

86th Regular Session of the Texas Legislature; Senate Bill 54: Evaluating the Performance of RDSPD students

REPORT TO THE TEXAS LEGISLATURE; JUNE 30, 2021

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1 Study Overview

Deaf and hard of hearing (DHH) students throughout Texas have multiple options for their public-school experience. A small percentage (~6%) attends Texas School for the Deaf (TSD) in Austin, another percentage (~24%) attends a cluster site for a Regional Day School Program for the Deaf (RDSPD), and the largest percentage of DHH students attends mainstream schools throughout Texas with no RDSPD services (~70%); see Appendix A for reports of counts of DHH students throughout Texas, including demographic characteristics of DHH students who attend districts that contain a RDSPD cluster site. A question has been raised about the DHH students who attend RDSPD campuses/districts throughout the State of Texas (in particular, those DHH students who transfer to a RDSPD for educational services) and whether they are performing significantly below their non-DHH peers within those same campuses/districts. Of issue is whether the DHH transfer students in RDSPD cluster sites are negatively impacting the accountability rating of the host campus or district for the RDSPD. This question engendered the analysis contained herein, following the charge given in SB 54 from the 86th regular session of the Texas Legislature (see below).

A team of researchers based at the University of Texas at Austin has conducted an analysis of STAAR testing data from the 2018-19 academic year. The team was comprised of linguistics and child-development researchers on the faculty of UT Austin whose work focuses on the signed language acquisition of DHH children, graduate students in signed language linguistics, UT statisticians, and educational consultants who work in different sectors of the State's education of DHH students. The team has more than 120 combined years of experience working with DHH children and their language development. Additionally, various members of the team have expertise in assessment of DHH children.

The main findings from our analysis of demographic and STAAR performance data from the 2018-19 academic year are the following (details can be found below):

Demographic data approximate values:

- 7,500 deaf and hard of hearing (DHH) students grades 3-12 were educated in Texas public schools that year (if considering ages 0-22, the figure was approximately 9,100 students).
- 24% of those 7,500 students were designated as RDSPD students (~1,800 students) since they received at least 45 minutes of weekly instruction by an RDSPD teacher.
- RDSPD cluster-site schools are in 57 districts (179 campuses), and 90% of the DHH students at RDSPD cluster-site campuses (~1,625 students) were designated as RDSPD students.
- More than 20% of the RDSPD students (~400 students) who attended cluster-site campuses were considered transfer students since their home district and school districts were distinct (i.e., they traveled to another district to attend the RDSPD cluster-site campus).

- DHH students (both RDSPD and non-RDSPD students) in RDSPD districts were similar demographically to their non-DHH peers in some respects (e.g. percentages of males/females and distribution among different racial/ethnic categories), but they differed in others, such as:
 - a higher percentage (~10% difference) of non-DHH students were part of “gifted/talented” programming;
 - a higher percentage (~25% difference) of DHH students were designated “at risk”;
 - a higher percentage (~10 difference) of DHH students were designated “economically disadvantaged”.

STAAR performance data:

- Considering district-level data (i.e., DHH from all 57 districts)
 - non-DHH students outperformed the DHH students on the STAAR test in all grades and all subjects except 7th and 8th grade Mathematics.
- Considering campus-level data (i.e., DHH from 11 districts, 14 campuses with the highest percentage of DHH students)
 - non-DHH students had significantly greater odds of meeting STAAR test requirements than DHH transfer students;
 - DHH non-transfer students had greater odds of meeting STAAR test requirements than DHH transfer students;
 - non-DHH and DHH non-transfer students had similar odds of meeting STAAR test requirements;
 - students who met the requirement for exit from an ESL program had greater odds of meeting STAAR test requirements than those who were either still in an ESL program or who had not participated in such a program;
 - students in special education, considered “at-risk”, or “economically disadvantaged” had significantly lower odds of meeting STAAR test requirements than students not in those groups;
 - gifted and talented students had increased odds of meeting STAAR test requirements than students not in the gifted/talented program;
 - 5th grade students had increased odds of meeting STAAR test requirements than students in 3rd or 4th grades, but 3rd and 4th grade students had similar odds;
 - math tests had significantly higher odds of meeting STAAR test requirements than reading, writing, and science tests, but reading, writing, and science tests were not significantly different from each other;
 - Black and Hispanic students had decreased odds of meeting STAAR test requirements than Asian and White students; there was no statistical difference between Asian and White students.

Researcher recommendations

- The use of testing accommodations (such as versions of tests communicated via American Sign Language or other linguistic accommodations) should be encouraged for

DHH students who could utilize them to optimize opportunities for DHH students to reveal their knowledge base.

- To address fundamental differences between the performance of DHH and non-DHH students, we recommend that the TEA, in consultation with experts in language development and the education of DHH children, and in collaboration with stakeholders in the deaf signing community, develop an approach for improving language exposure for DHH children throughout the State of Texas.

2 Charge

This report examines the following question: What are appropriate methods for evaluating the annual performance of DHH students in RDSPDs on educational subjects that are learned from grades 3-12? The report serves as a response to Senate Bill 54 (SB54) from the 86th regular session of the Texas Legislature (2019), which states the following:

The Texas Education Agency shall conduct a study regarding appropriate methods and standards to evaluate the performance, separately from the performance of other students attending the district or campus in which the program is physically located, of a student who spends at least 50 percent of the instructional day participating in a regional day school program for the deaf under Subchapter D, Chapter 30, Education Code, and whose parent or person standing in parental relation to the student does not reside in the school district providing program services. (Section 1 of SB54).

