

ISIP Reading versus STAAR Reading: The Predictability Study

January 2014

Chalie Patarapichayatham¹, Ph.D.

William Fahle², Ph.D.

Tracey R. Roden³, M.Ed.

¹ Research Assistant Professor in the Department of Education Policy and Leadership,
Simmons School of Education and Human Development, Southern Methodist University

² Senior Vice President of Development Research at Istation

³ Vice President of Curriculum at Istation

Corresponding Author:

Chalie Patarapichayatham, 3101 Southern Methodist University, Dallas, TX 75205

Email: cpatarapichy@mail.smu.edu

Abstract

This study provides evidence of the relationship between Istation's Indicators of Progress (ISIP) Reading and the State of Texas Assessments of Academic Readiness (STAAR) Reading tests. This study also provides measurable evidence of how the ISIP Reading scores correlate with and predict STAAR reading scores. ISIP Early Reading (Grades Pre K – 3), ISIP Advanced Reading (Grades 4 – 8), and STAAR Reading tests are used in this study. To determine how well the measures correlate and how good a predictor ISIP is for STAAR, Pearson Product-Moment correlation analysis, multiple linear regression analysis, and multiple logistic regression were applied for Grades 3 – 8 data. All data came from the Garland Independent School District, Garland, Texas, 2012-2013 school year, totaling 20,493 students. There were 3,694 third graders, 3,783 fourth graders, 3,877 fifth graders, 3,519 sixth graders, 2,973 seventh graders, and 2,647 eighth graders. Results showed that the ISIP end of the year (EOY) scores were higher than the ISIP middle of the year (MOY) scores on both overall scores and each sub-skill score across grades, indicating that students improved their reading ability by the end of the year. The correlations between ISIP Reading and STAAR Reading tests were very strong across grades. Students who perform well on ISIP Reading are very likely to perform very well on STAAR. The findings of multiple linear regression and multiple logistic regression also showed that ISIP Reading measures are highly predictive of STAAR scores.

Introduction

Istation's Indicators of Progress, also known as ISIP, is a sophisticated internet and web-delivered Computer Adaptive Testing (CAT) system that provides Continuous Progress Monitoring (CPM) assessment in the critical domains of reading in grades Pre K – 8th. Built from item-response theory and driven by a CAT algorithm, ISIP gathers and reports frequent information about student progress in these critical domains throughout, and even across, academic years.

The purpose of ISIP is to measure reading ability and identify deficits in the critical areas to provide continuous, differentiated instruction. ISIP accomplishes this by delivering short tests, at least monthly, that target critical areas to inform instruction. It is realistic to administer ISIP assessments for an entire classroom, an entire school and even an entire district in a single day with adequate computer resources. Student results are immediately available on line to teachers and administrators, illustrating each student's past and present performance and skill growth. Teachers are alerted when students are not making adequate progress so that the instructional program can be modified before a pattern of failure becomes established (Mathes, 2011). See Mathes (2011) and Mathes, Torgesen and Herron (2011) for full information about ISIP Early Reading (for Pre K – Grade 3) and ISIP Advanced Reading (for Grades 4 – 8).

The State of Texas Assessments of Academic Readiness (STAAR) replaced the Texas Assessment of Knowledge and Skills (TAKS) in spring 2012. STAAR is a rigorous testing program that includes annual assessments in reading and mathematics for Grades 3 – 8. STAAR emphasizes "readiness standards" in knowledge and skills most important for college and career readiness. One of the state's goals in developing STAAR is that Texas will be among the top 10 states for graduating college- ready students by the 2019 – 2020 school year.

ISIP Early Reading, developed in 2006, and ISIP Advanced Reading, developed in 2010, have been delivered to over three million students in more than 37 states and 6 countries. A majority of these students are from the state of Texas and have been required to take the STAAR reading assessment. However, no literature has shown the relationship and/or to what degree ISIP ability scores predict STAAR Reading scores. Here, we are interested in observing how students perform on ISIP tests in relation to the STAAR reading tests. Also, we are interested in whether ISIP Reading measures are good indicators for STAAR Reading measures. In other words, is ISIP performance predictive of STAAR performance? To this end, this report provides evidence of the relationship between ISIP and STAAR reading for Grades 3 – 8.

The samples were taken from students in the Garland Independent School District (GISD), for the 2012 – 2013 school year. This study also provides evidence of how ISIP Reading scores predict STAAR Reading scores. Pearson Product-Moment correlation analysis, multiple linear regression analysis, and multiple logistic regression were applied for each grade's data.

Methods

Measures

Results from ISIP Early Reading for Grade 3, ISIP Advanced Reading for Grades 4 – 8, and STAAR Reading tests for Grades 3 – 8 for the 2012 – 2013 school year were used in this study. ISIP Reading data from two test occasions were used in this study. One set of data was collected at the middle of the year (MOY), and the other was collected at the end of 2012 – 2013 academic year (EOY). The STAAR Reading scores from 2012 – 2013 for these same students were also used. Four skills are measured under Grade 3 ISIP Early Reading and Grades 4 – 8 ISIP Advanced Reading tests: (a) Comprehension (CMP), (b) Spelling (SPL), (c) Vocabulary (VOC), and (d) Connected Text Fluency (TF). Three reporting categories (e.g., sub-skills) are

measured under Grades 3 – 8 STAAR reading tests. They are (a) Understanding across genres (RC1), (b) Understanding/analysis of literary texts (RC2), and (c) Understanding/analysis of informational texts (RC3).

Samples

This sample consisted of students in Grades 3 – 8 in the Garland Independent School District, Garland, Texas, totaling 20,493 students. There were 3,694 third graders, 3,783 fourth graders, 3,877 fifth graders, 3,519 sixth graders, 2,973 seventh graders, and 2,647 eighth graders in this current study. All students had both ISIP Reading scores and STAAR Reading scores. ISIP Reading scores include (a) Middle of the year Overall Reading (MOY_Overall), (b) Middle of the year Comprehension (MOY_CMP), (c) Middle of the year Vocabulary (MOY_VOC), (d) Middle of the year Spelling (MOY_SPL), (e) Middle of the year Connected Text Fluency (MOY_TF), (f) End of the year Overall Reading (EOY_Overall), (g) End of the year Comprehension (EOY_CMP), (h) End of the year Vocabulary (EOY_VOC), (i) End of the year Spelling (EOY_SPL), and (j) End of the year Connected Text Fluency (EOY_TF). STAAR Reading scores include (a) Understanding across genres (STAAR_RC1), (b) Understanding/analysis of literary texts (STAAR_RC2), and (c) Understanding/analysis of informational texts (STAAR_RC3), and STAAR scale score (STAAR_SC).

Analysis

The purpose of this study is to provide evidence of the predictability of STAAR Reading scores given ISIP Reading scores, for Grades 3 – 8. Pearson Product-Moment correlation analysis, multiple linear regression, and multiple logistic regression were applied for each grade data by using SPSS software. Two predictors were studied under the multiple linear regression: Middle of the year Overall Reading (MOY_Overall) and End of the year Overall Reading

(EOY_Overall). The STAAR score was the outcome variable. All eight predictors were studied under multiple logistic regression: (a) Comprehension (MOY_CMP), (b) Vocabulary (MOY_VOC), (c) Spelling (MOY_SPL), (d) Connected Text Fluency (MOY_TF), (e) Comprehension (EOY_CMP), (f) Vocabulary (EOY_VOC), (g) Spelling (EOY_SPL), and (h) Connected Text Fluency (EOY_TF). The STAAR_ LevII_PII was the outcome variable. It is a binary variable indicating PASSED or NOT PASSED on STAAR.

Results

Part I: Descriptive Statistics

Result of Grade 3 is shown in Table 1. The mean for MOY_Overall, EOY_Overall, and STAAR were 250.8, 256.7, and 1,447.8, respectively. The mean for EOY_Overall was higher than the mean for MOY_Overall. Overall, Grade 3 students improved their overall reading ability by the end of the year. The mean for MOY_CMP and the EOY_CMP were 257.3 and 264.3. The mean for MOY_VOC and EOY_VOC were 254 and 262.1. The mean for MOY_SPL and EOY_SPL were 247.7 and 252.5. The mean for MOY_TF and EOY_TF were 74 and 83.5. Overall, students improved their reading ability in all four skills by the end of the year.

For MOY_Overall, there were 2,158 (58.4%), 871 (23.6%), and 665 (18%) students in Tiers 1, 2, and 3, respectively. For MOY_CMP, there were 2,518 (68.2%), 686 (18.6%), and 489 (13.2%) students in Tiers 1, 2, and 3. For MOY_VOC, there were 2,044 (55.3%), 825 (22.3%), and 825 (22.3%) students in Tiers 1, 2, and 3. For MOY_SPL, there were 2,142 (58%), 757 (20.5%), and 793 (21.5%) students in Tiers 1, 2, and 3. For MOY_TF, there were 2,011 (54.4%), 1,008 (27.3%), and 671 (18.2%) students in Tiers 1, 2, and 3.

For EOY_Overall, there were 2,220 (60.1%), 823 (22.3%), and 648 (17.5%) students in Tiers 1, 2, and 3, respectively. For EOY_CMP, there were 2,538 (68.7%), 663 (17.9%), and 480

(13%) students in Tiers 1, 2, and 3. For EOY_VOC, there were 1,997 (54.1%), 830 (22.5%), and 846 (22.9%) students in Tiers 1, 2, and 3. For EOY_SPL, there were 2,158 (58.4%), 798 (21.6%), and 729 (19.7%) students in Tiers 1, 2, and 3. For EOY_TF, there were 2,162 (58.5%), 826 (22.4%), and 687 (18.6%) students in Tiers 1, 2, and 3.

Overall, the majority (approximately 60%) of students were in Tier 1 indicating that they were on the right track in terms of their reading ability. 20% of the students were in Tier 2 indicating that they encountered some risk on their reading ability. 20 % of the students were in Tier 3. They were at risk on their reading ability.

