



The Impact of Classworks® Individualized Learning as an Academic Intervention for K-3rd Grade Language Arts Instruction

Curriculum Advantage, Inc.
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Research Overview

After the closing of the 2022 spring testing window, an analysis was conducted to measure the impact of Classworks[®] Individualized Learning as an academic intervention in Language Arts instruction for students performing below the 25th percentile in kindergarten-third grade. The study analyzed Classworks Individualized Learning Path (ILP) Language Arts usage, from fall to spring, across ten districts and 2,176 students in kindergarten-third grades from the 2021-2022 school year.

Results of the analysis concluded that Classworks ILP Usage has a significant impact and positive effect on growth in Language Arts as an academic intervention for students performing below the 25th percentile in kindergarten through third grade. Moreover, there are statistically significant findings for ILP Users outperforming Non-ILP Users based on grade level and racial sub-demographic group.

Introduction

After the closing of the 2022 spring testing window, an analysis was conducted to measure the impact of Classworks[®] Individualized Learning as an academic intervention in Language Arts instruction for students performing below the 25th percentile in kindergarten-third grade. The study analyzed growth in student learning measured by score performance on the Classworks Universal Screener Language Arts Assessment from fall 2021 to spring 2022.

Individualized Learning

Classworks Individualized Learning is composed of units of instruction in reading and math for grades K-8. Assessment data for each student generates an Individualized Learning Path (ILP) for students consisting of multiple units of Classworks instruction organized along an evidence-based learning progression.

A Classworks instructional unit includes direct instruction, activities to apply learning, and a short formative check focused on strengthening a specific skill. The direct instruction introduces the subject matter with two-to-three-minute segments that teachers can also use in classrooms. Extended learning and practice on the unit skills are introduced in the form of interactive games and activities that differentiate by instructional strategies. Next, a formative assessment confirms skill mastery with ten questions. This structure ensures that when students master a Classworks unit, they master the concept. This translates into increased student achievement not only on state high-stakes tests but in cross-curricular experiences and real-life applications. Skill practice focuses on concepts in direct response to students' demonstrated needs.

Classworks lessons reflect different pedagogies, keeping students motivated and engaged because of the variety encountered throughout the lesson. Students are presented with different instructional approaches, types of interactivity, and varying degrees of games and concrete instruction as they learn each skill. Activities use diverse rich-media technology including voice, text, video, graphics, photographs, and animation. This variety ensures students encounter multiple ways to learn and practice every skill. It's important to note that the interventions the students receive in Tiers Two and Three are different in instruction and experience from what they receive in Tier One.

Classworks Tiered Instructional Model

Classworks RTI Instructional Model includes universal screening and K-8 supplemental instruction in reading, language arts, and mathematics for Tier One and progress monitoring for Tiers Two and Three. The Individualized Learning Path sets the progression of targeted instruction for each student.

Placement into an Individualized Learning Path is determined by a student's assessment results which may be the Classworks Universal Screener Assessments or from one of our nationally recognized partners such as Renaissance and NWEA. ILP placement provides students with individualized instruction based on the skills they are ready to learn.

The recommendation for all students is to spend a minimum of 30 minutes each week on individualized learning in each content area. Tier Two and Three students are recommended to complete 60 to 90 minutes per subject per week (*How Much Time Should My Students Be Using Classworks Each Day?*, n.d.; Classworks, 2019).

In addition, Classworks' recommendation is that students will complete an average of six to eight individualized units mastered at 80% or higher each month, in each content area. On average, this is equivalent to 18 hours of individualized instruction over the school year, per student. When these recommendations of time and mastery are followed, studies show that students show significant increase in growth when compared with students not using Classworks (*Best Practices for Individualized Learning*, n.d.; Classworks, 2019; Classworks, 2020).

At Tier One, for students performing above the 25th percentile, based on assessment results, Classworks ensures readiness, tracks learning gains, monitors rate of learning among peers, and identifies students requiring additional intervention. Tier One instruction includes rigorous and engaging activities built to Common Core and college and career ready standards. Lessons are differentiated, presenting grade level

standards at varying levels of difficulty. Teachers are equipped with resources to support lesson planning, real-time responsive instruction, and reporting for professional learning communities, student action plan meetings, and parent-teacher communication, with a focus on student identification of need for intervention.

