

Evaluation of Student Writing Performance in Grades 7–11 of the Council Bluffs Community School District

Iowa Reading Research Center
University of Iowa College of Education



Student Reading Success Through Research and Collaboration

Acknowledgements

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Report Authors:

Deborah K. Reed, Ph.D.
Director, Iowa Reading Research Center

Jing Ma, M.Ed.
Graduate Student Assistant
Iowa Reading Research Center

Kung-Sik Chan, Ph.D.
Robert V. Hogg Professor, Statistics and Actuarial Science
University of Iowa

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Tracking Council Bluffs CSD Students' Writing Performance in Grades 7–11

In the 2019–2020 school year, the State of Iowa implemented a new Every Student Succeeds Act (ESSA) plan, in which student writing performance contributed 50% of a district's accountability for literacy outcomes. Previously, writing had not factored into the literacy accountability formula, so the Council Bluffs Community School District (CBCSD) was examining its instructional practices to determine how best to support teachers and students in this area. To that end, CBCSD partnered with the Iowa Reading Research Center (IRRC) to evaluate students' improvement in writing across the 2020–2021 school year when scored by teachers, IRRC staff, and an electronic system.

The district used a program called Turnitin Revision Assistant (RA) to facilitate writing practice and assessment. This online tool was used to generate informational and argumentative writing prompts for the project, but its feedback features were disabled for the two assessment waves. The IRRC developed grade-specific scoring rubrics that aligned to the state standards, the Iowa Statewide Assessment of Student Progress (ISASP), and the rubrics from RA. The writing rubrics consisted of four components: Task, Development, Organization, and Language. Each component of the IRRC rubric was scored individually on a 1–5 scale, with higher scores representing better quality of writing in that skill area. RA electronic scores were generated on a 1–4 scale. District personnel prepared teachers to use the IRRC rubrics for scoring students' responses.

The plan for the project was for the IRRC to compare the scores of teachers who knew the students and their various background characteristics (e.g., race/ethnicity, special education status, English learner [EL] status) to IRRC raters' and RA electronic scores of the same responses. The latter two score types would be blind to student characteristics, thus reducing the potential for bias. Finally, the IRRC was to explore the extent to which the different score types predicted students' ISASP performance on both the written composition and the English Language Arts (ELA) composite.

There were two waves of data collection (December and May) for all students. CBCSD selected which genre to administer to students, either the informational or argumentative genre, based on grade level (see the table below). Students in the same grade level responded to prompts of the same genre for both December and May waves, but the prompt itself changed from wave to wave.

Grade	Genre
7	Informational
8	Argumentative
9	Argumentative
10	Informational
11	Argumentative



Descriptive information on the student participants in each grade level can be found in Appendix A. Note that the number of student responses varied between the winter and spring waves.

In addition to gathering student data, the IRRC also surveyed teachers to gather information on their current practices for writing instruction. The survey was administered electronically in November 2020, with 88 teachers completing it (ELA teachers = 35; social studies teachers = 26; science teachers = 20; other subject area = 7).

Analytic Plan

Teacher survey data were compiled and analyzed descriptively to present a picture of current perceptions and practices.

Analyses of student data focused on three key questions:

1. What is the agreement among the different types of scores on students' responses?
2. To what extent did students' scores change from December to May administrations?
3. How well do teacher, IRRC, and RA electronic scores predict students' ISASP performance?

Before analyzing the student data, we removed any students with missing scores or scores of zero, which indicated a student plagiarized or wrote in gibberish. An important consideration in addressing the research questions was the nesting of students within classrooms, so mixed-effect models were employed when possible. Analyses were performed in the R environment.

Results

Teacher Survey

The results of the teacher survey are provided in Appendix B. By genre, teachers reported assigning informational (75 teachers) and argument (70 teachers) writing more often than narrative (46 teachers) or literary analysis (36 teachers). Among the types of writing queried, teachers most commonly responded that they never assigned timed writing (49 teachers) or analyzing writing models (37 teachers). Respondents most commonly reported assigning the following:

- weekly short, constructed responses (55 teachers)
- weekly close reading responses (54 teachers)
- daily quick writes (44 teachers) or weekly quick writes (31 teachers)
- weekly write to think (41 teachers)

These types of writing are brief in nature, which likely contributes to more frequent assignment. Based on reports of the length of writing assigned, student responses were most often expected to be one paragraph or less (daily = 33 teachers; weekly = 49 teachers) or less than one page (weekly



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= 49 teachers). On the other hand, full-length essays were reportedly assigned monthly (39 teachers) or quarterly (34 teachers). However, how teachers define “full-length essay” might need to be further explored. That is because, when asked about the length of writing assigned to students, only three teachers reported assigning 7-plus pages monthly or quarterly. Another two teachers assigned that length of writing once per semester, and another seven teachers reported assigning that length once per year. The vast majority of respondents indicated they never assigned students to write 7-plus pages (76 teachers), 5–6 pages (66 teachers), or 3–4 pages (44 teachers). The most commonly assigned length of writing was 1–2 pages (monthly = 32 teachers; quarterly = 27 teachers). Thus, “full-length” might be defined as a five-paragraph essay that typically spans 1–2 pages.

Relatedly, although short writing (one paragraph or less than one page) might have been assigned daily, teachers did not often report providing to students daily feedback. Although the survey did not provide the option for giving a grade, it did include the option of a summative overall score. Nevertheless, only two teachers reported offering summative overall scores daily. Peer feedback was most often never provided (editing = 37 teachers; revising = 40 teachers). Teachers commonly reported providing feedback weekly or monthly:

- one-on-one conferencing (weekly = 25 teachers; monthly = 28 teachers)
- formative suggestions on writing mechanics (weekly = 37 teachers; monthly = 22 teachers)
- formative suggestions on writing quality (weekly = 36 teachers; monthly = 23 teachers)
- summative detailed comments (weekly = 15 teachers; monthly = 45 teachers)
- summative overall score (weekly = 18 teachers; monthly = 42 teachers)
- peer editing (weekly = 13 teachers; monthly = 22 teachers)
- peer revision (weekly = 12 teachers; monthly = 18 teachers)

Many teachers reported confidence in their ability to teach writing (agree = 43; strongly agree = 12), assess students’ writing skills (agree = 48; strongly agree = 12), and use data on students’ writing to plan instruction (agree = 46; strongly agree = 7). They also generally felt the district provided ample (agree = 40, strongly agree = 3) and effective resources (agree = 32, strongly agree = 3) for implementing writing instruction, although about as many teachers were ambivalent about the effectiveness of the resources (neither agree nor disagree = 33). Teachers also were mixed in their responses about the professional development and time allotted for writing instruction, with most ambivalent (34 and 33, respectively) and about as many strongly/disagreeing (30 and 28, respectively) as strongly/agreeing (24 and 27, respectively).

There were a variety of responses for professional development and resources that teachers thought would improve their writing instruction, with the most popular being video trainings (40 teachers), in-person trainings (39 teachers), and online tools (38 teachers). The most commonly requested topics for professional development were about how to organize information in a written response (44 teachers), select appropriate textual evidence (44 teachers), use writing tools (42 teachers), revise writing (41 teachers), and teach writing mechanics (37 teachers).



Finally, teachers were asked one question about students' improvement in writing. Teachers most often thought their students improved in their abilities to support and elaborate ideas (57 teachers) and organize ideas (48 teachers). These areas would align with the Development and Organization criterion of the rubrics used to evaluate students' writing in this project. We now turn to the analysis of student data and report the results by key question.

Relationship Among Score Types

The correlations among the teacher, IRRC, and RA scores are shown in Appendix C, by criterion. The results suggest all score types are moderately positively correlated and of similar magnitude across grade and wave. This can be interpreted as suggesting the scores have considerable similarity but are not exactly alike. We could expect some variation in scores by type (teacher, IRRC, RA), as can be seen in the tables in Appendix C showing the distribution of scores by type. This also would mean we could expect to see some differences in the results for students' December-to-May growth and the prediction of ISASP outcomes.

Student Writing Growth

To determine students' patterns of growth from winter to spring, we fit a cumulative logistic mixed model to take into account the ordinal nature of the scores. The models for each score type and criterion are provided in Appendix D. Of particular importance in the tables are the *Grade: Wave* rate of change estimates. Note that some are negative, suggesting that—on average—student writing performance in that skill area (i.e., Task, Development, Organization, or Language) declined over the year. Where the estimated rates of change are not statistically significant, as indicated by the absence of asterisks after the value, student growth can be interpreted as stagnant in that skill area.

In the Task criterion, IRRC scores revealed significantly positive growth in Grades 9, 10, and 11 with the greatest improvement in Grade 10. Students in Grades 7 and 8 had stagnant performance. However, when Task was measured by teachers, the model results suggested that only students in Grade 10 experienced significantly positive growth. All other grades were stagnant. The model results for the RA electronic scores showed a significant decline in Grade 8 and significantly positive growth in Grade 11. All other grades were stagnant.

In the Development criterion, IRRC scores revealed significantly positive growth in Grades 9 and 10, significantly negative growth in Grade 8, and stagnant performance in Grades 7 and 11. The greatest improvement was in Grade 10. However, when Development was measured by teachers, the model results suggested that students in Grades 9, 10, and 11 experienced significantly positive growth, and students in Grades 7 and 8 were stagnant. The model results for the RA electronic scores showed a significant decline in Grade 8 and significantly positive growth in Grade 11. All other grades were stagnant.



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In the Organization criterion, IRRC scores revealed significantly positive growth in all grades, except Grade 7 which was stagnant. The greatest improvement was in Grade 9. However, when Organization was measured by teachers, the model results suggested that students in Grades 8, 9, and 11 experienced significantly positive growth. Students in Grades 7 and 10 were stagnant. The model results for the RA electronic scores showed significantly positive growth only in Grade 11, but all other grades were stagnant.

In the Language criterion, IRRC scores revealed significantly positive growth in Grades 7–10, and only Grade 11 performance was stagnant. However, when Language was measured by teachers, the model results suggested that only students in Grade 8 experienced significantly positive growth. Students in all other grades were stagnant. The model results for the RA electronic scores showed a significant decline in Grades 7 and 9, which was opposite of the IRRC model results. The RA model also showed significantly positive growth in Grade 11, with Grades 8 and 10 stagnant.

In looking across the three score types, the rare instances of consistency in students' change from December to May were as follows:

- Task: stagnant in Grade 7
- Development: stagnant in Grade 7
- Organization: positive growth in Grade 11; stagnant in Grade 7

There were no estimates of Language in which all three score types suggested the same change for students in a particular grade. The most consistent finding was stagnancy among seventh graders in the writing skill areas of Task, Development, and Organization. This is striking, given the amount of disagreement in all other areas and grades.

If looking only at the models for the IRRC and teacher scores, there were additional areas of agreement:

- Task: positive growth in Grade 10; stagnant in Grades 7 and 8
- Development: positive growth in Grades 9 and 10; stagnant in Grade 7
- Organization: positive growth in Grades 8, 9, and 11; stagnant in Grade 7
- Language: positive growth in Grade 8; stagnant in Grade 11

If looking only at the models for the teacher and RA scores, the areas of agreement were:

- Task: stagnant in Grades 7 and 9
- Development: positive growth in Grade 11; stagnant in Grade 7
- Organization: positive growth in Grade 11; stagnant in Grades 7 and 10
- Language: stagnant in Grade 10

Teachers were more likely to agree with another human scorer (IRRC) than with electronically generated scores. This was true despite both alternatives to teacher scores being blind to students'



characteristics (e.g., English learner, special education, race/ethnicity). In fact, when comparing the model results for the two blind scores (IRRC and RA), less similarity was observed than in comparing teachers with either of the blind scores. Below are the areas of agreement in the IRRC and RA models:

- Task: positive growth in Grade 11; stagnant in Grade 7
- Development: stagnant in Grade 7; decline in Grade 8
- Organization: positive growth in Grade 11; stagnant in Grade 7

There was no agreement between the IRRC and RA model results on student change on the Language criterion. Next, we examined how well each of the score types predicted students' ISASP outcomes. This was particularly important in light of the different pictures of student growth or stagnation portrayed across the score types.

Prediction of ISASP Outcomes

Each writing criterion on the rubric was scored on a 1–5 scale by teachers, IRRC scorers, and ISASP. However, the RA electronic scores applied a 1–4 scale, which we took into consideration when interpreting the estimate values across score types. First, we looked at students' overall performance by fitting a linear mixed model that regressed the ISASP ELA scale score composite on the average teacher score and, in separate models, on the average IRRC score and average RA electronic score. Each model incorporated the random effects in the intercept due to having the same primary ELA teacher and the fixed effects due to student characteristics (i.e., gender, race/ethnicity, EL, free and reduced price lunch [FRL], and special education). Due to model fit, gender and race/ethnicity were dropped from the teacher score models in Grades 8, 9 and 10. These student characteristics were retained in the teacher score models for Grades 7 and 11, where they were significant. In the IRRC score models, gender and race/ethnicity were dropped for Grades 7, 9, and 10. In the RA electronic score models, gender and race/ethnicity were dropped for Grades 7, 9, and 10. Across the score type models, gender and race/ethnicity were retained in any grade level where those characteristics were significantly related to the ISASP ELA scale score composite.

