Panorama Student Success

Study Type: ESSA Level II

Prepared for:
Panorama Education

Prepared by LearnPlatform by Instructure:
Ashley Hunt, Ph.D., Senior Researcher
Elizabeth M. Allen Green, Ph.D., Researcher
Justin Long, M.A., Researcher

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Executive Summary

Panorama Education contracted with LearnPlatform by Instructure, a third-party edtech research company, to examine the impact of Panorama Student Success on learning outcomes. LearnPlatform designed the study to satisfy Level II requirements *(Moderate Evidence)* according to the Every Student Succeeds Act (ESSA)[1]. Specifically, the study evaluated the extent to which educator usage of Panorama Student Success impacted outcomes for all students, and whether using the product's intervention planning and management tools impacted outcomes for students at risk of academic challenges.

Study Sample and Methodology

The study included de-identified data from 606 schools across the United States who used Panorama Student Success to manage implementation of multi-tiered system of supports (MTSS) during the 2022–23 school year. Researchers used Northwest Evaluation Association (NWEA) Measure of Academic Progress (MAP) math and reading assessment scores as the primary student achievement outcome. Analyses included descriptive statistics, cluster analyses, and multilevel models. Researchers estimated propensity score weights and included these in analyses comparing end-of-year NWEA MAP performance among Panorama Student Success users and non-users who scored in the 20th percentile or lower at the beginning of the year. Finally, researchers examined relationships between Panorama Student Success usage, MTSS implementation, and student learning outcomes.

Platform Usage

Among schools in the analytic sample, the number of unique Panorama Student Success platform monthly visitors ranged from 0–106 (*M* = 7.36, median = 3.92, *SD* = 8.87). The average monthly number of events across all unique visitors ranged from 1–1,589 (*M* = 25.26, median = 14.48, *SD* = 44.58). Researchers used cluster analysis to categorize monthly school usage as low (4 unique visitors; average of 7 events across all visits for all unique visitors), medium (20 unique visitors; average of 44 events across all visits for all unique visitors), or high usage (26 unique visitors; average of 235 events across all visits for all unique visitors).

MTSS Implementation

Researchers analyzed the extent to which educators documented tiered interventions on Panorama Student Success in the following focus areas: academics, attendance, behavior, ELA, math, social-emotional skills, science, and social studies. The most frequent types of intervention plans tracked on the Panorama Student Success platform focused on supporting students' ELA, math, and attendance needs. Furthermore, platform implementation data indicated that 60% of tracked interventions successfully achieved their intended goal.

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[1] Level II indicates that a product demonstrates 'moderate evidence' supported by a well-designed and well-implemented quasi-experimental study that meets WWC standards with reservations (ESSA, 2015; USDOE, 2016).

Student Outcomes

Association between platform usage and Tier 1 instructional outcomes. Researchers conducted multilevel models examining the influence of school-level usage of Panorama Student Success on student end-of-year NWEA MAP math and reading performance. K-12 students in medium and high usage schools had higher end-of-year NWEA MAP math performance compared to K-12 students in low usage schools. Additionally, K-12 students in high usage schools had higher NWEA MAP reading performance compared to students in low usage schools.

Impact of tracking student interventions using Panorama Student Success. Next, researchers identified students at risk for math or reading difficulties based on beginning-of-year performance at or below the 20th percentile and included this subset of students in multilevel model analyses. Researchers examined the impact of a student receiving an intervention that was tracked on the platform—not the effectiveness of the intervention itself. Results showed that students in grades 6-12 who received math interventions tracked on the Panorama Student Success platform had significantly higher end-of-year NWEA MAP math performance compared to a control sample of similar students without math interventions tracked on the platform. Furthermore, students in grades 3-5 who received reading interventions tracked on the platform had significantly higher end-of-year NWEA MAP reading performance compared to a control sample of similar students without reading interventions tracked on the platform.

