



## RESEARCH REPORT

February 2023

# The Impact of IXL on Smarter Balanced Assessment Performance in Math and ELA

Mary B. Hargis, Ph.D.

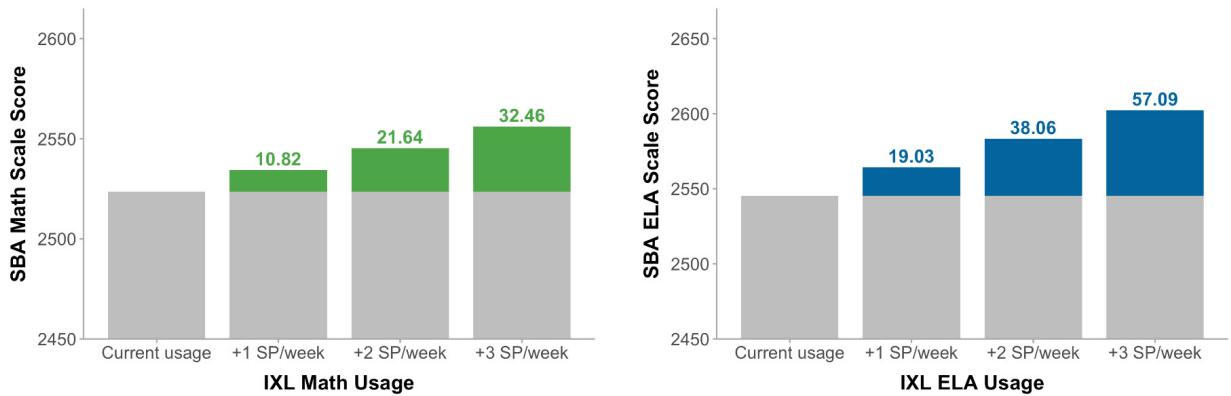
**IXL LEARNING** 777 Mariners Island Blvd., Suite 600, San Mateo, CA 94404  
650-372-4040 | [www.ixl.com](http://www.ixl.com)

## Executive Summary

IXL is an end-to-end teaching and learning solution that engages learners in grades Pre-K through 12 with a comprehensive curriculum and personalized recommendations for meeting learning goals. Previous research has shown that IXL has a significant positive impact on students' academic performance (e.g., Bashkov, 2021; Empirical Education, 2013; IXL Learning, 2018; Schonberg, 2022).

The goal of this study was to further evaluate the impact of IXL, as measured by the Smarter Balanced Assessments (SBA). We studied students in 5th through 8th grade from 12 public schools in South San Francisco Unified School District in California. We found statistically significant and positive effects of IXL usage on students' 2022 SBA performance in both math and ELA. Key findings include:

- More IXL practice is associated with better performance.**  
 For both math and ELA, students performed significantly better on the 2022 SBA test when they reached proficiency in more skills.



- Using IXL with high fidelity benefits students even more than typical usage.**  
 For both math and ELA, students who reached proficiency in at least two skills per week performed significantly better on the 2022 SBA test than their peers.

# The Impact of IXL on Smarter Balanced Assessment Performance in Math and ELA

## Background

---

IXL is an end-to-end teaching and learning solution that engages learners in grades Pre-K through 12 with a comprehensive curriculum and personalized recommendations for meeting learning goals. It covers four main subject areas: mathematics, English language arts (ELA), science, and social studies. As of this writing, 26% of students in California and over 14 million students worldwide use IXL. Deeply rooted in learning sciences research (see Bashkov et al., 2021), IXL engages each student in a personalized learning experience tailored to their working level. Research has consistently demonstrated the beneficial effects of IXL on student learning outcomes at various grade levels in different subjects (see <https://www.ixl.com/research>).