3 Executive Summary

To provide a response to the SB54 mandate, our team of experts, based at the University of Texas at Austin, conducted two analyses of the 2018-19 STAAR performance data from DHH students in Regional Day School Programs (RDSPD) throughout the state of Texas. The first analysis included data from all districts (n=57) that contain RDSPD cluster sites, and it compared the performance of DHH RDSPD students to non-DHH students (i.e., hearing students) within the same districts. This analysis also considered differences between DHH transfer students and non-transfer students. The second analysis focused on data from the 14 RDSPD cluster-site campuses with the highest percentages of DHH students throughout the state; notably, all 14 campuses were elementary schools. The second analysis allowed us to consider the role of demographic variables on STAAR test performance, and we included all DHH students from the 14 campuses—whether they were flagged as RDSPD students. Additionally, our team sought to analyze measures used across different states for DHH students. However, aspects of DHH programs in other states are not necessarily comparable to RDSPDs as they are configured in Texas. Our team also examined the academic literature on the assessment of DHH students, with the goal of highlighting common themes that appear in those published research studies and reports.

The results of our two analyses of STAAR assessment data reveal similar—albeit complementary—information. From the district-wide analysis we learned that DHH transfer and DHH non-transfer students at RDSPDs perform below the level of non-DHH students, across all subjects excepting Mathematics (for 7th and 8th grade students); see Appendix B for tables of STAAR data for the DHH students in RDSPDs throughout Texas. From the campus-level analysis we learned that transfer status does influence test performance, and DHH status is not the only factor that predicts the outcomes of the testing. Rather, a myriad of other demographic variables also predicts lower performance, using the metric of whether a student “approaches/meets/masters” STAAR requirements for a subject test. In Appendix C we provide campus-level data for the RDSPD cluster-site campuses (n=14) that have a larger concentration of DHH students (with a range of 4-10%). Combined, these views of district- and campus-level data point to similar results: non-DHH students outperform DHH students, except considering Mathematics in select grades. However, DHH status is not the only factor that influences test performance.

We also provide details about common themes that appear in the research literature on the assessment of DHH students, including providing appropriate accommodations and considering other options for assessment that differ from the standardized tests that are typically administered to non-DHH students.

We conclude the report with recommendations to the Texas Education Agency (TEA) that highlight notable diversity in the population of DHH students, especially regarding early language exposure.

4 STAAR Performance Data Analysis

We conducted an analysis of STAAR test metrics (including scale scores and the “approaches/meets/masters” state standards results) for DHH children in grades 3-12 who receive RDSPD educational services in the state of Texas or who are being educated in a campus that houses an RDSPD. We first compared the performance of the DHH RDSPD transfer students to non-DHH students who also attend districts where RDSPD cluster sites (schools) are located. We then compared the performance of all DHH students (including transfer and non-transfer students) to that of non-DHH students in the 14 campuses in the state with the highest concentration of DHH students.

The analyses of district-level data reveal that DHH students perform substantially below their non-DHH peers in all subjects and grades, with the exceptions of 7th and 8th grade Mathematics (See tables and figures in Appendix B). In addition to this general result, data from the 14 campuses (within 11 districts) with the highest concentration of DHH students throughout the state reveals that DHH status is not the only factor that influences whether a student meets or does not meet STAAR testing requirements. Rather, a myriad of other factors (including transfer status, LEP designation, “at-risk” status, “economically-disadvantaged” status, “gifted and talented” status, test subject, school grade, and race/ethnicity) also impact test performance. The

only factor that was not shown to predict whether a student meets or does not meet STAAR testing requirements was sex/gender of the student (See Appendix C). This analysis of a subset of the DHH students throughout Texas reveals a multi-faceted and complex picture, where multiple factors contribute to outcomes for DHH students. In short, DHH students do perform differently than their non-DHH peers in various test subjects, but not in all of them, nor in all grades. DHH transfer students do underperform in comparison with DHH non-transfer students. Additionally, various demographic variables predict student performance, in addition to DHH status.

Several caveats should be kept in mind, based on the analyses we performed. To begin, in the first analysis of the district-level data (n=57 RDSPD districts), the DHH transfer students constituted a very small percentage of each district's student population (nearly three-one-hundredths of 1%, on average). The extent to which the performance of such a comparatively small percentage of students can affect the accountability rating of a campus or a district (either positively or negatively) is unclear. Presumably, there might be the possibility of an effect if a district's or campus's rating is slightly below the cutoff for a higher rating. In the second analysis the representation of DHH students on RDSPD cluster campuses (n=14 campuses) ranged between 4-10% of the students within those campuses. Even in such cases, it is not entirely clear if the performance of a small minority of students (<10%) would be able to affect the accountability rating of a campus.

The demographic data for the DHH students provide additional information that can be used to contextualize the results reported above. In many respects, the DHH students pattern similarly to their non-DHH peers along demographic variables. However, there also exist notable differences across the groups. See Table A4 in Appendix A. There are more DHH students than non-DHH students throughout the state's RDSPD districts who are considered "at risk" (a difference of more than 20%), whereas there are fewer DHH students who are designated as "gifted/talented" (a difference of approximately 10%). Each of these demographic factors was shown to predict STAAR test performance (using the metric of meets/does not meet STAAR requirements), with "at risk" status affecting test results negatively, and gifted/talented affecting test outcomes positively. It is not immediately clear why DHH students are overrepresented by these designations in comparison with their non-DHH peers.

A question has been raised regarding whether the accountability rating of districts that contain a RDSPD would be changed if the scores of DHH transfer students were removed. Unfortunately, our team was unable to conduct such an analysis because it was determined that the algorithm for computing accountability ratings does not allow for selecting subsets of students. Removing DHH students' scores from the scores of a district and then computing a new accountability rating for that district appears mathematically unfeasible. In addition to this limitation, the algorithm for computing accountability ratings relies on information on student growth (from one academic year to another), and our analysis only referenced STAAR performance data from the 2018-19 academic year. Nonetheless, we provided detailed analyses of the performance of DHH students across grades and subjects (see the TEA version of this report for additional details).