Conclusions

Given positive outcome findings, this study meets ESSA evidence requirements for Level II (*Moderate Evidence*). Specifically, this quasi-experimental study was properly designed and implemented; documented baseline equivalence; included statistical controls; had over 350 students across multiple schools; and had multiple positive, statistically significant findings.

Overview of Key Findings

⭐ **74% of schools were medium or high users of the Panorama Student Success platform during the 2022—23 school year.**

✔ Medium usage schools had a median of 20 unique monthly visitors and each visitor averaged of 40 events per month.

✔ High usage schools had a median of 26 unique monthly visitors and each visitor averaged 235 events per month.

✔ Educators used the Panorama Student Success platform most frequently to track Tier II math, ELA, and attendance interventions for Grade 1-8 students.

⭐ **60% of interventions with outcomes tracked on the platform met stated goals.**

✔ 20% of intervention plans did not include explicit goals and educators opted to monitor student progress using a note-taking feature.

⭐ **Schools with medium and high usage of the Panorama Student Success platform had significantly higher end-of-year NWEA MAP math and reading performance.**

✔ Medium and high usage schools had higher K—12 end-of-year math scores compared to low usage schools.

✔ High usage schools had higher K-12 end-of-year reading scores compared to low usage schools.

⭐ **Students at risk for academic challenges with interventions tracked on the Panorama Student Success Platform had higher end-of-year NWEA MAP performance.**

✔ Researchers designated students as at risk for academic challenges if their math or reading scores were at or below the 20th percentile in fall 2022.

✔ Educators who tracked grade 6-12 students' math interventions on the Panorama Student Success platform had students with higher end-of-year math performance compared to grade 6-12 students without tracked interventions.

✔ Educators who tracked grade 3-5 students' reading interventions on the Panorama Student Success platform had students with higher end-of-year reading performance compared to grade 3-5 students without tracked interventions.

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Introduction

Panorama Education contracted with LearnPlatform by Instructure, a third-party edtech research company, to examine the relationship between educator usage of Panorama Student Success and student outcomes. LearnPlatform by Instructure designed the study to satisfy Level II requirements (*Moderate Evidence*) according to the Every Student Succeeds Act (ESSA)[2].

Panorama Student Success is a multi-tiered system of supports (MTSS) implementation solution for schools and districts. Implementing MTSS can improve academic, behavior, and social outcomes (see literature review in Level IV report; Hunt, Cavanaugh, & Long, 2023). However, schools and districts often struggle to maintain timely data to make informed decisions concerning MTSS implementation. One major challenge of successful MTSS implementation is the additional burden placed on the already complex work of educators and interventionists (Walker & Gresham, 2013; Schiller et al., 2020). Panorama Student Success facilitates MTSS implementation by making relevant data and supports quickly available to stakeholders (see logic model in Appendix A; Hunt, Cavanaugh, & Long, 2023).

In addition to describing platform usage during the 2022—23 school year, the present study addressed the following research questions:

MTSS Implementation
1. What percentage of students received Tier I, II, and III interventions and supports?
2. How many students who scored in the 20th percentile or lower on beginning-of-year NWEA MAP assessments received tiered math or reading supports tracked on the Panorama Student Success platform?

Student Outcomes
3. Did schools with higher usage of Panorama Student Success demonstrate higher academic performance?
4. Did students whose math and reading interventions were tracked on Panorama Student Success have greater academic performance compared to students whose interventions were not tracked on the platform?

This report details the study design and methods, implementation, findings, conclusions, and recommended next steps.

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[2] Level II indicates that a product demonstrates 'moderate evidence' supported by a well-designed and well-implemented quasi-experimental study that meets WWC standards with reservations (ESSA, 2015; USDOE, 2016).

Study Design and Methods

This section of the report briefly describes the study participants, measures, and analysis methods. Additional information on the study design, demographics, and measures are included in Appendix B.