## Study Design and Methodology

---

### RESEARCH QUESTIONS

Numerous previous studies have found that higher IXL usage is related to better academic performance. To maximize student learning gains, IXL recommends that students aim to reach proficiency in at least two IXL skills per week (2 SP/week). Within this context, the present study aimed to examine the following research questions for IXL Math and IXL ELA separately:

- **Research Question 1: IXL usage effects.** What were the usage effects of IXL on students' 2022 SBA performance, controlling for 2021 baseline performance and demographic background? More specifically, what changes in performance would be expected with additional IXL usage?
- **Research Question 2: Added value of reaching 2 SP/week.** Compared to students with typical IXL usage (< 2 SP/week), did students who used IXL with high fidelity (>= 2 SP/week) make greater academic gains?

### DATA SOURCES

#### *Student Assessment Data*

The Smarter Balanced Assessments (SBA) are administered in more than 10 states and territories, including California. Every spring, SBA in math and ELA are administered to students in 3rd through 8th grade and 11th grade. The district provided the 2020-21 and 2021-22 SBA data in math and ELA for students. Spring 2021 SBA performance was used as the pretest to control for students' baseline performance in math and ELA. Students' performance on the spring 2022 SBA math and ELA tests served as the posttests in order to examine the impact of IXL.

### Student Demographic Data

Demographic background information provided by the district included student grade level, gender, race/ethnicity, English language learner (ELL) status, socioeconomic status (i.e., economically disadvantaged), and special education status (i.e., enrollment in an Individualized Education Program).

### PARTICIPANTS

Students' IXL usage data from the 2021-22 school year were retrieved from IXL's database. We included data from students with any amount of IXL usage in the 2021-22 school year. For both math and ELA, IXL usage indicators included the number of questions answered on IXL, the number of skills in which students reached proficiency (i.e., skills proficient), and the amount of time spent (in minutes). See Table 1 for detailed information on weekly average IXL usage across the 2021-22 school year (approximately 38 weeks). There was a wide range of usage among students. For example, the number of skills proficient on IXL Math ranged from 0 to over 4 skills per week, and questions answered on IXL ELA ranged from 0.03 to over 119 questions per week.

**Table 1. Weekly IXL Usage**

Weekly IXL usage	IXL Math ( <i>n</i> = 1,499)				IXL ELA ( <i>n</i> = 1,343)			
	<i>M</i>	<i>SD</i>	Min	Max	<i>M</i>	<i>SD</i>	Min	Max
Time spent (in minutes)	13.97	12.44	0.01	64.82	6.12	5.92	0.00	39.07
Questions answered	33.73	30.36	0.03	161.08	20.98	20.10	0.03	119.39
Skills proficient	0.85	0.84	0.00	4.53	0.42	0.43	0.00	2.42

The base sample size for the math analysis was 1,556 students in 5th through 8th grade, and the base sample size for the ELA analysis was 1,409 students. The students were attending 12 public schools in South San Francisco Unified School District, an urban school district in California serving more than 8,000 K-12 students. Prior to analysis, we identified any students with usage greater than 3 *SD* from the mean on any usage metric (e.g., number of questions answered per week) as outliers and excluded them from all analyses (math *n* outliers = 57, or 3.66%; ELA *n* outliers = 59, or 4.37%). This resulted in a final sample size of 1,499 students for the math analysis and 1,343 students for the ELA analysis. See Appendix A for more details on academic performance and demographics of the analyzed samples.

### ANALYTIC APPROACH

Multilevel linear regression models were used to examine the usage effect of IXL. These models specify students (Level 1) as clustered within schools (Level 2) and account for any shared variability

among students attending the same school. At Level 1 (i.e., the student level), the outcome variable was students' scaled scores on the 2022 SBA assessment, controlling for the students' prior performance in 2021 (i.e., scaled scores on the 2021 SBA assessment) and student demographic background, including student grade, gender, race/ethnicity, ELL status, economically disadvantaged status, and special education status. At Level 2 (i.e., the school level), we accounted for clustering. All predictors were either dummy coded or grand mean-centered. This model served as a baseline model. To examine the usage effects of IXL, a continuous IXL usage indicator (number of skills proficient) was added at Level 1 of the baseline model.