5 Research Literature on Assessment and Deaf and Hard of Hearing Students

In addition to the analysis of STAAR test data, our team reviewed academic publications (journal articles, academic books, curricula, etc.) that have been published in recent years on the topic of assessment and DHH students. This review showed that many of these students have limited exposure to language and learning opportunities in their early years, and that fact could have a notable impact on their performance on standardized assessments that were designed primarily for students who are not constrained in their access to spoken language. Additionally, many questions arise about testing accommodations for standardized tests, and such questions must be considered carefully to determine optimal accommodations for a diverse group of learners. Otherwise, as various researchers and educators have suggested, standardized summative assessments might not be tapping into a DHH student's true knowledge about a topic. We are aware that some DHH students took advantage of an ASL accommodation for the STAAR tests that was offered for the first time during the 2018-19 academic year. However, we did not take that factor into account within our analyses. Future analyses might consider the STAAR test performance of DHH students who are given ASL accommodations versus those who do not receive the same.

6 Summary and Recommendations to the TEA for Assessing DHH Students

We conducted an analysis of STAAR test metrics (including scale scores and metrics for “approaches/meets/masters” state standards) for DHH children in grades 3-12 who receive RDSPD educational services in the state of Texas. To examine the performance of the subset of DHH students outlined in SB54, we needed to determine how other students (including non-DHH and DHH non-transfer students) performed, for comparison purposes. We first compared the performance of the DHH RDSPD transfer students to non-DHH students who also attend districts where RDSPD cluster sites (schools) are located. We then compared the performance of all DHH students (including transfer and non-transfer students) to that of non-DHH students in the 14 campuses with the highest concentration of DHH students. The analyses of district-level data reveal that DHH students perform substantially below their non-DHH peers in all subjects and grades, with the exceptions of 7th and 8th grade Mathematics. In addition, data from the 14 campuses (within 11 districts) with the highest concentration of DHH students reveals that DHH status is not the only factor that influences whether a student meets or does not meet STAAR testing requirements. Rather, a myriad of other factors (including transfer status, LEP designation, “at-risk” status, “economically-disadvantaged” status, “gifted and talented” status, test subject, school grade, and race/ethnicity) also impact test performance. The only factor that was not shown to impact whether a student meets or does not meet STAAR testing requirements was sex/gender of the student. This analysis of a subset of the DHH students throughout Texas reveals a picture that is complex, where multiple factors contribute to outcomes for DHH

students. In short, DHH students do perform differently than their non-DHH peers in various test subjects, but not in all of them, nor in all grades. Additionally, transfer status does play a role, as do various other demographic variables.

The demographic characteristics of the DHH students in comparison with their non-DHH peers is notable. The DHH students appear to differ from the non-DHH students in the 57 districts with RDSPDs in multiple ways. First, there were higher percentages of non-DHH students in those districts who were part of “gifted/talented” programming. Alternatively, there was a higher percentage of DHH students who were “at risk” and slightly more who were “economically disadvantaged” (especially in the DHH transfer category). Interestingly, among the DHH transfer students was a lower percentage of students designated as having “Limited English Proficiency” (LEP). Our understanding is that this designation is based primarily on the home language of a student. The interpretation, based on the data, is that a smaller proportion of the families of DHH transfer students spoke a language other than English at home; similarly, a higher percentage of DHH transfer students were designated as English proficient, based on English being the primary home-language of this group. Other than slight differences in the percentage of Black DHH transfer students, there do not appear to be notable differences in the demographic composition of the DHH and non-DHH students across the groups. See Table A4 in Appendix A for details.

We suggest that the results of this analysis should be considered within the context of language learning and development for these children. Due to the fact DHH children who are severely-to-profoundly deaf do not have sufficient hearing to acquire spoken language in a typical fashion, and most DHH are raised in hearing families who generally do not use a signed language for communication, these DHH children do not receive the same language input that their hearing peers receive, and the development of their basic language skills for social interaction could be notably different than that of their age-matched hearing peers. This difference in basic language skills can have a profound impact on the type of continued development that occurs at school, where children learn academic concepts and build on their knowledge base throughout their school-age years.

While the TEA data we analyzed do not provide any measure of students’ signing skills, our team is under the impression that some percentage of the DHH students whose data we analyzed are everyday users of signed language. Of these signers, it is likely that a subset uses American Sign Language (ASL), which is a natural language that is different in grammar and vocabulary from English. In fact, some of these ASL users will have a strong foundation in ASL, due to early exposure to ASL language models in the home and/or at school. Another subset of Texas DHH students might use signs that are semantically equivalent (or semantically similar) to ASL but are intended to be used in educational settings where spoken English is also used for daily communication. DHH children who use a signed language could be said to be *developing bilinguals*, since they are learning vocabulary items (and likely also grammatical structures) across their spoken/written and signed language. A growing body of research on bilingual acquisition (mostly relating to spoken language bilingualism) suggests that bilingual children, more generally, differ from their monolingual peers in measures of

vocabulary knowledge. The studies highlight the fact that bilinguals are growing two vocabularies and developing grammatical competency in two languages during periods of development when monolinguals are learning the words and grammar of a single language; this likely leads to some of the differences identified between bilingual and monolingual children. DHH children who use signed language are no exception. Even if they are not using spoken language for communication, text-based English represents one of their languages, and the signed language is the other. Continuing to provide an ASL (accommodation) option for DHH students aligns with recognition that some DHH students are bilingual; they are users of a signed language for everyday communication (and for learning environments, in the case of many DHH students), and they are developing literacy skills in written English. Some DHH children also use spoken English. Providing an ASL accommodation for testing could serve as a method for tapping into their academic knowledge base in their everyday language.

Due to notable differences between DHH and non-DHH students in terms of early exposure to language, it is not surprising that DHH students underperform in comparison to their non-DHH grade-matched peers in all subjects, excepting Mathematics. The Mathematics subject tests likely rely more heavily on analytical and problem-solving skills than on language-based abilities (e.g., language arts, social studies, history), where English vocabulary depth and breadth and grammar skills play much larger roles in student performance. Unfortunately, there is notable variation in language exposure and educational programming for DHH students considering language development. Some DHH students are educated using signed language (some of whom are native signers, and their home language is a signed language), some using only spoken/written language, and yet others a mix of the two. Bilingual education is emphasized for some DHH students, whereas it receives little attention for others. This variation among the school-aged population of DHH students may contribute to variation in performance for such students on summative assessments such as STAAR tests.