Similar results are seen for grades 4 – 6, as seen in Tables 2 – 4. However, for Grade 4 MOY_VOC, there were 1,145 (30.3%), 1,221 (32.3%), and 1,417 (37.5%) students in Tiers 1, 2, and 3. For EOY_VOC, there were 801 (21.2%), 1,183 (31.3%), and 1,774 (46.9%) students in Tiers 1, 2, and 3. It is interesting to see that the Grade 4 students performed lower on both MOY_VOC and EOY_VOC. More students were in Tier 3. On the other hand, the majority (approximately 60%) of students were in Tier 1 in other variables (e.g., MOY_Overall, MOY_CMP, MOY_SPL, MOY_TF, EOY_Overall, EOY_CMP, EOY_SPL, and EOY_TF). They were on the right track in terms of their reading skill. Approximately 25% of the students were in Tier 2 and 15% of the students were in Tier 3. For Grade 5 MOY_VOC, there were 1,309 (33.8%), 939 (24.2%), and 1,629 (42%) students in Tiers 1, 2, and 3. For EOY_VOC, there were 938 (24.2%), 1,024 (26.4%), and 1,892 (48.8%) students in Tiers 1, 2, and 3. Similar to Grade 4 results, Grade 5 students performed lower on both MOY_VOC and EOY_VOC because more students were in Tier 3 instead of Tier 1. On the other hand, the majority (approximately 60%) of students were in Tier 1 in all other variables (e.g., MOY_Overall, MOY_CMP, MOY_SPL, MOY_TF, EOY_Overall, EOY_CMP, EOY_SPL, and EOY_TF).

They were on the right track in terms of their reading ability. Approximately 23% of the students were in Tier 2 and 17% of the students were in Tier 3. Similarly, for Grade 6, MOY_VOC and EOY_VOC lagged other skills. Likewise, similar to Grades 4, 5 and 6 results, Grade 7 students performed lower on both MOY_VOC and EOY_VOC. Approximately 1/3 of students were in each tier. On the other hand, the majority (approximately 60%) of students were in Tier 1 in all other variables (e.g., MOY_Overall, MOY_CMP, MOY_SPL, MOY_TF, EOY_Overall, EOY_CMP, EOY_SPL, and EOY_TF). They were on the right track in terms of their reading ability. Approximately 20% of the students were in Tier 2 and 20% of the students were in Tier 3. However, for Grade 8 as shown in Table 6, all scores were back on track including vocabulary.

In sum, Grades 3 – 8 students improved in overall reading ability and all four sub-skills by the end of the year, as can be seen from the mean of each variable increasing by the end of the year. Approximately 60% of students were in Tier 1 in all other variables except the MOY_VOC and the EOY_VOC for Grades 4 – 7.

Part II: Correlation Analysis

Results of Grade 3 are shown in Table 7. The MOY_Overall was strongly correlated ($r=.886$, $p=.00$) with EOY_Overall (see *Figure 1*) indicating nearly perfect correlation. Overall, any Grade 3 student who performed well on MOY_Overall was very likely to perform very well on EOY_Overall. The MOY_Overall was strongly correlated with each sub-skill. They were in the range of [.728, .865] for MOY_CMP, MOY_VOC, MOY_SPL, MOY_TF, EOY_CMP, EOY_VOC, EOY_SPL, and EOY_TF.

The MOY_Overall was also strongly correlated with each STAAR sub-skill and STAAR (see *Figure 2*). They were .588, .634, .651, and .723 for STAAR_RC1, STAAR_RC2,

STAAR_RC3, and STAAR, respectively. Again, students who performed well on ISIP Early Reading were very likely to perform very well on each STAAR sub-skill and STAAR.

The EOY_Overall was strongly correlated with each EOY sub-skill, each STARR sub-skill and STAAR (see *Figure 3*). They were in the range of [.576, .826] for EOY_CMP, EPY_VOC, EOY_SPL, EOY_TF, STAAR_RC1, STAAR_RC2, STAAR_RC3, and STAAR. The STAAR was strongly correlated with each MOY sub-skill, each EOY sub-skill, and each STARR sub-skill. They were in the range of [.557, .899] for MOY_CMP, MOY_VOC, MOY_SPL, MOY_TF, EOY_CMP, EPY_VOC, EOY_SPL, EOY_TF, STAAR_RC1, STAAR_RC2, and STAAR_RC3. Overall, ISIP Early Reading (e.g., MOY_Overall and EOY_Overall) and each ISIP sub-skill (e.g., MOY_CMP, MOY_VOC, MOY_SPL, MOY_TF, EOY_CMP, EPY_VOC, EOY_SPL, and EOY_TF) are highly correlated with STARR and each STARR sub-skill (e.g., STAAR_RC1, STAAR_RC2, and STAAR_RC3).

Similar results are seen for grades 4 – 8 in Tables 8 – 12, respectively, without significant variation for any of the skills. In summary, the correlations between ISIP Reading and STAAR were very strong across Grades 3 – 8 indicating that a student who performs well on the ISIP Reading test is very likely to perform very well on the STAAR test.

Part III: Multiple Linear Regression Analysis

The Enter method was used for the multiple linear regression analyses. There were two predictors (independent) in each equation: MOY_Overall and EOY_Overall with one outcome (dependent) variable: STAAR. We wanted to determine whether MOY_Overall and EOY_Overall scores are predictive of STAAR reading scores. The results of each grade are reported as follows.

Results of Grade 3 are shown in Table 13. 73.7% of the variance in STAAR can be predicted from a set of predictors: MOY_Overall and EOY_Overall. MOY_Overall itself, EOY_Overall itself, and a set of MOY_Overall and EOY_Overall significantly predicted the STAAR. The equation for predicting the STAAR is as follows:

$$STAAR = 1,447.78 + 3.09 (MOY_Overall) + 2.05 (EOY_Overall) + e$$

The intercept was 1,447.78. The STAAR score was 1,448 as MOY_Overall and EOY_Overall scores were zero. The slope for MOY_Overall was 3.09. The STAAR score was 1,451 (1,448 + 3) as MOY_Overall score increases 1 unit, when holding EOY_Overall as constant. The slope for EOY_Overall was 2.05. The STAAR score was 1,450 (1,448 + 2) as EOY_Overall score increases 1 unit, when holding MOY_Overall as constant.

Grade 4 results are shown in Table 14. 75.8% of the variance in STAAR can be predicted from a set of predictors: MOY_Overall and EOY_Overall. MOY_Overall itself, EOY_Overall itself, and a set of MOY_Overall and EOY_Overall significantly predict the STAAR. The equation for predicting the STAAR is as follows:

$$STAAR = 1,526.86 + 0.39 (MOY_Overall) + 0.29 (EOY_Overall) + e$$

The intercept was 1,526.86. The STAAR score was 1,526.86 as MOY_Overall and EOY_Overall scores were zero. The slope for MOY_Overall was 0.39. The STAAR score was 1,527.25 as MOY_Overall score increases 1 unit, when holding EOY_Overall as constant. In other words, for every one unit increase in MOY_Overall, we expect a 0.39 increase in STAAR, holding EOY_Overall constant. The slope for EOY_Overall was 0.29. The STAAR score was 1,527.15 as EOY_Overall score increases 1 unit, when holding MOY_Overall as constant. In other words, for every one unit increase in EOY_Overall, we expect a 0.29 increase in STAAR, holding MOY_Overall constant.

Results of Grade 5 are shown in Table 15. 73.1% of the variance in STAAR can be predicted from a set of predictors: MOY_Overall and EOY_Overall. The MOY_Overall itself, the EOY_Overall itself, and a set of MOY_Overall and EOY_Overall significantly predict the STAAR. The equation for predicting the STAAR is as follow:

$$STAAR = 1,569.10 + 0.35 (MOY_Overall) + 0.22 (EOY_Overall) + e$$

The intercept was 1,569.10. The STAAR score was 1, 569.10 as MOY_Overall and EOY_Overall scores were zero. The slope for MOY_Overall was 0.35. The STAAR score was 1,569.45 as MOY_Overall score increases 1 unit, when holding EOY_Overall as constant. The slope for EOY_Overall was 0.22. The STAAR score was 1,569.32 as the EOY_Overall score increases 1 unit, when holding MOY_Overall as constant.

Results of Grade 6 are shown in Table 16. 75.1% of the variance in STAAR can be predicted from a set of predictors: MOY_Overall and EOY_Overall. MOY_Overall itself, EOY_Overall itself, and a set of MOY_Overall and EOY_Overall significantly predict the STAAR. The equation for predicting STAAR is as follow:

$$STAAR = 1,593.20 + 0.33 (MOY_Overall) + 0.24 (EOY_Overall) + e$$

The intercept was 1,593.20. The STAAR score was 1,593.20 as MOY_Overall and EOY_Overall scores were zero. The slope for MOY_Overall was 0.33. The STAAR score was 1,593.53 as MOY_Overall score increases 1 unit, when holding EOY_Overall as constant. The slope for EOY_Overall was 0.24. The STAAR score was 1,593.44 as EOY_Overall score increases 1 unit, when holding MOY_Overall as constant.

Grade 7 results are shown in Table 17. 73.4% of the variance in STAAR can be predicted from a set of predictors: MOY_Overall and EOY_Overall. MOY_Overall itself, EOY_Overall

itself, and a set of MOY_Overall and EOY_Overall significantly predict the STAAR. The equation for predicting the STAAR is as follows:

$$STAAR = 1,615.49 + 0.24 (MOY_Overall) + 0.19 (EOY_Overall) + e$$

The intercept was 1,615.49. The STAAR score was 1,615.49 as MOY_Overall and EOY_Overall scores were zero. The slope for MOY_Overall was 0.24. The STAAR score was 1,615.73 as MOY_Overall score increases 1 unit, when holding EOY_Overall as constant. The slope for EOY_Overall was 0.19. The STAAR score was 1,615.68 as EOY_Overall score increases 1 unit, when holding MOY_Overall as constant.

Grade 8 results are shown in Table 18. 74.2% of the variance in STAAR can be predicted from a set of predictors: MOY_Overall and EOY_Overall. MOY_Overall itself, EOY_Overall itself, and a set of MOY_Overall and EOY_Overall significantly predict the STAAR. The equation for predicting the STAAR is as follows:

$$STAAR = 1,691.28 + 0.24 (MOY_Overall) + 0.21 (EOY_Overall) + e$$

The intercept was 1,691.28. The STAAR score was 1,691.28 as MOY_Overall and EOY_Overall scores were zero. The slope for MOY_Overall was 0.24. The STAAR score was 1,691.52 as MOY_Overall score increases 1 unit, when holding EOY_Overall as constant. The slope for EOY_Overall was 0.21. The STAAR score was 1,691.49 as EOY_Overall score increases 1 unit, when holding MOY_Overall as constant.

Our finding reported that both MOY_Overall and EOY_Overall are good predictors. The R^2 were very high across grades indicating that ISIP Reading measures are predictive of STAAR Reading across grades.