To examine the added value of reaching 2 SP/week over typical implementation, we conducted a regression analysis similar to the above, where the only difference was the main predictor of interest: using IXL with high fidelity or not, at Level 1 of the baseline model, as opposed to a continuous predictor of IXL usage.

Following What Works Clearinghouse guidelines (WWC, 2020), each effect is accompanied by a statistical significance test with a probability ( $p$ ) value. The  $p$ -value is the probability of observing the current or more extreme data, assuming the tested effect is zero (Cohen, 1994). As such, the smaller the  $p$ -value, the less likely it is that the observed result occurred at random, with  $p$ -values less than .05 considered statistically significant. In terms of the effect size, we report a standardized regression coefficient to gauge the practical significance of IXL usage in terms of relative predictive utility among the covariates.

## Results

---

### USAGE EFFECTS OF IXL

#### *IXL Math*

Results showed a positive and statistically significant association between IXL usage and 2022 SBA math performance: skills proficient was a significant predictor of 2022 SBA math scaled score ( $p < .001$ ). See Table B1 in Appendix B for the full regression results. In sum, the more a student practiced on IXL Math, the better they performed on the 2022 SBA math assessment. Figure 1 shows the expected improvement in SBA math scaled score with additional IXL Math usage during the school year. Specifically, we found that reaching proficiency in each additional IXL Math skill a week was associated with an expected increase of 10.82 points.

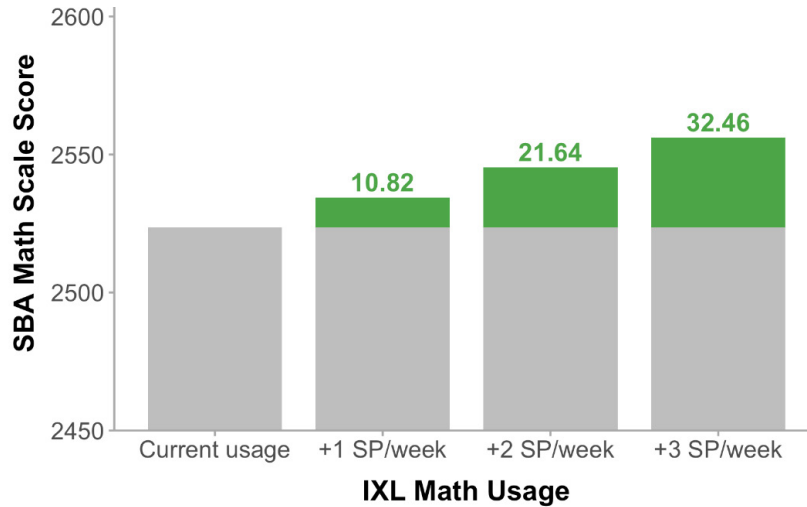


Figure 1. The Usage Effect of IXL Math<sup>1</sup>

**IXL ELA**

We found similar results for ELA. There was a positive and statistically significant association between IXL usage and 2022 SBA ELA performance: the number of skills proficient was a significant predictor of 2022 SBA ELA scaled score ( $p < .001$ ). See Table B2 in Appendix B for the full regression results. In sum, the more a student practiced on IXL ELA, the better they performed on the 2022 SBA ELA assessment. Figure 2 shows the expected improvement in SBA ELA scaled score with additional IXL ELA usage during the school year. Specifically, we found that reaching proficiency in each additional IXL ELA skill a week was associated with an expected increase of 19.03 points.

