to 2021-22. This report provides a rigorous look at TFA impacts over these two school years, right after the COVID 2019 pandemic and across a broad geographic area, the largest of all TFA regions. The first two prior studies focused on 2011-12 through 2016-17 and 2017-18 through 2018-19, respectively. Implications for public and private agencies seeking to continue or expand support for the TFA model are provided.

The current study provides a similar conclusion as the prior studies: Overall, students of TFA-affiliated teachers were *as likely as* or *more likely to* pass the STAAR assessment than students of non-TFA-affiliated teachers. TFA alumni continue to be the most effective group of teachers compared to corps members, underscoring a need to retain TFA alumni as classroom teachers over time. These results vary across content areas, years, regions, student demographic subgroups, and grade levels. Table One describes the average relative advantage for students of TFA Corps Members and Alumni across content areas and overall across all subjects. These average differences are across all individual analyses for each targeted group and subject (e.g., all analyses examining Algebra 1 for novice teachers/TFA corps members).

Table One. *Summary of relative probabilities of passing STAAR subjects for students of TFA teachers compared to non-TFA teachers*

	Novice Teachers (TFA corps members)			**Veteran Teachers (TFA alumni)**		
	Study 1 (2011-12 through 2016-17)	**Study 2** (2017-18 through 2018-19)	**Current Study** (2020-21 through 2021-22)	**Study 1** (2011-12 through 2016-17)	**Study 2** (2017-18 through 2018-19)	**Current Study** (2020-21 through 2021-22)
HS Algebra 1	-0.53%	-3.85%	0.10%	8.80%	2.50%	5.87%
HS Biology	1.98%	4.73%	2.43%	11.90%	2.68%	3.35%
HS English 1	0.37%	1.62%	4.09%	3.30%	3.26%	4.81%
HS English 2	1.68%	2.55%	6.01%	10.20%	7.54%	4.00%
HS US History	9.53%	-3.53%	7.79%	5.20%	2.18%	2.50%
3rd-8th Math	-0.93%	-2.70%	-2.01%	7.70%	-3.45%	1.33%
3rd-8th Reading	-3.73%	-1.15%	-0.83%	5.50%	1.86%	1.69%
5th & 8th Science	-1.93%	-4.51%	-2.64%	8.20%	-2.07%	-1.03%
8th Social Studies	0.24%	6.58%	-4.98%	4.50%	3.06%	3.94%
All Subjects	**0.08%**	**-0.74%**	**0.09%**	**7.20%**	**0.89%**	**2.46%**

Also as found in prior studies, **students of TFA-affiliated teachers receive the overall greatest benefit in the high school tested subjects.**

There is variability within these overall trends across student demographics and school type. Relative benefits for having a TFA corps member or alumni teacher were seen for key groups of Texas students who best represent TFA's overall mission of education equity for all. On average, **TFA-affiliated teachers are more**

effective than non-TFA-affiliated teachers for key populations. Specifically, a TFA alumni as a teacher provides an advantage for Black and Hispanic students, and there is an advantage of TFA for LEP students. For LEP students, the effect is strongest for students of TFA alumni.

Evaluation Methodology

Following the same analytic strategy as with the former two TFA impact studies, the current study was designed to allow for rigorous comparison of TFA and non-TFA conditions as well as to explore more deeply the various conditions that contribute to relative effectiveness. Unlike other studies, the data set used for analysis includes matched student and teacher-level data that allows for a more rigorous comparison group match and richer analysis of factors that contribute to differences in TFA effects on student outcomes. Lastly, the current analyses provide important implications for TFA's impact in the post-COVID era.

The central evaluation question was whether there was a differential impact on academic outcomes attributable to having a TFA corps member or alumna as the classroom teacher of record for one academic year. CORE carefully described the variables that contribute to this impact such that deeper knowledge about the mechanisms of TFA impacts in different regions, and for different content areas, grade levels, school type and student demographics is illuminated.

Two aims for the methodology were paramount: (1) ensuring comparison group equivalence such that the effects of TFA could be appropriately isolated and (2) succinctly and accurately communicating findings from a large number of underlying analyses. A rigorous propensity score weighting process helped support confidence in claims of impact by controlling for confounding conditions including characteristics of students, teachers, schools, and districts. Logistic regressions then assigned likelihood of passing STAAR to the TFA or non-TFA conditions. In tandem, these analytic strategies allowed for isolation of the effects of having a TFA corps member or alumna in the classroom compared to a non-TFA-affiliated teacher. Due to the large number of underlying analyses associated with this expansive dataset, CORE adopted a data synthesis strategy and averaged the likelihood of passing STAAR in a given content area with a TFA-affiliated teacher (either corps member or alumni) or a non-TFA-affiliated teacher.

This study synthesized 552 underlying analyses across two academic years (2020-21 & 2021-22). Current results were also integrated with the former impact reports' yearly trends. Two infographics of these yearly impacts were provided in the appendix for the past 10 schools years spanning from 2011-12 to 2021-22 except for 2019-20 due to COVID 2019 interruption. Combined, the two prior studies synthesize findings across 1,193 unique underlying analyses.

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Introduction

About CORE

A nationally ranked private university with seven degree-granting schools, Southern Methodist University (SMU) is a distinguished center for teaching and research. Housed within SMU's Simmons School of Education and Human Development, the Center on Research and Evaluation (CORE) provides a range of research, evaluation, and consultation services. CORE's overall aim is to use evaluation science to improve educational outcomes for youth. Many of CORE's projects center on early childhood, out-of-school learning opportunities, and educator preparation and professional development initiatives. CORE's work emphasizes the community contexts in which these educational initiatives are implemented as a key consideration for understanding effectiveness. CORE staff are interdisciplinary, representing educational research and evaluation, quantitative methodology, psychology and social work and many of CORE's evaluators have classroom teaching experience.

About Teach For America

Teach For America (TFA) is a national organization that recruits leaders early in their careers to teach for two years in one of 51 urban and rural regions across the U.S. According to the TFA Foundations document,[1] their mission is to find, develop, and support a diverse network of leaders who expand opportunity for children from classrooms, schools, and every sector and field that shapes the broader systems in which schools operate. In partnership with schools, families, local universities, other organizations, and businesses in the community, TFA provides initial training, ongoing professional development, and access to a resource and support network for corps members and alumni. In 2020, 632 corps members worked in Dallas, Houston, San Antonio, and the Rio Grande Valley compared to 638 California, where TFA's corps presence is currently the largest of any state.

About the 2023 Impact Study

The impact analyses in the current study (for academic years of 2020-21 and 2021-22) replicate and expand on existing evidence of TFA impact by allowing for rigorous comparison of TFA and non-TFA conditions. A growing body of empirical evidence suggests that students of TFA corps member or alumni teachers outperform or perform as well as students of non-TFA-affiliated teachers based on subject matter, grade level, and student and teacher characteristics. Evaluation and research studies of the impact of TFA on student outcomes in Texas support these findings, but have limitations related to sample size, content area, student characteristics, and outdated state assessments to measure student achievement (Houston Independent School District [HISD], n.d., 2018; Mickelson & McEnturff, 2015; Raymond, Fletcher, & Luque, 2001; Turner, Goodman, Adachi, Brite, & Decker, 2012; Ware et al., 2011).

This evaluation addresses these limitations; it replicates existing findings and expands both the scope and the rigor of existing evidence. Unlike other studies in the relevant literature, the data set used for analysis includes de-identified, matched student and teacher-level data that allows for a more rigorous comparison group match and richer analysis of factors that contribute to differences in student outcomes.

In addition to establishing robust understanding of impact at scale, this evaluation explores more deeply the various conditions that contribute to effectiveness. This evaluation includes a thorough description of variables that contribute to impacts such that deeper knowledge about the mechanisms of TFA impacts in different regions, and for different content areas, grade levels, school type, and student body composition is illuminated.

[1] R. Carreon, personal communication, January 7, 2018

Background

Prior Studies

General findings. A review of the literature points to strong evidence of TFA impact, where students of TFA-affiliated teachers outperform students of non-TFA-affiliated teachers in relatively well-designed studies. Some studies employed a rigorous random assignment design (Clark, Isenberg, Liu, Makowsky, & Zukiewicz, 2017; Clark et al., 2013; Glazerman, Mayer, & Decker, 2006), but most others employed a quasi-experimental design that created statistically matched groups of students or used statistical analyses to control student and/or teacher characteristics (Hansen, Backes, Brady, & Xu, 2015; Henry et al., 2015; Turner et al., 2012; Ware et al., 2011). Overall, the results of these prior studies suggest that TFA Mathematics teachers are more effective than their non-TFA counterparts, but that TFA and non-TFA-affiliated Reading/English Language Arts teachers perform about the same. In a rigorous review of seven studies investigating the effects of TFA-affiliated teachers on student outcomes, the What Works Clearinghouse (WWC) concluded that TFA-affiliated teachers have "positive effects on Mathematics achievement, potentially positive effects on Science achievement, and no discernible effects on Social Studies achievement and English Language Arts achievement" (United States Department of Education [USDOE], 2016, p. 1). Additional studies not included in the WWC review confirm the conclusions with at least five reporting a positive effect of TFA-affiliated teachers on student Math achievement (Decker, Mayer, & Glazerman, 2004; Hansen et al., 2015; Mickelson & McEnturff, 2015), but only Mickelson and McEnturff (2015) identified a positive effect for TFA-affiliated teachers in Reading/Language Arts.