Part IV: Multiple Logistic Regression Analysis

The Enter method was used for the multiple logistic regression analyses. All eight variables were entered into the model. They were MOY_CMP, MOY_VOC, MOY_SPL, MOY_TF, EOY_CMP, EOY_VOC, EOY_SPL, and EOY_TF. Non-significant variables were excluded from the model. The final model for each grade is reported in this paper. The outcome (dependent) variable of this study was “STAAR_ LevII_PII”. We wanted to determine how each ISIP sub-skill (e.g., subtest) performs in terms of the predictability for determining PASSED or NOT PASSED on STAAR. The results of each grade are reported as follows:

Grade 3 results are shown in Table 19. The Nagelkerke R Square is .528 indicating that 52.8% of the variance in STAAR_ LevII_PII can be predicted from a set of predictors: MOY_CMP, MOY_VOC, MOY_TF, EOY_CMP, EOY_VOC, and EOY_TF. The equation for predicting PASSED or NOT PASSED on STAAR_ LevII_PII is as follows:

$$\begin{aligned} STAAR_LevII_PII = & 3.63 + 0.03 (MOY_CMP) + 0.03 (MOY_VOC) + 0.02 \\ & (MOY_TF) + 0.03 (EOY_CMP) + 0.02 (EOY_VOC) + 0.02 (EOY_TF) + e \end{aligned}$$

The intercept was 3.63. It is the expected value of the log-odds of STAAR_ LevII_PII when all of the predictors (e.g., MOY_CMP, MPY_VOC, MOY_TF, EOY_CMP, EPY_VOC, and EOY_TF) were zero. The slope of MOY_CMP was 0.03. For every one unit increase in the MOY_CMP, we expect a 0.03 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of MOY_VOC was 0.03. For every one unit increase in the MOY_VOC, we expect a 0.03 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of MOY_TF was 0.02. For every one unit increase in the MOY_TF, we expect a 0.02 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of EOY_CMP was 0.03. For every one unit increase in the

EOY_CMP, we expect a 0.03 increase in the log-odds of STAAR_ LevII_PI1, holding all other predictors constant. The slope of EOY_VOC was 0.02. For every one unit increase in the EOY_VOC, we expect a 0.02 increase in the log-odds of STAAR_ LevII_PI1, holding all other predictors constant. The slope of EOY_TF was 0.02. For every one unit increase in the EOY_TF, we expect a 0.02 increase in the log-odds of STAAR_ LevII_PI1, holding all other predictors constant. MOY_SPL and EOY_SPL were not statistically significant.

Grade 4 results are shown in Table 20. The Nagelkerke R Square is .561 indicating that 56.1 % of the variance in STAAR_ LevII_PI1 can be predicted from a set of predictors: MOY_CMP, MOY_VOC, EOY_CMP, EOY_VOC, and EOY_TF. The equation for predicting PASSED or NOT PASSED on STAAR_ LevII_PI1 is as follows:

$$\begin{aligned} STAAR_LevII_PI1 = & 2.50 + 0.003 (MOY_CMP) + 0.005 (MOY_VOC) + \\ & 0.003 (EOY_CMP) + 0.004 (EOY_VOC) + 0.006 (EOY_TF) + e \end{aligned}$$

The intercept was 2.50. It is the expected value of the log-odds of STAAR_ LevII_PI1 when all of the predictors (e.g., MOY_CMP, MPY_VOC, EOY_CMP, EPY_VOC, and EOY_TF) were zero. The slope of MOY_CMP was 0.003. For every one unit increase in the MOY_CMP, we expect a 0.003 increase in the log-odds of STAAR_ LevII_PI1, holding all other predictors constant. The slope of MOY_VOC was 0.005. For every one unit increase in the MOY_VOC, we expect a 0.005 increase in the log-odds of STAAR_ LevII_PI1, holding all other predictors constant. The slope of EOY_CMP was 0.003. For every one unit increase in the EOY_CMP, we expect a 0.003 increase in the log-odds of STAAR_ LevII_PI1, holding all other predictors constant. The slope of EOY_VOC was 0.004. For every one unit increase in the EOY_VOC, we expect a 0.004 increase in the log-odds of STAAR_ LevII_PI1, holding all other predictors constant. The slope of EOY_TF was 0.006. For every one unit increase in the EOY_TF, we

expect a 0.006 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. MOY_SPL, MOY_TF, and EOY_SPL were not statistically significant.

Grade 5 results are shown in Table 21. The Nagelkerke R Square is .481 indicating that 48.1 % of the variance in STAAR_ LevII_PII can be predicted from a set of predictors: MOY_CMP, MOY_VOC, MOY_TF, EOY_CMP, EOY_VOC, and EOY_TF. The equation for predicting PASSED or NOT PASSED on STAAR_ LevII_PII is as follow:

$$\begin{aligned} STAAR_LevII_PII = & 3.13 + 0.002 (MOY_CMP) + 0.006 (MOY_VOC) + 0.005 \\ & (MOY_TF) + 0.001 (EOY_CMP) + 0.003 (EOY_VOC) + 0.004 (EOY_TF) + e \end{aligned}$$

The intercept was 3.13. It is the expected value of the log-odds of STAAR_ LevII_PII when all of the predictors (e.g., MOY_CMP, MPY_VOC, MOY_TF, EOY_CMP, EPY_VOC, and EOY_TF) were zero. The slope of MOY_CMP was 0.002. For every one unit increase in the MOY_CMP, we expect a 0.002 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of MOY_VOC was 0.006. For every one unit increase in the MOY_VOC, we expect a 0.006 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of MOY_TF was 0.005. For every one unit increase in the MOY_TF, we expect a 0.005 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of EOY_CMP was 0.001. For every one unit increase in the EOY_CMP, we expect a 0.001 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of EOY_VOC was 0.003. For every one unit increase in the EOY_VOC, we expect a 0.003 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of EOY_TF was 0.004. For every one unit increase in the EOY_TF, we expect a 0.004 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. MOY_SPL and EOY_SPL were not statistically significant.

Grade 6 results are shown in Table 22. The Nagelkerke R Square is .563 indicating that 56.3 % of the variance in STAAR_ LevII_PII can be predicted from a set of predictors: MOY_CMP, MOY_SPL, MOY_VOC, MOY_TF, EOY_CMP, EOY_VOC, and EOY_TF. The equation for predicting PASSED or NOT PASSED on the STAAR_ LevII_PII is as follows:

$$\begin{aligned} STAAR_LevII_PII = & 2.145 + 0.001 (MOY_CMP) + 0.002 (MOY_SPL) + 0.005 \\ & (MOY_VOC) + 0.003 (MOY_TF) + 0.001 (EOY_CMP) + 0.004 (EOY_VOC) + 0.004 \\ & (EOY_TF) + e \end{aligned}$$

The intercept was 2.145. It is the expected value of the log-odds of STAAR_ LevII_PII when all of the predictors (e.g., MOY_CMP, MOY_SPL, MPY_VOC, MOY_TF, EOY_CMP, EPY_VOC, and EOY_TF) were zero. The slope of MOY_CMP was 0.001. For every one unit increase in MOY_CMP, we expect a 0.001 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of MOY_SPL was 0.002. For every one unit increase in the MOY_SPL, we expect a 0.002 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of MOY_VOC was 0.005. For every one unit increase in the MOY_VOC, we expect a 0.005 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of MOY_TF was 0.003. For every one unit increase in the MOY_TF, we expect a 0.003 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of EOY_CMP was 0.001. For every one unit increase in the EOY_CMP, we expect a 0.001 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of EOY_VOC was 0.004. For every one unit increase in the EOY_VOC, we expect a 0.004 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of EOY_TF was 0.004. For every one unit

increase in the EOY_TF, we expect a 0.004 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. MOY_SPL was not statistically significant.

Grade 7 results are shown in Table 23. The Nagelkerke R Square is .527 indicating that 52.7 % of the variance in STAAR_ LevII_PII can be predicted from a set of predictors: MOY_SPL, MOY_VOC, MOY_TF, EOY_CMP, EOY_VOC, and EOY_TF. The equation for predicting PASSED or NOT PASSED on STAAR_ LevII_PII is as follow:

$$\begin{aligned} STAAR_LevII_PII = & 2.557 + 0.002 (MOY_SPL) + 0.003 (MOY_VOC) + 0.005 \\ & (MOY_TF) + 0.002 (EOY_CMP) + 0.003 (EOY_VOC) + 0.004 (EOY_TF) + e \end{aligned}$$

The intercept was 2.557. It is the expected value of the log-odds of STAAR_ LevII_PII when all of the predictors (e.g., MOY_SPL, MPY_VOC, MOY_TF, EOY_CMP, EPY_VOC, and EOY_TF) were zero. The slope of MOY_SPL was 0.002. For every one unit increase in the MOY_SPL, we expect a 0.002 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of MOY_VOC was 0.003. For every one unit increase in the MOY_VOC, we expect a 0.003 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of MOY_TF was 0.005. For every one unit increase in the MOY_TF, we expect a 0.005 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of EOY_CMP was 0.002. For every one unit increase in the EOY_CMP, we expect a 0.002 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of EOY_VOC was 0.003. For every one unit increase in the EOY_VOC, we expect a 0.003 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of EOY_TF was 0.004. For every one unit increase in the EOY_TF, we expect a 0.004 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. MOY_CMP and EOY_SPL were not statistically significant.

Grade 8 results are shown in Table 24. The Nagelkerke R Square is .491 indicating that 49.1 % of the variance in STAAR_ LevII_PII can be predicted from a set of predictors: MOY_CMP, MOY_SPL, MOY_VOC, and MOY_TF. The equation for predicting PASSED or NOT PASSED on STAAR_ LevII_PII is as follows:

$$\begin{aligned} STAAR_LevII_PII = & 2.639 + 0.003 (MOY_CMP) + 0.002 (MOY_SPL) + 0.005 \\ & (MOY_VOC) + 0.004 (MOY_TF) + e \end{aligned}$$

The intercept was 2.639. It is the expected value of the log-odds of STAAR_ LevII_PII when all of the predictors (e.g., MOY_CMP, MOY_SPL, MPY_VOC, and MOY_TF) were zero. The slope of MOY_CMP was 0.003. For every one unit increase in MOY_CMP, we expect a 0.003 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of MOY_SPL was 0.002. For every one unit increase in MOY_SPL, we expect a 0.002 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of MOY_VOC was 0.005. For every one unit increase in MOY_VOC, we expect a 0.005 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. The slope of MOY_TF was 0.004. For every one unit increase in MOY_TF, we expect a 0.004 increase in the log-odds of STAAR_ LevII_PII, holding all other predictors constant. EOY_CMP, EOY_SPL, EOY_VOC, and EOY_TF were not statistically significant.