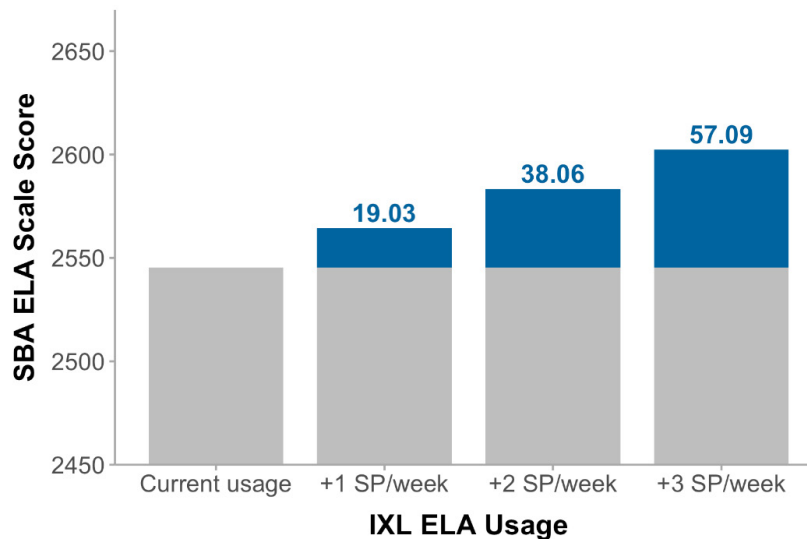


Figure 2. The Usage Effect of IXL ELA<sup>2</sup>

<sup>1</sup> Current usage score is the average SBA math scaled score among students with any IXL usage after adjusting for prior performance and demographic characteristics in the model. It is the intercept in the model presented in Appendix B.

<sup>2</sup> Current usage score is the average SBA ELA scaled score among students with any IXL usage after adjusting for prior performance and demographic characteristics in the model. It is the intercept in the model presented in Appendix C.

## ADDED VALUE OF REACHING 2 SP/week

### ***IXL Math***

For math, students who reached proficiency in at least two skills per week ( $n = 168$ ) outperformed their peers with less IXL usage ( $n = 1,331$ ); on average, students using IXL Math with high fidelity scored 33.01 points higher on the SBA math test than their peers with lower usage levels (see Table C1 in Appendix C).

### ***IXL ELA***

Similarly, students who used IXL ELA with high fidelity ( $n = 14$ )<sup>3</sup> performed significantly better on the 2022 SBA test than their peers ( $n = 1,329$ ). Students who reached proficiency in at least two IXL ELA skills a week on average scored 69.90 points higher on the SBA ELA test than students with lower levels of IXL ELA usage (see Table C2 in Appendix C).

## Conclusion

---

This study found a positive and statistically significant association between IXL practice and students' academic performance. For both math and ELA, the number of skills in which students reached proficiency was a statistically significant predictor of student performance on the 2022 SBA, accounting for prior achievement and demographic characteristics. Based on the present study and prior research, we expect our findings to generalize to other similar elementary and middle schools in California and in other states and territories using Smarter Balanced Assessments—the more students practice with IXL, the better they will perform on state assessments.

IXL's impact is especially visible in the aftermath of the COVID-19 pandemic and its adverse effects on student learning (Engzell et al., 2021). Specifically, IXL has been proven to be an effective solution in combating learning loss related to the COVID-19 pandemic. Studies of thousands of students in schools across the United States (e.g., Schonberg, 2021; 2022) have found that schools using IXL had higher achievement on state assessments than schools not using IXL; in addition, schools using IXL experienced less of a decline in assessment performance from 2019 to 2021 compared to schools not using IXL.

Lastly, given the learning benefits associated with reaching proficiency in two skills per week (An et al., 2022), IXL encourages educators to set skill proficiency goals around this target when working with individual students. The findings of the current study further support this recommendation, as students who reached proficiency in two or more skills per week achieved significantly higher assessment scores than students who fell short of this weekly target. In sum, schools seeking to boost assessment gains should encourage students to reach proficiency in at least two IXL skills per week in each subject.