TFA in Texas. Of particular importance for the current evaluation are the studies that have examined the effects of TFA-affiliated teachers in Texas and the gaps in evidence and understanding that have not yet been addressed. All of the Texas-based studies were quasi-experimental, as is the current studies described here; four were district level evaluations (Raymond et al., 2001; Mickelson & McEnturff, 2015; HISD, n.d., 2018) and two focused on multiple school districts and/or regions in Texas (Turner et al., 2012; Ware, et al., 2011). In general, these studies supported other findings that TFA-affiliated Math teachers outperformed their non-TFA-affiliated colleagues (at varied grade levels and teacher experience levels), and also provided some evidence of a positive impact for Reading/English Language Arts teachers. These Texas studies, however, are somewhat limited in their scope, as all studies necessarily are. These limitations highlight gaps that CORE sought to address in the current evaluations.

The Current Study

CORE's previous two studies as well as the current study focused on data from academic years of 2020-21 and 2021-22 expand on existing literature. Other studies have previously estimated the effects of TFA by aggregating student achievement outcomes and attributing them to the school where TFA-affiliated teachers worked, in lieu of linking specific students with teachers. CORE's trio of impact studies overcome that challenge by using linked student and teacher-level data gathered through a Public Information Request (PIR) to the Texas Education Agency. Additionally, CORE's current studies are, together, the first comprehensive studies of TFA to use STAAR[2]. These studies address key limitations in prior studies of the TFA impact on student achievement in Texas by: (1) using STAAR exams as an indicator of student achievement, (2) considering school and district characteristics in estimates of the effect of TFA corps members and alumni teachers on student outcomes, and (3) linking de-identifiable student-level data with de-identified teachers, by grade level and course.

[2] The STAAR assessment represents increased rigor compared to TAKS which was phased out and replaced by STAAR from 2012 to 2014. The content and skills assessed by STAAR require a higher level of complexity and more authentic application of content and skills (e.g., less multiple-choice items). Also, the TAKS assesses general knowledge that would accumulate across multiple school years, while STAAR goes into more depth on grade-specific content and skills. Results from analyses indicate that STAAR is more difficult than TAKS and that students are likely to answer fewer questions correctly on STAAR than on TAKS. Additionally, the STAAR assessment has more items and a shorter time limit. https://tea.texas.gov/student.assessment/staar

Methods

The geographic focus of the evaluation is five identified Texas regions—Austin, Dallas-Fort Worth (DFW), Houston, Rio Grande Valley (RGV), and San Antonio, covering 8 counties—and the regional Independent School Districts (ISDs) and charter school systems in the counties in these regions. The grade levels and subjects tested in STAAR form the key outcomes of interest. These are: Reading and Math (grades 3-8), Science (grades 5 and 8), Social Studies (grade 8), and high school end of course exams for Algebra I, English I and II, Biology and U.S. History. STAAR Writing was excluded from these analyses due to the nature of that specific exam. The current study focused on two years: 2020-21 and 2021-22. Analyses were not conducted for 2019-20 due to data integrity issues related to COVID 2019 pandemic.

Data Management

Data Selection and Request

CORE received all data for the planned analyses from the TEA via a Public Information Requests (PIRs) as allowed by The Texas Public Information Act. The analyses for these studies did not require CORE to receive identifiable student level data; thus, student-level data was de-identified. Specifically, CORE requested STAAR test results for all students enrolled in all school districts across eight Texas counties in the aforementioned regions during the 2020-21 and 2021-22 school years. The counties included Travis, Dallas, Tarrant, Harris, Cameron, Hidalgo, Starr, and Bexar. Individual district indicators were not requested. In addition to de-identified student-level STAAR results, each student's test record also included information about the teacher of record for that course in that school year and the student's school. Each teacher of record was flagged as either a TFA corps member in the school year of record, a TFA alumni, or a non-TFA-affiliated teacher. All data were organized at the student level, with assessment, teacher and school-level data matched at the student level.

Data Cleaning/Preparing for Analysis

CORE received two types of datasets from TEA. The first dataset was demographic data, including students, teachers, and campus-level indicators. The second data set contained student STAAR achievement data. Demographic datasets were cleaned and merged to form a single student-level final dataset for the statistical analyses. Thus, all analyses were conducted by using the student-level observations, and all campus- and district-level data such as school demographics were disaggregated to the student level. Finally, students' STAAR test data were merged to the final demographic dataset by using the encrypted student ID numbers.

The study sample includes:

- Teachers that have a unique TFA/non-TFA affiliation indicator within an academic year.
- TFA corps members that had maximum two years of experience.
- Only TFA and non-TFA-affiliated teachers of records (excludes teaching assistants and aides).
- Students that did not change their schools within an academic year.
- Students taught by a single teacher of a specific subject area (excludes co-teaching cases).
- Students that only took the standard version of the STAAR test.
- For multiple-year analyses, students that did not repeat the same grade.

Sample for Analysis

After preparing data for analyses and omitting student records as needed, a total of 1,919,467 unique students' data were used in the analyses (combined across two years). These observations are distributed across ten grade levels, eight Texas counties (representing the five regions under study), and two school years. CORE's analyses focused on single-year observations of student performance, not longitudinal analyses. Therefore, an individual student's performance within a school year is considered a single observation in the sample. That same student's performance the following school year represents a separate observation. As described in detail in the Analysis Procedure section, evaluation questions were answered by conducting hundreds of

individual analyses for sub-samples of the entire sample. The sample of teachers and students included in the study is detailed in Appendix A.

For this study, the final sample included 591 active TFA corps members (during any year used in the analyses), 809 TFA alumni, and 85,434 non-TFA-affiliated comparison teachers. Tables describing student and teacher demographics across all years are provided in Appendix A.

Analysis Procedure

To determine TFA's impact on student achievement as well as to identify and succinctly communicate contributing conditions, CORE conducted several types of analyses:

- Logistic regressions to assign the likelihood of passing STAAR to either a TFA or non-TFA condition.
- Propensity score weighting to control for covariate effects by matching two groups of students.
- Meta-analysis strategy to assign overall likelihood of passing into categories; identifying the percent of all analyses that showed a statistically significant likelihood in favor of TFA.
- Meta-analysis strategy using analysis of variance (ANOVA) to determine what broad factors (e.g., region, content area, or grade level) were associated with differentiated impact of TFA.
- Descriptive and comparative analyses of likelihoods to synthesize trends.

All conditions (i.e., content area, geographic area, school year, and grade level) were considered as varying conditions. However, not all possible combinations of the various factors were used for final analyses due to incidences of low sample size. Using the various combinations of factors, this study includes a total of 681 unique comparison analyses with 552 of them being valid (with the exclusion of analyses with low-sample sizes, non-convergence, and perfect probability issues).

Logistic Regression

These analyses were designed to determine the likelihood that a student would meet grade-level standards if they have a TFA corps member or alumni. The outcome measure for academic achievement was the dichotomized pass/fail indicator for a specific STAAR tested subject. Pass/fail indicators were defined as the "approaches" category of STAAR achievement indicator. These models predicted a student's passing probability for a specific subject, depending on whether they were taught by a TFA-affiliated teacher or not.

Propensity Score Weighting

In order to control for potential cofounding effects, such as being economically disadvantaged, CORE adopted the propensity score weighting (PSW) approach, prior to logistic regression analyses explained above. Different from the propensity score matching (PSM) procedure, PSW uses the predicted propensity scores to calculate sampling weights for each of the data observations (Leite, 2017). The PSW method then derives the so-called "weight" scores for all comparison group students depending on their covariate measures and the treatment indicator—in this study, being taught or not being taught by a TFA-affiliated teacher.