In summary, it is interesting to see that each grade has different sub-skills (e.g., subtest) that were not statistically significant in terms of the predictability of STAAR. They were MOY_SPL and EOY_SPL for Grade 3. For Grade 4, they were MOY_SPL, MPY_TF, and EOY_SPL. For Grade 5, they were MOY_SPL and EOY_SPL. It was MOY_SPL for Grade 6. For Grade 7, they were, MOY_CMP and EOY_SPL. For Grade 8, they were EOY_CMP, EOY_SPL, EOY_VOC, and EOY_TF. While these subtests were not statistically significant in

the predictability of STAAR, we believe they are still indicators of strengths and/or weaknesses in these sub-skills. Identification of weaknesses in critical reading areas is important in providing targeted instruction in those areas to improve overall reading growth. While they are not significant in prediction of STAAR performance, they should still be used in informing differentiated instruction for students.

Conclusions

The results of this study suggest very strong relationships between ISIP Reading measures (e.g., ISIP Early Reading and ISIP Advanced Reading) and STAAR Reading. Our findings also add to the evidence that ISIP Reading measures are predictive of STAAR Reading across grades. The ISIP tests can be used as a prediction of how a student will score on STAAR.

This study investigated overall students in each grade. Future research will examine predictability across tiers. Students are relatively different in terms of their achievement between tiers. Multiple group analysis can tell us whether ISIP is as good for prediction with lower-tier students as it is for upper-tier students, or whether it only predicts well on average. Fitting the same model to students within each tier might show some important information.

The student demographics are not reported in this paper. It will be interesting to see how student demographics relate to their achievement. In particular, we are examining whether items show bias when answered by members of differing demographic groups. The investigation of the relationships between the student demographics and their achievement by using structural equation modeling is underway.

References

Mathes, P. (2011). Technical manual: Istation's indicators of progress, advanced reading:

Computer adaptive testing system for continuous progress monitoring of reading growth for students grade 4 to grade 8.

Mathes, P., Torgesen, J., and Herron, J. (2011). Technical manual: Istation's indicators of progress, early reading: computer adaptive testing system for continuous progress monitoring of reading growth for students Pre-K to grade 3.

Table 1

Descriptive Statistics for Grade 3

Variable	N	Minimum	Maximum	Mean (SD)	Frequency (%)				
					Tier I	Tier II	Tier III	Not-Met	Met
MOY_Overall	3,694	186.4	368.6	250.8 (17.9)	2,158(58.4)	871(23.6)	665(18)		
MOY_CMP	3,693	190	324	257.3 (23.8)	2,518(68.2)	686(18.6)	489(13.2)		
MOY_VOC	3,694	186.3	346.9	254.0 (24)	2,044(55.3)	825(22.3)	825(22.3)		
MOY_SPL	3,692	186	305	247.7 (17.8)	2,142(58)	757(20.5)	793(21.5)		
MOY_TF	3,690	0	247	74 (36.2)	2,011(54.4)	1,008(27.3)	671(18.2)		
EOY_Overall	3,694	174.1	392.9	256.7 (18.9)	2,220(60.1)	823(22.3)	648(17.5)		
EOY_CMP	3,682	179	324	264.3 (25.8)	2,538(68.7)	663(17.9)	480(13.0)		
EOY_VOC	3,673	127.8	346.9	262.1 (25.2)	1,997(54.1)	830(22.5)	846(22.9)		
EOY_SPL	3,687	179	303	252.5 (18.1)	2,158(58.4)	798(21.6)	729(19.7)		
EOY_TF	3,676	0	292	83.5 (39.8)	2,162(58.5)	826(22.4)	687(18.6)		
STAAR_RC1	3,694	0	6	4.5 (1.5)					
STAAR_RC2	3,694	0	18	12.1 (3.5)					
STAAR_RC3	3,694	0	16	10.9 (3.1)					
STAAR_Raw	3,694	3	40	27.6 (7.2)					
STAAR_Scale	3,694	1,009	1,909	1,447.8 (124.7)					
STAAR_ LevII_PI1	3,694							564(15.3)	3,130(84.7)
STAAR_ LevII_PI2	3,694							1,306(35.4)	2,388(64.6)
STAAR_ LevII_REC	3,694							1,940(52.5)	1,754(47.5)
STAAR_ LevIII	3,694							2,795(75.7)	899(24.3)

Table 2

Descriptive Statistics for Grade 4

Variable	N	Minimum	Maximum	Mean (SD)	Frequency (%)				
					Tier I	Tier II	Tier III	Not-Met	Met
MOY_Overall	3,783	1,313.5	2,798.8	1,959.2 (149.6)	1,949 (51.5)	1,033 (27.3)	801 (21.2)		
MOY_CMP	3,779	1,339.8	2,955.9	2,109.9 (240.9)	2,535 (67)	711 (28.8)	533 (14.1)		
MOY_VOC	3,783	961.4	2,549.7	1,802.8 (142)	1,145 (30.3)	1,221 (32.3)	1,417 (37.5)		
MOY_SPL	3,782	1,092.7	2,896.3	1,987.5 (161.5)	2,128 (56.3)	1,065 (28.2)	589 (15.6)		
MOY_TF	3,776	0	312	128.9 (62.2)	2,367 (62.6)	1,011 (26.7)	398 (10.5)		
EOY_Overall	3,783	1,347.6	3,016.1	2,002.1 (156.2)	1,839 (48.6)	1,211 (32)	733 (19.4)		
EOY_CMP	3,753	1,395.2	3,080.5	2,146.9 (260.2)	2,578 (68.1)	656 (17.3)	519 (13.7)		
EOY_VOC	3,758	1,235.6	2,983.2	1,863.6 (159.8)	801 (21.2)	1,183 (31.3)	1,774 (46.9)		
EOY_SPL	3,769	898.4	2,936.7	2,025.9 (163.7)	2,139 (56.5)	1,197 (31.6)	433 (11.4)		
EOY_TF	3,716	0	328	149.5 (61.1)	2,690 (71.1)	792 (20.9)	234 (6.2)		
STAAR_RC1	3,783	0	10	7.58 (1.9)					
STAAR_RC2	3,783	0	18	12.0 (3.6)					
STAAR_RC3	3,783	0	16	10.8 (3.6)					
STAAR_Raw	3,783	0	44	30.4 (8.3)					
STAAR_Scale	3,783	811	1,995	1,526.9 (132.8)					
STAAR_ LevII_PI1	3,783							837 (22.1)	2,946 (77.9)
STAAR_ LevII_PI2	3,783							1,414 (37.4)	2,369 (62.6)
STAAR_ LevII_REC	3,783							2,120 (56.0)	1,663 (44.0)
STAAR_ LevIII	3,783							2,915 (77.1)	868 (22.9)

Table 3

Descriptive Statistics for Grade 5

Variable	N	Minimum	Maximum	Mean (SD)	Frequency (%)				
					Tier I	Tier II	Tier III	Not-Met	Met
MOY_Overall	3,877	1,316.9	2,827	2,037.1 (153.2)	1,841 (47.5)	1,159 (29.9)	877 (22.6)		
MOY_CMP	3,869	1,360.9	3,147	2,191.1 (258.8)	2,465 (63.6)	702 (18.1)	702 (18.1)		
MOY_VOC	3,877	1,271.9	3,022.9	1,894.3 (161.8)	1,309 (33.8)	939 (24.2)	1,629 (42)		
MOY_SPL	3,877	1,079.2	2,754.1	2,060.6 (162.4)	2,173 (56.0)	1,076 (27.8)	628 (16.2)		
MOY_TF	3,864	0	353	159.3 (63)	2,772 (71.5)	749 (19.3)	343 (8.8)		
EOY_Overall	3,877	1,088.7	2,814.5	2,068.4 (163.3)	1,879 (48.5)	1,150 (29.7)	848 (21.9)		
EOY_CMP	3,826	1,266.9	3,153.7	2,215.3 (279.6)	2,408 (62.1)	718 (18.5)	700 (18.1)		
EOY_VOC	3,854	727.2	3,336.8	1,946.4 (189.4)	938 (24.2)	1,024 (26.4)	1,892 (48.8)		
EOY_SPL	3,866	987.7	2,746.9	2,090.7 (161.7)	1,947 (73.6)	473 (17.9)	186 (7)		
EOY_TF	3,789	0	359	170.1 (67.4)	2,524 (65.1)	843 (21.7)	422 (10.9)		
STAAR_RC1	3,877	0	10	7.33 (2)					
STAAR_RC2	3,877	0	19	13.9 (3.2)					
STAAR_RC3	3,877	0	17	12 (3.3)					
STAAR_Raw	3,877	7	46	33.3 (7.5)					
STAAR_Scale	3,877	1,216	2,021	1,569.1 (118.2)					
STAAR_ LevII_P11	3,877							620 (16)	3257 (84)
STAAR_ LevII_P12	3,877							1,252 (32.3)	2,625 (67.7)
STAAR_ LevII_REC	3,877							2,088 (53.9)	1,789 (46.1)
STAAR_ LevIII	3,877							2,963 (76.4)	914 (23.6)