---

<sup>3</sup> Given the small sample size of students using IXL ELA with high fidelity, the result of this analysis should be interpreted with caution.

## References

---

- An, X., Schonberg, C., & Bashkov, B. M. (2022). *IXL implementation fidelity and usage recommendations* (pp. 1–17). [https://www.ixl.com/materials/us/research/IXL\\_Implementation\\_Fidelity\\_and\\_Usage\\_Recommendations.pdf](https://www.ixl.com/materials/us/research/IXL_Implementation_Fidelity_and_Usage_Recommendations.pdf)
- Bashkov, B. M. (2021). *Assessing the impact of IXL Math over three years: A quasi-experimental study* (pp. 1–11). [https://www.ixl.com/materials/us/research/IXL\\_Math\\_3-Year\\_QED\\_ESSA\\_Tier\\_2.pdf](https://www.ixl.com/materials/us/research/IXL_Math_3-Year_QED_ESSA_Tier_2.pdf)
- Bashkov, B. M., Mattison, K., & Hochstein, L. (2021). *IXL design principles: Core features grounded in learning science research* (pp. 1–16). [https://www.ixl.com/research/IXL\\_Design\\_Principles.pdf](https://www.ixl.com/research/IXL_Design_Principles.pdf)
- Cohen, J. (1994). The earth is round ( $p < .05$ ). *American Psychologist*, 49, 997-1003.
- Empirical Education. (2013). *A study of student achievement, teacher perceptions, and IXL Math* (pp. 1–12). <https://www.empiricaleducation.com/pdfs/IXLfr.pdf>
- Engzell, P., Frey, A., & Verhagen, M. D. (2021). Learning loss due to school closures during the COVID-19 pandemic. *Proceedings of the National Academy of Sciences*, 118 (17), <https://doi.org/10.1073/pnas.2022376118>
- IXL Learning (2018). *Measuring the impact of IXL Math and IXL Language Arts in Smarter Balanced states* (pp. 1-14). <https://www.ixl.com/research/The-IXL-Effect-Smarter-Balanced-States.pdf>
- Schonberg, C. (2021). *The impact of IXL on math and ELA learning in Kansas* (pp. 1- 14). [https://www.ixl.com/materials/us/research/Impact\\_of\\_IXL\\_in\\_Kansas.pdf](https://www.ixl.com/materials/us/research/Impact_of_IXL_in_Kansas.pdf)
- Schonberg, C. (2022). *The impact of IXL on high school math and ELA learning in California* (pp. 1- 10). [https://www.ixl.com/materials/us/research/The\\_Impact\\_of\\_IXL\\_in\\_California\\_High\\_Schools.pdf](https://www.ixl.com/materials/us/research/The_Impact_of_IXL_in_California_High_Schools.pdf)
- What Works Clearinghouse. (2020). *What Works Clearinghouse procedures and standards handbooks*. <https://ies.ed.gov/ncee/wwc/Handbooks>

## Appendix A: Student Demographic Characteristics

**Table A. Student Achievement and Demographics**

	IXL Math ( <i>n</i> = 1,499)		IXL ELA ( <i>n</i> = 1,343)	
<b>Achievement</b>				
Scale score	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
2021 SBA math	2467.24	98.99		
2022 SBA math	2515.03	99.98		
2021 SBA ELA			2470.95	105.64
2022 SBA ELA			2522.33	98.81
<b>Demographics</b>				
	<i>n</i>	%	<i>n</i>	%
Grade				
5	337	25.09%	381	25.42%
6	363	27.03%	361	24.08%
7	363	27.03%	415	27.69%
8	280	20.85%	342	22.82%
Gender				
Female	711	52.94%	792	52.84%
Male	632	47.06%	707	47.16%
Race/Ethnicity				
American Indian	< 5	< 1.00%	< 5	< 1.00%
Asian	559	37.29%	519	38.64%
Black	19	1.27%	17	1.27%
Hispanic	739	49.30%	644	47.95%
Other/Multi.	83	5.53%	73	5.44%
Pacific Islander	31	2.06%	29	2.16%
White	65	4.34%	59	3.39%
Status				
ELL	290	19.35%	263	19.58%
Economically disadvantaged	527	35.16%	447	33.28%
Special education	300	20.01%	272	20.25%