Different treatment effect evaluations require different weight score calculations by PSW. CORE preferred the "*average treatment effect on the treated (ATT)*" (Harder, Stuart, & Anthony, 2010), where all students taught by a TFA-affiliated teacher have a weight of one. All students taught by a non-TFA-affiliated teacher have weights lower than one depending on their measures of the multiple covariates used to estimate the propensity scores. Higher weight scores for those students indicate a better degree of matching with the students taught by a TFA-affiliated teacher in terms of the covariates. Using the ATT warrants inclusion of the entire group of students taught by a TFA-affiliated teacher (since their weights are all one) whose sample size are considerably lower than the students taught by a non-TFA-affiliated teacher.

CORE identified different possible analysis conditions by using multiple factors such as, but not limited to, region, academic year, subject of interest, and grade level. All condition-specific analyses were conducted separately for three treatment conditions: (1) brand-new TFA corps members in their first year, (2) all TFA corps members in their first and second year of teaching, and (3) TFA alumni with a minimum two years of experience. Teacher experience was used as a balancing covariate during the PSW procedure for the alumni analyses only. CORE and TFA collaboratively identified a set of potentially important covariates to include in the PSW procedure. The

contributing conditions or factors that were used for comparison group matching were student level (gender, race, economic disadvantage, LEP, special education status, bilingual status, ESL status, being "at risk" according to the TEA[3]), teacher level (years of experience), and school level (percentage of the economically disadvantaged students in school and charter status).

PSW was performed for each analysis condition prior to the main logistic regression model that predicted the TFA impact. Thus, the covariates included during each of the PSW analyses differed depending on the selected conditions, such as region, grade level, academic year. This approach is thought to improve the covariate balance for each of the selected sub-samples, before the main logistic regression model analyses. It is also important to note that CORE conducted some disaggregation analyses using student demographic characteristics. For these specific analyses, we excluded the demographic variable of interest from the PSW procedure. Sample sizes for each analysis were reported in terms of general, students taught by a TFA and non-TFA-affiliated teacher.

After fitting the main logistic regression model along with the estimated weight scores, CORE obtained the degree of the difference between the groups of students taught by a TFA and non-TFA-affiliated teacher in terms of the predicted STAAR passing probabilities. The statistical significance of this difference, as well as the magnitude of the TFA effect in terms of odds ratio, were reported for each of the analyses. It is also important to note that some analysis results for specific conditions were not reported due to non-existing sub-samples. Moreover, CORE also excluded the analyses results where the sample sizes of students taught by a TFA-affiliated teacher were lower than 100 and/or analyses that resulted with perfect probability of passing STAAR for one of the groups. After these exclusions, a total of 552 valid analyses results (81.1% of the attempted) were reported.

[3] TEA At Risk Indicator Code indicates whether a student is currently identified as at-risk of dropping out of school using state-defined criteria only (TEC §29.081, Compensatory and Accelerated Instruction).

Results

Impact of TFA

Key Takeaways

- Based on the aggregation of all individual analysis results, **students of TFA-affiliated teachers are more likely to pass the STAAR assessment than students of non-TFA-affiliated teachers.** Prior studies had similar results, that across all analyses, students of TFA teachers were as likely or more likely to pass STAAR.
- This study found that students of TFA-affiliated teachers are 1% more likely to meet state standards compared to students of comparable non-TFA-affiliated teachers. The first study found that, on average, students of TFA-affiliated teachers are 3% more likely to meet state standards. The second study, focused on the 2017-18 and 2018-19 school years, found that, on average, students of TFA-affiliated teachers were equally likely to meet state standards compared to students of non-TFA teachers.
- Students of TFA-affiliated teachers receive the overall greatest benefit in the high school tested subjects.
- TFA-affiliated teachers are more effective than non-TFA-affiliated teachers for key populations:
    - Students of TFA alumni and corps members have advantage in both charter and ISD settings. For corps members, this advantage is slightly higher in charter settings than in traditional ISDs.
    - There is an advantage of TFA for students of all races; the effect is strongest specifically for Black and Hispanic students who have a TFA alumni as their teacher. There is a small advantage for black students of TFA corps members and no relative advantage for Hispanic students of TFA corps members.
    - Both Economically disadvantaged and non-economically disadvantaged students were more likely to meet state standards when taught by TFA alumni. There is no notable association between "EcoDis" status for students of TFA corps members
    - There is an advantage of TFA for LEP students; the effect is strongest for students of TFA alumni.

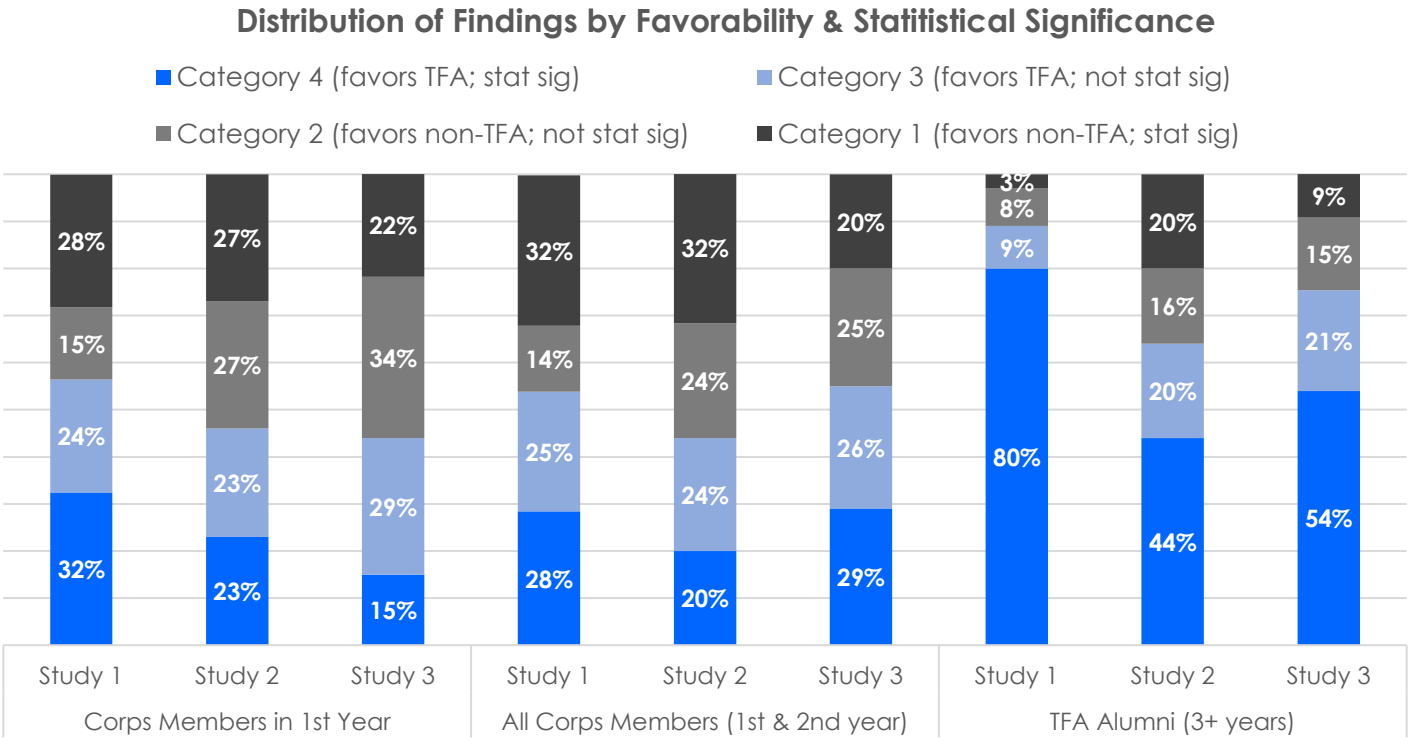
Categorizing All Findings

The result of each of the 682 unique analyses categorized into one of four groups indicating both (1) which group (TFA or comparison) had a higher probability of passing, and (2) the statistical significance of the finding (see Table Two for legend). Figure One presents an aggregate summary of all analyses categorized by "direction" and significance of findings by study. These findings are summarized for specific content areas and regions in the figures on the next pages.