The notable variability among DHH students in terms of language exposure and access to bilingual programming during their school-aged years, and the unique situation of DHH students, especially with respect to their language development, should encourage the use of a different type of accommodation measure—one that considers a student’s unique profile and uses that to determine level of knowledge and chart a growth trajectory for that student for the coming months.

We also recommend that the TEA, in consultation with experts in language development and the education of DHH children, and in collaboration with stakeholders in the deaf signing community, develop an approach for improving early and sustained language exposure for DHH children throughout the State of Texas. We feel, based on the research literature and reports from many experts in education, that such an approach could impact the way in which DHH children develop and perform in educational settings, including on state-based annual assessments that are designed to track students’ learning over their school-age years.

7 Appendices

Appendix A: Characterizing the DHH Students in the Sample

| Table A1. Distribution of DHH students, Grades 3-12, in Texas during the 2018-2019 School Year | |
|--|------------|
| | Number |
| Attend Texas School for the Deaf | 452 (6%) |
| Attend RDSPD-Cluster Schools | 1823 (24%) |
| Attend Other Schools | 5261(70%) |

| Table A2. Breakdown of DHH Students at RDSPD Cluster Sites by RDSPD-flag status and Transfer Status, Grades 3-12 during the 2018-2019 School Year. | |
|--|------------|
| | Number |
| RDSPD Transfer Students | 407 (22%) |
| RDSPD Non-transfer Students | 1216 (67%) |
| Non-RDSPD | 200(11%) |

| Table A3. Number of Students by Grade, Transfer and RDSPD Status | | | |
|--|-----------|--------------|----------|
| Grade | | Non-Transfer | Transfer |
| 3 | Non-RDSPD | 178 | 8 |
| | RDSPD | 231 | 49 |
| 4 | Non-RDSPD | 220 | 7 |
| | RDSPD | 273 | 35 |
| 5 | Non-RDSPD | 237 | 7 |
| | RDSPD | 244 | 29 |
| 6 | Non-RDSPD | 295 | 3 |
| | RDSPD | 242 | 37 |
| 7 | Non-RDSPD | 295 | 6 |
| | RDSPD | 242 | 48 |
| 8 | Non-RDSPD | 244 | 11 |
| | RDSPD | 230 | 33 |
| 9 | Non-RDSPD | 287 | 8 |
| | RDSPD | 235 | 33 |
| 10 | Non-RDSPD | 251 | 5 |
| | RDSPD | 186 | 34 |
| 11 | Non-RDSPD | 208 | 11 |
| | RDSPD | 158 | 37 |
| 12 | Non-RDSPD | 45 | 0 |
| | RDSPD | 28 | 3 |

| Table A4. Demographic Characteristics of All DHH Students within RDSPD Districts | | | |
|--|---------|--------------|------------------|
| | Non-DHH | DHH transfer | DHH non-transfer |
| Special Education | 10% | 99% | 99% |
| Gifted/talented | 11% | 1% | 2% |
| At-Risk | 57% | 82% | 84% |
| Economically Disadvantaged | 66% | 77% | 74% |
| English Proficiency | | | |
| English Proficient | 70% | 91% | 75% |
| Limited English Proficiency | 23% | 8% | 23% |
| 1+ years after English Proficiency Program | 7% | 1% | 2% |
| Ethnicity | | | |
| Asian | 5% | 4% | 3% |
| Black | 16% | 11% | 17% |
| Hispanic | 58% | 63% | 61% |
| Multi-racial | 2% | 2% | 1% |
| Other | 1% | 0% | 1% |
| White | 19% | 20% | 16% |
| Sex | | | |
| Female | 48% | 51% | 45% |
| Male | 52% | 50% | 55% |

Appendix B: STAAR Performance Considering District-level Data

| Table B1. Number of Records by Grade, Transfer and RDSPD Status. | | | |
|--|-----------|--------------|----------|
| Grade | | Non-Transfer | Transfer |
| 3 | Non-RDSPD | 356 | 16 |
| | RDSPD | 462 | 98 |
| 4 | Non-RDSPD | 663 | 21 |
| | RDSPD | 825 | 105 |
| 5 | Non-RDSPD | 968 | 31 |
| | RDSPD | 1057 | 123 |
| 6 | Non-RDSPD | 598 | 6 |
| | RDSPD | 486 | 74 |
| 7 | Non-RDSPD | 885 | 18 |
| | RDSPD | 727 | 144 |
| 8 | Non-RDSPD | 1384 | 58 |
| | RDSPD | 1271 | 174 |
| 9 | Non-RDSPD | 878 | 21 |
| | RDSPD | 734 | 99 |
| 10 | Non-RDSPD | 516 | 9 |
| | RDSPD | 439 | 81 |
| 11 | Non-RDSPD | 392 | 27 |
| | RDSPD | 271 | 54 |
| 12 | Non-RDSPD | 78 | 0 |
| | RDSPD | 47 | 4 |