In comparing the final models for the three score types (and after adjusting for significant student characteristics), we used a robust estimation method to mitigate the impact of outlier student scores. Strictly speaking, we fit the median regression functions, not the mean regression functions. As indicated by the lower AIC values in Table 1 below, the IRRC scores were slightly better predictors of the ISASP ELA composite in Grades 7 and 10. Teacher scores were slightly better predictors in Grades 8, 9, and 11. The RA electronic scores were not strong predictors in any grade.

Table 1. Final Model Fit for Each Score Type’s Prediction of the ISASP ELA

Grade	AIC for IRRC score	AIC for teacher score	AIC for RA score
7	2,524.226	2,561.227	2,562.930
8	3,756.844	3,741.192	3,781.903
9	3,338.643	3,335.294	3,341.788
10	3,869.944	3,923.670	3,949.788
11	2,643.352	2,610.484	2,641.419

Next, we fit linear mixed regression models to estimate how each score type predicted the ISASP ELA scale score composite. The model results by grade level can be found in Appendix E. In all grades, the average IRRC writing score had a positive relationship with the ISASP ELA composite scale score. ELs in Grades 7 and 11 on average tended to have a significantly lower ISASP ELA score than non-ELs, even though they received an identical average IRRC writing score. Similarly, students receiving FRL or in special education demonstrated on average significantly lower ISASP ELA scores across the grades, despite having the same IRRC writing score as their peers. The difference was particularly pronounced for students in special education, suggesting the manner of constructing the ELA composite score introduced a disadvantage to students with disabilities. The teacher and RA electronic scores demonstrated similar patterns, though both score types had weaker regression relationships to the ISASP ELA scores than the IRRC writing scores did.

In addition, we fit a cumulative logistic link model to determine each score type’s prediction of ISASP written composition rubric scores. Based on model fit, the teacher and RA rubric scores generally were more predictive of the ISASP rubric scores than the IRRC scores were. However, scatter diagrams showed that the prediction was not very accurate for any score type. Thus, the use of individual criterion scores may not be as useful as an overall average rubric score for predicting students’ ISASP performance.

The combined results suggest that the unbiased IRRC human scorers who followed a rigorous training and calibration process were better predictors overall of students’ ISASP performance—particularly the ELA scale score composite, which is the determiner of student proficiency and school accountability. Nevertheless, the composite score does not provide the level of detail that teachers need to plan targeted instruction. This project was intended to inform CBCSD’s instruction in written composition specifically, and the analytic rubric would indicate more specific strengths and weaknesses for each student. Although none of the rubric criterion score types were very accurate in predicting how ISASP’s electronic scoring system would rate students’ written compositions performance in each criterion, teachers’ scores were at least slightly better than the alternatives. This suggests that interim writing assessments evaluated by the students’



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teachers could help guide instruction without requiring the intensity of resources that the IRRC's scoring process does or the financial investment of a system such as RA.



Appendix A

Student Demographic Information

2020–2021	Grade 7		Grade 8		Grade 9		Grade 10		Grade 11	
	Winter (N=618)	Spring (N=622)	Winter (N=589)	Spring (N=601)	Winter (N=592)	Spring (N=611)	Winter (N=581)	Spring (N=614)	Winter (N=501)	Spring (N=554)
Gender										
Female	301 (48.7%)	301 (48.4%)	288 (48.9%)	293 (48.8%)	270 (45.6%)	282 (46.2%)	292 (50.3%)	302 (49.2%)	265 (52.9%)	285 (51.4%)
Male	317 (51.3%)	321 (51.6%)	301 (51.1%)	308 (51.2%)	322 (54.4%)	326 (53.4%)	289 (49.7%)	305 (49.7%)	236 (47.1%)	266 (48.0%)
Race/Ethnicity										
White/Caucasian	478 (77.3%)	481 (77.3%)	444 (75.4%)	449 (74.7%)	428 (72.3%)	439 (71.8%)	445 (76.6%)	462 (75.2%)	369 (73.7%)	406 (73.3%)
Asian	10 (1.6%)	10 (1.6%)	11 (1.9%)	12 (2.0%)	11 (1.9%)	12 (2.0%)	13 (2.2%)	13 (2.1%)	12 (2.4%)	12 (2.2%)
Black/African American	42 (6.8%)	40 (6.4%)	37 (6.3%)	39 (6.5%)	35 (5.9%)	36 (5.9%)	25 (4.3%)	28 (4.6%)	23 (4.6%)	25 (4.5%)
Hispanic	84 (13.6%)	86 (13.8%)	90 (15.3%)	93 (15.5%)	115 (19.4%)	118 (19.3%)	94 (16.2%)	99 (16.1%)	90 (18.0%)	99 (17.9%)
American Indian/Alaska Native	4 (0.6%)	5 (0.8%)	7 (1.2%)	8 (1.3%)	3 (0.5%)	3 (0.5%)	4 (0.7%)	5 (0.8%)	7 (1.4%)	9 (1.6%)
EL (English Learner)	26 (4.2%)	27 (4.3%)	28 (4.8%)	28 (4.7%)	31 (5.2%)	33 (5.4%)	33 (5.7%)	33 (5.4%)	26 (5.2%)	28 (5.1%)
FRL (Free or Reduced Lunch)	415 (67.2%)	411 (66.1%)	402 (68.3%)	406 (67.6%)	417 (70.4%)	426 (69.7%)	396 (68.2%)	416 (67.8%)	329 (65.7%)	355 (64.1%)
Special Education	121 (19.6%)	119 (19.1%)	115 (19.5%)	115 (19.1%)	112 (18.9%)	113 (18.5%)	108 (18.6%)	109 (17.8%)	71 (14.2%)	79 (14.3%)



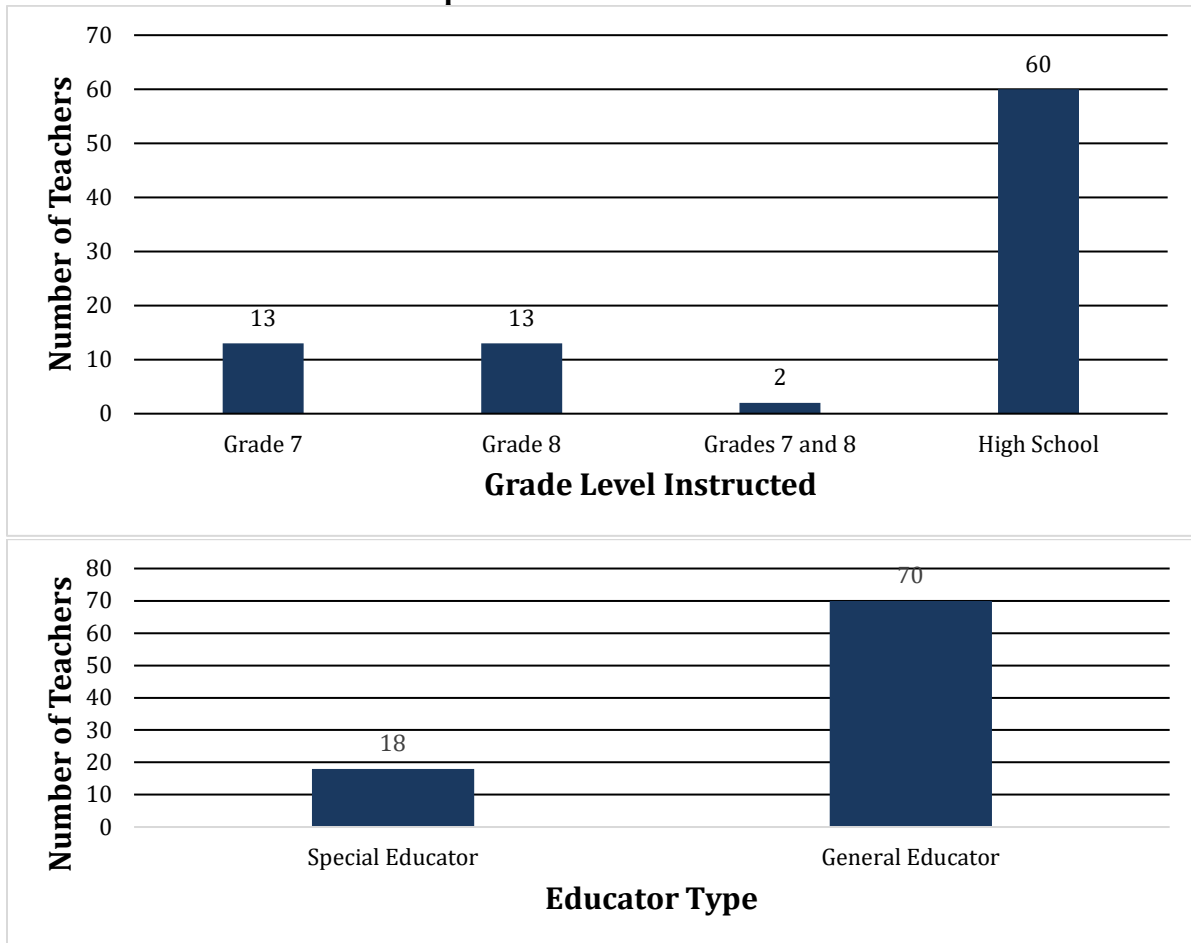
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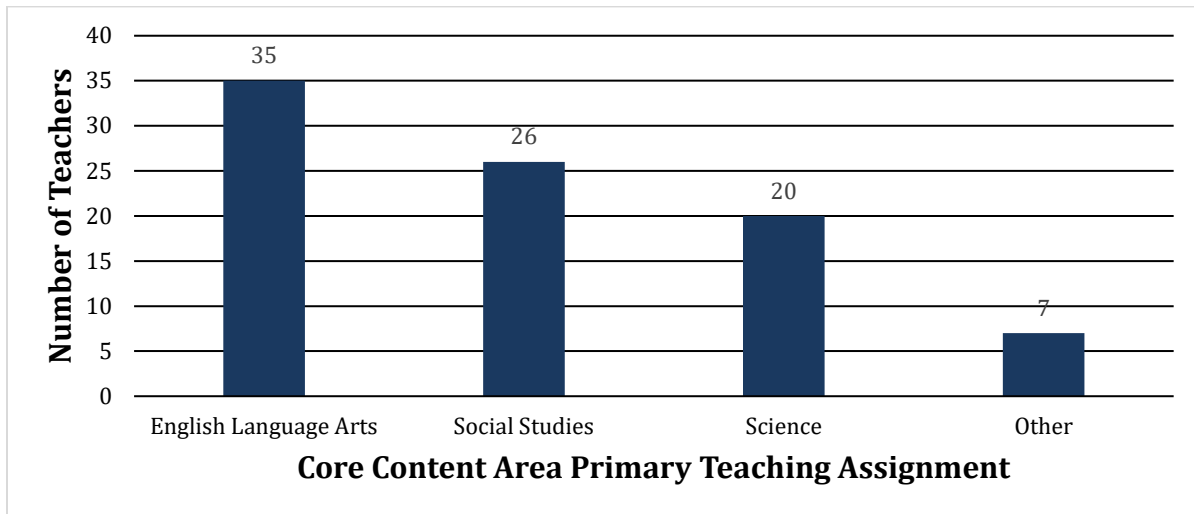
2020–2021	Grade 7		Grade 8		Grade 9		Grade 10		Grade 11	
	Winter (N=618)	Spring (N=622)	Winter (N=589)	Spring (N=601)	Winter (N=592)	Spring (N=611)	Winter (N=581)	Spring (N=614)	Winter (N=501)	Spring (N=554)
Gifted	77 (12.5%)	76 (12.2%)	73 (12.4%)	72 (12.0%)	102 (17.2%)	106 (17.3%)	107 (18.4%)	111 (18.1%)	87 (17.4%)	93 (16.8%)