Table Two. *Categories of direction and significance of TFA/non-TFA analyses*

Finding category	Students of TFA-affiliated teachers are more likely to pass STAAR	Result is statistically significant
4	yes	yes
3	yes	no
2	no	no
1	no	yes
Did not converge	n/a	n/a

Figure One. *Aggregate synthesis of all analyses by direction & significance findings categories*



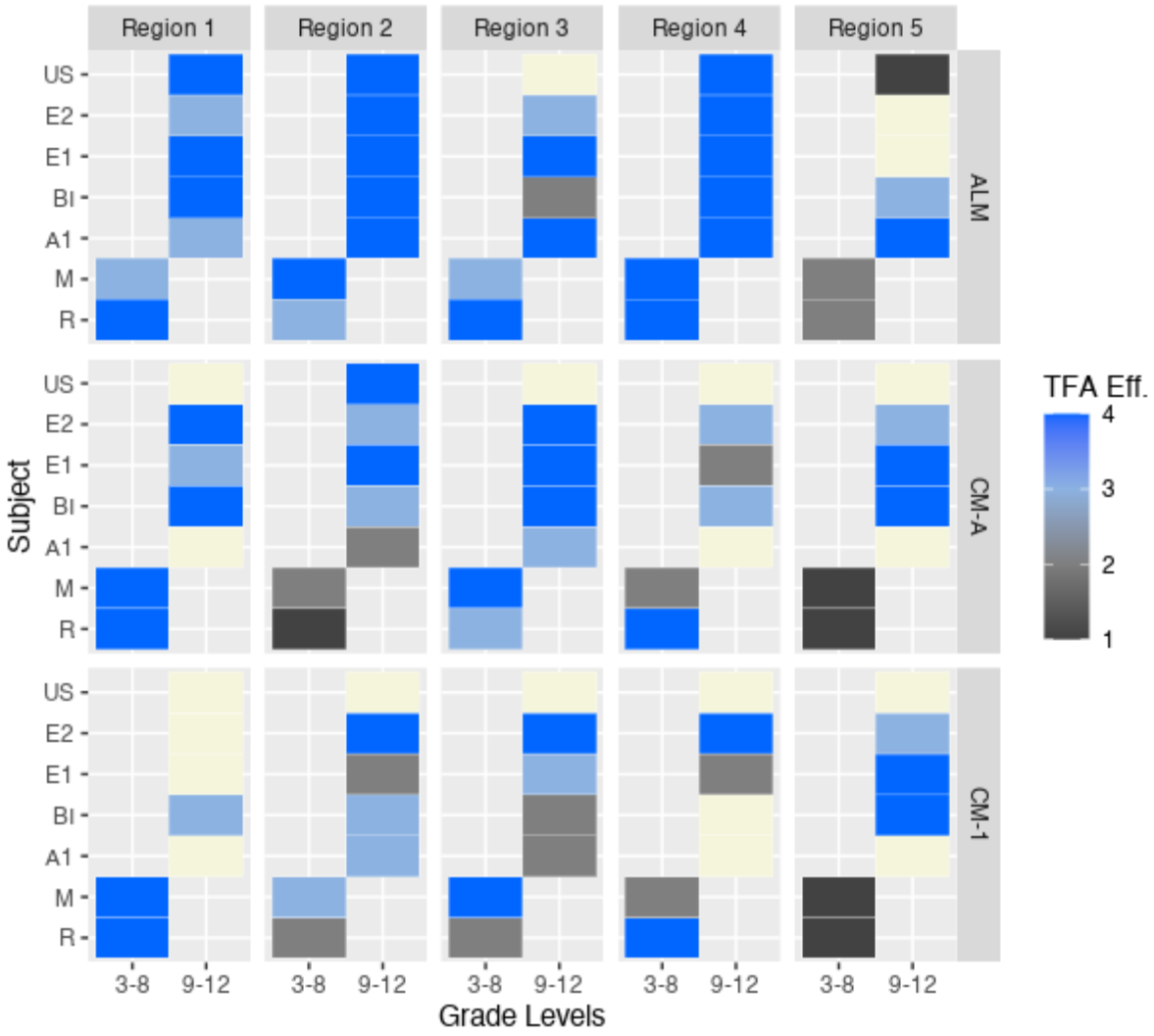
Note: The bar represents how the findings from that group of analyses are distributed within the four categories of possible findings. ALM: Alumni, CM-A: All Corps Members, CM-1: New (1st year) Corps Members.

Figures[4] Two through Five on the next pages provide a detailed summary of findings.

- **Figure Two** provides a heat map of the disaggregated comparison analyses by subject, geographic region, and TFA affiliation (alumni, corps member, etc.). Using the same "category-of-finding" logic described previously, this heat map provides a comprehensive snapshot of which TFA-affiliated teachers are most effective for specific content areas within five distinct Texas regions. *Heat maps from the two prior studies are provided in Appendix B.*
- **Figure Three** provides a heat map similar to Figure Two, but describes a more granular illustration of the findings organized by grade level. Using the same "category-of-finding" logic described previously, this heat map provides a comprehensive snapshot of which TFA-affiliated teachers are most effective for specific content areas and grade levels within five distinct Texas regions. *Heat maps from the two prior studies are provided in Appendix B.*
- **Figure Four** provides a series of line graphs that describe the findings by TFA teacher group and subject area over time. Using the same "category-of-finding" logic described previously, the movement of each line, from left to right, describes how he findings for that teacher group and content area trend across the ten years of study.
- **Figure Five** provides a series of line graphs that describe the effect of having a TFA teacher by teacher group and subject area over time. In this figure, effect sizes higher than 1 indicate a higher likelihood of passing STAAR for TFA-taught students, while effect sizes below 1 indicate a higher likelihood for non-TFA-taught students. A greater distance from 1, in either direction, indicates a larger effect. Blue dots indicate that the specific effect was statistically significant.

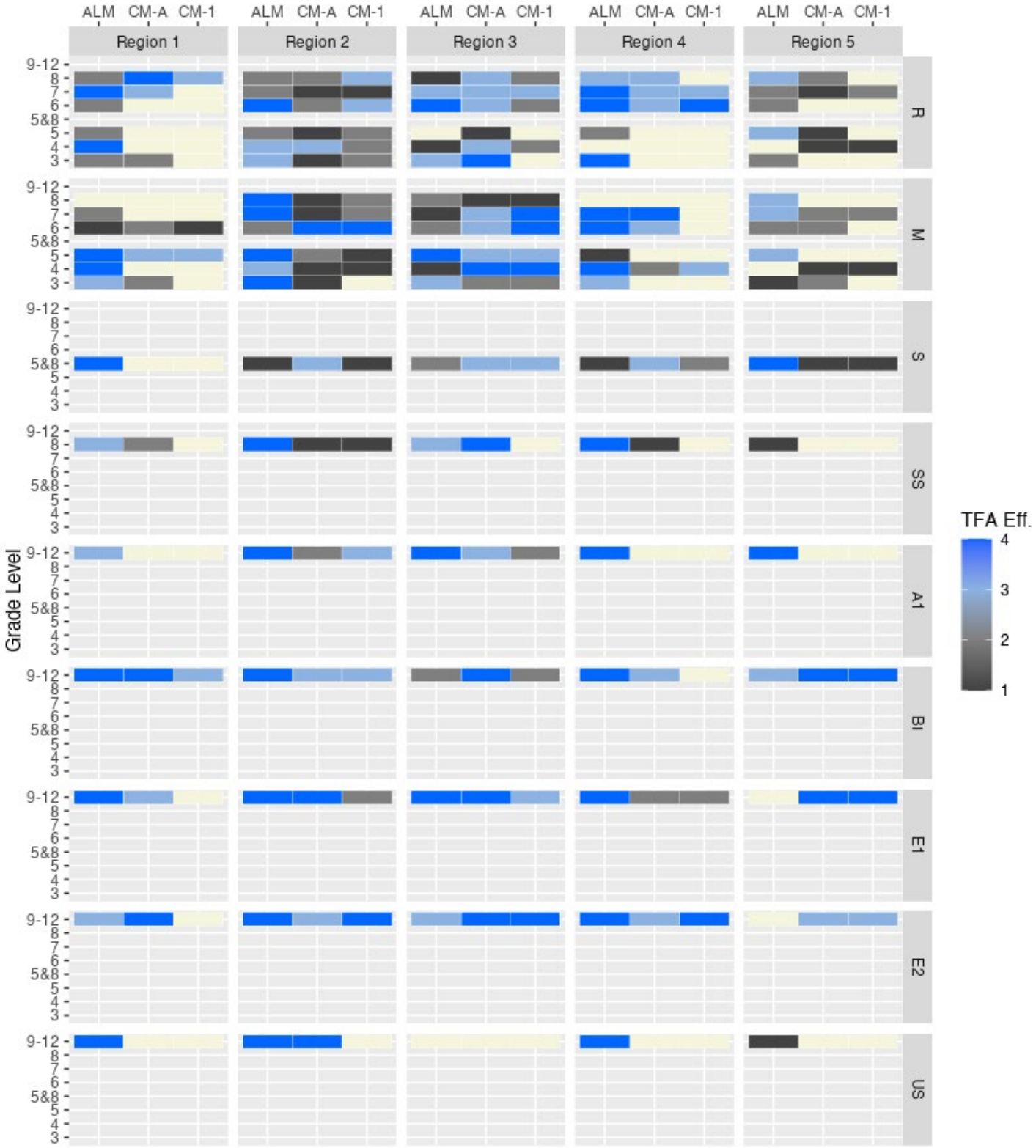
[4] CORE acknowledges that TFA does not place corps members (CMs) in Austin. Based on the data we received from TEA, N=59 unique TFA CMs were found to be affiliated with students in a single school district in Austin. Also, 92% of those CMs were linked to open enrollment/charter schools (based on the link to students they taught, campus type is a student-level variable). Thus, it is thought that this school district might represent a statewide charter network that has an overall "campus" code in the Austin area.