At Tier Two, for students performing between the 10th and 25th percentile, extra instruction time is an important factor in achieving learning goals and providing real-time measures of student performance towards mastery of skills. In addition to the placement in the Individualized Learning Path by assessment, ongoing progress monitoring also further informs and adapts individualized instruction for each student. Formative assessments are embedded throughout the learning path assignments to monitor mastery of skills. The focus of Classworks data and reporting at Tier Two is on monitoring student performance and mastery through a battery of Curriculum-Based Measurement (CBM) Probes.

Skill-based CBM Probes continue to be essential at Tier Three, for students performing below the 10th percentile. Weekly progress monitoring to identify and respond to specific skills students are struggling with allows teachers to determine if students are making progress and make the necessary adjustments to the Individualized Learning Path. As previously mentioned, the intensity of intervention is increased at Tier Three, which may include lengthening instructional time, increasing the frequency of instructional sessions, adjusting the level of instruction, and/or targeting the skills the student is working on within the intervention. As with all Tiers, teachers are also able to make customized Classworks assignments to further address student deficits. The focus of Classworks data and reporting for Tier Three students is on skills and progress monitoring of student achievement and growth through intensified intervention (Classworks, 2022).

Students participating in the study were found to be academically-at-risk based on their identification as performing below the 25th percentile on their fall baseline Classworks Universal Screener for Language Arts. In this analysis, we compared the growth in performance experienced by Classworks students that participate in Classworks Individualized Learning Path instruction to their peers that do not participate in Classworks ILP instruction, based on growth in student score performance from fall to spring on students' Classworks Universal Screener Scores.

Classworks Universal Screeners

Classworks Reading and Math Screeners are included in the NCII Academic Screeners Tools Chart and are valid and reliable assessments used to measure readiness for grade level instruction, help identify baseline learning levels, and measure growth. As previously mentioned, the Universal Screeners were specifically designed for the purpose of screening students who may need additional intervention and can be used as part of the MTSS (Multi-Tiered System of Supports) and Response to Intervention (Rtl) process. In addition to reporting an overall scaled score based on the total test, Classworks Screener results provide nationally normed percentile ranks and student strengths and weaknesses for key strands.

The Classworks Universal Screeners measure student performance with key domains that are indicative of future reading performance: phonological awareness, letter-sound correspondence, decoding, and reading comprehension. Each of these strands has been identified as early predictors for further screening for learning disabilities, specifically dyslexia.

Research Questions

Classworks provides instructional software to school districts across 24 states across the nation. The current study explores the impact of Classworks Individualized Learning Path (ILP) on student learning in Language Arts for kindergarten- third grade students performing below the 25th percentile during the 2021-2022 school year.

The following questions are addressed in this study:

- Do kindergarten-third grade students performing below the 25th percentile that participate in Classworks Individualized Learning experience more growth on the Classworks Universal Screeners from fall to spring than their peers that do not participate in Classworks Individualized Learning?
- Does the impact of Classworks ILP usage vary by grade level? And if so, to what extent?
- Does the impact of Classworks ILP usage vary by student racial sub-demographic groups? And if so, to what extent?

Methodology

Sample

Participants in this study were 2,176 students in kindergarten through third grade, gathered from a convenience sample of districts implementing Classworks as an academic intervention solution to accelerate student achievement during the 2021-2022 academic school year. All participants were identified as academically-at-risk and in need of an academic intervention in Language Arts based on identification of performing below the 25th percentile at the fall baseline on the Classworks Language Arts Universal Screener.

Treatment group participants completed both the fall and spring Universal Screeners and participated in Classworks Language Arts Individualized Learning Path during the 2021-2022 school year. Treatment group participants are referred to in this study as ILP Users.

Comparison group participants completed both the fall and spring Universal Screeners and did not participate in Classworks Language Arts Individualized Learning Path during the 2021-2022 school year. Comparison group participants are referred to in this study as Non-ILP Users.

As shown in Table 1 below, participants in the study were found to be within the mean standardized difference of .25 SD by grade level during the baseline fall Universal Screener. In other words, samples by grade level were comparable to one another at pre-treatment, based on Hedge's G effect size calculations.