Study Design

This study employed descriptive, correlational, and quasi-experimental analyses to examine platform usage and student outcomes. Specifically, descriptive analyses were used to answer research questions one and two, correlational analyses were used for research question three. Research question four was investigated using quasi-experimental methods (comparing Panorama use to non-use) with propensity score weighting to align with ESSA Level II evidence standards. The treatment group included students whose educators tracked interventions on the Panorama Student Success platform during the 2022-23 school year. The comparison group included students whose educators did not track interventions with Panorama Student Success.

Participants and Setting

The sample included 606 schools from 19 states in the Midwest, Northeast, South, and West regions of the United States who used Panorama Student Success during the 2022–23 school year and administered at least one math and/or reading NWEA MAP assessment at the beginning and end of year. Just over half (53%) of schools were located in urban communities, with the remaining in suburban (29%) or town and rural (18%) communities. Most (63%) of the schools were elementary schools, with the remainder evenly split between middle and high schools. The majority of the schools were Title I eligible through schoolwide assistance or targeted assistance funding (77%) and participated in the National School Lunch Program (66%). Lastly, the vast majority (94%) of the schools in this sample were traditional public schools, with a small minority (6%) magnet, charter, or other non-traditional schools (e.g., alternative, career and technical education).

Analyses included students that had beginning and end-of-year NWEA MAP math or reading scores (n = 81,195). The student sample was gender balanced (49% female) and racially diverse (58% White, 18% Black, 11% Asian, 8% Native American, 4% Multiracial). Almost half of students in the study (43%) identified as Hispanic.

Among students with additional demographic data, 21% were English learners, 21% were designated as having special education or 504 disability status, and 40% received free or reduced-price lunch (see Appendix B for additional details about availability of demographic data).

Measures

Researchers used internal Panorama Student Success usage and implementation data as the primary data source. These data included school-level usage metrics, student demographics, assessments, and intervention details.

Researchers used NWEA MAP math and reading scale scores, which range from 95 to 300, as the primary achievement outcome. Where appropriate, researchers grouped analyses by grade bands stated in the assessment design (e.g., kindergarten through grade 2, grade 3 through grade 5, and grade 6 through 12; NWEA, 2019).

Data Analysis

Panorama Education uploaded de-identified platform data from 2022—23 school year through a secure FTP link to LearnPlatform researchers. Researchers characterized usage of the Panorama Student Success platform using descriptive statistics and cluster analyses. Researchers then estimated multilevel models to examine the influence of different levels of Panorama usage on student end-of-year NWEA MAP performance, while controlling for fall 2022 performance and student grade level. Finally, researchers estimated multilevel models with propensity score weights to account for differences between students whose interventions were and were not tracked on the Panorama Student Success platform (see Appendix B for more information about the matching procedures used in this study).

Researchers used the standardized Hedge's *g* effect size (Hedges, 1981) to characterize the practical importance of statistically significant effects, which typically range from -2 through +2. A Hedge's *g* value of 0.15 indicates a small effect, while a value of 0.40 indicates a moderate effect. A value of 0.75 or above is considered a large effect. Hedge's *g* effect sizes are translated into percentile point differences using the WWC Improvement Index (WWC, 2022).

Baseline Equivalence

As part of the analysis for research question four, researchers tested baseline equivalence of student NWEA MAP assessment scores between treatment and comparison groups to confirm students were comparable (additional information on baseline equivalence and propensity score weighting is in Appendix B).

Researchers confirmed whether treatment and comparison groups were similar enough to proceed with analyses by estimating multilevel models examining mean differences in fall NWEA MAP performance by grade band. For grades K-12 in reading and grades K-2 and 6-12 in math, the standardized mean difference between the treatment and comparison groups' fall NWEA MAP scores ranged from -0.22 to 0.13, meaning researchers could proceed with analyses with propensity score weights included in models (What Works Clearinghouse, 2022). However, the mean difference in fall NWEA MAP math performance in grades 3 through 5 was greater than 0.25 and groups were not considered comparable. As a result, researchers did not conduct further analyses for this subsample.