Table 4

Descriptive Statistics for Grade 6

Variable	N	Minimum	Maximum	Mean (SD)	Frequency (%)				
					Tier I	Tier II	Tier III	Not-Met	Met
MOY_Overall	3,519	1,040.6	2,806.9	2,080.4 (185.1)	1,714 (48.7)	896 (25.5)	909 (25.8)		
MOY_CMP	3,454	1,332.8	3,072.8	2,190.2 (292.7)	2,002 (56.9)	616 (17.5)	836 (23.8)		
MOY_VOC	3,519	831.3	3,090.1	1,973.5 (199.9)	1,043 (29.6)	980 (27.8)	1,496 (42.5)		
MOY_SPL	3,513	962.6	2,691.7	2,100.5 (175.9)	2,076 (59)	1,004 (28.5)	433 (12.3)		
MOY_TF	3,403	0	403	178.1 (82.7)	2,351 (66.8)	456 (13)	596 (16.9)		
EOY_Overall	3,519	1,229.7	2,715.7	2,090.2 (186.9)	1,682 (47.8)	922 (26.2)	915 (26)		
EOY_CMP	3,391	1,228.8	3,152.8	2,193.6 (304.4)	1,792 (50.9)	663 (18.8)	936 (26.6)		
EOY_VOC	3,502	1,126.8	3,228.4	1,993.2 (218.6)	1,008 (28.6)	987 (28)	1,507 (42.8)		
EOY_SPL	3,483	1,092.7	2,726.6	2,121.5 (180.2)	2,177 (61.9)	897 (25.5)	409 (11.6)		
EOY_TF	3,306	0	403	180.4 (86.9)	2,231 (63.4)	121 (3.4)	954 (27.1)		
STAAR_RC1	3,519	0	10	7.18 (2.2)					
STAAR_RC2	3,519	0	20	13.9 (4.4)					
STAAR_RC3	3,519	0	18	11.6 (3.6)					
STAAR_Raw	3,519	0	48	32.7 (9.3)					
STAAR_Scale	3,519	876	2,081	1,593.2 (135.6)					
STAAR_ LevII_PI1	3,519							917 (26.1)	2,602 (73.9)
STAAR_ LevII_PI2	3,519							1,463 (41.6)	2,056 (58.4)
STAAR_ LevII_REC	3,519							2,047 (58.2)	1,472 (41.8)
STAAR_ LevIII	3,519							2,817 (80.1)	702 (19.9)

Table 5

Descriptive Statistics for Grade 7

Variable	N	Minimum	Maximum	Mean (SD)	Frequency (%)				
					Tier I	Tier II	Tier III	Not-Met	Met
MOY_Overall	2,973	1,448.8	2,919.6	2,130.6 (185.7)	1,561 (52.5)	727 (24.5)	685 (23)		
MOY_CMP	2,934	1,397.3	3,044.6	2,235.2 (287.9)	1,584 (53.3)	586 (19.7)	764 (25.7)		
MOY_VOC	2,973	1.302	2,841.9	2,047.1 (214.8)	1,120 (37.7)	813 (27.3)	1,040 (35)		
MOY_SPL	2,965	1,092.7	2,883.2	2,138.5 (175.4)	1,848 (62.2)	767 (25.8)	350 (11.8)		
MOY_TF	2,893	0	430	198.5 (82.2)	2,055 (69.1)	374 (12.6)	464 (15.6)		
EOY_Overall	2,973	1,164.1	3,268.2	2,140.6 (193.8)	1,500 (50.5)	758 (25.5)	715 (24)		
EOY_CMP	2,855	1,335.1	3,119.9	2,253.8 (306.8)	1,472 (49.5)	595 (20)	788 (26.5)		
EOY_VOC	2,953	809.4	3,022.4	2,063.6 (235.5)	1,055 (35.5)	822 (27.6)	1,076 (36.2)		
EOY_SPL	2,882	1,170.8	3,128.1	2,161.2 (182.4)	1,905 (64.1)	677 (22.8)	300 (10.1)		
EOY_TF	2,815	0	430	207.2 (89.1)	1,780 (59.9)	471 (15.8)	564 (19)		
STAAR_RC1	2,973	0	10	6.4 (2)					
STAAR_RC2	2,973	0	21	13.5 (3.9)					
STAAR_RC3	2,973	1	19	13.6 (3.7)					
STAAR_Raw	2,973	9	50	33.5 (8.5)					
STAAR_Scale	2,973	1,345	2,141	1,634.7 (107.2)					
STAAR_ LevII_PI1	2,973							614 (20.7)	2,359 (79.3)
STAAR_ LevII_PI2	2,973							1,173 (39.5)	1,800 (60.5)
STAAR_ LevII_REC	2,973							1,852 (62.3)	1,121 (37.7)
STAAR_ LevIII	2,973							2,594 (87.3)	379 (12.7)

Table 6

Descriptive Statistics for Grade 8

Variable	N	Minimum	Maximum	Mean (SD)	Frequency (%)				
					Tier I	Tier II	Tier III	Not-Met	Met
MOY_Overall	2,647	1,346	2,783.8	2,209.6 (191.6)	1,666 (62.9)	549 (20.7)	432 (16.3)		
MOY_CMP	2,617	1,396.4	3,047.5	2,352.8 (285.7)	1,581 (59.7)	513 (19.4)	523 (19.8)		
MOY_VOC	2,647	1,318.1	2,951	2,152 (242.2)	1,342 (50.7)	626 (23.6)	679 (25.7)		
MOY_SPL	2,642	934.5	2,830.1	2,194.8 (182)	1,881 (71.1)	533 (20.1)	228 (8.6)		
MOY_TF	2,591	0	455	212.1 (81.5)	1,989 (75.1)	295 (11.1)	307 (11.6)		
EOY_Overall	2,647	1,417.5	2,907.2	2,231.1 (196.9)	1,652 (62.4)	569 (21.5)	418 (15.8)		
EOY_CMP	2,581	1264.3	3,184.4	2,372 (306.2)	1,510 (57)	494 (18.7)	569 (21.5)		
EOY_VOC	2,629	1,288.2	3,200.8	2,188.8 (270.7)	1,286 (48.6)	702 (26.5)	641 (24.2)		
EOY_SPL	2,606	1,079.3	2,994.5	2,222.9 (179.2)	1,947 (73.6)	473 (17.9)	186 (7)		
EOY_TF	2,550	0	459	214.1 (80)	1,646 (62.2)	489 (18.5)	401 (15.1)		
STAAR_RC1	2,647	0	10	7.37 (2.1)					
STAAR_RC2	2,647	2	22	16.5 (3.4)					
STAAR_RC3	2,647	2	20	13.3 (3.7)					
STAAR_Raw	2,647	8	52	37.1 (8.2)					
STAAR_Scale	2,647	1,337	2,186	1,691.3 (112.8)					
STAAR_ LevII_PI1	2,647							369 (13.9)	2,647 (86.1)
STAAR_ LevII_PI2	2,647							771 (29.1)	1,876 (70.9)
STAAR_ LevII_REC	2,647							1,318 (49.8)	1,329 (50.2)
STAAR_ LevIII	2,647							2,001 (75.6)	646 (24.4)

Table 7

Correlation Analysis for Grade 3

	MOY_CMP	MOY_VOC	MOY_SPL	MOY_TF	EOY_Overall	EOY_CMP	EOY_VOC	EOY_SPL	EOY_TF	STAAR_C1	STAAR_RC2	STAAR_RC3	STAAR_R	STAAR_SC
MOY_Overall	.843**	.807**	.865**	.740**	.886**	.774**	.766**	.770**	.728**	.588**	.634**	.651**	.709**	.723**
MOY_CMP		.661**	.599**	.686**	.772**	.847**	.658**	.588**	.668**	.530**	.592**	.604**	.656**	.682**
MOY_VOC			.550**	.574**	.741**	.647**	.880**	.514**	.565**	.548**	.567**	.605**	.649**	.665**
MOY_SPL				.652**	.762**	.576**	.545**	.818**	.642**	.472**	.501**	.509**	.560**	.565**
MOY_TF					.721**	.653**	.575**	.646**	.732**	.504**	.567**	.566**	.623**	.635**
EOY_Overall						.826**	.802**	.852**	.733**	.574**	.624**	.633**	.694**	.708**
EOY_CMP							.659**	.578**	.671**	.537**	.609**	.615**	.671**	.689**
EOY_VOC								.541**	.577**	.563**	.578**	.615**	.661**	.675**
EOY_SPL									.648**	.474**	.498**	.499**	.554**	.557**
EOY_TF										.516**	.578**	.585**	.639**	.646**
STAAR_RC1											.639**	.639**	.789**	.755**
STAAR_RC2												.704**	.921**	.899**
STAAR_RC3													.906**	.883**
STAAR_R														.973**

Note. **. Correlation is significant at the 0.01 level (2-tailed)

Table 8

Correlation Analysis for Grade 4

	MOY_CMP	MOY_VOC	MOY_SPL	MOY_TF	EOY_Overall	EOY_CMP	EOY_VOC	EOY_SPL	EOY_TF	STAAR_RC1	STAAR_RC2	STAAR_RC3	STAAR_R	STAAR_SC
MOY_Overall	.869**	.857**	.810**	.783**	.876**	.764**	.785**	.721**	.744**	.616**	.663**	.687**	.736**	.740**
MOY_CMP		.595**	.670**	.757**	.776**	.807**	.588**	.646**	.712**	.614**	.675**	.700**	.746**	.757**
MOY_VOC			.530**	.676**	.778**	.572**	.875**	.530**	.658**	.458**	.480**	.492**	.533**	.541**
MOY_SPL				.617**	.718**	.644**	.513**	.777**	.570**	.541**	.592**	.621**	.658**	.678**
MOY_TF					.756**	.720**	.658**	.589**	.801**	.551**	.616**	.671**	.723**	.728**
EOY_Overall						.865**	.849**	.805**	.742**	.613**	.651**	.671**	.723**	.728**
EOY_CMP							.585**	.635**	.710**	.614**	.671**	.686**	.739**	.751**
EOY_VOC								.531**	.649**	.463**	.473**	.488**	.529**	.536**
EOY_SPL									.557**	.514**	.564**	.584**	.623**	.649**
EOY_TF										.532**	.598**	.595**	.647**	.655**
STAAR_RC1											.664**	.689**	.828**	.785**
STAAR_RC2												.739**	.917**	.892**
STAAR_RC3													.923**	.891**
STAAR_R														.965**

Note. **. Correlation is significant at the 0.01 level (2-tailed)

Table 9

Correlation Analysis for Grade 5

	MOY_CMP	MOY_VOC	MOY_SPL	MOY_TF	EOY_Overall	EOY_CMP	EOY_VOC	EOY_SPL	EOY_TF	STAAR_RC1	STAAR_RC2	STAAR_RC3	STAAR_R	STAAR_SC
MOY_Overall	.858**	.847**	.811**	.738**	.867**	.742**	.767**	.742**	.712**	.615**	.639**	.624**	.710**	.715**
MOY_CMP		.573**	.650**	.692**	.756**	.800**	.558**	.636**	.681**	.584**	.632**	.631**	.701**	.713**
MOY_VOC			.531**	.660**	.769**	.545**	.870**	.543**	.623**	.466**	.472**	.457**	.525**	.527**
MOY_SPL				.551**	.720**	.622**	.503**	.821**	.544**	.573**	.572**	.552**	.638**	.663**
MOY_TF					.698**	.651**	.631**	.543**	.790**	.487**	.547**	.552**	.604**	.612**
EOY_Overall						.855**	.834**	.822**	.718**	.597**	.614**	.606**	.686**	.696**
EOY_CMP							.546**	.650**	.693**	.566**	.610**	.617**	.681**	.700**
EOY_VOC								.540**	.606**	.447**	.450**	.438**	.503**	.505**
EOY_SPL									.554**	.550**	.540**	.536**	.612**	.649**
EOY_TF										.495**	.542**	.545**	.601**	.613**
STAAR_RC1											.652**	.646**	.828**	.794**
STAAR_RC2												.690**	.902**	.872**
STAAR_RC3													.903**	.872**
STAAR_R														.960**