Appendix B

Teacher Survey Results

Information on the Teacher Respondents

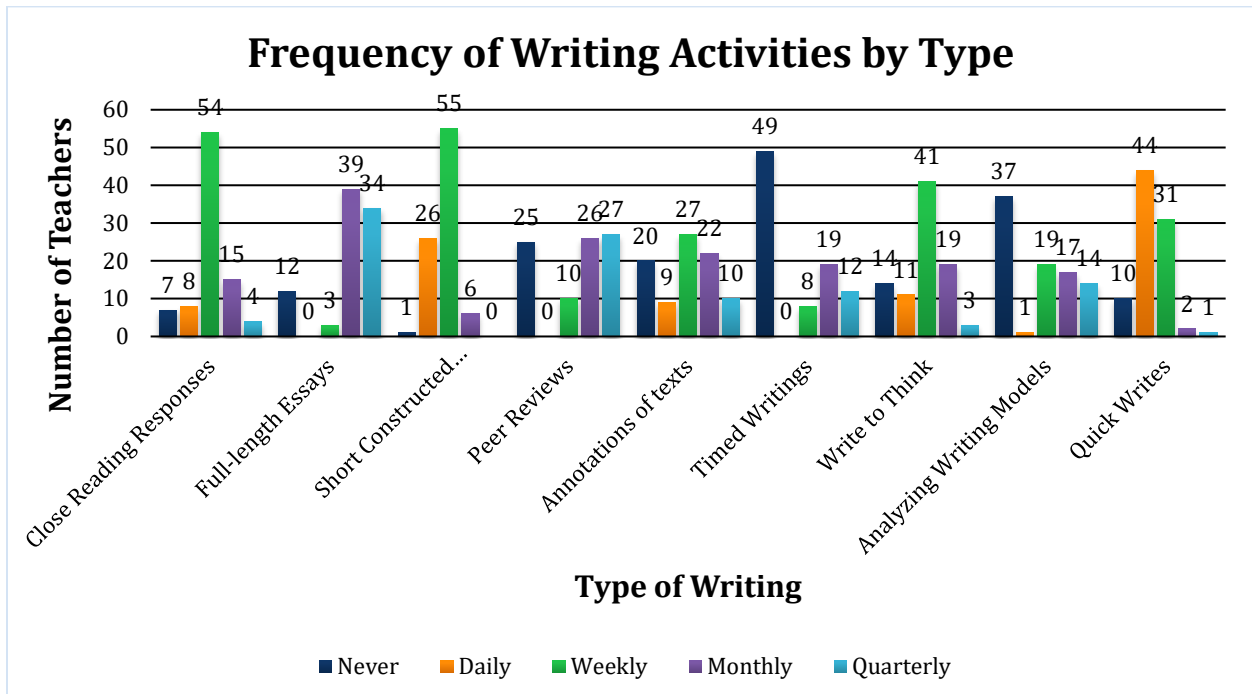




Types of Writing Assigned

Writing Genres Assigned by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Narrative	10	16.39%	3	8.11%	20	27.4%	9	23.68%	4	22.22%
Argument	24	39.34%	11	29.73%	18	24.66%	12	31.58%	5	27.78%
Literary Analysis	2	3.28%	3	8.11%	20	27.4%	8	21.05%	3	16.67%
Informational	25	40.98%	20	54.05%	15	20.55%	9	23.68%	6	33.33%



Frequency of Assigning Students Close Reading Responses by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	1	3.85%	5	25%	-	-	1	7.69%	-	-
Daily	2	7.69%	-	-	3	13.64%	1	7.69%	2	28.57%
Weekly	18	69.23%	8	40%	17	77.27%	7	53.85%	4	57.14%
Monthly	4	15.38%	5	25%	2	9.09%	3	23.08%	1	14.29%
Quarterly	1	3.85%	2	10%	-	-	1	7.69%	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Frequency of Assigning Students Full-Length Essays by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	-	-	11	55%	-	-	1	7.69%	-	-
Weekly	2	7.69%	1	5%	-	-	-	-	-	-
Monthly	13	50%	1	5%	15	68.18%	6	46.15%	4	57.14%
Quarterly	11	42.31%	7	35%	7	31.82%	6	46.15%	3	42.86%
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Frequency of Assigning Students Short Constructed Responses by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	-	-	-	-	-	-	-	-	1	14.29%
Daily	8	30.77%	5	25%	8	36.36%	2	15.38%	3	42.86%
Weekly	16	61.54%	13	65%	13	59.09%	10	76.92%	3	42.86%
Monthly	2	7.69%	2	10%	1	4.55%	1	7.69%	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Frequency of Assigning Students to Do Peer Reviews by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	7	26.92%	10	50%	3	13.64%	2	15.38%	3	42.86%
Weekly	4	15.38%	1	5%	4	18.18%	1	7.69%	-	-
Monthly	8	30.77%	5	25%	8	36.36%	4	30.77%	1	14.29%
Quarterly	7	26.92%	4	20%	7	31.82%	6	46.15%	3	42.86%
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Frequency of Assigning Students Annotations of Texts by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	4	15.38%	10	50%	3	13.64%	1	7.69%	2	28.57%
Daily	-	-	-	-	7	31.82%	1	7.69%	1	14.29%
Weekly	7	26.92%	3	15%	9	40.91%	8	61.54%	-	-
Monthly	8	30.77%	6	30%	3	13.64%	3	23.08%	2	28.57%
Quarterly	7	26.92%	1	5%	-	-	-	-	2	28.57%
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Frequency of Assigning Students Timed Writings by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	14	53.85%	20	100%	5	22.73%	6	46.15%	4	57.14%
Weekly	1	3.85%	-	-	4	18.18%	2	15.38%	1	14.29%
Monthly	5	19.23%	-	-	10	45.45%	3	23.08%	1	14.29%
Quarterly	6	23.08%	-	-	3	13.64%	2	15.38%	1	14.29%
Total	26	100%	20	100%	22	100%	13	100%	7	100%



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Frequency of Assigning Students Write to Think* by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	5	19.23%	3	15%	3	13.64%	3	23.08%	-	-
Daily	5	19.23%	1	5%	2	9.09%	1	7.69%	2	28.57%
Weekly	9	34.62%	10	50%	12	54.55%	7	53.85%	3	42.86%
Monthly	7	26.92%	5	25%	3	13.64%	2	15.38%	2	28.57%
Quarterly	-	-	1	5%	2	9.09%	-	-	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

*Writing that demonstrates understanding of new content

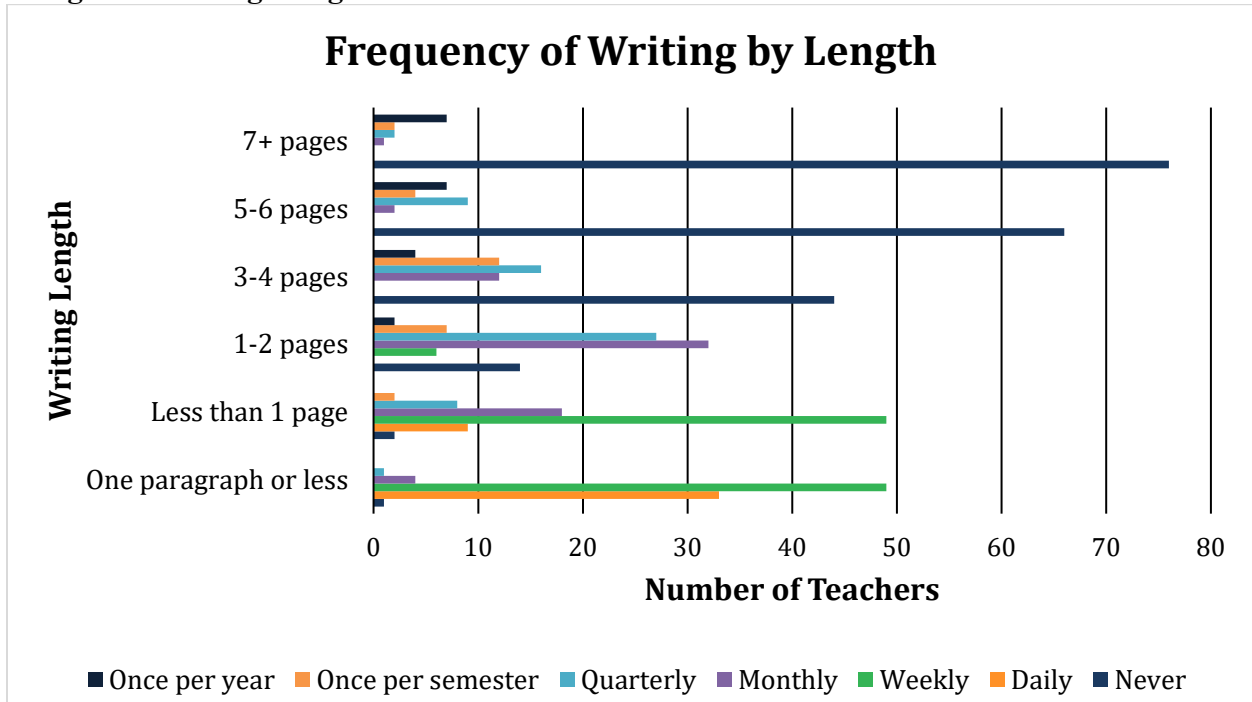
Frequency of Assigning Students to Analyze Writing Models by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	14	53.85%	18	90%	2	9.09%	2	15.38%	1	14.29%
Daily	-	-	-	-	1	4.55%	-	-	-	-
Weekly	4	15.38%	-	-	7	31.82%	5	38.46%	3	42.86%
Monthly	3	11.54%	1	5%	8	36.36%	2	15.38%	3	42.86%
Quarterly	5	19.23%	1	5%	4	18.18%	4	30.77%	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Frequency of Assigning Students Quick Writes/Bell Ringers/Exit Tickets by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	3	11.54%	1	5%	1	4.55%	2	15.38%	3	42.86%
Daily	15	57.69%	9	45%	12	54.55%	5	38.46%	3	42.86%
Weekly	7	26.92%	10	50%	7	31.82%	6	46.15%	1	14.29%
Monthly	1	3.85%	-	-	1	4.55%	-	-	-	-
Quarterly	-	-	-	-	1	4.55%	-	-	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Length of Writing Assigned



Frequency of Assigning Students to Write One Paragraph or Less by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	-	-	1	5%	-	-	-	-	-	-
Daily	11	42.31%	6	30%	8	36.36%	4	30.77%	4	57.14%
Weekly	13	50%	11	55%	14	63.64%	8	61.54%	3	42.86%
Monthly	2	7.69%	1	5%	-	-	1	7.69%	-	-
Quarterly	-	-	1	5%	-	-	-	-	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Frequency of Assigning Students to Write Less Than 1 Page by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	-	-	1	5%	-	-	-	-	1	14.29%
Daily	3	11.54%	1	5%	1	4.55%	1	7.69%	3	42.86%
Weekly	13	50%	8	40%	17	77.27%	9	69.23%	2	28.57%
Monthly	8	30.77%	6	30%	3	13.64%	-	-	1	14.29%
Quarterly	2	7.69%	3	15%	1	4.55%	2	15.38%	-	-
Once per year	-	-	1	5%	-	-	1	7.69%	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%



Student Reading Success Through Research and Collaboration

Frequency of Assigning Students to Write 1–2 Pages by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	3	11.54%	9	45%	-	-	1	7.69%	1	14.29%
Weekly	-	-	1	5%	4	18.18%	-	-	1	14.29%
Monthly	9	34.62%	2	10%	12	54.55%	8	61.54%	1	14.29%
Quarterly	13	50%	3	15%	6	27.27%	4	30.77%	1	14.29%
Once per semester	1	3.85%	4	20%	-	-	-	-	2	28.57%
Once per year	-	-	1	5%	-	-	-	-	1	14.29%
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Frequency of Assigning Students to Write 3–4 Pages by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	14	53.85%	17	85%	1	4.55%	8	61.54%	4	57.14%
Monthly	1	3.85%	1	5%	8	36.36%	2	15.38%	-	-
Quarterly	5	19.23%	-	-	9	40.91%	1	7.69%	1	14.29%
Once per semester	4	15.38%	1	5%	4	18.18%	1	7.69%	2	28.57%
Once per year	2	7.69%	1	5%	-	-	1	7.69%	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Frequency of Assigning Students to Write 5–6 Pages by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	21	80.77%	19	95%	10	45.45%	11	84.62%	5	71.43%
Monthly	-	-	-	-	2	9.09%	-	-	-	-
Quarterly	1	3.85%	1	5%	5	22.73%	1	7.69%	1	14.29%
Once per semester	1	3.85%	-	-	3	13.64%	-	-	-	-
Once per year	3	11.54%	-	-	2	9.09%	1	7.69%	1	14.29%
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Frequency of Assigning Students to Write 7+ Pages by Teacher Role