Table 1

Descriptives of Classworks Language Arts ILP Users and Non-ILP Users by Grade and Race

	Count		Hedge's G
	ILP Users	Non-ILP Users	
Kindergarten	466	153	<0.02
American Indian/Native Alaskan	177	51	<0.02
Other (Asian, Native Hawaiian/Other Pacific Islander, Two or more races, White)	101	45	<0.02
Black/African American	109	34	<0.02
Hispanic/Latino	79	23	<0.02

First Grade	570	122	0.03
American Indian/Native Alaskan	225	37	0.33
Other (Asian, Native Hawaiian/Other Pacific Islander, Two or more races, White)	116	25	0.18
Black/African American	144	43	0.11
Hispanic/Latino	85	17	0.07
Second Grade	430	106	0.11
American Indian/Native Alaskan	184	41	0.02
Other (Asian, Native Hawaiian/Other Pacific Islander, Two or more races, White)	61	17	0.07
Black/African American	117	38	0.11
Hispanic/Latino	68	10	0.83
Third Grade	270	59	0.15
American Indian/Native Alaskan	122	18	0.42
Other (Asian, Native Hawaiian/Other Pacific Islander, Two or more races, White)	56	11	0.16
Black/African American	58	20	0.23
Hispanic/Latino	34	10	0.24

As shown in Table 1 above, participants in the first grade American Indian/Native Alaskan sub-demographic had a mean standardized difference beyond .25 SD (.33 SD). Participants in the second grade Hispanic/Latino sub-demographic had a mean standardized difference beyond .25 SD (.83 SD). Participants in the third grade American Indian/ Native Alaskan sub-demographic had a mean standardized difference beyond .25 SD (.42 SD).

To ensure that statistically significant findings between a treatment and comparison group are due to treatment and not due to other factors, it is necessary to ensure participants that comprise a study's treatment group, ILP Users, are as similar as possible to participants in the comparison group, Non-ILP Users (Blackwell et al. 2009, as cited in Firestone 2015).

Further analysis of the sub-demographic groups that were beyond the mean standardized difference of .25 SD was conducted to determine if matching ILP Users and Non-ILP Users based on grade and racial sub-demographic group would further support these groups as being equivalently appropriate for comparison using Coarsened Exact Matching (CEM). CEM is a specific method for matching treatment and comparison groups based on factors of the study, of which are particular to the current study as grade and racial sub-demographic groups (Firestone, 2015).

Upon early application of CEM, the initial imbalances between the treatment and comparison groups based on racial sub-demographic groups ($L1 < 0.001$, $M < 0.001$), grade level ($L1 < 0.001$, $M = 0.63$) and baseline fall Universal Screener Score at pre-treatment ($L1 < 0.01$, $M = 0.63$) were found to be balanced as shown in Table 2 below. As cited in Firestone (2015), when perfect balance exists between treatment and comparison groups, L1 will be equal to zero, and when there is imperfect balance the L1 will be equal to one. The smaller the L1 statistic, the more similar the treatment and comparisons groups (Firestone, 2015). In other words, for this study, ILP Users and Non-ILP Users were appropriately represented in the sample to proceed with analysis without necessitating matching via CEM as the L1 statistics were close to zero.

Table 2

Results of Coarsened Exact Matching (CEM) Initial Analysis

	<i>L1 statistic</i>	<i>Mean</i>
Racial sub-demographic groups	.0001	.0001
Grade level	.0001	.0001
Baseline fall Universal Screener Score	.01	.63

Instrument

This study utilized Classworks Universal Screener Assessments to identify participants' percentile ranking below the 25th percentile as students academically-at-risk and in need of an academic intervention in Language Arts instruction. Additionally, the Classworks Universal Screener Scores were used as an outcome measure to determine the growth in student score performance, from the fall screening window to the spring screening window.

The Classworks Universal Screeners have been found to be both psychometrically reliable and valid as instruments to measure grade level readiness, help identify baselines for instruction, identify students who may need additional intervention as part of the RTI/MTSS process, and measure student growth (SEG

Measurement, 2019; Classworks, 2022). The Classworks Universal Screeners are included as Academic Screening Tools on the National Center on Intensive Intervention (NCII) website (*Academic Screening Tools Chart*, n.d.).