Note. **. Correlation is significant at the 0.01 level (2-tailed)

Table 10

Correlation Analysis for Grade 6

	MOY_CMP	MOY_VOC	MOY_SPL	MOY_TF	EOY_Overall	EOY_CMP	EOY_VOC	EOY_SPL	EOY_TF	STAAR_RC1	STAAR_RC2	STAAR_RC3	STAAR_R	STAAR_SC
MOY_Overall	.866**	.827**	.848**	.750**	.842**	.755**	.731**	.751**	.717**	.658**	.679**	.658**	.731**	.729**
MOY_CMP		.552**	.673**	.717**	.753**	.823**	.534**	.652**	.692**	.609**	.646**	.641**	.697**	.701**
MOY_VOC			.572**	.614**	.718**	.521**	.815**	.556**	.578**	.513**	.497**	.474**	.539**	.535**
MOY_SPL				.624**	.737**	.639**	.543**	.827**	.603**	.603**	.644**	.623**	.688**	.698**
MOY_TF					.706**	.673**	.597**	.591**	.800**	.577**	.600**	.577**	.642**	.647**
EOY_Overall						.857**	.826**	.832**	.736**	.633*	.643**	.649**	.705**	.711**
EOY_CMP							.531**	.661**	.704**	.594**	.630**	.642**	.687**	.699**
EOY_VOC								.550**	.588**	.497**	.472**	.474**	.524**	.523**
EOY_SPL									.606**	.576**	.603**	.612**	.658**	.684**
EOY_TF										.570**	.593**	.588**	.643**	.648**
STAAR_RC1											.747**	.702**	.860**	.827**
STAAR_RC2												.755**	.941**	.902**
STAAR_RC3													.910**	.901**
STAAR_R														.970**

Note. **. Correlation is significant at the 0.01 level (2-tailed)

Table 11

Correlation Analysis for Grade 7

	MOY_CMP	MOY_VOC	MOY_SPL	MOY_TF	EOY_Overall	EOY_CMP	EOY_VOC	EOY_SPL	EOY_TF	STAAR_RC1	STAAR_RC2	STAAR_RC3	STAAR_R	STAAR_SC
MOY_Overall	.851**	.825**	.849**	.712**	.845**	.749**	.721**	.770**	.720**	.555**	.652**	.634**	.706**	.710**
MOY_CMP		.514**	.668**	.662**	.744**	.823**	.508**	.660**	.672**	.520**	.618**	.601**	.668**	.678**
MOY_VOC			.570**	.584**	.697**	.484**	.797**	.548**	.593**	.415**	.478**	.467**	.520**	.521**
MOY_SPL				.591**	.766**	.662**	.559**	.848**	.613**	.524**	.623**	.595**	.668**	.680**
MOY_TF					.660**	.612**	.573**	.557**	.789**	.460**	.553**	.546**	.600**	.602**
EOY_Overall						.843**	.823**	.840**	.730**	.535**	.637**	.628**	.692**	.699**
EOY_CMP							.499**	.666**	.673**	.519**	.614**	.610**	.670**	.678**
EOY_VOC								.550**	.618**	.398**	.469**	.462**	.510**	.514**
EOY_SPL									.587**	.502**	.612**	.582**	.652**	.671**
EOY_TF										.477**	.576**	.562**	.621**	.623**
STAAR_RC1											.609**	.612**	.782**	.780**
STAAR_RC2												.718**	.914**	.904**
STAAR_RC3													.910**	.878**
STAAR_R														.981**

Note. **. Correlation is significant at the 0.01 level (2-tailed)

Table 12

Correlation Analysis for Grade 8

	MOY_CMP	MOY_VOC	MOY_SPL	MOY_TF	EOY_Overall	EOY_CMP	EOY_VOC	EOY_SPL	EOY_TF	STAAR_RC1	STAAR_RC2	STAAR_RC3	STAAR_R	STAAR_SC
MOY_Overall	.851**	.850**	.857**	.718**	.862**	.747**	.754**	.774**	.711**	.608**	.648**	.663**	.724**	.718**
MOY_CMP		.549**	.703**	.673**	.757**	.829**	.535**	.683**	.670**	.590**	.622**	.654**	.704**	.704**
MOY_VOC			.598**	.593**	.739**	.520**	.830**	.562**	.578**	.457**	.486**	.482**	.536**	.532**
MOY_SPL				.598**	.787**	.663**	.579**	.892**	.617**	.589**	.616**	.652**	.701**	.710**
MOY_TF					.681**	.618**	.597**	.564**	.798**	.484**	.542**	.544**	.595**	.689**
EOY_Overall						.838**	.836**	.838**	.726**	.593**	.626**	.655**	.707**	.714**
EOY_CMP							.515**	.664**	.685**	.561**	.605**	.635**	.682**	.689**
EOY_VOC								.560**	.594**	.443**	.467**	.468**	.519**	.523**
EOY_SPL									.588**	.559**	.583**	.641**	.675**	.697**
EOY_TF										.495**	.554**	.559**	.609**	.603**
STAAR_RC1											.658**	.686**	.838**	.807**
STAAR_RC2												.696**	.898**	.865**
STAAR_RC3													.915**	.904**
STAAR_R														.973**

Note. **. Correlation is significant at the 0.01 level (2-tailed)

Table 13

Multiple Linear Regression Analysis for Grade 3

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.737	.543	.543	84.290	

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31202583.583	2	15601291.792	2195.900	.000
	Residual	26223588.163	3691	7104.738		
	Total	57426171.747	3693			

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	1447.780	1.387		1043.944	.000
	MOY_Overall_SCORE	3.098	.167	.447	18.590	.000
	EOY_Overall_SCORE	2.052	.158	.311	12.958	.000

Table 14

Multiple Linear Regression Analysis for Grade 4

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.758	.575	.575	86.588

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	38391962.788	2	19195981.394	2560.295	.000
	Residual	28340805.268	3780	7497.568		
	Total	66732768.056	3782			

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	1526.858	1.408		1084.568	.000
	MOY_Overall_SCORE	.392	.020	.442	20.081	.000
	EOY_Overall_SCORE	.290	.019	.341	15.507	.000

Table 15

Multiple Linear Regression Analysis for Grade 5

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.731	.534	.534	80.655

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28909130.756	2	14454565.378	2221.976	.000
	Residual	25201436.012	3874	6505.275		
	Total	54110566.769	3876			

Coefficients					
Model		Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	t
1	(Constant)	1569.100	1.295		1211.339
	MOY_Overall_SCORE	.347	.017	.450	20.432
	EOY_Overall_SCORE	.221	.016	.306	13.912

Table 16

Multiple Linear Regression Analysis for Grade 6

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.751	.564	.564	88.890

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35923158.256	2	17961579.128	2273.207	.000
	Residual	27781422.691	3516	7901.429		
	Total	63704580.947	3518			

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	1593.198	1.498		1063.229	.000
	MOY_Overall_SCORE	.325	.015	.447	21.675	.000
	EOY_Overall_SCORE	.241	.015	.335	16.234	.000

Table 17

Multiple Linear Regression Analysis for Grade 7

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.734	.539	.538	72.829		

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18396946.272	2	9198473.136	1734.208	.000
	Residual	15753276.238	2970	5304.133		
	Total	34150222.509	2972			

Coefficients						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1615.492	1.857		869.951	.000
	MOY_Overall_SCORE	.240	.013	.416	17.853	.000
	EOY_Overall_SCORE	.192	.013	.348	14.906	.000

Table 18

Multiple Linear Regression Analysis for Grade 8

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.742	.551	.551	75.575

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18544401.842	2	9272200.921	1623.411	.000
	Residual	15101350.399	2644	5711.555		
	Total	33645752.241	2646			

Coefficients					
Model		Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	t
1	(Constant)	1691.279	1.469		1151.370
	MOY_Overall_SCORE	.235	.015	.400	15.552
	EOY_Overall_SCORE	.212	.015	.370	14.375

Table 19

Multiple Logistic Regression Analysis for Grade 3

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	1315.572	6	.000
	Block	1315.572	6	.000
	Model	1315.572	6	.000

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	1799.319	.303	.528

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	MOY_CMP_SCORE	.030	.007	17.955	1	.000	1.030
	MOY_VOC_SCORE	.025	.006	18.680	1	.000	1.025
	MOY_TF_SCORE	.015	.003	25.620	1	.000	1.015
	EOY_CMP_SCORE	.025	.006	16.178	1	.000	1.025
	EOY_VOC_SCORE	.020	.005	14.211	1	.000	1.020
	EOY_TF_SCORE	.020	.003	53.556	1	.000	1.020
	Constant	3.627	.133	741.591	1	.000	37.590

Table 20

Multiple Logistic Regression Analysis for Grade 4

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	1679.047	5	.000
	Block	1679.047	5	.000
	Model	1679.047	5	.000

Model Summary			
	-2 Log	Cox & Snell	Nagelkerke R
Step	likelihood	R Square	Square
1	2212.601	.366	.561

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	MOY_CMP_SCORE	.003	.000	68.730	1	.000	1.003
	MOY_VOC_SCORE	.005	.001	50.419	1	.000	1.005
	EOY_CMP_SCORE	.003	.000	56.019	1	.000	1.003
	EOY_VOC_SCORE	.004	.001	37.924	1	.000	1.004
	EOY_TF_SCORE	.006	.001	19.006	1	.000	1.006
	Constant	2.501	.086	851.834	1	.000	12.191

Table 21

Multiple Logistic Regression Analysis for Grade 5

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	1230.473	6	.000
	Block	1230.473	6	.000
	Model	1230.473	6	.000

Model Summary			
	-2 Log	Cox & Snell	Nagelkerke R
Step	likelihood	R Square	Square
1	2040.736	.280	.481