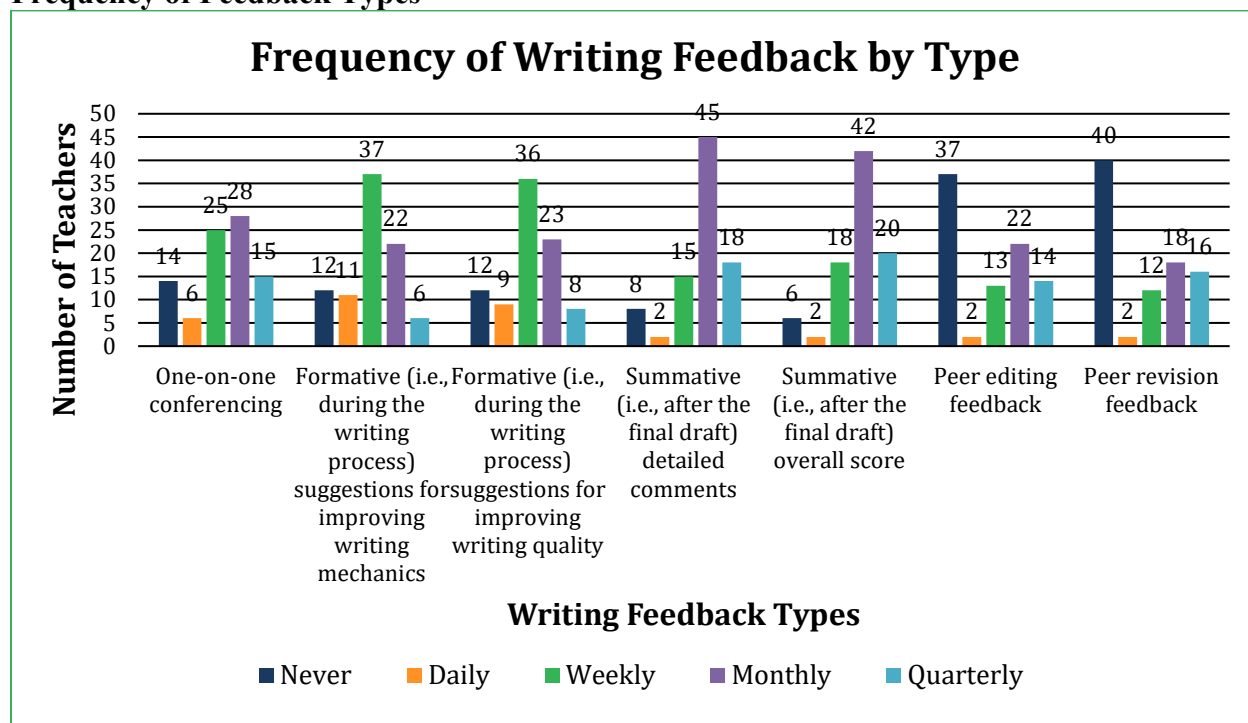
	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	24	92.31%	19	95%	15	68.18%	11	84.62%	7	100%
Monthly	-	-	-	-	1	4.55%	-	-	-	-
Quarterly	-	-	-	-	1	4.55%	1	7.69%	-	-
Once per semester	-	-	1	5%	1	4.55%	-	-	-	-
Once per year	2	7.69%	-	-	4	18.18%	1	7.69%	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Types of Writing Feedback

Types of Writing Feedback Provided by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Rubric	21	27.27%	17	25.76%	19	21.35%	13	23.21%	4	16.67%
Checklist	12	15.58%	9	13.64%	13	14.61%	9	16.07%	5	20.83%
Written Comments	19	24.68%	16	24.24%	21	23.6%	11	19.64%	5	20.83%
One-on-One Verbal Feedback	11	14.29%	10	15.15%	18	20.22%	11	19.64%	5	20.83%
Whole-Class Verbal Feedback	14	18.18%	14	21.21%	18	20.22%	12	21.43%	5	20.83%

Frequency of Feedback Types



Frequency of Providing Students One-on-One Conferencing by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	6	23.08%	6	30%	1	4.55%	-	-	1	14.29%
Daily	-	-	1	5%	1	4.55%	1	7.69%	3	42.86%
Weekly	8	30.77%	3	15%	7	31.82%	5	38.46%	2	28.57%
Monthly	11	42.31%	4	20%	6	27.27%	6	46.15%	1	14.29%
Quarterly	1	3.85%	6	30%	7	31.82%	1	7.69%	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Frequency of Providing Students Formative* Suggestions for Improving Writing Mechanics by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	4	15.38%	8	40%	-	-	-	-	-	-
Daily	2	7.69%	1	5%	5	22.73%	1	7.69%	2	28.57%
Weekly	12	46.15%	3	15%	12	54.55%	8	61.54%	2	28.57%
Monthly	6	23.08%	6	30%	4	18.18%	4	30.77%	2	28.57%
Quarterly	2	7.69%	2	10%	1	4.55%	-	-	1	14.29%
Total	26	100%	20	100%	22	100%	13	100%	7	100%

*Formative = during the writing process

Frequency of Providing Students Formative* Suggestions for Improving Writing Quality by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	1	3.85%	10	50%	1	4.55%	-	-	-	-
Daily	1	3.85%	1	5%	4	18.18%	1	7.69%	2	28.57%
Weekly	13	50%	3	15%	10	45.45%	7	53.85%	3	42.86%
Monthly	7	26.92%	4	20%	5	22.73%	5	38.46%	2	28.57%
Quarterly	4	15.38%	2	10%	2	9.09%	-	-	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

*Formative = during the writing process

Frequency of Providing Students Summative* Detailed Comments by Teacher

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	3	11.54%	4	20%	-	-	1	7.69%	-	-
Daily	-	-	1	5%	1	4.55%	-	-	-	-
Weekly	4	15.38%	5	25%	3	13.64%	1	7.69%	2	28.57%
Monthly	14	53.85%	8	40%	12	54.55%	7	53.85%	4	57.14%
Quarterly	5	19.23%	2	10%	6	27.27%	4	30.77%	1	14.29%
Total	26	100%	20	100%	22	100%	13	100%	7	100%

*Summative = after the final draft

Frequency of Providing Students Summative* Overall Score by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	1	3.85%	5	25%	-	-	-	-	-	-
Daily	1	3.85%	-	-	1	4.55%	-	-	-	-
Weekly	5	19.23%	6	30%	4	18.18%	1	7.69%	2	28.57%
Monthly	13	50%	6	30%	11	50%	8	61.54%	4	57.14%
Quarterly	6	23.08%	3	15%	6	27.27%	4	30.77%	1	14.29%
Total	26	100%	20	100%	22	100%	13	100%	7	100%

*Summative = after the final draft

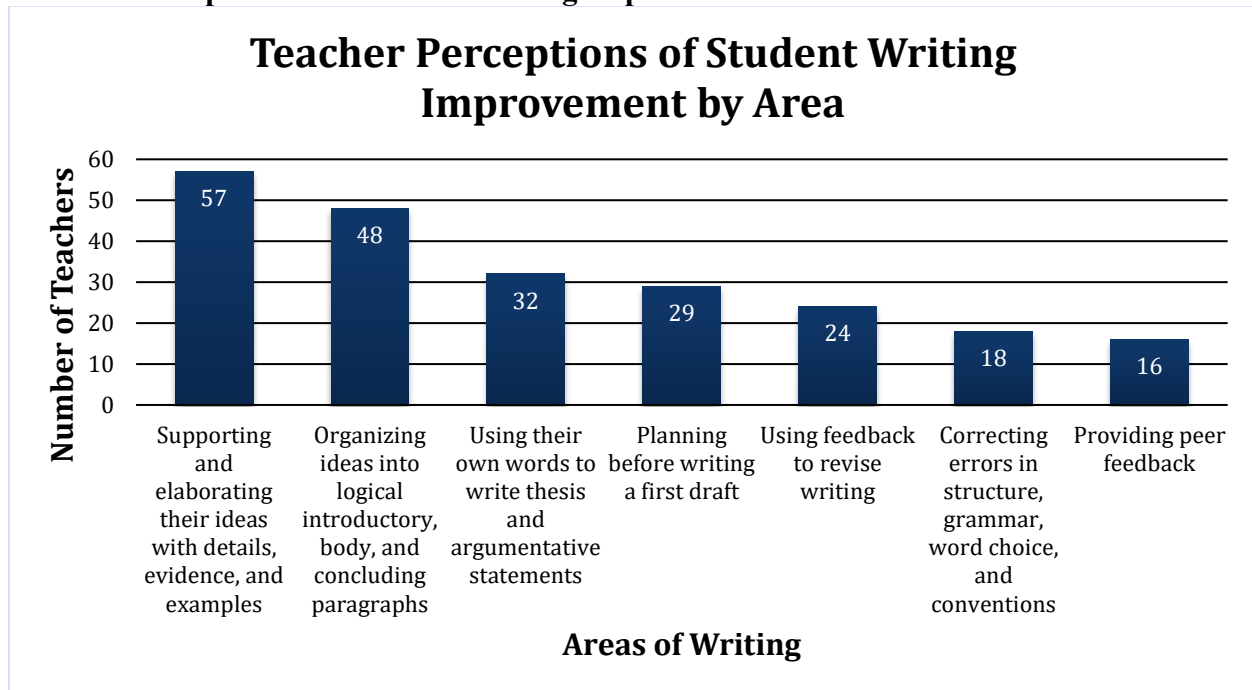
Frequency of Providing Students Peer Editing Feedback by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	12	46.15%	15	75%	4	18.18%	2	15.38%	4	57.14%
Daily	1	3.85%	1	5%	-	-	-	-	-	-
Weekly	3	11.54%	2	10%	6	27.27%	2	15.38%	-	-
Monthly	6	23.08%	1	5%	7	31.82%	6	46.15%	2	28.57%
Quarterly	4	15.38%	1	5%	5	22.73%	3	23.08%	1	14.29%
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Frequency of Providing Students Peer Revision Feedback by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Never	13	50%	17	85%	3	13.64%	3	23.08%	4	57.14%
Daily	1	3.85%	-	-	1	4.55%	-	-	-	-
Weekly	3	11.54%	2	10%	5	22.73%	2	15.38%	-	-
Monthly	4	15.38%	1	5%	7	31.82%	5	38.46%	1	14.29%
Quarterly	5	19.23%	-	-	6	27.27%	3	23.08%	2	28.57%
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Teacher Perceptions of Students' Writing Improvement



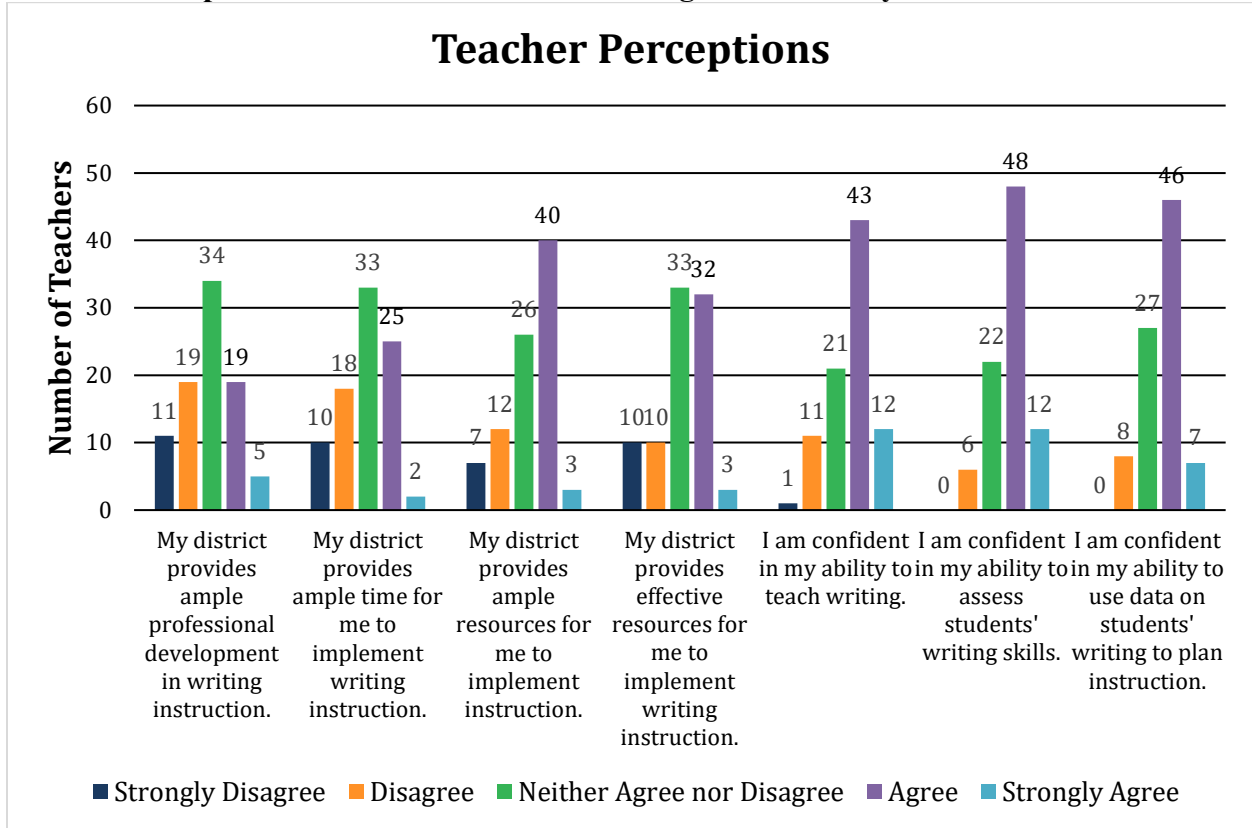


Student Reading Success Through Research and Collaboration

Teacher Perceptions of Students' Writing Improvement by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Organizing ideas into logical introductory, body, and concluding paragraphs	12	22.22%	5	13.89%	16	20.78%	11	27.50%	4	23.53%
Supporting and elaborating their ideas with details, evidence, and examples	15	27.78%	12	33.33%	19	24.68%	9	22.50%	2	11.76%
Using their own words to write thesis and argumentative statements	9	16.67%	8	22.22%	7	9.09%	6	15.00%	2	11.76%
Planning before writing a first draft	6	11.11%	2	5.56%	13	16.88%	5	12.50%	3	17.65%
Providing peer feedback	5	9.26%	3	8.33%	5	6.49%	2	5.00%	1	5.88%
Correcting errors in structure, grammar, word choice, and conventions	4	7.41%	3	8.33%	6	7.79%	3	7.50%	2	11.76%
Using feedback to revise writing	3	5.56%	3	8.33%	11	14.29%	4	10.00%	3	17.65%