Classworks Universal Screeners target strands of content vary by grade level and subject. Performance on the Universal Screeners is provided as a vertical score and feedback is also provided at the key strand level. In Language Arts, these strands include Grammar/Usage/Mechanics, Reading Comprehension, Study Skills, Word Analysis, Writing, and the Writing Process (SEG Measurement, 2019; Classworks, 2022).

Design

This study compared student growth measured by student score performance from fall to spring on the Classworks Universal Screener Language Arts Assessment between ILP Users and Non-ILP Users. Participants included in the study completed at least both the fall and spring screener during the 2021-2022 school year. In instances in which participants also participated in the winter screener, this data was also included in analysis.

With repeated measures per participant over time, and data collected from participants at a single level (by grade), the best fit model employed in this analysis was a linear mixed-effect model (Pinheiro, 2014). Furthermore, linear-mixed effect models allow for both fixed and random effects to occur linearly in the model function, enabling the impact of ILP usage (the fixed effect) to be examined over time in relation to random effects (Pinheiro, 2000, as cited in Ker, 2014).

Models for the impact of ILP usage on grade and racial sub-demographic groups were estimated in R (R Core Team, 2017) with the R-package lme4 (Bates et al., 2015). Each model was conducted on a grade-by-grade subset. For each model, the dependent variable was the universal screener score whereas time (1= fall, 2=winter, 3=spring), treatment (0=comparison, 1=treatment), and racial sub-demographic groups (1=American Indian/Native Alaskan, 2=Other (Asian, Native Hawaiian/Other Pacific Islander, two or more races, White), 3=Black/African American, and 4=Hispanic/Latino) were treated as fixed effects. The interaction between treatment and time was included to determine if there was a difference between the treatment and comparison groups over time.

Results

Impacts by Grade Level

Table 3 below presents the results of the linear mixed-effects model for the impact on growth measured by score performance on the Classworks Language Arts Universal Screener Score over time, between treatment and comparison groups by grade level.

Table 3

Results of Linear Mixed-effects Model: Contrasts of Marginal Means between Treatment and Comparison by Grade

	Fall to Spring		Fall to Winter		Winter to Spring	
	<i>Estimate (SE)</i>	<i>95%(CI)</i>	<i>Estimate (SE)</i>	<i>95%(CI)</i>	<i>Estimate (SE)</i>	<i>95%(CI)</i>
Kindergarten	8.89(2.85)**	(3.30, 14.5)	4.25(2.88)	(-1.41, 9.9)	4.65(2.88)	(-1.01, 10.3)
First Grade	20.26(3.78)***	(12.85, 27.7)	11.01(3.82)**	(3.52, 18.5)	9.24(3.82)*	(1.76, 16.7)
Second Grade	8.42(4.24)*	(0.09, 16.7)	1.40(4.40)	(-7.23, 10.0)	7.02(4.40)	(-1.60, 15.6)
Third Grade	32.5(7.51)***	(17.77, 47.3)	12.2(7.55)	(-2.62, 27.0)	20.3(7.55)**	(5.50, 35.1)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

ILP Usage was found to have a significant impact on growth for kindergarten students ($\chi^2 = 9.75$, $df = 2$, $p < 0.01$). A pairwise comparison analysis found the contrast between ILP Users' and Non-ILP Users' Universal Screener Scores from fall to spring as statistically significant, with ILP Users outperforming Non-ILP Users (*estimate* = 8.89, *SE* = 2.85, *t-ratio* = 3.122, $p = 0.002$, *95% CI* (3.30, 14.5)).

Figure 1

Comparison of Estimated Means and 95% Confidence Intervals of Kindergarten ILP Users and Non-ILP Users from Fall to Spring

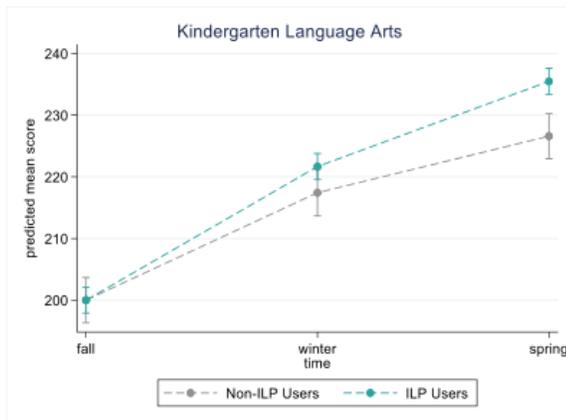


Figure 1 above visually shows the comparison between kindergarten ILP Users' and Non-ILP Users' Universal Screener Scores from fall to spring. Differences in the means appear from fall to winter and continue to widen from winter to spring.