Figure Two. *Comparison analyses heat map disaggregated by TFA affiliation, geographic region, and content area*[5]



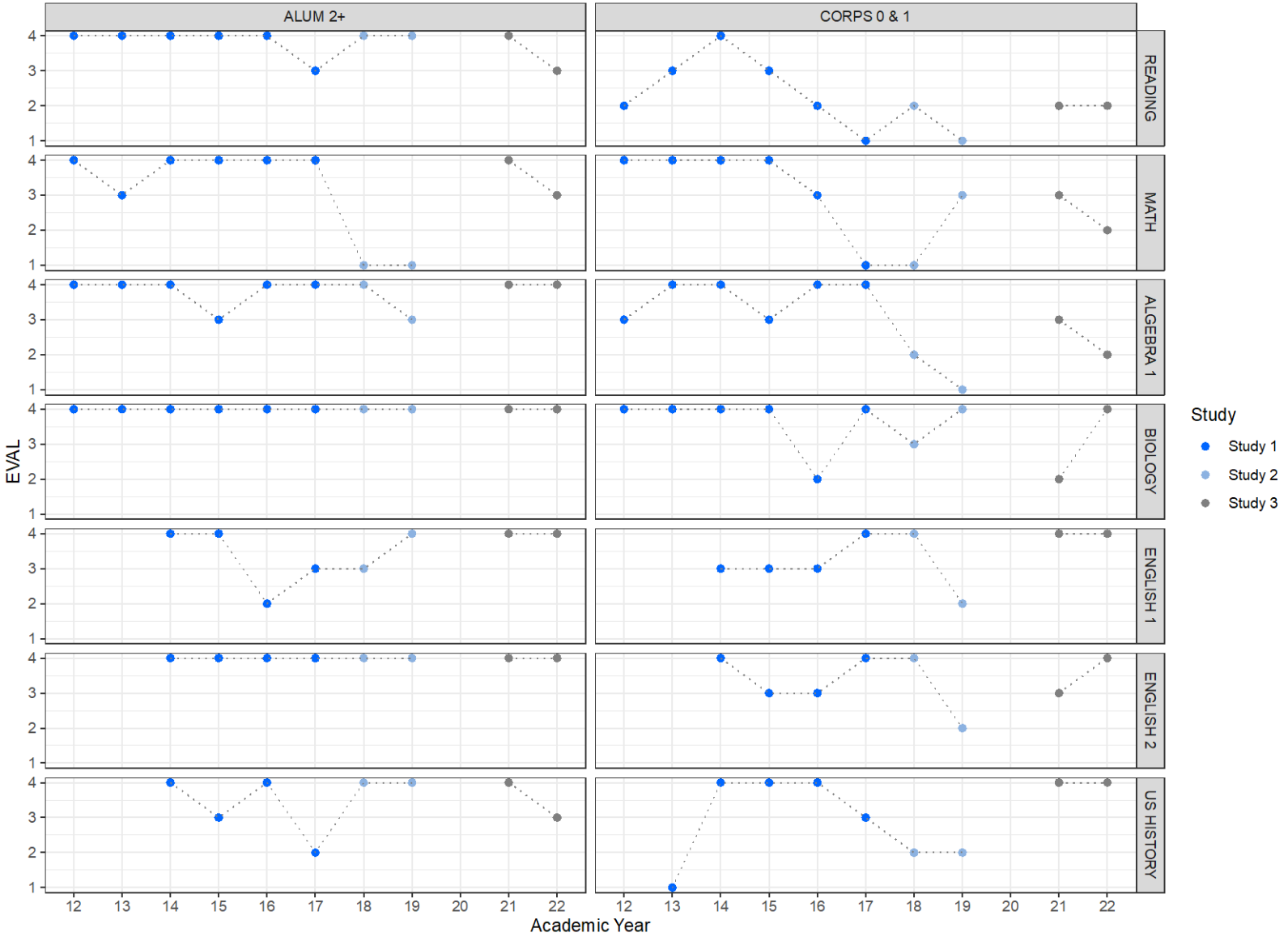
[5] Heatmap legend: CM=Corps Member, US=US History, R=Reading, M=Math, E2=English 2, E1=English 1, BI=Biology, A1=Algebra 1. ALM: Alumni, CM-A: All Corps Members, CM-1: New (1st year) Corps Members. Beige cells represent non-converged analyses.

Figure Three. *Comparison analyses heat map disaggregated by TFA affiliation, geographic region, grade level and content area*[6]



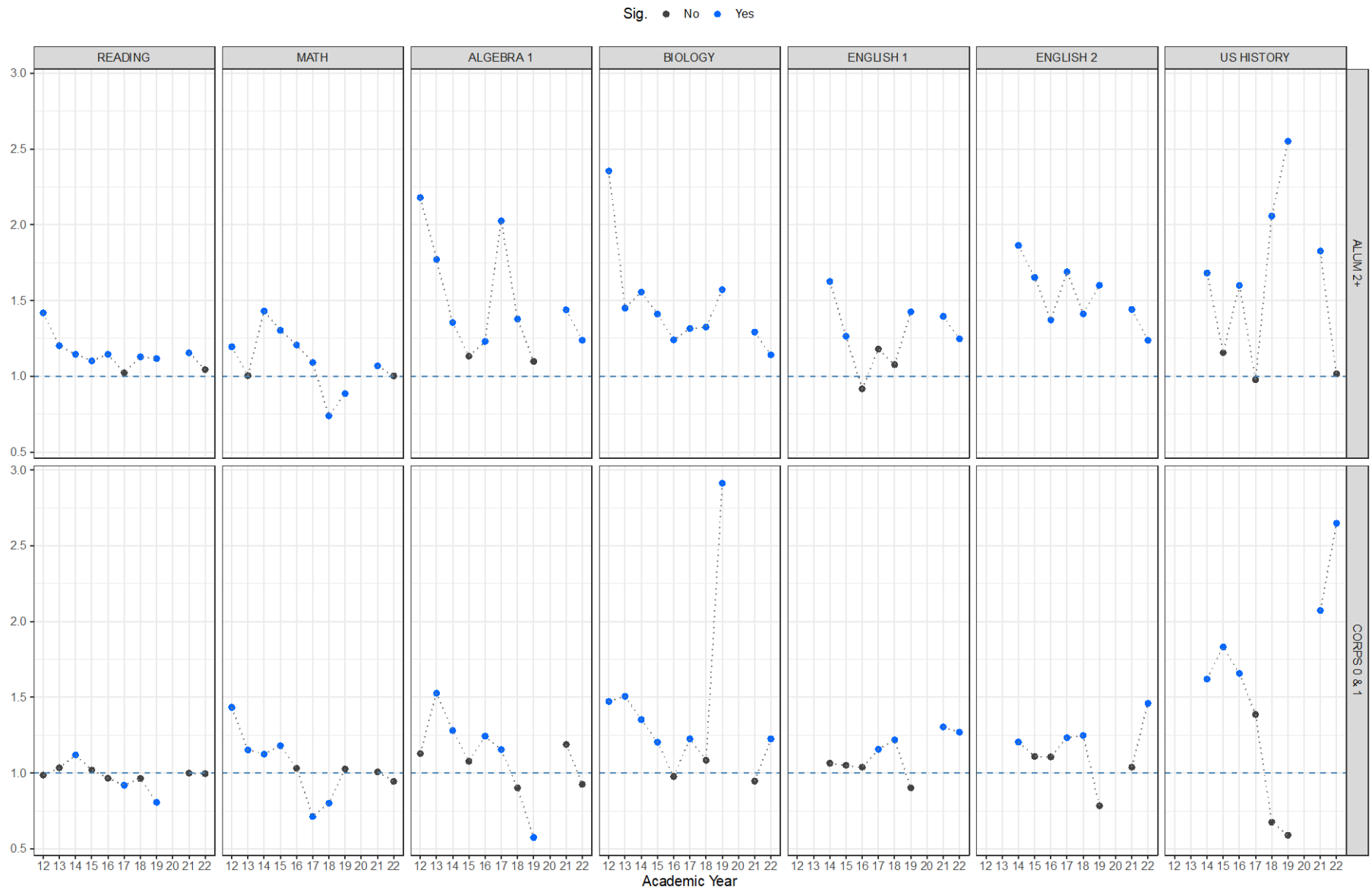
[6] Heatmap legend: CM=Corps Member, US=US History, R=Reading, M=Math, E2=English 2, E1=English 1, BI=Biology, A1=Algebra 1. ALM: Alumni, CM-A: All Corps Members, CM-1: New (1st year) Corps Members. 5&8: 5th and 8th grades combined, 9-12: 9th through 12th grades combined. Beige cells represent non-converged analyses.