Teacher Perceptions of and Confidence in Writing Instruction by Role



Teacher Perceptions of Whether There Is Ample Writing Professional Development by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Strongly Agree	-	-	-	-	3	13.64%	1	7.69%	1	14.29%
Agree	7	26.92%	3	15%	5	22.73%	3	23.08%	1	14.29%
Neither Agree nor Disagree	9	34.62%	10	50%	7	31.82%	3	23.08%	5	71.43%
Disagree	7	26.92%	3	15%	5	22.73%	4	30.77%	-	-
Strongly Disagree	3	11.54%	4	20%	2	9.09%	2	15.38%	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Teacher Perceptions of Whether There Is Ample Time for Implementing Writing Instruction by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Strongly Agree	-	-	-	-	1	4.55%	1	7.69%	-	-
Agree	6	23.08%	4	20%	10	45.45%	3	23.08%	2	28.57%
Neither Agree nor Disagree	12	46.15%	11	55%	4	18.18%	1	7.69%	5	71.43%
Disagree	6	23.08%	2	10%	6	27.27%	4	30.77%	-	-
Strongly Disagree	2	7.69%	3	15%	1	4.55%	4	30.77%	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Teacher Perceptions of Whether There Are Ample Resources for Writing Instruction by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Strongly Agree	1	3.85%	-	-	1	4.55%	1	7.69%	-	-
Agree	11	42.31%	6	30%	14	63.64%	4	30.77%	5	71.43%
Neither Agree nor Disagree	7	26.92%	12	60%	2	9.09%	3	23.08%	2	28.57%
Disagree	5	19.23%	1	5%	4	18.18%	2	15.38%	-	-
Strongly Disagree	2	7.69%	1	5%	1	4.55%	3	23.08%	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Teacher Perceptions of Whether There Are Effective Resources for Implementing Writing Instruction by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Strongly Agree	-	-	-	-	1	4.55%	1	7.69%	1	14.29%
Agree	8	30.77%	4	20%	14	63.64%	4	30.77%	2	28.57%
Neither Agree nor Disagree	11	42.31%	11	55%	3	13.64%	4	30.77%	4	57.14%
Disagree	5	19.23%	1	5%	3	13.64%	1	7.69%	-	-
Strongly Disagree	2	7.69%	4	20%	1	4.55%	3	23.08%	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Teacher Confidence in Implementing Writing Instruction by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Strongly Agree	1	3.85%	-	-	9	40.91%	2	15.38%	-	-
Agree	14	53.85%	8	40%	8	36.36%	8	61.54%	5	71.43%
Neither Agree nor Disagree	6	23.08%	9	45%	3	13.64%	1	7.69%	2	28.57%
Disagree	5	19.23%	2	10%	2	9.09%	2	15.38%	-	-
Strongly Disagree	-	-	1	5%	-	-	-	-	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

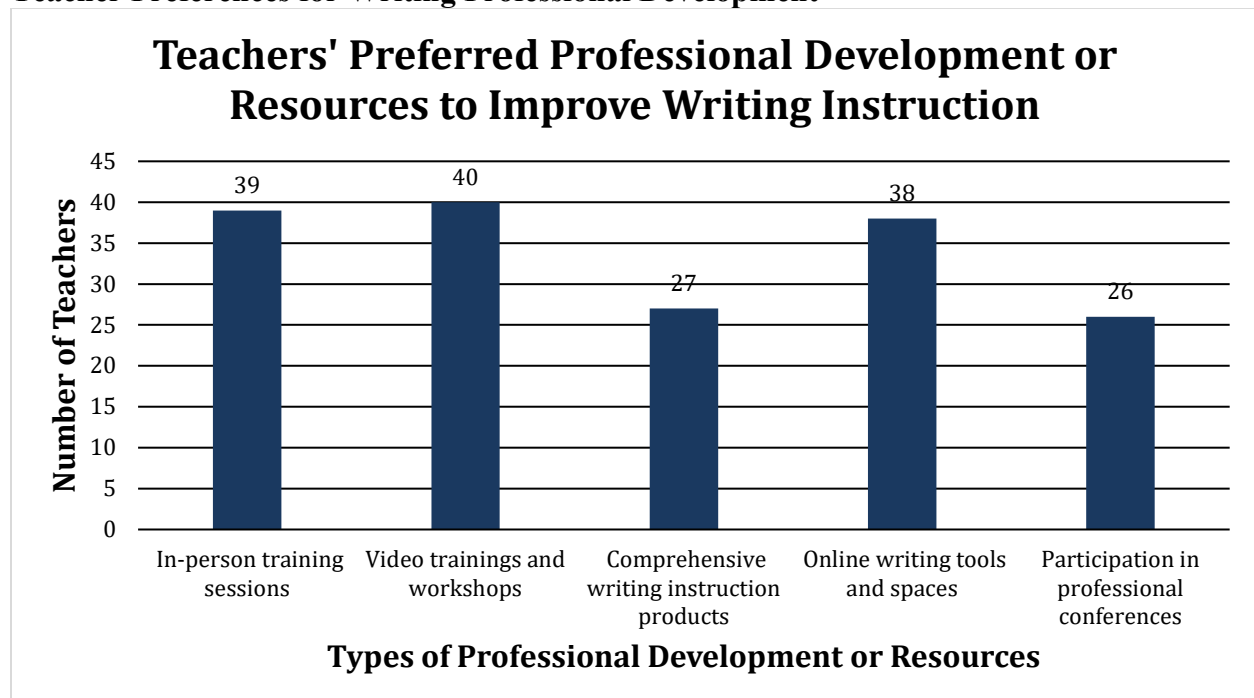
Teacher Confidence in Assessing Writing Instruction by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Strongly Agree	-	-	-	-	10	45.45%	2	15.38%	-	-
Agree	16	61.54%	8	40%	10	45.45%	9	69.23%	5	71.43%
Neither Agree nor Disagree	6	23.08%	12	60%	1	4.55%	1	7.69%	2	28.57%
Disagree	4	15.38%	-	-	1	4.55%	1	7.69%	-	-
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Teacher Confidence in Using Data to Plan Writing Instruction by Teacher Role

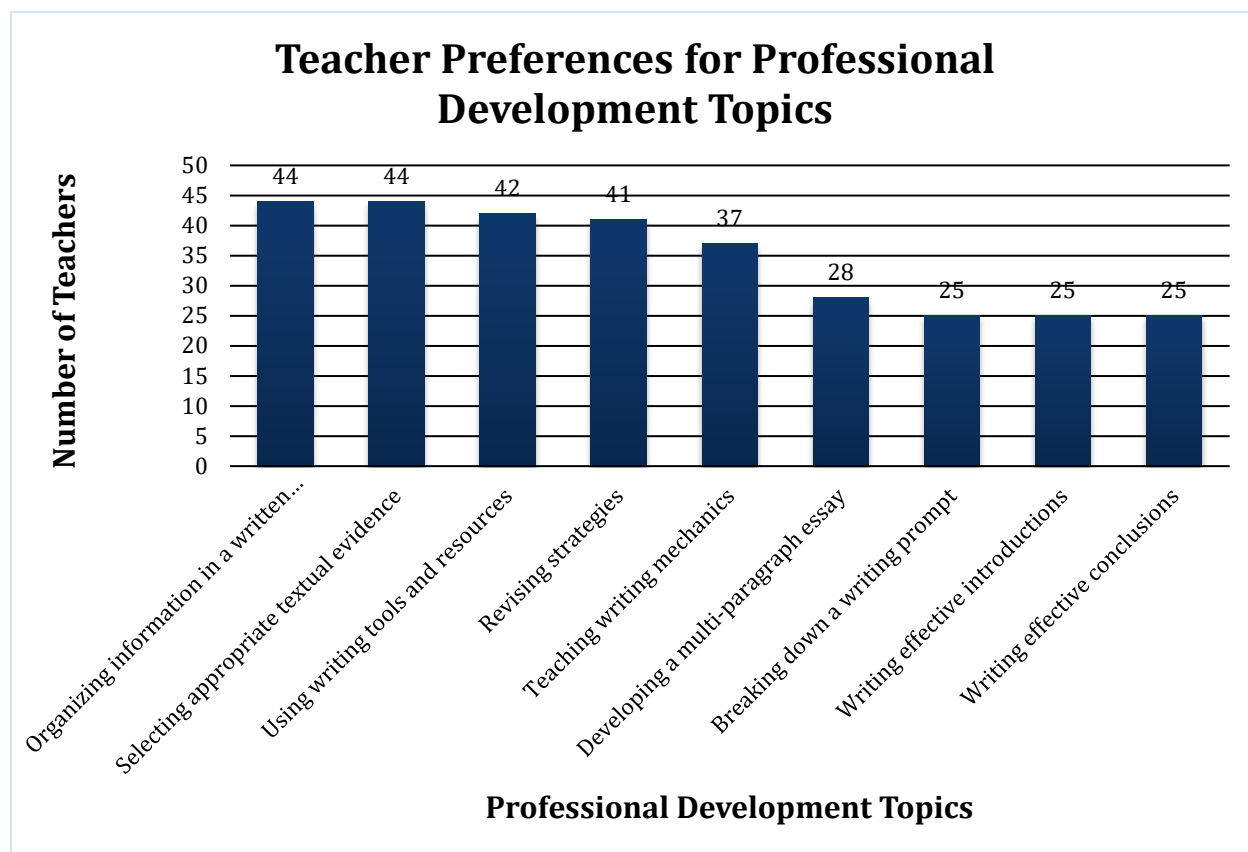
	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Strongly Agree	-	-	1	5%	4	18.18%	2	15.38%	-	-
Agree	13	50%	7	35%	15	68.18%	8	61.54%	3	42.86%
Neither Agree nor Disagree	11	42.31%	10	50%	2	9.09%	1	7.69%	3	42.86%
Disagree	2	7.69%	2	10%	1	4.55%	2	15.38%	1	14.29%
Total	26	100%	20	100%	22	100%	13	100%	7	100%

Teacher Preferences for Writing Professional Development



Teacher Preferences for Future Professional Development or Resources by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
In-person training sessions	13	27.08%	11	25%	5	11.36%	7	29.17%	3	30%
Video trainings and workshops	8	16.67%	14	31.82%	12	27.27%	5	20.83%	1	10%
Participation in professional conferences	9	18.75%	3	6.82%	8	18.18%	4	16.67%	2	20%
Comprehensive writing instruction products	7	14.58%	6	13.64%	10	22.73%	2	8.33%	2	20%
Online writing tools and spaces	11	22.92%	10	22.73%	9	20.45%	6	25%	2	20%





Student Reading Success Through Research and Collaboration

Teacher Preferences for Future Professional Development Topics by Teacher Role

	Social Studies Count	Social Studies Percent	Science Count	Science Percent	ELA High Count	ELA High Percent	ELA Middle Count	ELA Middle Percent	Other Count	Other Percent
Breaking down a writing prompt	8	8.16%	4	5.8%	5	5.95%	6	13.95%	2	11.76%
Writing effective introductions	11	11.22%	5	7.25%	5	5.95%	2	4.65%	2	11.76%
Developing a multi-paragraph essay	10	10.2%	5	7.25%	5	5.95%	4	9.3%	4	23.53%
Organizing information in a written response	14	14.29%	14	20.29%	11	13.1%	4	9.3%	1	5.88%
Selecting appropriate textual evidence	16	16.33%	12	17.39%	10	11.9%	4	9.3%	2	11.76%
Writing effective conclusions	10	10.2%	9	13.04%	5	5.95%	1	2.33%	0	0%
Teaching writing mechanics	11	11.22%	5	7.25%	13	15.48%	6	13.95%	2	11.76%
Revising strategies	9	9.18%	7	10.14%	15	17.86%	8	18.6%	2	11.76%
Using writing tools and resources	9	9.18%	8	11.59%	15	17.86%	8	18.6%	2	11.76%