ILP Usage was found to have a significant impact on growth for first grade students ($\chi^2 = 28.83$, $df = 2$, $p < 0.01$). A pairwise comparison analysis found the contrast between ILP Users' and Non-ILP Users' Universal Screener Scores from fall to spring as statistically significant ($estimate = 20.26$, $SE = 3.78$, $t\text{-ratio} = 5.63$, $p < 0.0001$, 95% $CI(12.85, 27.7)$), as well as statistical significance from fall to winter ($estimate = 11.01$, $SE = 3.82$, $t\text{-ratio} = 2.89$, $p = 0.004$, 95% $CI(3.52, 18.5)$), and from winter to spring ($estimate = 9.24$, $SE = 3.82$, $t\text{-ratio} = 2.42$, $p = 0.016$, 95% $CI(1.76, 16.7)$) with ILP Users outperforming Non-ILP Users.

Figure 2

Comparison of Estimated Means and 95% Confidence Intervals of First Grade ILP Users and Non-ILP Users from Fall to Spring

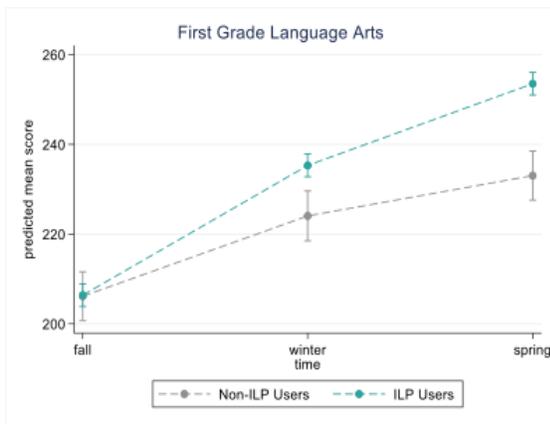


Figure 2 above visually shows the comparison between first grade ILP Users' and Non-ILP Users' Universal Screener Scores from fall to spring. Differences in the means appear from fall to winter and continue to widen from winter to spring.

ILP Usage was not found to have an overall significant impact on growth for second grade students ($\chi^2 = 4.47$, $df = 2$, $p > 0.05$). However, a pairwise comparison analysis found the contrast between ILP Users' and Non-ILP Users' Universal Screener Scores from fall to spring as statistically significant ($estimate = 8.42$, $SE = 4.24$, $t\text{-ratio} = 1.98$, $p = 0.048$, $95\% CI (0.09, 16.7)$) with ILP Users outperforming Non-ILP Users.

Figure 3

Comparison of Estimated Means and 95% Confidence Intervals of Second Grade ILP Users and Non-ILP Users from Fall to Spring

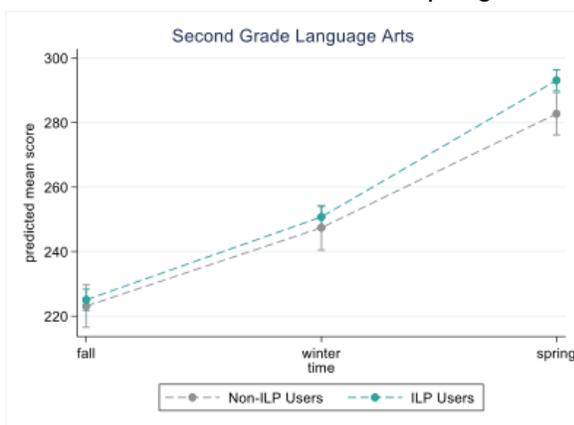


Figure 3 above visually shows the comparison between second grade ILP Users' and Non-ILP Users' Universal Screener Scores from fall to spring. Differences in the means appear from fall to winter and continue to widen from winter to spring.