| Table B2. Average Scale Scores by Grade and Course Subject for Deaf and Hard-of-Hearing Transfer and Non-transfer Students in an RDSPD vs. Non-Deaf and Hard-of-Hearing in Grades 3-8. | | | | | | | | | | |
|--|-------|--------------------|---------|-----------|------------------------|---------|----------|---------|---------|----------|
| | | DHH-RDSPD-Transfer | | | DHH-RDSPD-Non-Transfer | | | Non-DHH | | |
| Course | Grade | N | M | (SD) | N | M | (SD) | N | M | (SD) |
| Math | 3 | 46 | 1294.59 | (137.08) | 181 | 1323.53 | (141.00) | 159,147 | 1468.72 | (159.98) |
| | 4 | 32 | 1407.34 | (102.29) | 202 | 1442.64 | (144.01) | 165,842 | 1568.16 | (167.66) |
| | 5 | 43 | 1421.63 | (200.04) | 289 | 1417.21 | (212.59) | 236,345 | 1533.86 | (262.69) |
| | 6 | 35 | 1505.57 | (123.16) | 176 | 1523.70 | (127.10) | 160,230 | 1623.60 | (173.29) |
| | 7 | 45 | 1510.18 | (77.86) | 166 | 1542.75 | (112.75) | 158,576 | 1562.55 | (247.28) |
| | 8 | 45 | 1519.16 | (219.36) | 283 | 1492.08 | (234.12) | 237,647 | 1494.42 | (306.72) |
| Reading | 3 | 46 | 1234.20 | ((136.94) | 181 | 1272.23 | (108.16) | 159,147 | 1437.58 | (159.02) |
| | 4 | 32 | 1310.97 | (76.43) | 202 | 1352.74 | (107.72) | 165,845 | 1511.29 | (152.60) |
| | 5 | 44 | 1335.55 | (142.88) | 301 | 1349.70 | (177.72) | 237,819 | 1484.06 | (233.54) |
| | 6 | 35 | 1357.23 | (99.66) | 176 | 1419.73 | (117.42) | 160,255 | 1565.64 | (147.28) |
| | 7 | 45 | 1435.16 | (51.93) | 167 | 1476.41 | (114.69) | 158,773 | 1633.24 | (179.53) |
| | 8 | 52 | 1448.35 | (141.93) | 300 | 1478.48 | (152.54) | 241,716 | 1541.71 | (278.78) |
| Writing | 4 | 32 | 2775.28 | (309.29) | 203 | 2968.61 | (509.05) | 165,665 | 3712.35 | (648.11) |
| | 7 | 45 | 2829.69 | (370.16) | 163 | 3013.55 | (475.71) | 155,787 | 3818.04 | (729.82) |
| Science | 5 | 28 | 3094.29 | (395.36) | 181 | 3297.81 | (604.70) | 166,476 | 3879.99 | 600.74) |
| | 8 | 31 | 3251.58 | (358.03) | 175 | 3339.51 | (606.38) | 160,004 | 3855.23 | (861.12) |
| History | 8 | 31 | 3263.97 | (270.45) | 176 | 3296.22 | (504.49) | 159,968 | 3664.81 | (736.55) |

| Table B3. Average Scale Scores by Course Subject for Deaf and Hard-of-Hearing Transfer and Non-transfer Students in an RDSPD vs. Non-Deaf and Hard-of-Hearing in Grades 9-12. | | | | | | | | | |
|---|--------------------|---------|----------|------------------------|---------|----------|---------|---------|----------|
| | DHH-RDSPD-Transfer | | | DHH-RDSPD-Non-Transfer | | | Non-DHH | | |
| Course | N | M | (SD) | N | M | (SD) | N | M | (SD) |
| Algebra I | 37 | 3769.30 | (509.92) | 219 | 3763.47 | (596.88) | 180,559 | 4054.14 | (830.70) |
| Biology | 45 | 3530.64 | (317.68) | 202 | 3557.68 | (435.82) | 174,006 | 4121.50 | (692.48) |
| English I | 61 | 3357.49 | (335.34) | 312 | 3226.76 | (603.32) | 226,435 | 3752.95 | (841.86) |
| English II | 47 | 3308.55 | (415.09) | 227 | 3238.49 | (511.99) | 206,432 | 3875.91 | (732.08) |
| US History | 47 | 3449.47 | (387.69) | 163 | 3568.86 | (506.39) | 150,326 | 4302.10 | (696.88) |

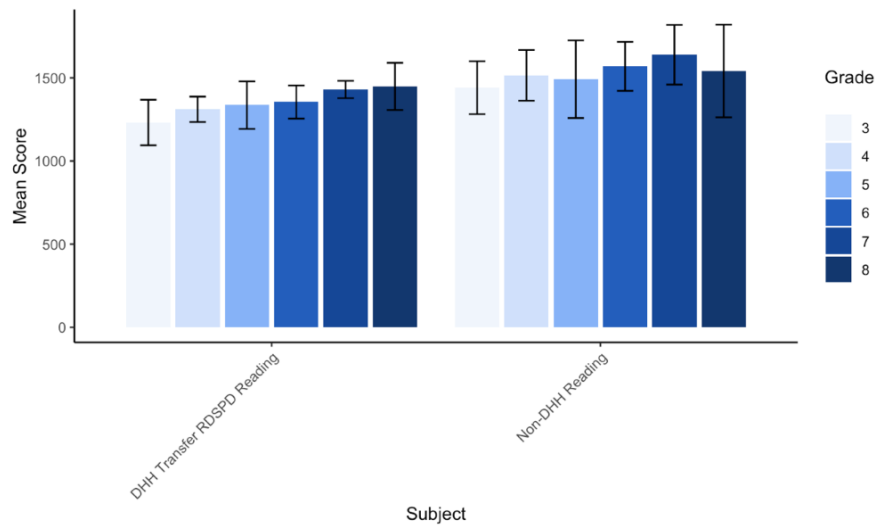


Figure B1. Average Scale Scores for Reading by Grade for Deaf and Hard-of-Hearing Transfer Students in an RDSPD vs. Non-Deaf-and-Hard-of-Hearing in Grades 3-8. Note: error bars represent standard deviation

