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Higher teacher and student usage of Newsela is linked to stronger ELA outcomes

A Newsela validity report

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Executive summary

- Higher teacher and student usage of Newsela is linked to stronger ELA outcomes at the end of the school year.
  - **Teachers and students should aim to use Newsela at least 2 times a week.** Teachers should plan to print and/or assign 1-2 texts per week and students should try to complete at least 1 ELA quiz per week. This amount of usage is associated with around a **5 percentile point increase in reading performance** at the end of the year.

- Newsela assessment scores are helpful leading indicators in understanding student ELA performance.
  - Higher scores on Newsela ELA quizzes reflect better reading outcomes in the spring. **Nearly 75% of students who scored 66% or above on Newsela quizzes were also projected to be proficient in reading** as measured by their spring standardized test performance.
  - Newsela writing prompt scores were also associated with better outcomes. 65% of students scoring mostly 4s (on a scale of 1-4) on their writing achieved projected standardized assessment proficiency at the end of the school year.

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Background

This study examines how **students' use of and performance on Newsela relates to their English Language Arts (ELA) achievement and growth** within a single school year. Newsela is a digital instructional content platform offering teachers engaging and relevant texts for their classroom instruction in subjects such as ELA, Social Studies, and Science. Newsela's content library features over 15,000 texts across 20+ genres written at 5 different reading levels as well as fiction stories and multimedia content. In addition to leveled content, Newsela also offers standards-aligned quizzes, writing prompts, and vocabulary-building exercises.

In this report, Newsela usage was measured in a few different ways. **Active days** refers to the number of unique days that students use the Newsela platform, while **active months** are the number of unique months that students use the platform. The remaining usage metrics included the number of **unique texts viewed** and **total quizzes taken**.

Newsela performance was measured using two types of assessment: multiple-choice ELA quizzes and customizable writing prompts. Newsela ELA quizzes are composed of 4 or 8 multiple-choice questions, each of which is aligned to state-specific reading standards. In this report, **quiz score** is defined as percent correct (i.e., the result of dividing total questions answered correctly by total questions attempted). Newsela's writing prompts are designed to create differentiated opportunities for formative writing skills practice. In addition to using the existing standards-aligned prompts crafted by Newsela's assessment experts, teachers also have the option to create their own using Newsela's assignment feature. Once students submit prompt responses, teachers have the option to score their responses on a scale of 1 (poor) to 4 (excellent). **Average writing score** here is defined as the average of those teacher-provided scores.

Student ELA achievement was measured using MAP Growth. The NWEA MAP® Growth™ is an online adaptive interim assessment typically taken by students at three points throughout the school year (Fall, Winter, Spring). Interim assessments like MAP provide information to teachers, administrators, and parents about students' academic performance relative to grade-level standards (NWEA, 2020). The analyses presented here focus on the Reading subject test, which covers vocabulary, informational comprehension, and literary comprehension. Generally, students who score above approximately the 55th percentile are considered **proficient** readers (Tran et al., 2022). Prior research has also shown that MAP Growth is highly correlated with multiple summative assessments (NWEA, 2016; 2021).