Figure Four. *General findings (TFA advantage & statistical significance) by content area and TFA teacher group across ten years of study*[7]



[7] Analysis results per academic−year (missing points = unsuccessful analyses) are from aggregated datasets across all regions and grade−levels. No analyses for 19-20 due to COVID. Years on the X−axis represent second half of the academic year (12 = 2011/2012). Orange dashed vertical lines separate the current analyses from prior. 4=statistically significant TFA advantage; 3=non-statistically significant TFA advantage; 2=non-statistically significant non-TFA advantage; 1=statistically significant non-TFA advantage.

Figure Five. *Effect Sizes of comparison analyses by content area and TFA teacher group across ten years of study*[8]



[8] Analysis results per academic−year (missing points = unsuccessful analyses) are from aggregated datasets across all regions and grade−levels. Years on the X−axis represent second half of the academic year (12 = 2011/2012). No analyses for 19-20 due to COVID. Effect sizes higher than 1 indicate higher likelihood of passing STAAR for TFA−taught students (as indicated by horizontal red dashed line). Sig. refers to statistical significance of an analysis. Orange dashed vertical lines separate current analyses from prior.

Student and School Subgroups

Table Three describes the differentiated effect of TFA corps member and alumni teachers on specific demographic subgroups of the population, such as student race and economically disadvantaged, and on specific groups of campuses such as charter schools compared to traditional ISD campuses. *Detailed findings from prior studies are provided in Appendix C.*

***Table Three**. Summary of overall trends observed for student subgroups*

Charter Schools	Students of TFA alumni were 3% more likely to pass STAAR than students of non-TFA veteran teachers in both traditional ISDs and in charter schools. Students of TFA corps members are slightly more likely to pass STAAR in charter schools (2%), and slightly more likely to pass in traditional ISDs (1%).
	Prior Findings: The first study found TFA-affiliated teachers are more effective than non-TFA-affiliated teachers, on average, in both traditional ISD campuses and charter schools; this advantage over non-TFA-affiliated teachers is greater in ISD campuses than charters. The second study confirmed similar small advantages of TFA in both ISDs and charter schools.
Student Race	Black students of TFA alumni were 2% more likely to pass STAAR than black students of non-TFA veteran teachers, while Hispanic students of TFA alumni were 4% more likely to pass STAAR. For TFA corps members, there is a 1% advantage for Black students.
	Prior Findings: The first study found TFA-affiliated teachers are more effective than non-TFA-affiliated teachers, on average, for all ethnicities of students; this advantage over non-TFA-affiliated teachers is slightly greater and more consistent for Black and Hispanic students of TFA alumni. The second study confirmed that there is an advantage for Black and Hispanic students who have TFA alumni teachers.
Economically Disadvantaged	EcoDis students of TFA-affiliated teachers are equally as likely to pass STAAR than peers taught by non-TFA-affiliated teachers. This advantage is similar for non-EcoDis students. This advantage is greater for students of TFA alumni; EcoDis students of TFA alumni are 3% more likely to pass STAAR, on average, and non-EcoDis students are 2% more likely to pass. Differences are null for TFA corps members.
	Prior Findings: The first study found TFA-affiliated teachers are equally effective, on average, for both economically disadvantaged (EcoDis) and non-economically disadvantaged students. The second study confirmed this finding for economically disadvantaged students, particularly students of TFA alumni.
Limited English Proficient (LEP)	LEP students of TFA-affiliated teachers are 3% more likely to pass STAAR than LEP peers taught by non-TFA-affiliated teachers. There is no notable difference overall for non-LEP students. This advantage is greater for LEP students of TFA alumni; LEP students of TFA alumni are 5% more likely to pass STAAR, on average, compared to a 1% advantage for non-LEP students of TFA alumni. There is no relative advantage of TFA corps members for non-LEP students, while LEP students of TFA corps members are 2% more likely to pass, on average.
	Prior Findings: The first study found TFA-affiliated teachers are more effective than non-TFA-affiliated teachers, on average, for both LEP and non-LEP students; this advantage over non-TFA-affiliated teachers is greater for LEP students. The second study confirmed the TFA advantage for LEP students but found no relative advantage of TFA for non-LEP students.

Limitations

Following the same data inclusion rules from former years' analyses, we made an analytic decision to exclude: students who changed schools during the school year, and teachers who came in part way through a school year or who were not the teacher of record (e.g., teacher's aide or assistant). Additional exclusions—that were warranted given the central evaluation questions for this report—included deciding to only analyze data for teachers who were the *only* teacher of record for a given school year. This necessarily excluded teachers who may have co-taught with other teachers. Finally, we excluded students that did not take the standard version of the STAAR exam. Because these students take a modified test, their test scores are on a different scale and passing thresholds are modified. Including them with the majority group would have likely introduced skewness to the outcome data. These excluded samples represent critically important variation in student and teacher experiences that should be taken into account in future planned analyses.

In addition to common data inclusion/exclusion criteria discussed above, analyses for 2023 TFA impact study could not use school- and district-level accountability measures for matching the TFA and non-TFA students. Such data were not provided in a linkable manner by TEA, namely, no matching IDs existed in the accountability data files. Nevertheless, some other relevant variables such as the percent of students with economically disadvantaged status within a school, are thought to be proxies for the campus-level ratings. Further, data for the 2019-2020 school year were not used in the current analyses due to interruptions happened in STAAR assessments during COVID 2019 pandemic. Even though such data were provided by TEA for 9-12 grades, the amount of usable observations were not sufficient.

While the current analyses identify differences in student outcomes that can be attributed to having a TFA-affiliated teacher or not, they do not tell us anything in particular about the non-TFA-affiliated group of teachers. Other than knowing the number of years the non-TFA-affiliated sample had been teaching, we do not have available data about their terminal degrees, whether they attended a traditional or alternative teacher certification program, or even whether they had teaching experience in another state. The nature of the data necessitated that we treat the non-TFA-affiliated group quite homogeneously while they certainly are not. Identifying sub-groups of non-TFA-affiliated teachers would have important implications for understanding TFA's impact relative to other alternative teacher certifications programs.

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Appendix A. Student and Teacher Samples

Table A1. *Student sample demographics by school year*

		AY 2020-21		AY 2021-22	
		N	**%**	**N**	**%**
Total		1,591,954	100	1,592,525	100
Gender	Female	781,776	49.11	781,707	49.08
	Male	810,219	50.89	810,989	50.92
Race/Ethnicity					
	Black	244,159	15.34	243,855	15.31
	Hispanic	982,867	61.74	984,926	61.84
	White	252,030	15.83	248,344	15.59
	Other	112,939	7.09	115,571	7.26
Limited Eng.		434,399	27.29	465,550	29.23
Econ. Dis.		1,075,514	67.56	1,081,177	67.88
Grade	ES (3-5)	550,051	34.55	538,622	33.82
	MS (6-8)	452,488	28.42	481,050	30.20
	HS (9-12)	589,456	37.03	573,024	35.98

Table A2. *Teacher sample demographics by TFA affiliation status*

		Alumni	**Corps Member**	**Non-TFA**
Race/Ethnicity	Black	176 (21.7%)	137 (23.2%)	14,960 (17.5%)
	Hispanic	261 (32.1%)	176 (29.8%)	29,588 (34.6%)
	Other	64 (7.9%)	75 (12.7%)	4,011 (4.7%)
	White	311 (38.3%)	203 (34.3%)	37,028 (43.3%)
Grade	ES (3-5)	263 (31.3%)	163 (27.2%)	37,283 (42.5%)
	MS (6-8)	336 (40.0%)	307 (51.2%)	30,850 (35.2%)
	HS (9-12)	240 (28.6%)	130 (21.7%)	19,549 (22.3%)
Area	AUSTIN	130 (16.0%)	59 (10.0%)	6,123 (7.1%)
	DALLAS FT. WORTH	283 (34.7%)	242 (40.9%)	28,153 (32.8%)
	HOUSTON	225 (27.6%)	167 (28.3%)	29,265 (34.1%)
	RIO GRANDE VALLEY	94 (11.5%)	62 (10.5%)	11,174 (13.0%)
	SAN ANTONIO	83 (10.2%)	61 (10.3%)	10,995 (12.8%)
Charter/ISD	Charter	299 (36.1%)	216 (35.7%)	10,135 (11.7%)
	ISD/CSD	529 (63.9%)	389 (64.3%)	76,731 (88.3%)

Note: Total count of teachers within each group may fluctuate between race/ethnicity, grade level and area due to missing data, corps members in 2020-21 that became alumni in 2021-22 school year, or teachers that teach cross grade-bands (i.e., a teacher that taught both 8th and 9th graders). These numbers are based on the final cleaned dataset and do not reflect the actual teacher distribution within each region.