Appendix C

Correlations Among Score Types by Grade, Wave, and Rubric Criterion

Task

Grade	Wave	IRRC & Teacher	IRRC & RA	RA & Teacher
7	1	0.49	0.58	0.68
8	1	0.57	0.54	0.54
9	1	0.54	0.58	0.53
10	1	0.45	0.49	0.49
11	1	0.57	0.44	0.56
7	2	0.49	0.55	0.59
8	2	0.54	0.52	0.49
9	2	0.41	0.53	0.39
10	2	0.53	0.50	0.58
11	2	0.59	0.54	0.48

Development

Grade	Wave	IRRC & Teacher	IRRC & RA	RA & Teacher
7	1	0.50	0.55	0.63
8	1	0.60	0.54	0.54
9	1	0.55	0.54	0.59
10	1	0.52	0.59	0.49
11	1	0.55	0.58	0.59
7	2	0.49	0.48	0.63
8	2	0.51	0.61	0.52
9	2	0.52	0.61	0.54
10	2	0.52	0.52	0.63
11	2	0.63	0.61	0.64



Student Reading Success Through Research and Collaboration

Organization

Grade	Wave	IRRC & Teacher	IRRC & RA	RA & Teacher
7	1	0.56	0.61	0.66
8	1	0.57	0.52	0.60
9	1	0.53	0.52	0.57
10	1	0.47	0.55	0.55
11	1	0.43	0.46	0.53
7	2	0.56	0.61	0.59
8	2	0.50	0.60	0.57
9	2	0.56	0.61	0.49
10	2	0.53	0.51	0.60
11	2	0.60	0.49	0.51

Language

Grade	Wave	IRRC & Teacher	IRRC & RA	RA & Teacher
7	1	0.47	0.57	0.58
8	1	0.50	0.49	0.52
9	1	0.58	0.45	0.57
10	1	0.46	0.54	0.53
11	1	0.45	0.52	0.52
7	2	0.50	0.52	0.58
8	2	0.50	0.52	0.56
9	2	0.52	0.57	0.46
10	2	0.55	0.53	0.59
11	2	0.56	0.54	0.60



Student Reading Success Through Research and Collaboration

Distribution of Score Types

Winter Rubric Scores

Grade	Component	Scoring Method	Score Counts/Percentages							Mean Score	Mean Score Trunc.	# of Outcomes
			0	1	2	3	4	5				
7	Task	IRRC	N 79 % 0.2	53 0.13	100 0.25	113 0.29	44 0.11	4 0.01	2.01	1.99	393	
		Teacher	N 54 % 0.15	67 0.19	67 0.19	84 0.23	47 0.13	43 0.12	2.36	2.33	362	
		RA Electronic	N 0 % 0	108 0.38	95 0.34	73 0.26	7 0.02	0 0	1.93	1.88	283	
	Development	IRRC	N 79 % 0.2	35 0.09	116 0.3	111 0.28	46 0.12	6 0.02	2.07	2.07	393	
		Teacher	N 54 % 0.15	61 0.17	79 0.22	71 0.2	60 0.17	37 0.1	2.37	2.33	362	
		RA Electronic	N 0 % 0	100 0.35	137 0.48	44 0.16	2 0.01	0 0	1.82	1.76	283	
	Organization	IRRC	N 79 % 0.2	53 0.13	77 0.2	139 0.35	40 0.1	5 0.01	2.06	2.06	393	
		Teacher	N 54 % 0.15	54 0.15	67 0.19	82 0.23	79 0.22	26 0.07	2.43	2.45	362	
		RA Electronic	N 0 % 0	70 0.25	104 0.37	103 0.36	6 0.02	0 0	2.16	2.17	283	
	Language	IRRC	N 79 % 0.2	47 0.12	108 0.27	122 0.31	30 0.08	7 0.02	1.99	1.98	393	
		Teacher	N 54 % 0.15	44 0.12	76 0.21	76 0.21	68 0.19	44 0.12	2.53	2.54	362	
		RA Electronic	N 0 % 0	69 0.24	90 0.32	116 0.41	8 0.03	0 0	2.22	2.24	283	
8	Task	IRRC	N 15 % 0.03	65 0.14	137 0.3	166 0.37	70 0.15	1 0	2.47	2.5	454	
		Teacher	N 7 % 0.02	27 0.06	75 0.17	152 0.34	133 0.29	58 0.13	3.22	3.26	452	
		RA Electronic	N 0 % 0	47 0.14	170 0.5	110 0.32	12 0.04	0 0	2.26	2.27	339	
	Development	IRRC	N 15 % 0.03	76 0.17	169 0.37	151 0.33	42 0.09	1 0	2.29	2.28	454	
		Teacher	N 7 % 0.02	40 0.09	104 0.23	156 0.35	112 0.25	33 0.07	2.94	2.98	452	
		RA Electronic	N 0 % 0	51 0.15	178 0.53	98 0.29	12 0.04	0 0	2.21	2.22	339	
	Organization	IRRC	N 15 % 0.03	95 0.21	123 0.27	153 0.34	67 0.15	1 0	2.36	2.37	454	
		Teacher	N 7 % 0.02	46 0.1	82 0.18	129 0.28	130 0.28	58 0.13	3.11	3.16	452	



Student Reading Success Through Research and Collaboration

Grade	Component	Scoring Method	Score Counts/Percentages							Mean Score	Mean Score Trunc.	# of Outcomes
			0	1	2	3	4	5				
9	Language	RA Electronic	%	0.02	0.1	0.18	0.29	0.29	0.13	2.54	2.58	339
			N	0	27	121	172	19	0			
		IRRC	N	15	89	128	165	55	2	2.36	2.36	454
			%	0.03	0.2	0.28	0.36	0.12	0			
		Teacher	N	7	37	90	120	155	43	3.12	3.18	452
			%	0.02	0.08	0.2	0.27	0.34	0.1			
	RA Electronic	N	0	27	135	158	19	0	2.5	2.53	339	
		%	0	0.08	0.4	0.47	0.06	0				
	Task	IRRC	N	27	66	92	105	41	4	2.24	2.26	335
			%	0.08	0.2	0.27	0.31	0.12	0.01			
		Teacher	N	32	52	50	74	83	33	2.69	2.73	324
			%	0.1	0.16	0.15	0.23	0.26	0.1			
		RA Electronic	N	0	33	123	120	3	0	2.33	2.4	279
			%	0	0.12	0.44	0.43	0.01	0			
	Development	IRRC	N	27	97	84	99	27	1	2.01	2.01	335
			%	0.08	0.29	0.25	0.3	0.08	0			
		Teacher	N	32	67	76	71	53	25	2.37	2.37	324
			%	0.1	0.21	0.23	0.22	0.16	0.08			
		RA Electronic	N	0	43	130	103	3	0	2.24	2.28	279
			%	0	0.15	0.47	0.37	0.01	0			
	Organization	IRRC	N	27	95	58	99	49	7	2.21	2.21	335
			%	0.08	0.28	0.17	0.3	0.15	0.02			
		Teacher	N	32	76	68	62	63	23	2.36	2.36	324
			%	0.1	0.23	0.21	0.19	0.19	0.07			
RA Electronic		N	0	27	91	146	15	0	2.53	2.6	279	
		%	0	0.1	0.33	0.52	0.05	0				
Language	IRRC	N	27	52	85	120	45	6	2.36	2.41	335	
		%	0.08	0.16	0.25	0.36	0.13	0.02				
	Teacher	N	32	55	78	75	54	30	2.48	2.48	324	
		%	0.1	0.17	0.24	0.23	0.17	0.09				
	RA Electronic	N	0	16	83	167	13	0	2.63	2.68	279	
		%	0	0.06	0.3	0.6	0.05	0				
Task	IRRC	N	19	35	121	105	73	20	2.64	2.67	373	
		%	0.05	0.09	0.32	0.28	0.2	0.05				
	Teacher	N	17	35	119	96	63	38	2.73	2.72	368	
		%	0.05	0.1	0.32	0.26	0.17	0.1				
	RA Electronic	N	0	67	107	146	33	0	2.41	2.4	353	
		%	0	0.19	0.3	0.41	0.09	0				
Development	IRRC	N	19	42	113	121	63	15	2.57	2.6	373	
		%	0.05	0.11	0.3	0.32	0.17	0.04				
	Teacher	N	17	58	84	102	70	37	2.71	2.7	368	
		%	0.05	0.16	0.23	0.28	0.19	0.1				



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Grade	Component	Scoring Method	Score Counts/Percentages							Mean Score	Mean Score Trunc.	# of Outcomes
			0	1	2	3	4	5				
	Organization	RA Electronic	N	0	71	108	155	19	0	2.35	2.36	353
		%	0	0.2	0.31	0.44	0.05	0				
		IRRC	N	19	26	85	160	71	12	2.73	2.82	373
		%	0.05	0.07	0.23	0.43	0.19	0.03				
		Teacher	N	17	45	72	122	73	39	2.83	2.85	368
		%	0.05	0.12	0.2	0.33	0.2	0.11				
	RA Electronic	N	0	47	91	165	50	0	2.62	2.65	353	
	%	0	0.13	0.26	0.47	0.14	0					
	Language	IRRC	N	19	18	114	143	60	19	2.71	2.76	373
		%	0.05	0.05	0.31	0.38	0.16	0.05				
		Teacher	N	17	23	74	123	97	34	2.98	3.04	368
		%	0.05	0.06	0.2	0.33	0.26	0.09				
RA Electronic		N	0	40	103	163	47	0	2.61	2.64	353	
%		0	0.11	0.29	0.46	0.13	0					
11	Task	IRRC	N	21	18	67	127	60	3	2.66	2.78	296
		%	0.07	0.06	0.23	0.43	0.2	0.01				
		Teacher	N	18	19	46	95	75	44	3.08	3.18	297
	%	0.06	0.06	0.15	0.32	0.25	0.15					
	RA Electronic	N	0	30	138	134	17	0	2.43	2.47	319	
	%	0	0.09	0.43	0.42	0.05	0					
	Development	IRRC	N	21	28	90	113	42	2	2.45	2.52	296
		%	0.07	0.09	0.3	0.38	0.14	0.01				
		Teacher	N	18	47	71	69	71	21	2.64	2.67	297
	%	0.06	0.16	0.24	0.23	0.24	0.07					
	RA Electronic	N	0	42	133	112	32	0	2.42	2.4	319	
	%	0	0.13	0.42	0.35	0.1	0					
	Organization	IRRC	N	21	21	63	113	75	3	2.71	2.83	296
		%	0.07	0.07	0.21	0.38	0.25	0.01				
		Teacher	N	18	40	59	81	66	33	2.79	2.82	297
	%	0.06	0.13	0.2	0.27	0.22	0.11					
	RA Electronic	N	0	22	73	185	39	0	2.76	2.78	319	
	%	0	0.07	0.23	0.58	0.12	0					
Language	IRRC	N	21	13	62	109	75	16	2.85	2.96	296	
	%	0.07	0.04	0.21	0.37	0.25	0.05					
	Teacher	N	18	29	65	74	86	25	2.86	2.92	297	
%	0.06	0.1	0.22	0.25	0.29	0.08						
RA Electronic	N	0	22	88	146	63	0	2.78	2.82	319		
%	0	0.07	0.28	0.46	0.2	0						



Student Reading Success Through Research and Collaboration

Spring Rubric Scores

Grade	Component	Scoring Method	Score Counts / Percentages							Mean Score	Mean Score Trunc.	# of Outcomes
			0	1	2	3	4	5				
7	Task	IRRC	N	32	44	142	118	39	4	2.26	2.3	379
			%	0.08	0.12	0.37	0.31	0.1	0.01			
		Teacher	N	38	96	95	64	64	60	2.48	2.47	417
	%		0.09	0.23	0.23	0.15	0.15	0.14				
	RA Electronic	N	0	198	130	57	1	0	1.64	1.55	386	
		%	0	0.51	0.34	0.15	0	0				
		IRRC	N	32	56	160	101	26	4	2.12	2.14	379
	%		0.08	0.15	0.42	0.27	0.07	0.01				
	Development	Teacher	N	38	67	111	67	77	57	2.6	2.61	417
			%	0.09	0.16	0.27	0.16	0.18	0.14			
		RA Electronic	N	0	216	120	50	0	0	1.57	1.46	386
	RA Electronic	%	0	0.56	0.31	0.13	0	0				
IRRC		N	32	71	132	109	30	5	2.13	2.13	379	
		%	0.08	0.19	0.35	0.29	0.08	0.01				
Organization	Teacher	N	38	66	96	84	94	39	2.59	2.61	417	
		%	0.09	0.16	0.23	0.2	0.23	0.09				
	RA Electronic	N	0	142	153	90	1	0	1.87	1.84	386	
RA Electronic	%	0	0.37	0.4	0.23	0	0					
	IRRC	N	32	51	108	121	58	9	2.39	2.44	379	
		%	0.08	0.13	0.28	0.32	0.15	0.02				
Language	Teacher	N	38	52	99	88	107	33	2.65	2.71	417	
		%	0.09	0.12	0.24	0.21	0.26	0.08				
	RA Electronic	N	0	152	153	81	0	0	1.82	1.77	386	
RA Electronic	%	0	0.39	0.4	0.21	0	0					
	IRRC	N	10	39	147	207	34	2	2.51	2.55	439	
		%	0.02	0.09	0.33	0.47	0.08	0				
Task	Teacher	N	18	44	64	81	137	86	3.24	3.35	430	
		%	0.04	0.1	0.15	0.19	0.32	0.2				
	RA Electronic	N	0	117	221	128	1	0	2.03	2.03	467	
RA Electronic	%	0	0.25	0.47	0.27	0	0					
	IRRC	N	10	108	198	102	18	3	2.04	2.01	439	
		%	0.02	0.25	0.45	0.23	0.04	0.01				
Development	Teacher	N	18	70	66	98	103	75	2.98	3.03	430	
		%	0.04	0.16	0.15	0.23	0.24	0.17				
	RA Electronic	N	0	130	220	112	5	0	1.98	1.97	467	
RA Electronic	%	0	0.28	0.47	0.24	0.01	0					
	IRRC	N	10	34	151	163	77	4	2.63	2.67	439	
		%	0.02	0.08	0.34	0.37	0.18	0.01				
Organization	Teacher	N	18	46	60	94	116	96	3.24	3.35	430	
		%	0.04	0.11	0.14	0.22	0.27	0.22				
	RA Electronic	N	0	78	131	246	12	0	2.41	2.48	467	
RA Electronic	%	0	0.18	0.34	0.53	0.03	0					