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Sample

Our sample consisted of 5,962 students in grades 3-8 from 71 school districts in 21 different states. To be included in the sample, students must have completed the MAP Growth assessment in the fall and the spring, as well as use Newsela on an approximately monthly cadence.[1] Over the school year, the average student in this sample took about 26 quizzes and received 7 writing prompt scores on Newsela.
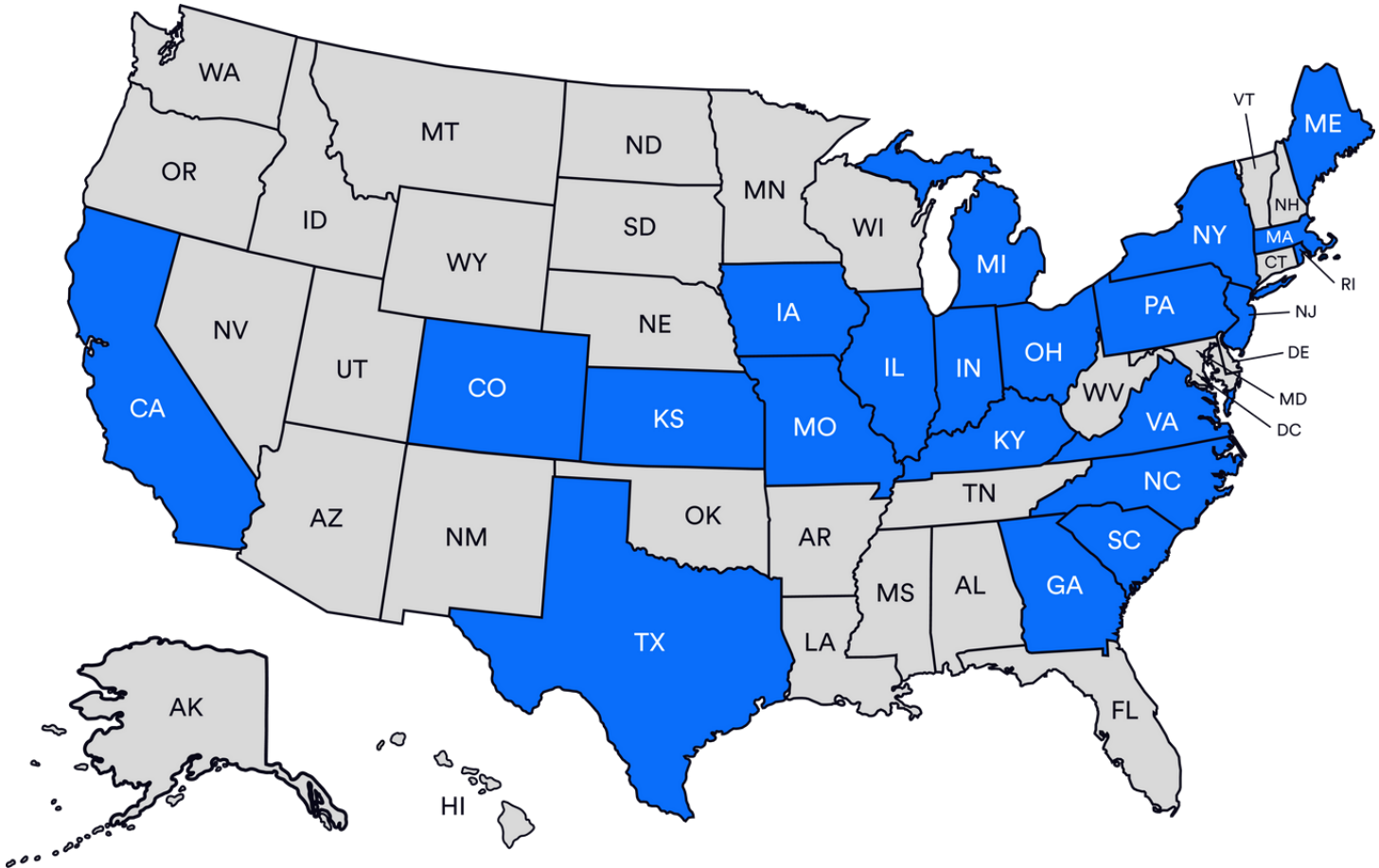
Figure 1. Students from states shaded in blue were included in the study sample.

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Results

Greater Newsela usage is associated with higher ELA achievement

Use of digital tools, like Newsela, in the ELA classroom has grown exponentially over the past decade (Newsela, 2020; Instructure, 2023). With so many tools and limited time, teachers need to know exactly how much to use each tool to promote growth in their students. Our study results show that **using Newsela at least 2 times a week is associated with stronger MAP Growth.** For students, this looks like **reading 2 texts** and **completing at least 1 ELA quiz per week**. For teachers, it's **assigning 1-2 texts per week**.