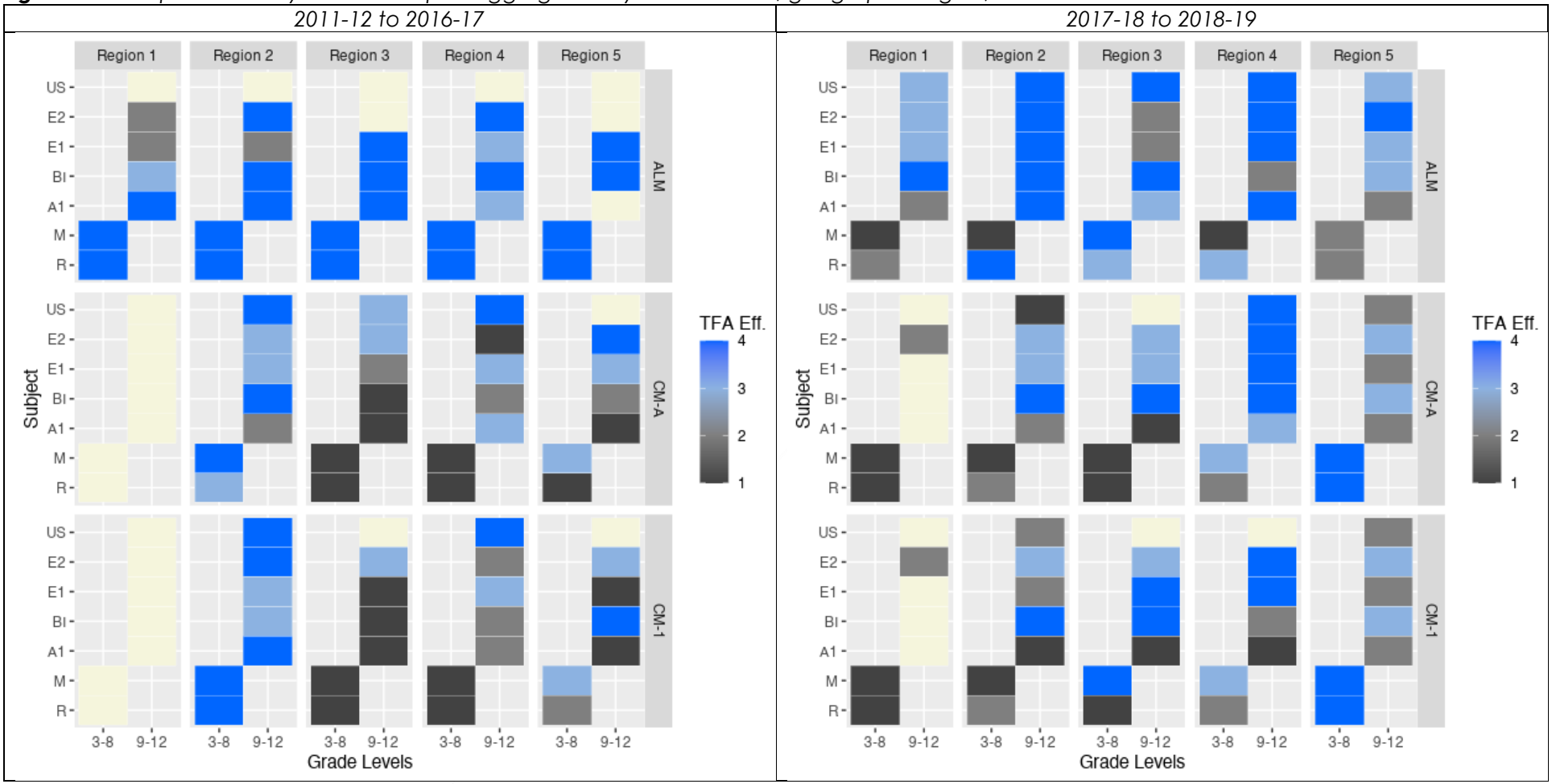
Table A3. *Teacher sample by Region, TFA affiliation status, and subject area(s) taught*[9]

AREA	TFA	ENGLISH LANGUAGE ARTS	MATHEMATICS	SCIENCE	SOCIAL STUDIES
AUSTIN	Alumni	54 (32.3%)	42 (25.1%)	38 (22.8%)	33 (19.8%)
	Corps Member	19 (25.7%)	16 (21.6%)	16 (21.6%)	23 (31.1%)
	Non-TFA	3,198 (28.0%)	2,809 (24.6%)	2,669 (23.4%)	2,738 (24.0%)
DALLAS FT. WORTH	Alumni	116 (26.6%)	113 (25.9%)	110 (25.2%)	97 (22.2%)
	Corps Member	90 (26.0%)	98 (28.3%)	97 (28.0%)	61 (17.6%)
	Non-TFA	13,673 (28.4%)	11,608 (24.1%)	11,095 (23.0%)	11,817 (24.5%)
HOUSTON	Alumni	104 (32.3%)	82 (25.5%)	64 (19.9%)	72 (22.4%)
	Corps Member	75 (34.9%)	54 (25.1%)	50 (23.3%)	36 (16.7%)
	Non-TFA	14,622 (29.8%)	11,719 (23.9%)	10,737 (21.9%)	11,960 (24.4%)
RIO GRANDE VALLEY	Alumni	48 (37.2%)	33 (25.6%)	21 (16.3%)	27 (20.9%)
	Corps Member	26 (35.6%)	16 (21.9%)	17 (23.3%)	14 (19.2%)
	Non-TFA	6,133 (28.6%)	5,266 (24.6%)	4,974 (23.2%)	5,044 (23.6%)
SAN ANTONIO	Alumni	41 (28.9%)	36 (25.4%)	28 (19.7%)	37 (26.1%)
	Corps Member	31 (29.0%)	25 (23.4%)	25 (23.4%)	26 (24.3%)
	Non-TFA	6,535 (27.7%)	5,707 (24.2%)	5,554 (23.6%)	5,755 (24.4%)

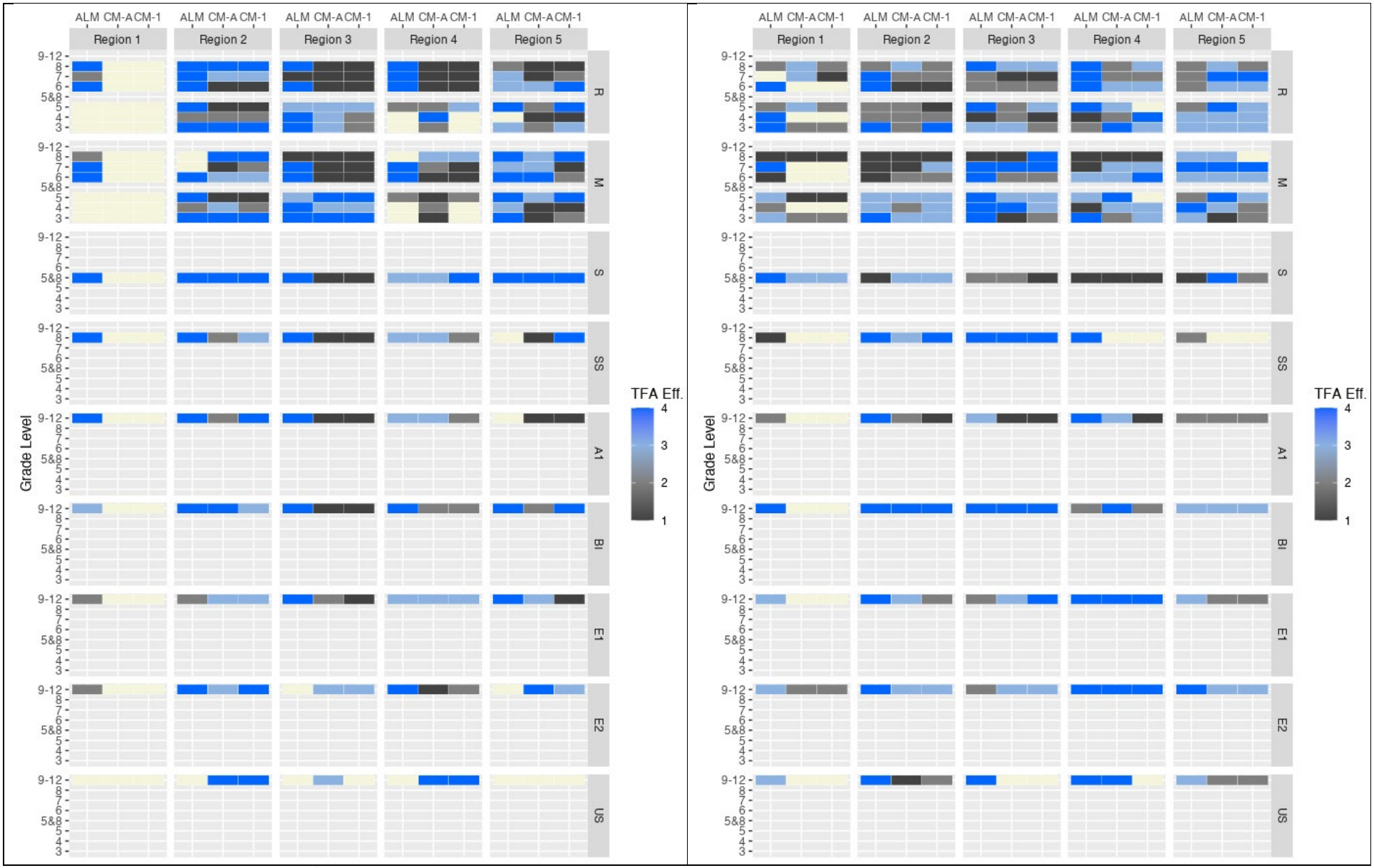
[9] Percentages add up to 100% within each row. Since some teachers may have taught multiple subject areas, totals would not necessarily reflect unique sample sizes across subject areas.