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	MOY_CMP_SCORE	.002	.000	35.363	1	.000	1.002
	MOY_VOC_SCORE	.006	.001	74.176	1	.000	1.006
	MOY_TF_SCORE	.005	.002	12.535	1	.000	1.005
	EOY_CMP_SCORE	.001	.000	16.687	1	.000	1.001
	EOY_VOC_SCORE	.003	.001	20.090	1	.000	1.003
	EOY_TF_SCORE	.004	.001	7.733	1	.005	1.004
	Constant	3.130	.105	880.030	1	.000	22.866

Table 22

Multiple Logistic Regression Analysis for Grade 6

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	1550.362	7	.000
	Block	1550.362	7	.000
	Model	1550.362	7	.000

Model Summary			
	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
Step 1	2113.586	.385	.563

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	MOY_CMP_SCORE	.001	.000	11.708	1	.001	1.001
	MOY_SPL_SCORE	.002	.000	14.066	1	.000	1.002
	MOY_VOC_SCORE	.005	.001	59.575	1	.000	1.005
	MOY_TF_SCORE	.003	.001	7.049	1	.008	1.003
	EOY_CMP_SCORE	.001	.000	18.483	1	.000	1.001
	EOY_VOC_SCORE	.004	.001	39.084	1	.000	1.004
	EOY_TF_SCORE	.004	.001	12.060	1	.001	1.004
	Constant	2.145	.083	661.813	1	.000	8.544

Table 23

Multiple Logistic Regression Analysis for Grade 7

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	1115.129	6	.000
	Block	1115.129	6	.000
	Model	1115.129	6	.000

Model Summary			
	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
Step 1	1646.835	.335	.527

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	MOY_SPL_SCORE	.002	.000	10.660	1	.001	1.002
	MOY_VOC_SCORE	.003	.001	23.130	1	.000	1.003
	MOY_TF_SCORE	.005	.001	16.840	1	.000	1.005
	EOY_CMP_SCORE	.002	.000	60.280	1	.000	1.002
	EOY_VOC_SCORE	.003	.001	21.354	1	.000	1.003
	EOY_TF_SCORE	.004	.001	12.318	1	.000	1.004
	Constant	2.557	.102	631.199	1	.000	12.902

Table 24

Multiple Logistic Regression Analysis for Grade 8

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	819.468	4	.000
	Block	819.468	4	.000
	Model	819.468	4	.000

Model Summary			
	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
Step 1	1261.771	.271	.491

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	MOY_CMP_SCORE	.003	.000	60.987	1	.000	1.003
	MOY_SPL_SCORE	.002	.001	14.537	1	.000	1.002
	MOY_VOC_SCORE	.005	.001	87.099	1	.000	1.005
	MOY_TF_SCORE	.004	.001	10.592	1	.001	1.004
	Constant	2.639	.195	182.550	1	.000	13.995

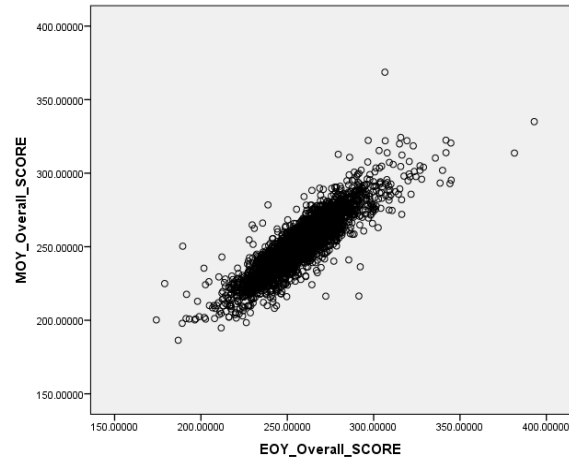
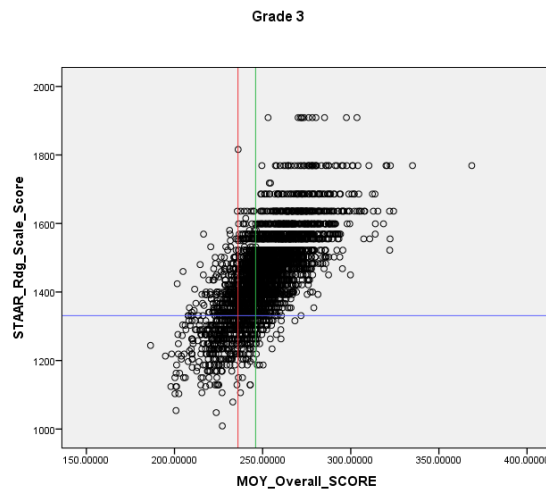


Figure 1. Scatter plot of the correlation of the MOY_Overall and the EOY_Overall for G3



*blue line is the STAAR phase-in I Level II cut score

*redline is ISIP Tier 3 cut score

*green line is ISIP Tier 1 cut score

Figure 2. Scatter plot of the correlation of the STAAR and the MOY_Overall for G3

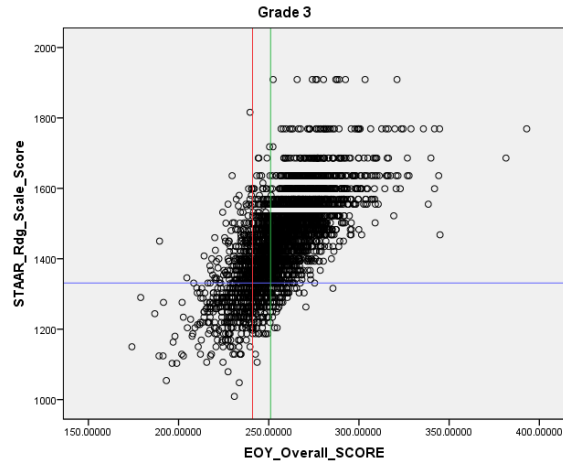


Figure 3. Scatter plot of the correlation of the STAAR and the EOY_Overall for G3

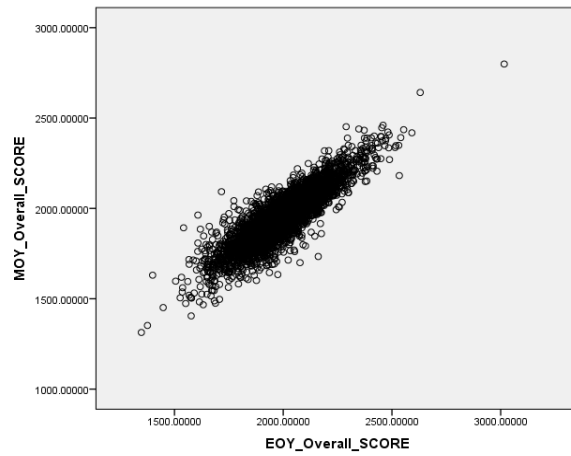


Figure 4. Scatter plot of the correlation of the MOY_Overall and the EOY_Overall for G4

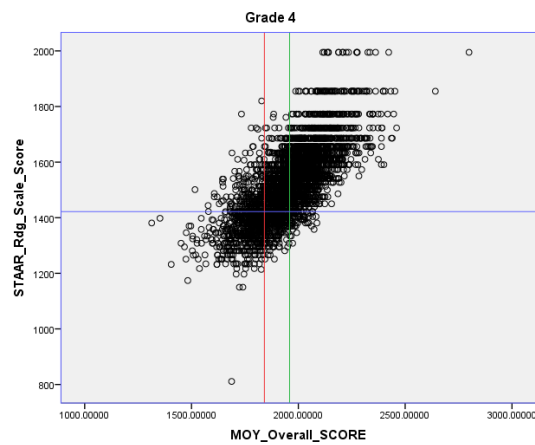


Figure 5. Scatter plot of the correlation of the STAAR and the MOY_Overall for G4

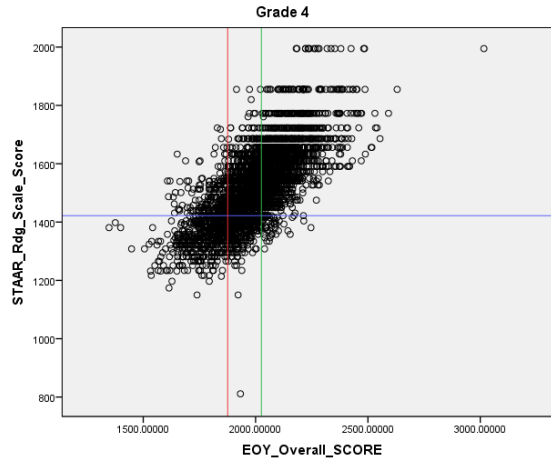


Figure 6. Scatter plot of the correlation of the STAAR and the EOY_Overall for G4

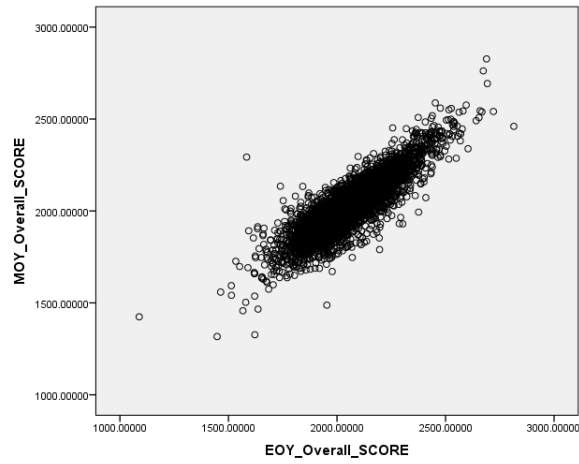


Figure 7. Scatter plot of the correlation of the MOY_Overall and the EOY_Overall for G5

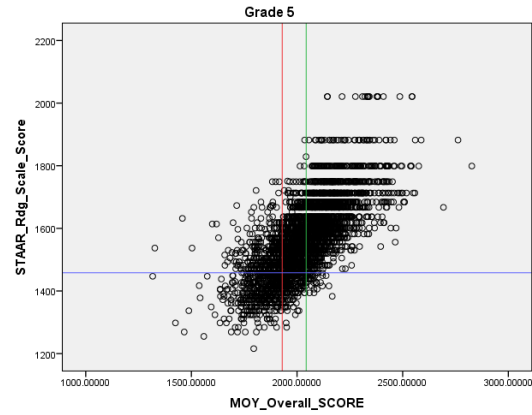


Figure 8. Scatter plot of the correlation of the STAAR and the MOY_Overall for G5