ILP Usage was found to have an overall significant impact on growth for third grade students ($\chi^2 = 19.13, df = 2, p < 0.001$). A pairwise comparison analysis found the contrast between ILP Users' and Non-ILP Users' Universal Screener Scores from fall to spring as statistically significant ($estimate = 32.5, SE = 7.51, t\text{-ratio} = 4.33, p < 0.0001, 95\% CI (17.77, 47.3)$), as well as from winter to spring ($estimate = 20.3, SE = 7.55, t\text{-ratio} = 2.69, p = 0.007, 95\% CI (5.50, 35.1)$) with ILP Users outperforming Non-ILP Users.

Figure 4

Comparison of Estimated Means and 95% Confidence Intervals of Third Grade ILP Users and Non-ILP Users from Fall to Spring

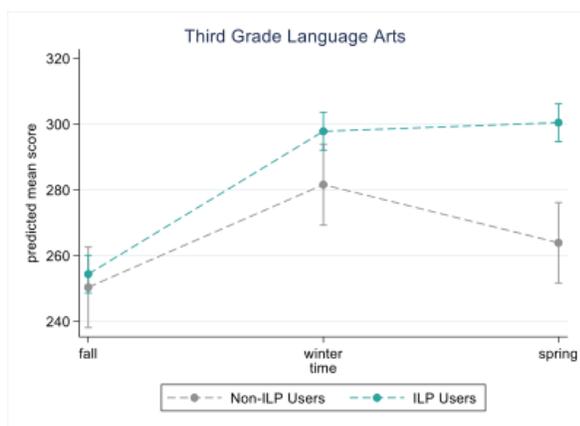


Figure 4 above visually shows the comparison between third grade ILP Users' and Non-ILP Users' Universal Screener Scores from fall to spring. Differences in the means appear from fall to winter and continue to widen from winter to spring.

In addition to significant impacts of ILP Usage on student growth measured by score performance by grade level, Table 4 below displays effect sizes for each grade subset from fall to spring. For Language Arts, effects were found at all four grade levels, with third grade showing the greatest effect ($ES = 0.45$), followed by kindergarten ($ES = 0.25$), first grade ($ES = 0.24$), and second grade ($ES = 0.22$). These effect sizes indicate that ILP Users experienced growth between approaching a quarter to a half of a standard deviation more than Non-ILP Users.

Table 4*Results of Cohen's D Effect Size by Grade Level from Fall to Spring*

	Fall to Spring
	<i>Cohen's d</i>
Kindergarten	0.25
First Grade	0.24
Second Grade	0.22
Third Grade	0.45

Impacts by Racial Sub-demographic Groups

In addition to significant findings on the impact of ILP Usage on student growth measured by score performance on the Universal Screeners, Table 5 below shows there is evidence of statistical significance between treatment and race within each grade level in grades kindergarten through third grade.

Table 5*Results of Linear Mixed-effects Model: Contrasts of Marginal Means between Treatment and Comparison by Race and Grade*

	Fall to Spring		Fall to Winter		Winter to Spring	
	<i>Estimate (SE)</i>	<i>95% CI</i>	<i>Estimate (SE)</i>	<i>95% CI</i>	<i>Estimate (SE)</i>	<i>95% CI</i>
Kindergarten						
American Indian/Native Alaskan	5.87(4.84)	(-3.62, 15.37)	0.17(4.84)	(-9.33, 9.67)	5.71(4.84)	(-3.79, 15.21)
Other	3.93(5.46)	(-7.32, 14.10)	0.65(5.48)	(-10.10, 11.41)	2.74(5.48)	(-8.02, 13.50)
Black/African American	15.41(5.98)**	(3.71, 27.19)	10.07(6.20)	(-2.09-22.23)	5.38(6.20)	(-6.78, 17.54)
Hispanic/Latino	15.62(7.22)*	(1.46, 29.78)	16.21(7.37)*	(1.75, 30.66)	-0.59(7.37)	(-15.05, 13.87)
First Grade						
American Indian/Native Alaskan	19.53(6.71)**	(6.37, 32.7)	14.55(6.75)*	(1.30, 27.8)	4.98(6.75)	(-8.27, 18.2)
Other	33.36(8.34)***	(17.00, 49.7)	21.74(8.42)**	(5.22, 38.3)	11.61(8.42)	(-4.90, 28.1)
Black/African American	16.39(6.57)*	(3.51, 29.3)	1.26(6.68)	(-11.85, 14.4)	15.13(6.68)*	(2.03, 28.2)