## Appendix B: Usage Effects of IXL

**Table B1. Usage Effects of IXL Math on 2022 SBA Math**

Predictor	<i>b</i>	<i>SE</i>	95% CI	$\beta$	<i>t</i>	<i>p</i>
<b>Baseline model</b>						
(Intercept)	2523.63	10.60	2501.37 – 2545.89	-.01	213.66	< .001
2021 SBA math <sup>1</sup>	0.77	0.02	0.73 – 0.81	.76	39.68	< .001
Grade 5 <sup>2</sup>	-3.33	11.21	-24.70 – 18.12	-.01	-0.30	.774
Grade 6 <sup>2</sup>	-6.33	4.67	-15.31 – 2.98	-.03	-1.35	.176
Grade 7 <sup>2</sup>	-5.72	4.23	-14.04 – 2.52	-.03	-1.35	.177
Gender: male <sup>3</sup>	4.30	2.95	-1.47 – 10.04	.02	1.46	.144
Race: Asian <sup>4</sup>	4.03	7.37	-10.17 – 18.64	.02	0.54	.585
Race: Black <sup>4</sup>	10.47	14.99	-18.56 – 40.02	.01	0.70	.485
Race: Hispanic <sup>4</sup>	-11.89	7.49	-26.25 – 3.03	-.06	-1.58	.114
Race: Other <sup>4</sup>	1.66	9.32	-16.54 – 19.85	.00	0.18	.859
Race: Pacific Islander <sup>4</sup>	-10.89	12.40	-34.99 – 13.45	-.02	-0.88	.380
ELL <sup>5</sup>	-13.87	4.31	-22.26 – -5.45	-.05	-3.22	.001
Economically disadvantaged <sup>6</sup>	-1.18	3.49	-7.91 – -5.75	-.01	-0.34	.735
Special education <sup>7</sup>	0.18	3.70	-7.08 – 7.38	.00	0.05	.962
<b>IXL Math: skills proficient<sup>8</sup></b>	<b>10.82</b>	<b>2.18</b>	<b>6.27 – 14.94</b>	<b>.09</b>	<b>4.96</b>	<b>&lt; .001</b>

Note. Dependent variable: Scaled score on 2022 SBA math. *b* = unstandardized regression coefficient, *SE* = standard error, CI = confidence interval,  $\beta$  = standardized regression coefficient.

<sup>1</sup>Grand mean-centered; <sup>2</sup>Dummy coded: grade 8 as reference group; <sup>3</sup>Dummy coded; female as reference group; <sup>4</sup>Dummy coded; white as reference group; <sup>5</sup>Dummy coded; non-ELLs as reference group; <sup>6</sup>Dummy coded; non-disadvantaged students as reference group; <sup>7</sup>Dummy coded; non-special education students as reference group; <sup>8</sup>Weekly average amount, grand-mean centered.

