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The benefits of using Newsela texts online

How digital texts support ELA achievement more than printed ones

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Executive summary

- This study of ~3,000 teachers and ~80,000 students in grades 3 through 8 evaluates the impact of Newsela subject product usage on student ELA achievement.

- Assigning texts on the Newsela platform rather than distributing printed copies is generally associated with a **3 percentile increase** in ELA achievement at the end of the year.

- In order to see the impact of assigning Newsela texts on ELA achievement, teachers should aim to use Newsela ELA, Newsela Social Studies, or Newsela Science **1-2 times a week**.

Introduction

In the United States, only about one-third of elementary and middle school students are proficient in reading.[1] Many factors contribute to students' reading difficulties, from a student's reading environment at home to the curriculum their school uses for ELA. Over the past decade, a considerable amount of research has explored whether the growing time students spend reading online impacts their reading comprehension. While early studies initially suggested an advantage for printed texts,[2,3] recent findings indicate that today's students can understand digital texts just as well, if not better, than printed texts—especially when digital programs include scaffolds to support understanding.[4]

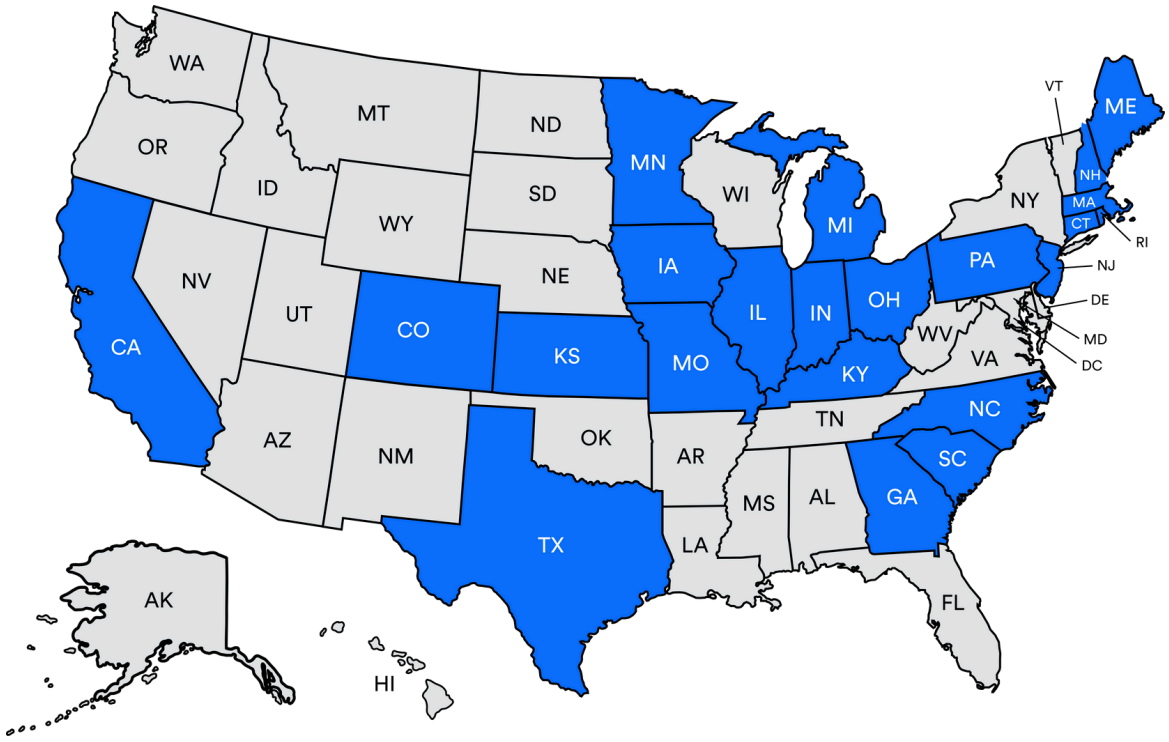
The most effective scaffolds for digital texts are those that promote understanding of the text's content. For example, when digital texts provide text-relevant scaffolds, such as prompting background knowledge or providing additional explanations of the story, students show better comprehension from digital texts than printed texts.[5] This suggests that when used thoughtfully to support understanding, digital texts can benefit student's reading comprehension development.

This study examines how elementary and middle school **teachers' use of Newsela subject products (Newsela ELA, Newsela Social Studies, and Newsela Science)** relates to their students' **English Language Arts (ELA) achievement** within a single school year. Newsela is a knowledge and skill-building platform offering teachers engaging and relevant texts for their classroom instruction that can either be assigned online or printed. 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's subject products also offer standards-aligned quizzes, writing prompts, and vocabulary-building exercises.