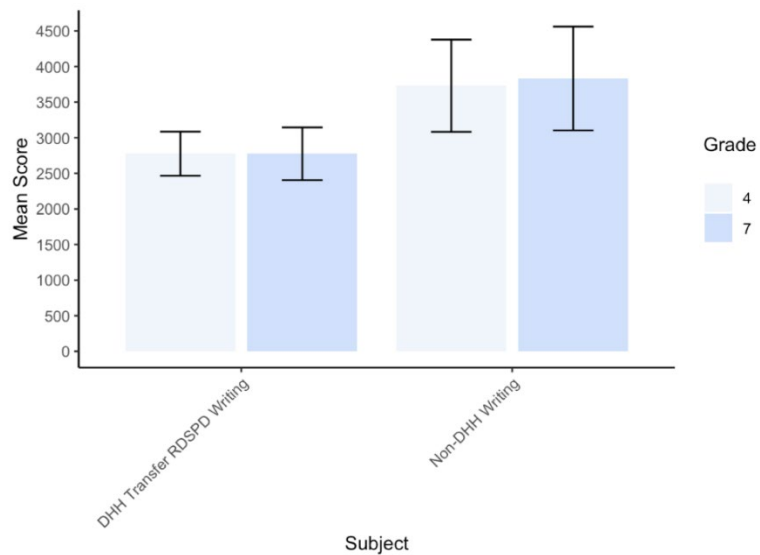


Figure B2. Average Scale Scores for Writing by Grade for Deaf and Hard-of-Hearing Transfer Students in an RDSPD vs. Non-Deaf-and-Hard-of-Hearing in Grades 4 & 7. Note: error bars represent standard deviation

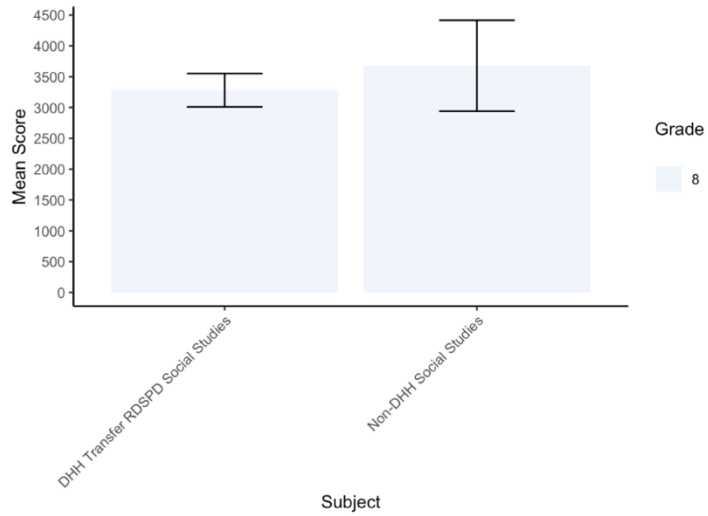


Figure B3. Average Scale Scores for Social Studies for Deaf and Hard-of-Hearing Transfer Students in an RDSPD vs. Non-Deaf-and-Hard-of-Hearing in Grade 8. Note: error bars represent standard deviation

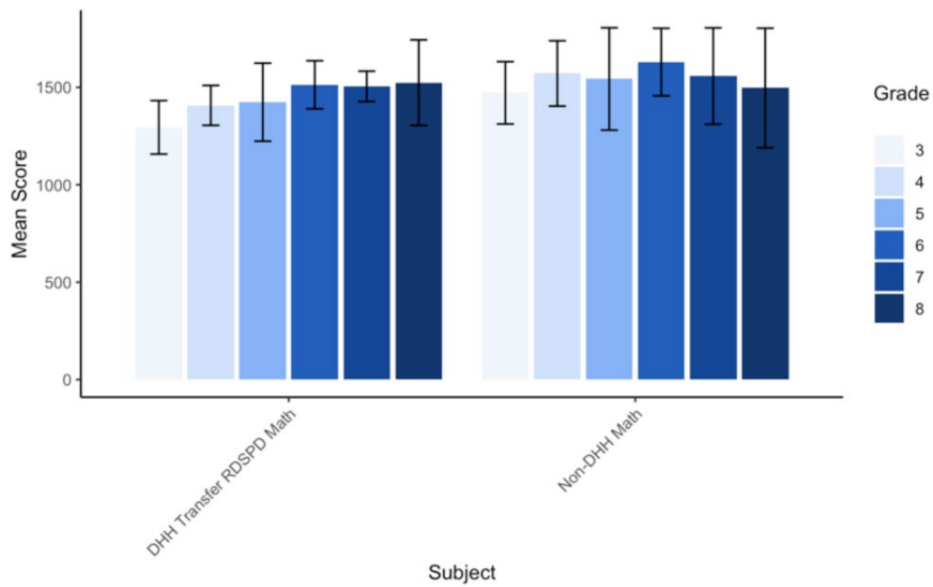


Figure B4. Average Scale Scores for Math by Grade for Deaf and Hard-of-Hearing Transfer Students in an RDSPD vs. Non-Deaf-and-Hard-of-Hearing in Grades 3-8. Note: error bars represent standard deviation

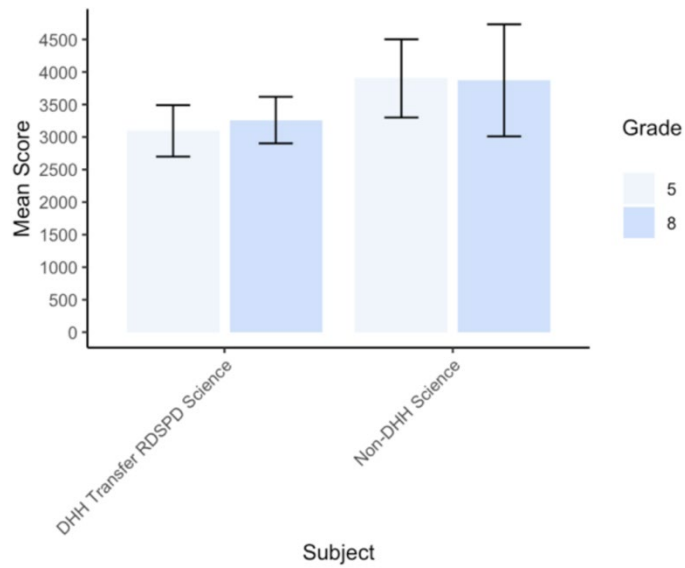


Figure B5. Average Scale Scores for Science by Grade for Deaf and Hard-of-Hearing Transfer Students in an RDSPD vs. Non-Deaf-and-Hard-of-Hearing in Grades 5 & 8. Note: error bars represent standard deviation