Student Reading Success Through Research and Collaboration

Grade	Component	Scoring Method	Score Counts / Percentages							Mean Score	Mean Score Trunc.	# of Outcomes
			0	1	2	3	4	5				
9	Language	IRRC	%	0	0.17	0.28	0.53	0.03	0	2.72	2.76	439
			N	10	26	116	218	63	6			
		Teacher	%	0.02	0.06	0.26	0.5	0.14	0.01	3.24	3.35	430
			N	18	40	57	93	150	72			
		RA Electronic	%	0	0.18	0.32	0.48	0.02	0	2.34	2.39	467
			N	0	85	149	222	11	0			
	Task	IRRC	%	0	0.17	0.32	0.48	0.02	0	2.53	2.58	363
			N	19	41	112	116	68	7			
		Teacher	%	0.05	0.11	0.31	0.32	0.19	0.02	3.05	3.12	384
			N	16	39	80	86	100	63			
		RA Electronic	%	0.04	0.1	0.21	0.22	0.26	0.16	2.21	2.23	452
			N	0	79	211	150	12	0			
	Development	IRRC	%	0	0.17	0.47	0.33	0.03	0	2.33	2.33	363
			N	19	60	118	120	39	7			
		Teacher	%	0.05	0.17	0.33	0.33	0.11	0.02	2.79	2.79	384
			N	16	64	83	90	85	46			
		RA Electronic	%	0.04	0.17	0.22	0.23	0.22	0.12	2.17	2.18	452
			N	0	84	218	140	10	0			
Organization	IRRC	%	0	0.19	0.48	0.31	0.02	0	2.75	2.86	363	
		N	19	35	81	117	105	6				
	Teacher	%	0	0.14	0.36	0.47	0.03	0	2.78	2.77	384	
		N	16	69	89	80	71	59				
	RA Electronic	%	0.04	0.18	0.23	0.21	0.18	0.15	2.39	2.45	452	
		N	0	63	163	211	15	0				
Language	IRRC	%	0	0.14	0.36	0.47	0.03	0	2.9	3.01	363	
		N	19	20	63	153	94	14				
	Teacher	%	0.05	0.06	0.17	0.42	0.26	0.04	2.67	2.64	384	
		N	16	67	93	100	68	40				
	RA Electronic	%	0.04	0.17	0.24	0.26	0.18	0.1	2.33	2.32	452	
		N	0	70	196	154	32	0				
10	Task	IRRC	%	0	0.15	0.43	0.34	0.07	0	3.23	3.27	417
			N	9	17	60	154	136	41			
		Teacher	%	0.02	0.04	0.14	0.37	0.33	0.1	3.18	3.22	422
			N	11	19	87	136	104	65			
		RA Electronic	%	0.03	0.05	0.21	0.32	0.25	0.15	2.29	2.28	456
			N	0	76	201	148	31	0			
	Development	IRRC	%	0	0.17	0.44	0.32	0.07	0	3.06	3.09	417
			N	9	17	80	174	108	29			
		Teacher	%	0.02	0.04	0.19	0.42	0.26	0.07	3.1	3.16	422
			N	11	33	100	102	109	67			
		RA Electronic	%	0.03	0.08	0.24	0.24	0.26	0.16	2.21	2.21	456
			N	0	79	221	135	21	0			
			%	0	0.17	0.48	0.3	0.05	0			



Student Reading Success Through Research and Collaboration

Grade	Component	Scoring Method	Score Counts / Percentages							Mean Score	Mean Score Trunc.	# of Outcomes	
			0	1	2	3	4	5					
	Organization	IRRC	N %	9 0.02	23 0.06	90 0.22	144 0.35	118 0.28	33 0.08	3.05	3.09	417	
		Teacher	N %	11 0.03	42 0.1	88 0.21	106 0.25	98 0.23	77 0.18	3.11	3.17	422	
		RA Electronic	N %	0 0	44 0.1	168 0.37	224 0.49	20 0.04	0 0	2.48	2.54	456	
	Language	IRRC	N %	9 0.02	15 0.04	60 0.14	166 0.4	137 0.33	30 0.07	3.19	3.25	417	
		Teacher	N %	11 0.03	22 0.05	63 0.15	136 0.32	142 0.34	48 0.11	3.23	3.3	422	
		RA Electronic	N %	0 0	64 0.14	175 0.38	167 0.37	50 0.11	0 0	2.45	2.43	456	
	11	Task	IRRC	N %	30 0.09	23 0.07	66 0.19	109 0.31	116 0.33	8 0.02	2.8	2.95	352
			Teacher	N %	36 0.1	43 0.11	56 0.15	66 0.18	85 0.23	90 0.24	3.04	3.17	376
			RA Electronic	N %	0 0	8 0.03	78 0.25	178 0.57	46 0.15	0 0	2.85	2.84	310
Development		IRRC	N %	30 0.09	35 0.1	95 0.27	120 0.34	66 0.19	6 0.02	2.5	2.58	352	
		Teacher	N %	36 0.1	61 0.16	62 0.16	76 0.2	81 0.22	60 0.16	2.76	2.82	376	
		RA Electronic	N %	0 0	10 0.03	101 0.33	150 0.48	49 0.16	0 0	2.77	2.75	310	
Organization		IRRC	N %	30 0.09	37 0.11	51 0.14	90 0.26	137 0.39	7 0.02	2.82	2.98	352	
		Teacher	N %	36 0.1	44 0.12	50 0.13	67 0.18	78 0.21	101 0.27	3.09	3.23	376	
		RA Electronic	N %	0 0	8 0.03	47 0.15	186 0.6	69 0.22	0 0	3.02	3.06	310	
Language		IRRC	N %	30 0.09	28 0.08	55 0.16	121 0.34	104 0.3	14 0.04	2.8	2.94	352	
		Teacher	N %	36 0.1	49 0.13	45 0.12	84 0.22	112 0.3	50 0.13	2.9	2.99	376	
		RA Electronic	N %	0 0	10 0.03	45 0.15	174 0.56	81 0.26	0 0	3.05	3.1	310	



Appendix D

Growth Models by Score Type and Rubric Criterion

Task: IRRC Scores

	Variance	Std. Dev.	
Random effects:			
Classroom (Intercept)	0.699	0.836	
	Estimated Rate of Change	Std. Error	z-value
Coefficients:			
Grade 8	0.394	0.381	1.037
Grade 9	-0.269	0.501	-0.538
Grade 10	-0.257	0.482	-0.532
Grade 11	0.421	0.503	0.838
EL	-1.153***	0.171	-6.733
FRL	-0.251***	0.071	-3.527
Special Ed	-1.324***	0.112	-11.830
Grade 7: Wave	0.244	0.156	1.560
Grade 8: Wave	0.033	0.129	0.258
Grade 9: Wave	0.541*	0.260	2.079
Grade 10: Wave	1.262***	0.243	5.191
Grade 11: Wave	0.692**	0.260	2.658

Note. *** = 0.001; ** = 0.01; * = 0.05

Threshold coefficients:

	Estimate	Std. Error	z-value
1 2	-2.075	0.294	-7.059
2 3	-0.002	0.291	-0.005
3 4	2.067	0.294	7.033
4 5	4.716	0.313	15.061



Task: Teacher Scores

	Variance	Std. Dev.	
Random effects:			
Classroom (Intercept)	1.022	1.011	
	Estimated Rate of Change	Std. Error	z-value
Coefficients:			
Grade 8	1.210**	0.398	3.042
Grade 9	0.405	0.544	0.744
Grade 10	-0.117	0.522	-0.225
Grade 11	1.152*	0.547	2.105
EL	-0.692***	0.163	-4.248
FRL	-0.349***	0.069	-5.058
Special Ed	-1.248***	0.108	-11.541
Grade 7: Wave	0.167	0.151	1.109
Grade 8: Wave	0.202	0.126	1.597
Grade 9: Wave	0.505	0.285	1.771
Grade 10: Wave	0.798**	0.267	2.984
Grade 11: Wave	0.327	0.288	1.136

Note. *** = 0.001; ** = 0.01; * = 0.05

Threshold coefficients:

	Estimate	Std. Error	z-value
1 2	-1.709	0.306	-5.594
2 3	-0.093	0.304	-0.305
3 4	1.325	0.305	4.345
4 5	2.903	0.308	9.416



Student Reading Success Through Research and Collaboration

Task: RA Electronic Scores

	Variance	Std. Dev.	
Random effects:			
Classroom (Intercept)	0.573	0.757	
	Estimated Rate of Change	Std. Error	z-value
Coefficients:			
Grade 8	1.121**	0.424	2.647
Grade 9	1.405**	0.522	2.691
Grade 10	1.499**	0.504	2.977
Grade 11	0.316	0.521	0.606
EL	-0.445*	0.186	-2.400
FRL	-0.226**	0.077	-2.950
Special Ed	-1.411***	0.122	-11.580
Grade 7: Wave	-0.236	0.186	-1.269
Grade 8: Wave	-0.313*	0.142	-2.206
Grade 9: Wave	-0.136	0.249	-0.547
Grade 10: Wave	-0.194	0.235	-0.823
Grade 11: Wave	1.164***	0.256	4.546

Note. *** = 0.001; ** = 0.01; * = 0.05

Threshold coefficients:

	Estimate	Std. Error	z-value
1 2	-1.414	0.332	-4.255
2 3	1.088	0.333	3.269
3 4	4.231	0.347	12.206



Development: IRRC Scores

	Variance	Std. Dev.	
Random effects:			
Classroom (Intercept)	0.750	0.866	
	Estimated Rate of Change	Std. Error	z-value
Coefficients:			
Grade 8	-0.022	0.385	-0.058
Grade 9	-1.472**	0.512	-2.874
Grade 10	-0.921	0.490	-1.879
Grade 11	-0.298	0.513	-0.582
EL	-1.039***	0.176	-5.903
FRL	-0.230**	0.072	-3.207
Special Ed	-1.465***	0.113	-12.930
Grade 7: Wave	-0.273	0.157	-1.742
Grade 8: Wave	-0.597***	0.132	-4.531
Grade 9: Wave	0.576*	0.267	2.153
Grade 10: Wave	1.059***	0.248	4.267
Grade 11: Wave	0.321	0.266	1.207

Note. *** = 0.001; ** = 0.01; * = 0.05

Threshold coefficients:

	Estimate	Std. Error	z-value
1 2	-2.835	0.298	-9.512
2 3	-0.655	0.294	-2.230
3 4	1.473	0.296	4.982
4 5	3.874	0.318	12.199



Development: Teacher Scores

	Variance	Std. Dev.	
Random effects:			
Classroom (Intercept)	0.946	0.973	
	Estimated Rate of Change	Std. Error	z-value
Coefficients:			
Grade 8	0.564	0.386	1.460
Grade 9	-0.391	0.531	-0.736
Grade 10	-0.140	0.509	-0.275
Grade 11	-0.205	0.534	-0.384
EL	-0.602***	0.165	-3.660
FRL	-0.360***	0.069	-5.224
Special Ed	-1.342***	0.109	-12.353
Grade 7: Wave	0.239	0.146	1.634
Grade 8: Wave	0.177	0.126	1.406
Grade 9: Wave	0.602*	0.279	2.160
Grade 10: Wave	0.688**	0.262	2.628
Grade 11: Wave	0.658*	0.281	2.343

Note. *** = 0.001; ** = 0.01; * = 0.05

Threshold coefficients:

	Estimate	Std. Error	z-value
1 2	-1.755	0.296	-5.928
2 3	-0.195	0.295	-0.663
3 4	1.156	0.295	3.915
4 5	2.774	0.299	9.277



Development: RA Electronic Scores

	Variance	Std. Dev.	
Random effects:			
Classroom (Intercept)	0.551	0.742	
	Estimated Rate of Change	Std. Error	z-value
Coefficients:			
Grade 8	1.259**	0.419	3.006
Grade 9	1.211*	0.516	2.346
Grade 10	1.568**	0.494	3.174
Grade 11	0.807	0.520	1.551
EL	-0.473*	0.186	-2.542
FRL	-0.260***	0.077	-3.390
Special Ed	-1.435***	0.123	-11.660
Grade 7: Wave	-0.275	0.185	-1.486
Grade 8: Wave	-0.347*	0.144	-2.418
Grade 9: Wave	0.012	0.247	0.047
Grade 10: Wave	-0.219	0.231	-0.946
Grade 11: Wave	0.910***	0.255	3.565

Note. *** = 0.001; ** = 0.01; * = 0.05

Threshold coefficients:

	Estimate	Std. Error	z-value
1 2	-1.301	0.326	-3.994
2 3	1.320	0.327	4.035
3 4	4.269	0.341	12.526



Organization: IRRC Scores

	Variance	Std. Dev.	
Random effects:			
Classroom (Intercept)	0.752	0.867	
	Estimated Rate of Change	Std. Error	z-value
Coefficients:			
Grade 8	-0.888*	0.383	-2.321
Grade 9	-1.502**	0.513	-2.930
Grade 10	-0.039	0.485	-0.081
Grade 11	-0.025	0.509	-0.050
EL	-1.144***	0.173	-6.614
FRL	-0.353***	0.072	-4.932
Special Ed	-1.461***	0.113	-12.985
Grade 7: Wave	-0.141	0.155	-0.910
Grade 8: Wave	0.526***	0.130	4.055
Grade 9: Wave	1.123***	0.269	4.174
Grade 10: Wave	0.639**	0.246	2.597
Grade 11: Wave	0.669*	0.266	2.518

Note. *** = 0.001; ** = 0.01; * = 0.05

Threshold coefficients:

	Estimate	Std. Error	z-value
1 2	-2.474	0.294	-8.421
2 3	-0.670	0.290	-2.310
3 4	1.349	0.291	4.634
4 5	4.278	0.313	13.66



Organization: Teacher Scores

	Variance	Std. Dev.	
Random effects:			
Classroom (Intercept)	0.967	0.983	
	Estimated Rate of Change	Std. Error	z-value
Coefficients:			
Grade 8	0.363	0.387	0.937
Grade 9	-0.797	0.532	-1.498
Grade 10	-0.022	0.508	-0.044
Grade 11	-0.472	0.533	-0.886
EL	-0.733***	0.165	-4.448
FRL	-0.373***	0.069	-5.416
Special Ed	-1.346***	0.109	-12.391
Grade 7: Wave	0.073	0.144	0.509
Grade 8: Wave	0.348**	0.127	2.742
Grade 9: Wave	0.642*	0.281	2.283
Grade 10: Wave	0.495	0.262	1.884
Grade 11: Wave	0.989***	0.283	3.499

Note. *** = 0.001; ** = 0.01; * = 0.05

Threshold coefficients:

	Estimate	Std. Error	z-value
1 2	-2.024	0.295	-6.865
2 3	-0.565	0.292	-1.931
3 4	0.781	0.293	2.670
4 5	2.353	0.296	7.957



Organization: RA Electronic Scores

	Variance	Std. Dev.	
Random effects:			
Classroom (Intercept)	0.536	0.732	
	Estimated Rate of Change	Std. Error	z-value
Coefficients:			
Grade 8	0.887*	0.418	2.121
Grade 9	1.475**	0.517	2.852
Grade 10	1.676***	0.497	3.374
Grade 11	1.092*	0.521	2.094
EL	-0.504**	0.185	-2.728
FRL	-0.262***	0.079	-3.322
Special Ed	-1.602***	0.120	-13.305
Grade 7: Wave	-0.192	0.180	-1.067
Grade 8: Wave	0.044	0.147	0.300
Grade 9: Wave	-0.265	0.245	-1.065
Grade 10: Wave	-0.315	0.234	-1.350
Grade 11: Wave	0.773**	0.258	2.994

Note. *** = 0.001; ** = 0.01; * = 0.05

Threshold coefficients:

	Estimate	Std. Error	z-value
1 2	-2.063	0.324	-6.361
2 3	0.241	0.322	0.751
3 4	3.722	0.333	11.167



Language: IRRC Scores

	Variance	Std. Dev.	
Random effects:			
Classroom (Intercept)	0.573	0.757	
	Estimated Rate of Change	Std. Error	z-value
Coefficients:			
Grade 8	-0.088	0.377	-0.234
Grade 9	-0.085	0.479	-0.177
Grade 10	0.557	0.461	1.206
Grade 11	1.919***	0.486	3.947
EL	-1.186***	0.171	-6.929
FRL	-0.374***	0.072	-5.210
Special Ed	-1.594***	0.112	-14.265
Grade 7: Wave	0.678***	0.160	4.232
Grade 8: Wave	0.805***	0.132	6.085
Grade 9: Wave	1.134***	0.245	4.628
Grade 10: Wave	1.056***	0.228	4.630
Grade 11: Wave	0.177	0.247	0.717

Note. *** = 0.001; ** = 0.01; * = 0.05

Threshold coefficients:

	Estimate	Std. Error	z-value
1 2	-1.693	0.291	-5.820
2 3	0.340	0.288	1.180
3 4	2.591	0.293	8.845
4 5	5.021	0.308	16.307



Language: Teacher Scores

	Variance	Std. Dev.	
Random effects:			
Classroom (Intercept)	0.863	0.929	
	Estimated Rate of Change	Std. Error	z-value
Coefficients:			
Grade 8	0.041	0.386	0.105
Grade 9	-0.484	0.520	-0.931
Grade 10	-0.091	0.498	-0.183
Grade 11	0.234	0.525	0.446
EL	-0.733***	0.168	-4.352
FRL	-0.401***	0.069	-5.798
Special Ed	-1.632***	0.110	-14.873
Grade 7: Wave	-0.019	0.148	-0.130
Grade 8: Wave	0.428***	0.128	3.344
Grade 9: Wave	0.206	0.272	0.759
Grade 10: Wave	0.451	0.253	1.783
Grade 11: Wave	0.173	0.274	0.631

Note. *** = 0.001; ** = 0.01; * = 0.05

Threshold coefficients:

	Estimate	Std. Error	z-value
1 2	-2.704	0.298	-9.064
2 3	-1.010	0.295	-3.429
3 4	0.478	0.295	1.622
4 5	2.455	0.298	8.235



Language: RA Electronic Scores

	Variance	Std. Dev.	
Random effects:			
Classroom (Intercept)	0.575	0.758	
	Estimated Rate of Change	Std. Error	z-value
Coefficients:			
Grade 8	0.384	0.418	0.918
Grade 9	1.688**	0.521	3.242
Grade 10	1.179*	0.499	2.363
Grade 11	0.676	0.523	1.293
EL	-0.242	0.184	-1.316
FRL	-0.189*	0.077	-2.464
Special Ed	-1.667***	0.121	-13.760
Grade 7: Wave	-0.489**	0.182	-2.691
Grade 8: Wave	-0.050	0.142	-0.354
Grade 9: Wave	-0.691**	0.251	-2.751
Grade 10: Wave	-0.373	0.236	-1.580
Grade 11: Wave	0.701**	0.258	2.719

Note. *** = 0.001; ** = 0.01; * = 0.05

Threshold coefficients:

	Estimate	Std. Error	z-value
1 2	-2.514	0.330	-7.623
2 3	-0.098	0.325	-0.303
3 4	2.921	0.334	8.752



Appendix E

Prediction Models

IRRC Scores

	Mean	Standard Error	Lower Bound	Upper Bound
Grade 7				
(Intercept)	438.400***	7.258	423.815	452.985
IRRC score	25.898***	3.148	19.573	32.223
EL	-29.101*	14.412	-58.062	-0.140
FRL	-13.722**	4.279	-22.320	-5.124
Special Ed	-32.850***	5.491	-43.884	-21.815
Grade 8				
(Intercept)	456.917***	7.661	441.523	472.312
IRRC score	30.433***	3.348	23.705	37.161
EL	-28.080**	10.466	-49.113	-7.047
FRL	-15.400***	4.071	-23.582	-7.219
Special Ed	-37.949***	8.655	-55.342	-20.557
Grade 9				
(Intercept)	462.557***	8.852	444.768	480.346
IRRC score	27.418***	3.268	20.850	33.986
EL	-24.897*	12.231	-49.475	-0.318
FRL	-9.470*	4.332	-18.175	-0.766
Special Ed	-20.147**	6.186	-32.578	-7.715
Grade 10				
(Intercept)	469.894***	12.617	444.539	495.248
IRRC score	34.888***	4.040	26.769	43.006
EL	-10.707	6.774	-24.321	2.907
FRL	-9.779*	4.151	-18.121	-1.437
Special Ed	-34.521***	6.340	-47.261	-21.781
Grade 11				
(Intercept)	506.620***	11.982	482.542	530.699
IRRC score	30.473***	3.766	22.905	38.040
EL	-40.917***	10.682	-62.383	-19.452
FRL	-9.689**	5.885	-21.516	2.138
Special Ed	-42.700**	15.278	-73.401	-11.998

Note. *** = 0.001; ** = 0.01; * = 0.05



Teacher Scores

	Mean	Standard Error	Lower Bound	Upper Bound
Grade 7				
(Intercept)	460.095***	6.252	447.531	472.660
Teacher score	15.142***	2.922	9.269	21.014
EL	-18.971	12.805	-44.704	6.761
FRL	-12.389**	4.054	-20.537	-4.242
Special Ed	-33.309***	8.263	-49.915	-16.703
Grade 8				
(Intercept)	450.586***	7.981	434.548	466.624
Teacher score	24.800***	2.236	20.307	29.294
EL	-30.131***	8.132	-46.473	-13.788
FRL	-8.987*	4.078	-17.181	-0.793
Special Ed	-28.013***	6.771	-41.620	-14.406
Grade 9				
(Intercept)	486.895***	10.355	466.087	507.703
Teacher score	17.706***	3.205	11.266	24.146
EL	-28.478**	8.690	-45.941	-11.016
FRL	-5.026	5.015	-15.105	5.053
Special Ed	-25.187*	11.321	-47.938	-2.436
Grade 10				
(Intercept)	515.320***	8.862	497.512	533.128
Teacher score	21.390***	2.849	15.664	27.116
EL	-23.286**	6.767	-36.884	-9.689
FRL	-14.213**	5.187	-24.655	-3.810
Special Ed	-47.213***	5.680	-58.627	-35.800
Grade 11				
(Intercept)	524.180***	9.576	504.936	543.423
Teacher score	22.580***	2.623	17.309	27.851
EL	-44.585***	11.165	-67.023	-22.148
FRL	-8.280	5.359	-19.049	2.488
Special Ed	-48.950***	10.528	-70.106	-27.794

Note. *** = 0.001; ** = 0.01; * = 0.05



Student Reading Success Through Research and Collaboration

RA Electronic Scores

	Mean	Standard Error	Lower Bound	Upper Bound
Grade 7				
(Intercept)	455.657***	6.891	441.809	469.504
RA score	24.446***	4.353	15.698	33.193
EL	-21.761	15.256	-52.424	8.902
FRL	-14.579**	4.382	-23.384	-5.774
Special Ed	-33.938***	6.667	-47.336	-20.540
Grade 8				
(Intercept)	462.494***	8.551	445.311	479.678
RA score	33.208***	4.506	24.153	42.263
EL	-33.982*	14.107	-62.332	-5.633
FRL	-15.212**	4.698	-24.653	-5.771
Special Ed	-33.506***	9.548	-52.693	-14.320
Grade 9				
(Intercept)	466.168***	12.988	440.070	492.267
RA score	31.645***	6.505	18.573	44.718
EL	-32.788**	9.857	-52.597	-12.979
FRL	-13.278*	5.486	-24.302	-2.254
Special Ed	-18.466	10.286	-39.137	2.205
Grade 10				
(Intercept)	523.570***	14.287	494.859	552.280
RA score	26.434***	4.587	17.217	35.651
EL	-26.415***	6.951	-40.382	-12.447
FRL	-14.353*	6.925	-28.269	-0.437
Special Ed	-56.073***	5.745	-67.618	-44.529
Grade 11				
(Intercept)	498.305***	14.782	468.599	528.011
RA score	33.898***	4.695	24.463	43.333
EL	-61.292***	8.672	-78.720	-43.864
FRL	-10.640	7.652	-26.018	4.738
Special Ed	-37.543***	8.545	-54.715	-20.372

Note. *** = 0.001; ** = 0.01; * = 0.05