Hispanic/ Latino	6.59(10.04)	(-13.11, 26.3)	7.76(10.04)	(-11.94, 27.5)	-1.18(10.04)	(-20.88, 18.5)
Second Grade						
American Indian/Native Alaskan	3.13(6.76)	(-10.13, 16.4)	0.26(6.80)	(-13.09, 13.6)	2.88(6.80)	(-10.47, 16.2)
Other	10.12(10.75)	(-10.98, 31.2)	-4.33(11.11)	(-26.13, 17.5)	14.44(11.11)	(-7.36, 36.2)
Black/African American	17.72(7.31)*	(3.38, 32.1)	9.86(7.86)	(-5.56, 25.3)	7.86(7.86)	(-7.56, 23.3)
Hispanic/ Latino	-0.35(13.25)	(-26.36, 25.7)	-9.19(13.66)	(-36.0, 17.6)	8.84(13.66)	(-17.97, 35.6)
Third Grade						
American Indian/Native Alaskan	23.52(13.2)	(-2.36, 49.4)	9.82(13.2)	(-16.06, 35.7)	13.71(13.2)	(-12.18, 39.6)
Other	34.42(17.2)*	(0.61, 68.2)	15.11(17.2)	(-18.69, 48.9)	19.30(17.2)	(-14.51, 53.1)
Black/African American	48.09(13.5)***	(21.51, 74.7)	2.57(13.7)	(-24.38, 29.5)	45.51(13.7)***	(18.56, 72.5)
Hispanic/ Latino	24.82(18.8)	(-12.05, 61.7)	25.94(18.8)	(-10.94, 62.8)	-1.12(18.8)	(-37.99, 35.8)

Note: Other Racial Sub-demographic group includes Asian, Native Hawaiian/Other Pacific Islander, two or more races, and White
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

In kindergarten, the overall main effect of racial sub-demographic groups was not found to be significant. However, two racial sub-demographic groups were found to be significant in a pairwise comparison analysis between racial sub-demographic groups' performance on the Language Arts Universal Screener Scores from fall to spring. Specifically, ILP Usage had a significant impact on Black/African American kindergarten students from fall to spring (*estimate*= 15.41, *SE*= 5.98, *t-ratio*= 2.58, $p = 0.001$, 95% *CI* (3.71, 27.19)), and Hispanic/Latino kindergarten students from both fall to winter (*estimate*= 16.21, *SE*= 7.37, *t-ratio*= 2.20, $p = 0.028$, 95% *CI* (1.75, 30.66)) and fall to spring (*estimate*= 15.62, *SE*= 7.22, *t-ratio*= 2.16, $p = 0.031$, 95% *CI*(1.46, 29.78)).

In first grade, the overall main effect of racial sub-demographic groups was found to be significant ($\chi^2 = 8.56$, $df = 3$, $p < 0.05$). In a pairwise comparison analysis, significance was found between three racial sub-demographic groups' performance on the Language Arts Universal Screener Scores from fall to spring. Specifically, ILP Usage had a significant impact on American Indian/Native Alaskan students from fall to winter (*estimate*= 14.55, *SE*= 6.75, *t-ratio*= 2.15, $p = 0.032$, 95% *CI* (1.30, 27.8)) and fall to spring (*estimate*= 19.53, *SE*= 6.71, *t-ratio*= 2.91, $p = 0.004$, 95% *CI* (6.37, 32.7)). ILP Usage also had a significant impact on Other students from fall to winter (*estimate*= 21.74, *SE*= 8.42, *t-ratio*= 2.58, $p = 0.0099$, 95%*CI* (5.22, 38.3) and fall to spring

(*estimate*= 33.36, *SE*= 8.34, *t-ratio*= 4.00, *p*= 0.0001, 95% *CI* (17.00, 49.7)). ILP Usage had a significant impact on Black/African American students from winter to spring (*estimate*= 15.13, *SE*= 6.68, *t-ratio*= 2.27, *p*= 0.024, 95% *CI* (2.03, 28.2)) and from fall to spring (*estimate*= 16.39, *SE*= 6.57, *t-ratio*= 2.50, *p*= 0.013, 95% *CI* (3.51, 29.3)).