When creating assignments on Newsela's platform, teachers can use several different types of scaffolds. Some are built into the webpage, such as word definitions and an annotation feature. Teachers can also add additional activities to assigned articles, such as a poll to activate background knowledge or a customized writing prompt to encourage reflection. Additionally, Newsela's subject products offer content aligned to common curricula and novels, allowing teachers to use texts from Newsela that are related to what students are already learning in class. These scaffolds and connections, many of which are only available online, allow teachers to make Newsela content an integrated part of their classroom instruction.

Method

Sample



This map shows all states represented in this study.

2,968 classroom teachers who used Newsela's subject products at least once a quarter were included in this study. These teachers represented a total of 108 districts across 24 different states and DC. The average teacher in this sample used Newsela approximately once every three to four weeks, although some used it considerably more and some used it less frequently. The average teacher also printed an average of seven articles and assigned an average of ten.

This study also included a total of 82,493 students rostered to the selected teachers on Newsela. These students were in grades 3 through 8. The majority of the sample (73%) were in middle school (grades 6-8), and the smallest portion of students (5%) were in 3rd grade.

Assessment

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.[6] 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.[7] Prior research has also shown that MAP Growth is highly correlated with multiple summative assessments.[8,9]

Newsela Usage

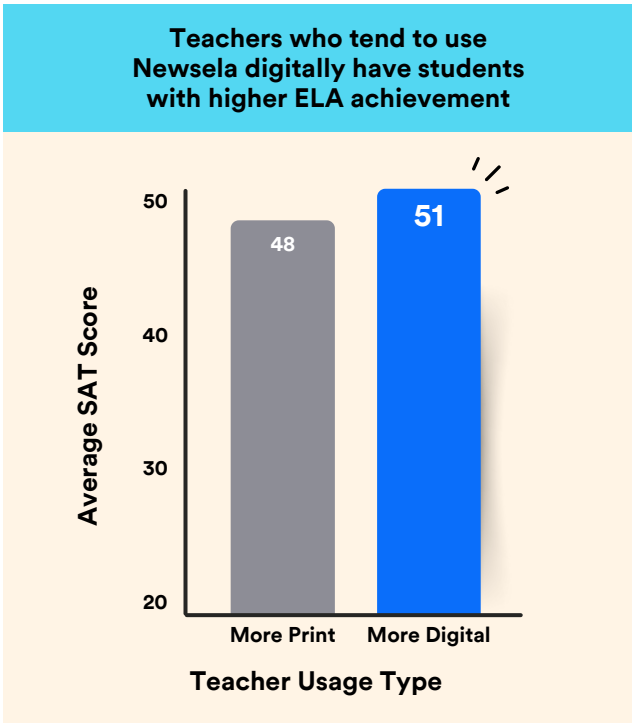
Various metrics were used to characterize student and teacher use of Newsela's subject products. **Teacher metrics** included the number of unique days, weeks, and months a teacher visited Newsela ELA, Newsela Social Studies, and/or Newsela Science; how many texts they viewed; how many times they printed or otherwise distributed a text; the number of digital assignments they created on Newsela; and the number of times they reviewed reports of student behavior on Newsela. **Student metrics** included unique days, weeks, and months of usage, as well as the average number of days between using Newsela's subject products.

Results

More on-platform Newsela usage by teachers is linked to higher student ELA achievement

Teachers have two main options for using Newsela texts in the classroom: print and distribute a text physically or assign articles for students to read online.

Our data suggests that on the Newsela platform, assigning texts digitally is linked to better outcomes than printing articles. In fact, teachers who tend to use Newsela ELA, Newsela Social Studies, and/or Newsela Science online have students with average MAP Growth scores that are **3 percentile points higher** than students of teachers who tend to print Newsela texts. (For more information on how this was calculated, see the Technical Appendix.)



Frequent Newsela users benefit even more from digital texts vs. printed

Even within the group of teachers who tend to use Newsela subject products online instead of printing, assigning more texts is associated with better outcomes. In other words, not only does the *medium* of Newsela usage matter, but the *quantity* of usage also matters. In fact, this effect gets stronger as teachers integrate Newsela subject products more and more into their regular classroom instruction.

This was evaluated by sorting teachers into different usage buckets based on their activity over the school year. **Occasional** teachers used Newsela subject products about once or twice a month, while **frequent** teachers used the platform 1-2 times a week or more. (For more detail, see the Technical Appendix.)