**Table B2. Usage Effects of IXL ELA on 2022 SBA ELA**

Predictor	<i>b</i>	<i>SE</i>	95% CI	$\beta$	<i>t</i>	<i>p</i>
<b>Baseline model</b>						
(Intercept)	2545.36	13.49	2519.52 – 2570.86	-.03	188.64	< .001
2021 SBA ELA <sup>1</sup>	0.66	0.02	0.62 – 0.70	.71	32.63	< .001
Grade 5 <sup>2</sup>	-7.75	12.79	-31.82 – 17.77	-.03	-0.61	.561
Grade 6 <sup>2</sup>	-8.36	4.98	-18.06 – 1.37	-.04	-1.68	.093
Grade 7 <sup>2</sup>	-39.58	4.83	-49.03 – -30.16	-.18	-8.19	< .001
Gender: male <sup>3</sup>	-7.58	3.35	-14.13 – -1.05	-.04	-2.26	.024
Race: Asian <sup>4</sup>	4.05	8.20	-11.96 – 20.04	.02	0.49	.621
Race: Black <sup>4</sup>	-15.30	16.72	-47.92 – 17.31	-.02	-0.92	.360
Race: Hispanic <sup>4</sup>	-8.52	8.36	-24.88 – 7.74	-.04	-1.02	.308
Race: Other <sup>4</sup>	2.91	10.43	-17.41 – 23.94	.01	0.28	.780
Race: Pacific Islander <sup>4</sup>	-2.46	13.62	-29.27 – 23.84	.00	-0.18	.856
ELL <sup>5</sup>	-21.05	4.82	-30.55 – -11.71	-.08	-4.36	< .001
Economically disadvantaged <sup>6</sup>	1.42	3.97	-6.30 – 9.17	.01	0.36	.721
Special education <sup>7</sup>	-1.47	4.13	-9.54 – 6.56	-.01	-0.36	.720
<b>IXL ELA: skills proficient<sup>8</sup></b>	<b>19.03</b>	<b>4.09</b>	<b>10.74 – 26.80</b>	<b>.08</b>	<b>4.65</b>	<b>&lt; .001</b>

Note. Dependent variable: Scaled score on 2022 SBA ELA. *b* = unstandardized regression coefficient, *SE* = standard error, CI = confidence interval,  $\beta$  = standardized regression coefficient.

<sup>1</sup>Grand mean-centered; <sup>2</sup>Dummy coded: grade 8 as reference group; <sup>3</sup>Dummy coded; female as reference group; <sup>4</sup>Dummy coded; white as reference group; <sup>5</sup>Dummy coded; non-ELLs as reference group; <sup>6</sup>Dummy coded; non-disadvantaged students as reference group; <sup>7</sup>Dummy coded; non-special education students as reference group; <sup>8</sup>Weekly average amount, grand-mean centered.

## Appendix C: Added Value of Reaching 2 SP/week

**Table C1. Added Value of Reaching 2 SP/week on 2022 SBA Math Scaled Score**

Predictor	<i>b</i>	<i>SE</i>	95% CI	$\beta$	<i>t</i>	<i>p</i>
(Intercept)	2521.44	10.89	2500.96 – 2541.92	-.01	231.58	< .001
2021 SBA math <sup>1</sup>	0.78	0.02	0.75 – 0.82	.77	40.91	< .001
Grade 5 <sup>2</sup>	1.99	9.80	-16.62 – 20.77	.01	0.20	.844
Grade 6 <sup>2</sup>	-1.43	4.58	-10.28 – 7.60	-.01	-0.31	.755
Grade 7 <sup>2</sup>	-8.40	4.23	-16.62 – -0.12	-.04	-1.99	.047
Gender: male <sup>3</sup>	4.26	2.97	-1.56 – 10.04	.02	1.44	.152
Race: Asian <sup>4</sup>	3.90	7.42	-10.37 – 18.67	.02	0.53	.600
Race: Black <sup>4</sup>	11.23	15.09	-17.94 – 41.06	.01	0.74	.457
Race: Hispanic <sup>4</sup>	-12.96	7.53	-27.38 – 2.11	-.06	-1.72	.085
Race: Other <sup>4</sup>	0.90	9.38	-17.36 – 19.27	.00	0.10	.924
Race: Pacific Islander <sup>4</sup>	-11.65	12.49	-35.86 – 12.92	-.02	-0.93	.351
ELL <sup>5</sup>	-14.40	4.33	-22.79 – -5.88	-.06	-3.32	.001
Economically disadvantaged <sup>6</sup>	-1.26	3.51	-8.00 – 5.76	-.01	-0.36	.720
Special education <sup>7</sup>	0.51	3.93	-6.81 – 7.75	.00	0.14	.891
<b>IXL Math: &gt;= 2 SP/week<sup>8</sup></b>	<b>11.93</b>	<b>5.07</b>	<b>1.62 – 21.55</b>	<b>.04</b>	<b>2.36</b>	<b>.019</b>