Newsela usage was analyzed from two different lenses: teacher usage and student usage. We used an analytic approach known as factor analysis to characterize teacher and student usage in a multidimensional, holistic manner, taking into account multiple usage metrics at once. This process allowed us to divide teachers and students into lower and higher Newsela usage groups based on the scores obtained for the usage factor. More details about methods and results of this analysis are in the Technical Appendix (page 9).

Teachers in the low usage group logged onto Newsela less than once a week, viewing 1 text every 4 weeks and printing only 1 text over the entire school year. In contrast, high Newsela usage teachers logged into Newsela 2-3 times per week, printing or assigning 1-2 texts per week. These teachers printed an average of 23 texts per year and assigned an average of 36 texts over the school year. In the Spring, students of high Newsela usage teachers (mean MAP percentile = 56.9) outperformed students of low Newsela usage teachers (mean MAP percentile = 50.6) on MAP Growth by 6 percentile points. The difference in student Spring MAP scores between teachers who used Newsela more frequently compared to those who used it less frequently could be observed even after accounting for Fall performance[2].

Teacher Usage Measure	Low Usage Group (1480 teachers) Median	High Usage Group (1555 teachers) Median
Active days	11	94
Texts viewed	1	58
Texts printed	0	21
Texts assigned	2	40

Table 1. Usage characteristics of 3035 teachers who were in the Low and High Usage Groups.

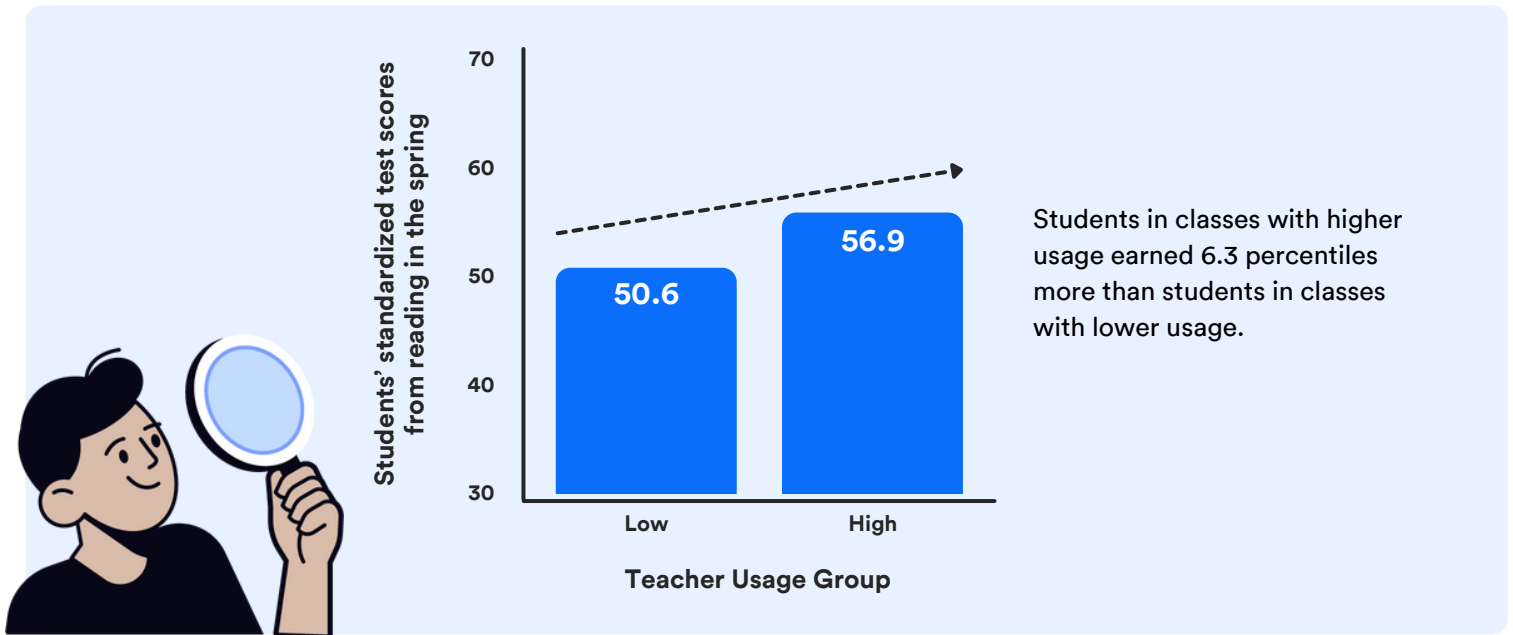We're ready to support you. Let's talk!
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Figure 2. Students' performance on the reading component of a standardized test in the spring (MAP Growth) by the low and high Newsela teacher usage groups. Higher usage among teachers is associated with stronger test scores in reading for students at the end of the school year.