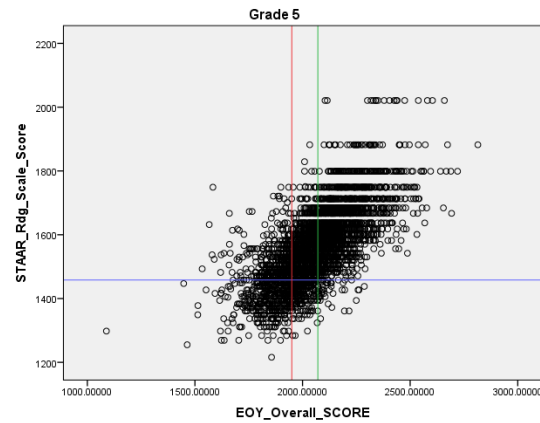


Figure 9. Scatter plot of the correlation of the STAAR and the EOY_Overall for G5

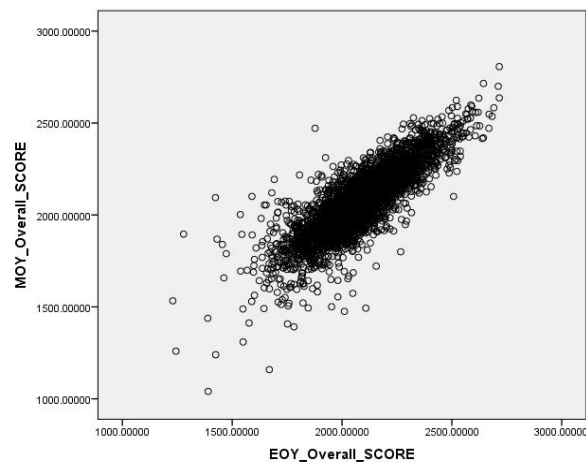


Figure 10. Scatter plot of the correlation of the MOY_Overall and the EOY_Overall for G6

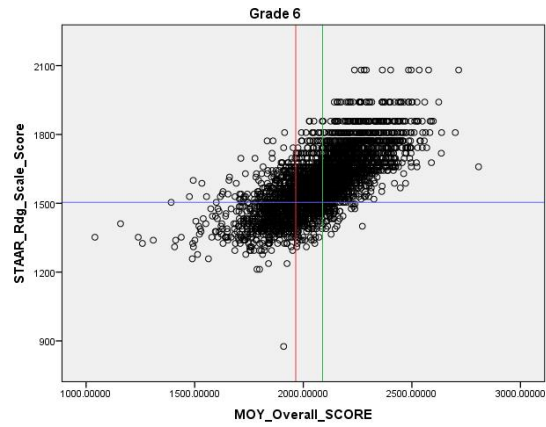


Figure 11. Scatter plot of the correlation of the STAAR and the MOY_Overall for G6

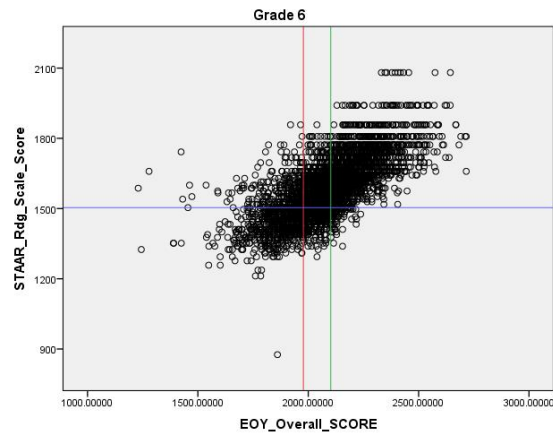


Figure 12. Scatter plot of the correlation of the STAAR and the EOY_Overall for G6

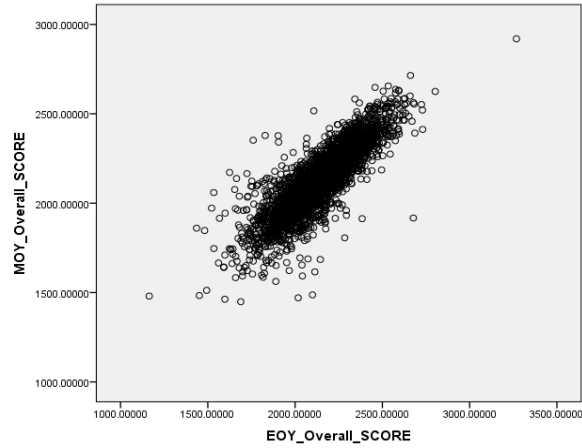


Figure 13. Scatter plot of the correlation of the MOY_Overall and the EOY_Overall for G7

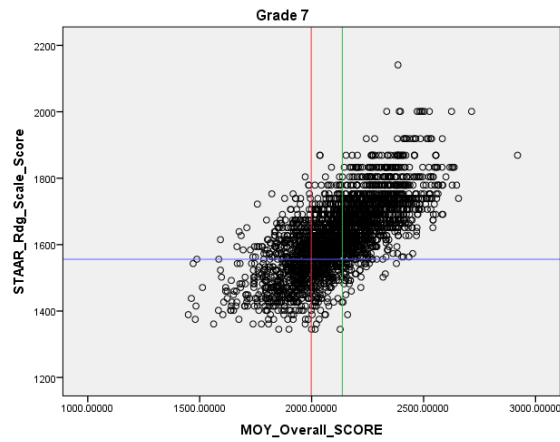


Figure 14. Scatter plot of the correlation of the STAAR and the MOY_Overall for G7

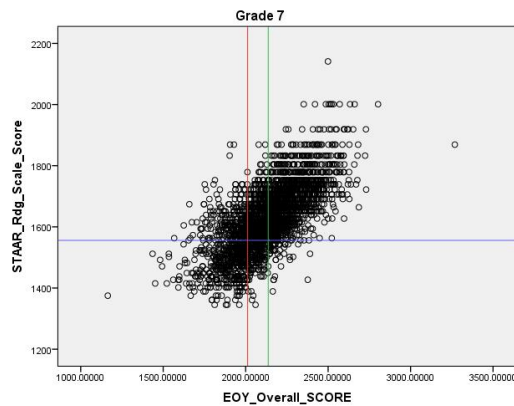


Figure 15. Scatter plot of the correlation of the STAAR and the EOY_Overall for G7

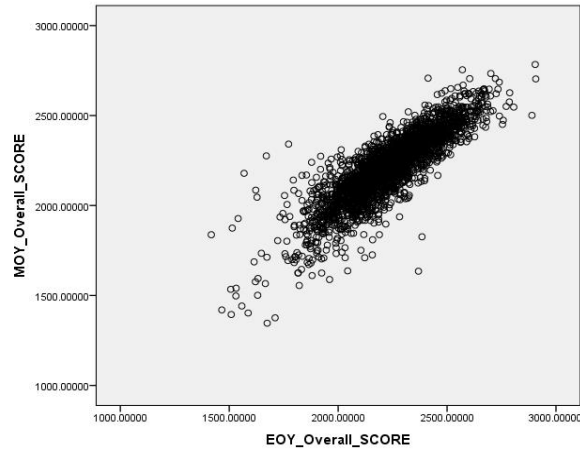


Figure 16. Scatter plot of the correlation of the MOY_Overall and the EOY_Overall for G8

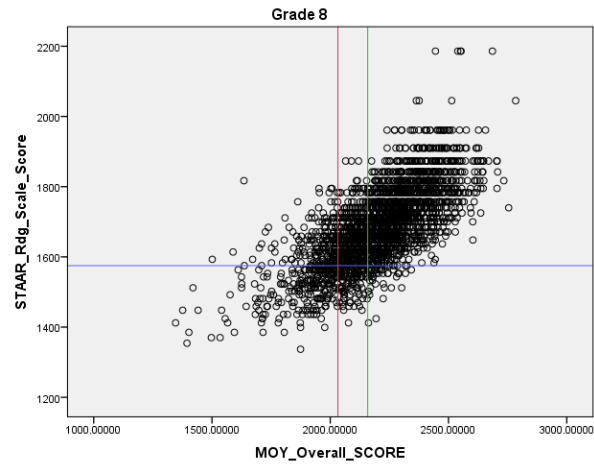


Figure 17. Scatter plot of the correlation of the STAAR and the MOY_Overall for G8

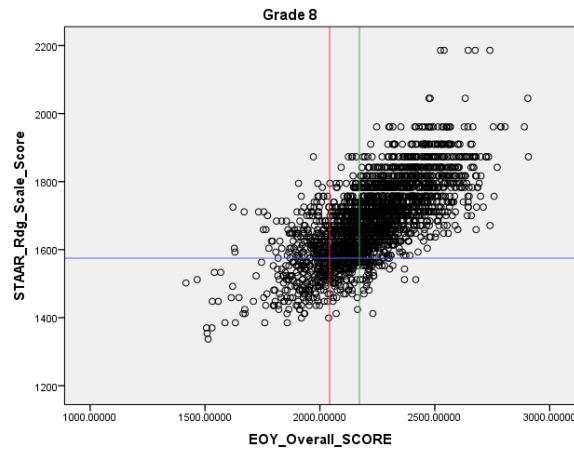


Figure 18. Scatter plot of the correlation of the STAAR and the EOY_Overall for G8



P.O. Box 469026
Garland, TX
75046-4923

www.garlandisd.net

Garland Independent School District
Office of Superintendent

Street Address

Harris Hill Administration Building
501 S. Jupiter Rd.
Garland, TX
75042

Phone

972-487-3023

FAX

972-485-4936

February 10, 2014

Ms. Sharon Tipping
Istation
2000 Campbell Centre II
8150 North Central Expressway
Dallas, Texas 75206

Dear Ms. Tipping:

Thank you for providing the Garland Independent School District (GISD) with a copy of your recent report, *ISIP Reading Versus STAAR Reading: The Predictability Study*. The district has had an opportunity to review the raw data and the completed report. We have found the report to possess a sound research design and provide evidence of a strong relationship between Istation's Indicators of Progress (ISIP) and the State of Texas Assessment of Academic Readiness (STAAR) reading tests.

The ability to use the ISIP as a predictor of STAAR performance will be of great benefit to educators across the state. GISD is excited to have been part of this project and look forward to continued collaborations with Istation to benefit the students of GISD and Texas.

In appreciation,

Dr. Bob Morrison
Superintendent