Next, we tested whether creating more assignments was related to better student achievement for each of these groups of teachers. For the **occasional** teachers logging in once a month or so, creating more assignments was not related to better student ELA scores. However, for **frequent** teachers, creating more assignments over the year was associated with greater ELA achievement for their students.

Teachers in the top 25% of assigners saw a **4 percentile point increase** in their students' spring MAP Growth scores compared to teachers in the lowest 25%.

Conclusion

This study showed that **using the Newsela platform online is linked to better student outcomes** than printing Newsela texts. Additionally, this relationship strengthens as a teacher uses Newsela's subject products. As discussed in the introduction, an advantage for digital texts is typically only seen when the digital text provides content-relevant scaffolds that support students' comprehension. However, in order to take advantage of those scaffolds, students likely needed regular exposure to Newsela's platform to gain familiarity with its affordances. With their increased exposure, students of frequent teachers would be better able to reap the benefits of scaffolds on the platform.

Technical Appendix

Selecting a sample of classroom teachers

To be included in the sample for this report, teachers had to use Newsela ELA, Newsela Social Studies, and/or Newsela Science at least once a quarter or more. We also filtered the sample to those teachers rostered to 3 or fewer schools and with 210 or fewer students on Newsela with the aim of selecting classroom teachers.

Additionally, we removed students who were rostered to a particular teacher for less than six months since this analysis was designed to examine the school year as a whole. Finally, we excluded any student for whom we did not have both fall and spring MAP Growth scores.

Characterizing teacher behavior on Newsela

We used a covariance-based principal components analysis (PCA) to reduce the dimensionality of teacher behavior on the Newsela platform. The following measures were included:

- Unique days, weeks, and months of Newsela usage
- Unique texts viewed
- Texts printed
- Assignments created
- Overall distributions
- Views to the binder (contains summaries of student activity)

All values were standardized prior to running the PCA. Any factors with an eigenvalue of less than 1 were discarded, leaving three total dimensions. We determined that Dimension 2 indicated a teacher's likelihood to print vs. use Newsela online based on the factor loadings. The table below summarizes the correlations between our input measures and that dimension.

Measure	Dim 2
Prints	**0.80**
Texts Viewed	0.34
Distributions	0.10
Active Months	0.01
Active Weeks	-0.05
Active Days	-0.11
Assignments Created	**-0.44**
Binder Views	**-0.54**

Creating groups of teachers based on usage

We used hierarchical clustering to find groups of teachers with similar behaviors on Newsela. Hierarchical clustering (HC) is an unsupervised machine-learning technique used to group similar data points based on their features. It builds a hierarchy of clusters, where each data point starts as its own cluster, and pairs of clusters are iteratively merged based on a similarity measure until all points are in a single cluster.

The similarity measure used in this study was Euclidean distance, which was calculated between each of the following teacher metrics:

- Number of students rostered to the teacher
- Number of schools a teacher is rostered to
- Unique days, weeks, and months of Newsela usage
- Unique texts viewed
- Texts printed
- Assignments created
- Overall distributions
- Views to the binder
- The three dimensions from the PCA above

The silhouette method was used to determine the optimal number of clusters. Visual inspection of the scree plot suggested either 2, 3, or 4 total clusters, and the dendrogram revealed two main groups, so we decided to go with a two-group solution. These groups were mainly differentiated by their general amount of usage. One cluster (2,258 teachers; 67,718 students) used the Newsela platform occasionally (1-2 times per month, on average). The other cluster (710 teachers; 29,944 students) used the Newsela platform more frequently, logging on once a week or more.

Predicting student outcomes using teachers' behavior on Newsela's platform

Linear mixed-effects models were used to evaluate the impact of teachers' Newsela platform use on student ELA outcomes. The base model used spring MAP scores as the outcome variable. Fixed effects included fall MAP scores and school-level title I status as control variables. We used a random intercept for teachers to account for the nested structure of the data.

Digital vs. print usage
We used the PCA dimension described above as our measure of teachers' digital vs. print behavior on Newsela's platform. Adding the main effect of this dimension on student outcomes to the base model was statistically significant, $\chi 2$ (1) = 3.68, p = 0.05.

Assignments created
The main effect of assignments created was marginally significant, $\chi 2$ (1) = 3.06, p = 0.08. However, adding the interaction between assignments created and teacher group to the base model was significant, $\chi 2$ (2) = 6.28, p = 0.04. Further investigation of the model reveals that assignments created did not predict outcomes for occasional users (b = -0.012, t(2494) = -1.16, p = 0.24). However, the number of assignments created was significant for frequent users (b = 0.009, t(2353) = 2.4, p = 0.017). This suggests that the effect of assignments depends on a teacher's overall base use of Newsela's platform.

Resources

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