Student Usage Measure	Low Usage Group (1480 teachers) Median	High Usage Group (1555 teachers) Median
Active days	24	61
Texts read	21	55
ELA quizzes taken	10	42

Table 2. Usage characteristics of 2862 students who were in the Lower and Higher Usage Groups.

Similar results were found when looking at how student use of Newsela affects MAP Growth outcomes. Students in the lower Newsela usage group used Newsela on an approximately bimonthly cadence, reading 1 text every 1-2 weeks and taking 1 ELA quiz for every 4 texts viewed. In contrast, higher Newsela usage students were on the platform two times or more per week, reading about 2 texts each week, and taking at least one quiz per week (3 out of every 4 texts viewed). In the spring, students with higher Newsela usage (mean MAP percentile = 53.9) outperformed those with lower Newsela usage (mean MAP percentile = 52.1) on the MAP Growth assessment by approximately 2 percentile points. The difference in Spring MAP scores between students who used Newsela more frequently compared to those who used it less frequently could be observed even after accounting for Fall performance.[3] In

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sum, **greater Newsela usage among both teachers and students is associated with stronger MAP scores for students at the end of the school year.**

Newsela ELA quizzes and writing prompts are both indicators of ELA achievement

Another way to look at Newsela use is via its assessments as they provide day-by-day insights into student performance and progress. School-year Newsela ELA quiz scores showed a strong positive correlation with students' Spring MAP Growth percentile. The correlation between quiz score and Spring MAP Growth was 0.48[4], reflecting a medium effect size[5]. Students who showed stronger performance on Newsela quizzes throughout the school year also showed higher scores on MAP Growth at the end of the year. **Nearly 75% of students with an average ELA quiz score of 66% or higher achieved projected proficiency at the end of the school year.**

Similarly, average writing score was positively correlated with Spring MAP Growth percentile (r = 0.35)[6]. Approximately 65% of students who received mostly 4s on their writing achieved proficiency on MAP at the end of the year.
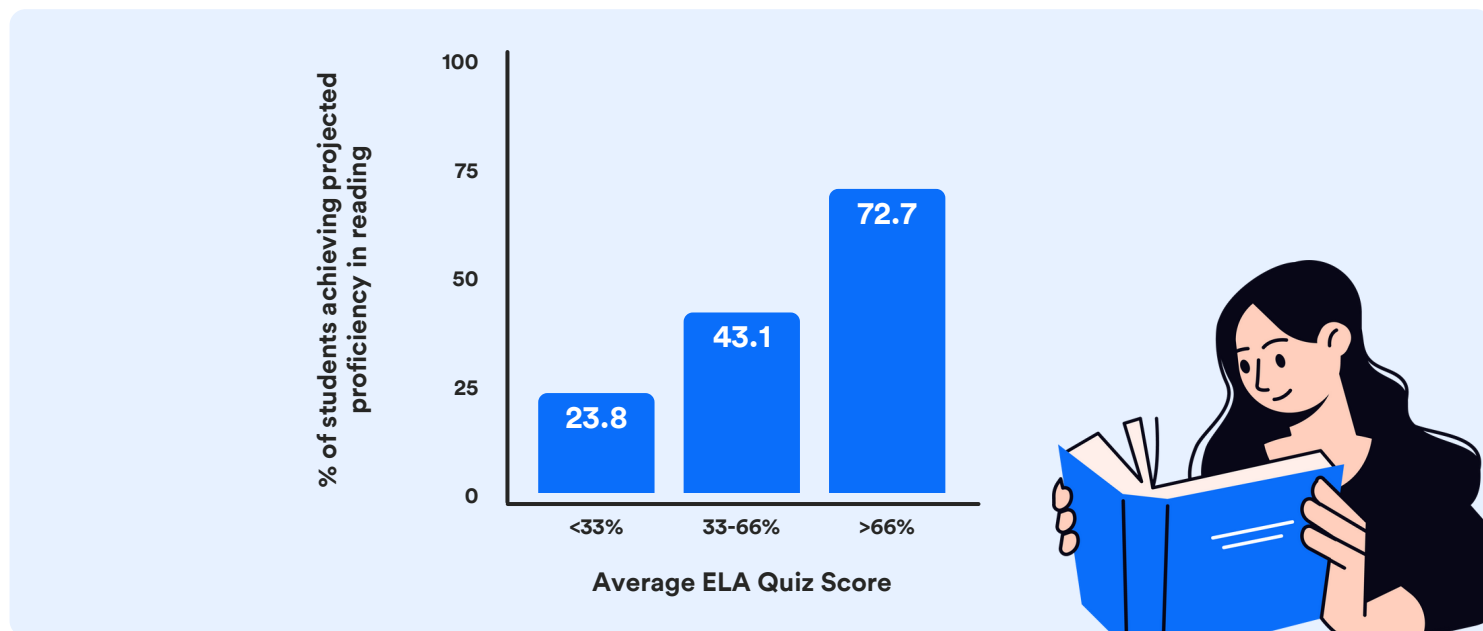