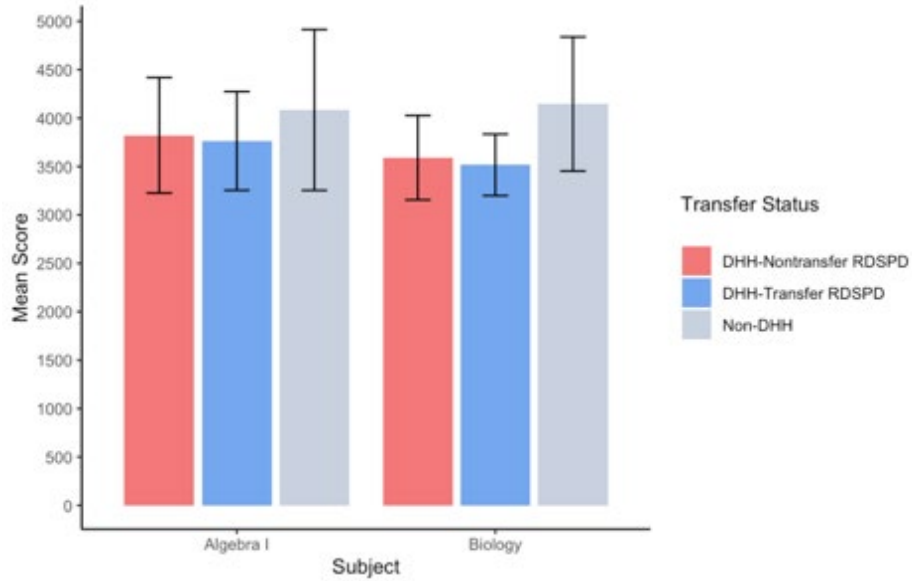


Figure B6. Average Scale Scores for Algebra I and Biology for Deaf and Hard-of-Hearing Transfer Students in an RDSPD vs. Non-Deaf-and-Hard-of-Hearing Students in Grades 9-12. Note: error bars represent standard deviation; grades 9-12 are combined

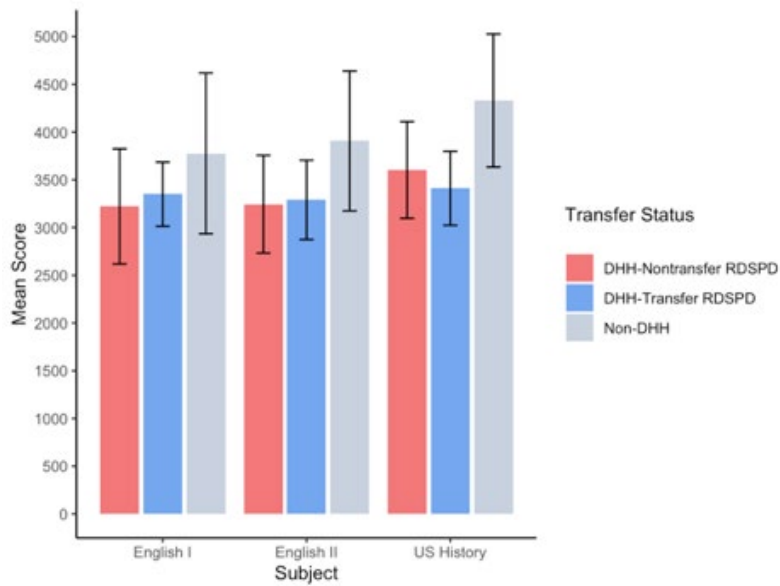


Figure B7. Average Scale Scores for English I, English II, and U.S. History for Deaf and Hard-of-Hearing Transfer Students in an RDSPD vs. Non-Deaf-and-Hard-of-Hearing Students in Grades 9-12. Note: error bars represent standard deviation; grades 9-12 are combined

Appendix C: STAAR Performance Considering Campus-level Data

| Table C1. Number of students in each category by campus | | | | |
|---|---------|--------------|------------------|-------|
| Campus Name | Non-DHH | DHH transfer | DHH non-transfer | Total |
| BRITAIN ELEM. | 336 | 0 | 15 | 351 |
| DAVIS ELEM. | 170 | 14 | 12 | 196 |
| ESCANDON ELEM. | 177 | 14 | 1 | 192 |
| HERBERT MARCUS | 331 | 0 | 16 | 347 |
| HILLSIDE ELEM. | 171 | 6 | 7 | 184 |
| K.B. POLK CENTE | 176 | 1 | 15 | 192 |
| LAMAR ELEM. | 133 | 0 | 11 | 144 |
| LIVE OAK ELEM. | 254 | 0 | 14 | 268 |
| MCNAIR ELEM. | 242 | 0 | 12 | 254 |
| MILLER ELEM. | 351 | 1 | 20 | 372 |
| LAMAR ELEM. | 133 | 0 | 11 | 144 |
| LIVE OAK ELEM. | 254 | 0 | 14 | 268 |
| MCNAIR ELEM. | 242 | 0 | 12 | 254 |
| MILLER ELEM. | 351 | 1 | 20 | 372 |
| | 3669 | 49 | 183 | 3901 |