For second grade, the overall main effect of racial sub-demographic groups was found to be significant ($\chi^2= 12.17$, *df*= 3, *p*< 0.01). One racial sub-demographic group was found to be significant in a pairwise comparison analysis between racial sub-demographic groups' performance on the Language Arts Universal Screener Scores from fall to spring. Specifically, ILP Usage had a significant impact on Black/African American second grade students from fall to spring (*estimate*= 17.72, *SE*= 7.31, *t-ratio*= 2.43, *p*= 0.02, 95% *CI* (3.38, 32.1)).

For third grade, the overall main effect of racial sub-demographic groups was not found to be significant. However, two racial sub-demographic groups were found to be significant in a pairwise comparison analysis between racial sub-demographic groups' performance on the Language Arts Universal Screener Scores from fall to spring. Specifically, ILP Usage had a significant impact on Other third grade students from fall to spring (*estimate*= 34.42, *SE*= 17.2, *t-ratio*= 1.99, *p*= 0.046, 95% *CI* (0.61, 68.2)). Additionally, ILP Usage had a significant impact on Black/African American third grade students from fall to spring (*estimate*= 48.09, *SE*= 13.5, *t-ratio*= 3.55, *p*= 0.0004, 95% *CI* (21.51, 74.7)) and from winter to spring (*estimate*= 45.51, *SE*= 13.7, *t-ratio*= 3.32, *p*= 0.001, 95% *CI* (18.56, 72.5)).

Conclusion

The purpose of this study was to gather data related to the impact of Classworks Individualized Learning Path Usage on student growth as an academic intervention, measured by score performance on the Classworks Universal Screener Assessments, for students performing below the 25th percentile in Language Arts.

The study included 2,176 students in kindergarten through third grade, gathered from a convenience sample of districts implementing Classworks as an MTSS solution to accelerate student achievement during the 2021-2022 academic school year. All participants were identified as academically-at-risk and in need of an academic intervention in Language Arts based on identification of performing below the 25th percentile at the fall baseline Classworks Language Arts Universal Screener.

The analysis showed that ILP Usage does have a significant impact as an academic intervention on students performing below the 25th percentile in grades

kindergarten through third grade based on grade (Table 3) with small but evident effect sizes at all four grade levels (Table 4), and by racial sub-demographic groups within each grade (Table 5).

An overall significant impact of ILP Usage was found for kindergarten, first grade, and third grade. Findings also included significant impacts on growth measured by score performance from fall to winter for first grade students, from winter to spring for first and third grade students, as well as from fall to spring in all grades, kindergarten through third grade.

In addition to significant findings on the impact of ILP Usage on student growth, there is evidence of significant effects between treatment and race within each grade level in grades kindergarten through third grade. The overall main effect between treatment and race was found to be significant in first and second grade.

Additionally, there were racial sub-demographic groups that were significantly impacted by ILP Usage within grade levels as well. Specifically, ILP Usage had a significant impact on first grade American Indian/Native Alaskan students from fall to spring and from fall to winter. ILP Usage had a significant impact on first grade Other students from fall to spring and from fall to winter, as well as third grade Other students from fall to spring. ILP Usage had a significant impact on kindergarten Black/African American students from fall to spring, on first grade Black/African American students from fall to spring and winter to spring, on second grade Black/African American students from fall to spring, and on third grade Black/African American students from fall to spring and from winter to spring. Hispanic/Latino students experienced a significant impact on growth with ILP Usage in kindergarten from fall to spring and from fall to winter.

Based on the results of this analysis, kindergarten-third grade students performing below the 25th percentile that participate in Classworks Individualized Learning Path (ILP) as an academic intervention in Language Arts do experience significant growth from fall to spring compared to their peers that do not participate in Classworks ILP, with evidence of positive effects on student growth in each grade level. Furthermore, there are also significant impacts by racial sub-demographic groups as well.

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