Figure 3. Newsela ELA quiz scores and percentage of students achieving projected proficiency in reading are highly correlated. Students who showed higher quiz scores over the school year also exhibited stronger performance on the reading assessment on a standardized test in spring.

These results suggest that Newsela assessment data can serve as valuable formative assessment to further evaluate student reading ability in between higher-stakes testing administrations. Newsela quizzes and writing prompts each uniquely and significantly predicted end of year MAP performance over and above Fall MAP performance. Thus, Newsela's ELA quizzes and writing scores measure more than just students' comprehension of a particular text – they tap underlying ELA skills.

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Resources

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1 "Approximately monthly usage" is defined as at least 9 distinct months of usage in the Newsela platform over the school year, assuming a 10-month school year.

2 There was a statistically significant difference in the change in student MAP score from Fall to Spring between the high and low teacher usage groups, $t(3032.6) = 2.07$, $p = .039$, $d = .08$.

3 There was a statistically significant difference in the change in MAP score from Fall to Spring between the higher and lower student usage groups, $t(2842.69) = 2.35$, $p = .019$, $d = .09$.

4 $r(5721) = 0.48$, $p < .001$. After accounting for Fall MAP percentile, the correlation is 0.21; $r(5723) = 0.21$, $p < .001$.

5 Correlation effect sizes: 0.10 - 0.29 = small; 0.30 - 0.49 = medium; 0.50+ = large (Cohen, 1992).

6 $r(1441) = 0.35$, $p < .001$. After accounting for Fall MAP percentile, the correlation is 0.18; $r(1443) = 0.07$, $p = .007$.

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Technical Appendix

Exploring Newsela usage recommendations through an Exploratory Factor Analysis (EFA)

Results

Two EFAs were conducted: One on teacher usage data and the other on student usage data. For the teacher data, examination of the scree plot and the results of the 'nfactors()' function from the 'psych' package (Revelle, 2023) both indicated a 4 factor solution where the factors were extracted using maximum likelihood, followed by an promax rotation to allow for an oblique structure to potentially emerge from the data. The 4 factors that emerged from the teacher data were: view & print, regular platform usage, deep platform usage, and write prompts graded/total number of texts viewed. The view & print factor was composed by the number of unique texts that the teacher viewed and the number of texts they printed (Cronbach α = .61). The regular platform usage factor was given by number of binder views, number of active days, and number of assignments created (Cronbach α = .51). Deep platform usage consisted of the number of text set views and the number of clicks on lesson sparks (Cronbach α = .15). Finally, the write prompts graded/total number of texts viewed factor was formed by the number of write prompts graded by the teacher and total number of texts they viewed (Cronbach α = .82).