| Table C2. Number and percent of DHH transfer, DHH non-transfer, and non-DHH student exams that approach, meet, or master state exam criteria | | | | |
|--|---------------------|-------------------------|----------------|--------------|
| Britain Elementary | DHH Transfer | DHH Non-transfer | Non-DHH | Total |
| Approaches or Above | NA | 4 (9.5%) | 607 (58.7%) | |
| Meets or Above | NA | 0 (0%) | 279 (27.0%) | |
| Masters or Above | NA | 0 (0%) | 119 (11.5%) | |
| Total | 0 | 42 | 1034 | 1076 |
| Davis Elementary | DHH Transfer | DHH Non-transfer | Non-DHH | Total |
| Approaches or Above | 8 (19.0%) | 11 (33.3%) | 353 (74.6%) | |
| Meets or Above | 2 (4.8%) | 4 (12.1%) | 231 (48.8%) | |
| Masters or Above | 1 (2.4%) | 1 (3.0%) | 133 (28.1%) | |
| Total | 42 | 33 | 473 | 548 |
| Escandon Elementary | DHH Transfer | DHH Non-transfer | Non-DHH | Total |
| Approaches or Above | 7 (16.7%) | 3 (100%) | 348 (66.5%) | |
| Meets or Above | 1 (2.4%) | 0 (0%) | 198 (37.9%) | |
| Masters or Above | 0 (0%) | 0 (0%) | 91 (17.4%) | |
| Total | 42 | 3 | 523 | 568 |
| Herbert Marcus | DHH Transfer | DHH Non-transfer | Non-DHH | Total |
| Approaches or Above | NA | 5 (8.1%) | 675 (69.1%) | |
| Meets or Above | NA | 0 (0%) | 409 (41.9%) | |
| Masters or Above | NA | 0 (0%) | 189 (19.3%) | |
| Total | 0 | 62 | 977 | 1039 |
| Hillside Elementary | DHH Transfer | DHH Non-transfer | Non-DHH | Total |
| Approaches or Above | 0 (0%) | 4 (16.7%) | 399 (80.9%) | |
| Meets or Above | 0 (0%) | 0 (0%) | 225 (45.6%) | |
| Masters or Above | 0 (0%) | 0 (0%) | 94 (19.1%) | |
| Total | 16 | 24 | 493 | 533 |

| Table C2. Number and percent of DHH transfer, DHH non-transfer, and non-DHH student exams that approach, meet, or master state exam criteria (Continued) | | | | |
|--|---------------------|-------------------------|----------------|--------------|
| K B Polk Center | DHH Transfer | DHH Non-transfer | Non-DHH | Total |
| Approaches or Above | 1 (50.0%) | 15 (31.9%) | 324 (57.8%) | |
| Meets or Above | 0 (0%) | 6 (12.8%) | 177 (31.6%) | |
| Masters or Above | 0 (0%) | 3 (6.4%) | 84 (15.0%) | |
| Total | 2 | 47 | 561 | 610 |
| Lamar Elementary | DHH Transfer | DHH Non-transfer | Non-DHH | Total |
| Approaches or Above | NA | 16 (57.1%) | 314 (82.0%) | |
| Meets or Above | NA | 8 (28.6%) | 202 (52.7%) | |
| Masters or Above | NA | 4 (14.3%) | 102 (26.6%) | |
| Total | 0 | 28 | 383 | 411 |
| Live Oak Elementary | DHH Transfer | DHH Non-transfer | Non-DHH | Total |
| Approaches or Above | NA | 11 (18.0%) | 497 (66.1%) | |
| Meets or Above | NA | 4 (6.6%) | 294 (39.1%) | |
| Masters or Above | NA | 1 (1.6%) | 150 (19.9%) | |
| Total | 0 | 61 | 752 | 813 |
| McNair Elementary | DHH Transfer | DHH Non-transfer | Non-DHH | Total |
| Approaches or Above | NA | 10 (31.3%) | 579 (85.9%) | |
| Meets or Above | NA | 6 (18.8%) | 404 (59.9%) | |
| Masters or Above | NA | 1 (3.1%) | 264 (39.2%) | |
| Total | 0 | 32 | 674 | 706 |
| Miller Elementary | DHH Transfer | DHH Non-transfer | Non-DHH | Total |
| Approaches or Above | 0 (0%) | 4 (6.8%) | 663 (68.2%) | |
| Meets or Above | 0 (0%) | 1 (1.7%) | 379 (39.0%) | |
| Masters or Above | 0 (0%) | 0 (0%) | 179 (18.4%) | |
| Total | 5 | 59 | 972 | 1036 |

| Table C2. Number and percent of DHH transfer, DHH non-transfer, and non-DHH student exams that approach, meet, or master state exam criteria (Continued) | | | | |
|--|--------------|------------------|--------------|-------|
| Mockingbird Elementary | DHH Transfer | DHH Non-transfer | Non-DHH | Total |
| Approaches or Above | NA | 8 (28.6%) | 693 (92.6%) | |
| Meets or Above | NA | 7 (25.0%) | 536 (71.7%) | |
| Masters or Above | NA | 3 (10.7%) | 369 (49.3%) | |
| Total | 0 | 28 | 748 | 776 |
| Overton Elementary | DHH Transfer | DHH Non-transfer | Non-DHH | Total |
| Approaches or Above | 3 (30.0%) | 10 (50.0%) | 285 (62.1%) | |
| Meets or Above | 0 (0%) | 2 (10.0%) | 134 (29.2%) | |
| Masters or Above | 0 (0%) | 1 (5.0%) | 60 (13.1%) | |
| Total | 10 | 20 | 459 | 489 |
| T H Rogers School | DHH Transfer | DHH Non-transfer | Non-DHH | Total |
| Approaches or Above | NA | 9 (8.3%) | 1896 (95.1%) | |
| Meets or Above | NA | 4 (3.7%) | 1799 (90.2%) | |
| Masters or Above | NA | 4 (3.7%) | 1472 (73.8%) | |
| Total | 0 | 109 | 1994 | 2103 |
| W A Porter Elementary | DHH Transfer | DHH Non-transfer | Non-DHH | Total |
| Approaches or Above | 4 (14.8%) | 5 (23.8%) | 553 (87.8%) | |
| Meets or Above | 1 (3.7%) | 3 (14.3%) | 430 (68.3%) | |
| Masters or Above | 1 (3.7%) | 2 (9.5%) | 267 (42.4%) | |
| Total | 27 | 21 | 630 | 678 |