Note. Dependent variable: Scaled score on 2022 SBA math. *b* = unstandardized regression coefficient, *SE* = standard error, CI = confidence interval,  $\beta$  = standardized regression coefficient.

<sup>1</sup>Grand mean-centered; <sup>2</sup>Dummy coded: grade 8 as reference group; <sup>3</sup>Dummy coded; female as reference group; <sup>4</sup>Dummy coded; white as reference group; <sup>5</sup>Dummy coded; non-ELLs as reference group; <sup>6</sup>Dummy coded; non-disadvantaged students as reference group; <sup>7</sup>Dummy coded; non-special education students as reference group; <sup>8</sup>Weekly average amount.

**Table C2. Added Value of Reaching 2 SP/week on 2022 SBA ELA Scaled Score**

Predictor	<i>b</i>	<i>SE</i>	95% CI	$\beta$	<i>t</i>	<i>p</i>
(Intercept)	2544.55	12.42	2521.20 – 2568.06	-.02	204.96	< .001
2021 SBA ELA <sup>1</sup>	0.68	0.02	0.64 – 0.72	.73	33.93	< .001
Grade 5 <sup>2</sup>	-9.12	11.24	-30.18 – 13.10	-.04	-0.81	.442
Grade 6 <sup>2</sup>	-6.80	5.00	-16.58 – 2.92	-.03	-1.36	.174
Grade 7 <sup>2</sup>	-39.56	4.87	-49.11 – -30.08	-.18	-8.12	< .001
Gender: male <sup>3</sup>	-8.00	3.38	-14.60 – -1.41	-.04	-2.37	.018
Race: Asian <sup>4</sup>	6.10	8.24	-10.00 – 22.15	.03	0.74	.459
Race: Black <sup>4</sup>	-13.51	16.82	-46.29 – 19.37	-.02	-0.80	.422
Race: Hispanic <sup>4</sup>	-7.57	8.41	-23.98 – 8.83	-.04	-0.90	.369
Race: Other <sup>4</sup>	4.05	10.50	-16.42 – 24.57	.01	0.39	.700
Race: Pacific Islander <sup>4</sup>	-3.58	13.72	-30.53 – 23.04	-.01	-0.26	.794
ELL <sup>5</sup>	-20.81	4.86	-30.35 – -11.41	-.08	-4.29	< .001
Economically disadvantaged <sup>6</sup>	1.49	3.99	-6.24 – 9.33	.01	0.37	.709
Special education <sup>7</sup>	-2.07	4.16	-10.20 – 6.03	-.01	-0.50	.618
<b>IXL ELA: &gt;= 2 SP/week<sup>8</sup></b>	<b>34.94</b>	<b>16.31</b>	<b>2.96 – 66.66</b>	<b>.04</b>	<b>2.14</b>	<b>.032</b>

Note. Dependent variable: Scaled score on 2022 SBA ELA. *b* = unstandardized regression coefficient, *SE* = standard error, CI = confidence interval,  $\beta$  = standardized regression coefficient.

<sup>1</sup>Grand mean-centered; <sup>2</sup>Dummy coded: grade 8 as reference group; <sup>3</sup>Dummy coded; female as reference group; <sup>4</sup>Dummy coded; white as reference group; <sup>5</sup>Dummy coded; non-ELLs as reference group; <sup>6</sup>Dummy coded; non-disadvantaged students as reference group; <sup>7</sup>Dummy coded; non-special education students as reference group; <sup>8</sup>Weekly average amount.