To obtain the low and high Newsela usage groups for teachers, the score for the usage factor was summarized. Teachers who had a usage factor score that was in the first quartile or lower (here, a usage factor score of -.36 or lower) were placed into the low usage group, while those who had a usage factor score that was in the third quartile or higher (here, a usage factor score of .83 or higher) were placed in the high usage group. Usage recommendations for each group were obtained by examining the descriptive statistics of the variables in the view & print usage factor. To look at whether there was a difference in Spring MAP scores even after accounting for Fall performance, we compared how much the students' MAP scores changed from the Fall to Spring assessments. There was a significant difference in the change in Fall to Spring student MAP scores between the high and low teacher usage groups as given by the independent samples t-test, $t(3032.6) = 2.07$, $p = .039$, $d = .08$.

For the student data, examination of the scree plot and the results of the 'nfactors()' function from the 'psych' package (Revelle, 2023) both indicated a 3 factor solution. The factors were extracted using maximum likelihood, followed by a promax rotation to allow for an oblique structure to potentially emerge from the data. The 3 factors that emerged from the student data were: usage, annotations, and performance. The usage factor consisted of active days, active months, ELA quizzes taken, and texts viewed (Cronbach α = .72). The annotations factor was given by the percentage of texts with annotations and the number of annotations made by the student (Cronbach α = .01). The performance factor was composed of the student's average ELA quiz percentage and their average reading level (Cronbach α = .13).

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To obtain the low and high Newsela usage groups for students, the score for the usage factor was summarized. Students who had a usage factor score that was in the first quartile or lower were placed into the lower usage group, while those who had a usage factor score that was in the third quartile or higher were placed in the higher usage group. Usage recommendations were obtained by examining summary statistics (e.g., median values) of relevant variables that made up the usage factor. Students in the lower usage group had a usage factor score of -.8497 or lower (corresponding to the first quartile) and those in the higher usage group had a score of .7096 or higher (corresponding to the third quartile). To look at whether there was a difference in Spring MAP scores even after accounting for Fall performance, we compared how much the students' MAP scores changed from the Fall to Spring assessments. There was a significant difference in the change in Fall to Spring MAP scores between the higher and lower usage groups as given by the independent samples t-test, $t(2842.69) = 2.35$, $p = .019$, $d = .09$.

Determining Newsela indicators of ELA achievement using linear mixed models

Results

Two linear mixed models were fitted to predict Spring MAP scores with Fall MAP scores and a Newsela assessment (either ELA quiz scores or writing prompt scores) as predictors, and schools and their districts as random effects using the 'lme4' package in R (Bates et al., 2015). Both the models were estimated using Restricted Maximum Likelihood (REML) methods and an nloptwrap optimizer. The model formula with ELA quiz scores as a predictor was spring ~ fall + ELA quiz scores + (1 | school) + (1 | school district). The model formula with writing prompt scores was spring ~ fall + writing scores + (1 | school) + (1 | school district).

The results of the model with ELA quiz scores are as follows: The model's total explanatory power is substantial (conditional $R^2 = 0.74$) and the part related to the fixed effects alone (marginal R^2) is 0.73. The fixed effects of Fall ($\beta = 0.79$, 95% CI [0.76, 0.82], $t(1431) = 49.46$, $p < .001$) and ELA quiz scores ($\beta = 3.09$, 95% CI [2.21, 3.98], $t(1431) = 6.89$, $p < .001$) are statistically significant.

The results of the model with writing prompt scores are as follows: The model's total explanatory power is substantial (conditional $R^2 = 0.73$) and the part related to the fixed effects alone (marginal R^2) is 0.72. The fixed effects of Fall ($\beta = 0.83$, 95% CI [0.80, 0.86], $t(1431) = 53.30$, $p < .001$) and writing scores ($\beta = 1.24$, 95% CI [0.41, 2.07], $t(1431) = 2.92$, $p = 0.004$) are statistically significant.

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