Appendix B. Prior Studies' Heat Maps

Figure B1. *Comparison analyses heat map disaggregated by TFA affiliation, geographic region, and content area*[10]



[10] Heatmap legend: CM=Corps Member, US=US History, R=Reading, M=Math, E2=English 2, E1=English 1, BI=Biology, A1=Algebra 1. ALM: Alumni, CM-A:All Corps Members, CM-1: New (1st year) Corps Members. Red cells represent non-converged analyses.


ALM CM-A CM-1
Region 1
Region 2
Region 3
Region 4
Region 5
Grade Level
9-12
8
7
6
5&8
5
4
3
R
M
S
SS
A1
Bl
E1
E2
US
TFA Eff.
4
3
2
1

Appendix C. Detail of Student Groups Findings from Prior Studies

Charter schools & ISD schools	**The first study found TFA-affiliated teachers are more effective than non-TFA-affiliated teachers, on average, in both traditional ISD campuses and charter schools; this advantage over non-TFA-affiliated teachers is greater in ISD campuses than charters. The second study confirmed similar small advantages of TFA in both ISDs and charter schools.**	
	Study One: In traditional ISDs, students of TFA alumni were 7% more likely to pass STAAR than students of non-TFA veteran teachers, compared to a 2% advantage in charter schools. Differences are less notable for TFA corps members; students of TFA corps members are slightly less likely to pass STAAR in charter schools (-0.8%), and slightly more likely to pass in traditional ISDs (0.2%).	**Study Two:** In traditional ISDs, students of TFA alumni were 1% more likely to pass STAAR than students of non-TFA veteran teachers. Like study one, this advantage for TFA alumni was 2% in charter schools. Also like study one, students of TFA corps members in both traditional ISDs and charters were as likely to pass STAAR, with differences in likelihoods near zero.
Student race	**The first study found TFA-affiliated teachers are more effective than non-TFA-affiliated teachers, on average, for all ethnicities of students; this advantage over non-TFA-affiliated teachers is slightly greater and more consistent for Black and Hispanic students of TFA alumni. The second study confirmed that there is an advantage for Black and Hispanic students who have TFA alumni teachers.**	
	Study One: Black students of TFA alumni were 7.6% more likely to pass STAAR than black students of non-TFA veteran teachers, while Hispanic students of TFA alumni were 6.6% more likely to pass STAAR. This advantage of TFA alumni teachers was smaller for White students at 3.2%. However, for TFA corps members, there is not a notable advantage for Black and Hispanic students.	**Study Two:** Black students of TFA alumni were 1.5% more likely to pass STAAR than black students of non-TFA veteran teachers, while Hispanic students of TFA alumni were 3.6% more likely to pass STAAR. There was not advantage of TFA for White students. Similar to study two, there is not a notable advantage specifically for Black and Hispanic students taught by TFA corps members.
Economically disadvantaged	**The first study found TFA-affiliated teachers are equally effective, on average, for both economically disadvantaged (EcoDis) and non-economically disadvantaged students. The second study confirmed this finding for economically disadvantaged students, particularly students of TFA alumni.**	
	Study One: EcoDis students of TFA-affiliated teachers are 2.3% more likely to pass STAAR than peers taught by non-TFA-affiliated teachers. This advantage is similar for non-EcoDis students with a 2.6% advantage for non-EcoDis students of TFA-affiliated teachers. This advantage is greater for students of TFA alumni; EcoDis students of TFA alumni are 6.7% more likely to pass STAAR, on average, and non-EcoDis students are 7.6% more likely to pass. Differences are less notable for TFA corps members.	**Study Two:** Similar to the first study, the second study found EcoDis students of TFA-affiliated teachers are slightly more likely to pass STAAR (1%) than peers taught by non-TFA-affiliated teachers. EcoDis students of TFA alumni are 3% more likely to pass STAAR than peers taught by non-TFA affiliated veteran teachers. EcoDis students of TFA corps members were equally likely to pass compared to peers taught by non-TFA novice teachers. Unlike the first study, the second study found no TFA advantage for non-EcoDis students.
Limited English proficient (LEP)	**The first study found TFA-affiliated teachers are more effective than non-TFA-affiliated teachers, on average, for both LEP and non-LEP students; this advantage over non-TFA-affiliated teachers is greater for LEP students. The second study confirmed the TFA advantage for LEP students but found no relative advantage of TFA for non-LEP students.**	
	Study One: LEP students of TFA-affiliated teachers are 5.3% more likely to pass STAAR than LEP peers taught by non-TFA-affiliated teachers. This advantage is 1.8% for non-LEP students. This advantage is greater for LEP students of TFA alumni; LEP students of TFA alumni are 9.3% more	**Study Two:** LEP students of TFA teachers are 5.4% more likely to pass STAAR than LEP peers taught by non-TFA affiliated teachers. There is no overall TFA advantage for non-TFA students. This advantage is greater for students of TFA alumni. On average, LEP students of TFA alumni are 8.6% more likely to

	likely to pass STAAR, on average, compared to a 6.3% advantage for non-LEP students of TFA alumni. There is no relative advantage of TFA corps members for non-LEP students (-0.2% advantage), while LEP students of TFA corps members are 3.3% more likely to pass, on average.	pass STAAR than LEP peers taught by non-TFA veteran teachers with similar experience. Also similar to study one, LEP students of TFA corps members are 3.4% more likely to pass STAAR compared to peers taught by novice non-TFA teachers.

The table below summarizes how varying students of TFA teachers have advantage compared to peers of non-TFA affiliated teachers. Overall, findings for charter schools compared to traditional ISDs has been mixed. The same is true for both student race and economically disadvantaged status. However, TFA alumni have typically been more effective in ISDs, while corps members have been more effective in charter settings, TFA alumni have been more effective with Hispanic students, and economically disadvantaged students. Both TFA alumni and corps members have been consistently more effective with LEP students than with non-LEP students.

		TFA Alumni			TFA Corps Members		
		study 1	study 2	study 3	study 1	study 2	study 3
Charter Status	charter	☆ 2%	☆ -1%	3%	★ 2%	0%	★ 2%
	isd	★ 7%	★ 0%	3%	☆ 1%	0%	☆ 1%
Student Race	black	★ 8%	☆ 2%	☆ 2%	0%	0%	★ 1%
	hispanic	☆ 7%	★ 4%	★ 4%	0%	0%	☆ 0%
Student EcoDis	yes	☆ 7%	★ 3%	★ 3%	0%	0%	0%
	no	★ 8%	☆ 0%	☆ 2%	0%	0%	0%
Student LEP	yes	★ 9%	★ 9%	★ 5%	★ 3%	★ 3%	★ 2%
	no	☆ 6%	☆ 0%	☆ 1%	☆ 0%	☆ 0%	☆ 0%

Interpretation note: There is a 9% advantage for LEP students of TFA alumni compared to LEP students of other non-TFA veteran teachers. There is a 6% advantage for non-LEP students of TFA alumni compared to non-LEP students of other non-TFA veteran teachers.