Panorama Student Success Platform Usage

The results below describe usage of the Panorama Student Success in study schools during the 2022-23 school year. Among the 606 schools in the sample, the Panorama Student Success platform had a monthly unique visitor count ranging from 0 to 106 (M = 7.36, SD = 8.87). The average monthly number of events per unique visitor ranged from 0 to 1,589 (M = 25.26, SD = 44.58).

Researchers grouped schools into low, medium and high usage groups based on the unique monthly visitor and average event values using k-medians cluster analyses. Figure 1 below displays the distribution of usage groups. Appendix C includes monthly school-level usage patterns throughout the year and monthly distributions that were combined to determine usage group ranges and assignment.

Cluster analyses placed schools in usage groups based on the monthly number of unique visitors to the Panorama Student Success Platform and monthly number of events per visitor.
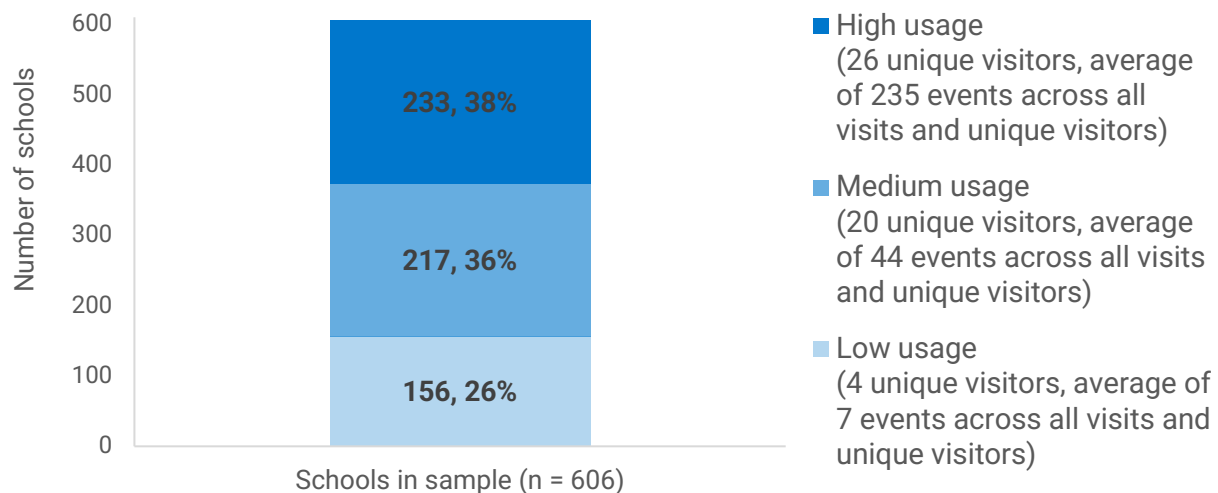
Figure 1. Results from k-medians cluster analyses grouping schools by number of unique monthly visitors and events across all visits and unique visitors

Approximately one-quarter of schools (26%, n = 156) had low usage, with a median of four unique monthly visitors to the Panorama Student Success platform and seven events per visitor per month. Another 36% of schools (n = 217) had medium usage, with a median of 20 unique monthly visitors and 44 events per visitor per month. Finally, the remaining 38% of schools (n = 233) comprised the high usage group, with a median of 26 unique monthly visitors and 235 events per visitor per month.

MTSS Implementation

To address research questions about how schools used the Panorama Student Success platform for implementing MTSS and tiered supports, researchers summarized intervention plan data. In addition, researchers examined the extent to which educators documented tiered interventions in the platform for students at risk for experiencing academic challenges based on their fall 2022 NWEA MAP scores.

1

What percentage of students received Tier I, II, and III interventions and supports?

Researchers conducted descriptive analyses examining the extent of MTSS implementation by summarizing intervention plans tracked on the Panorama Student Success platform. Educators use intervention plans to document and monitor student supports and interventions and collect information such as focus area, tier, and goal.

Schools in high usage groups tracked more interventions on the platform. Figure 2 illustrates the total number of interventions tracked by grade level and usage group during the 2022-23 school year.

Schools delivered 79% of interventions to students in Grades 1 through 8.
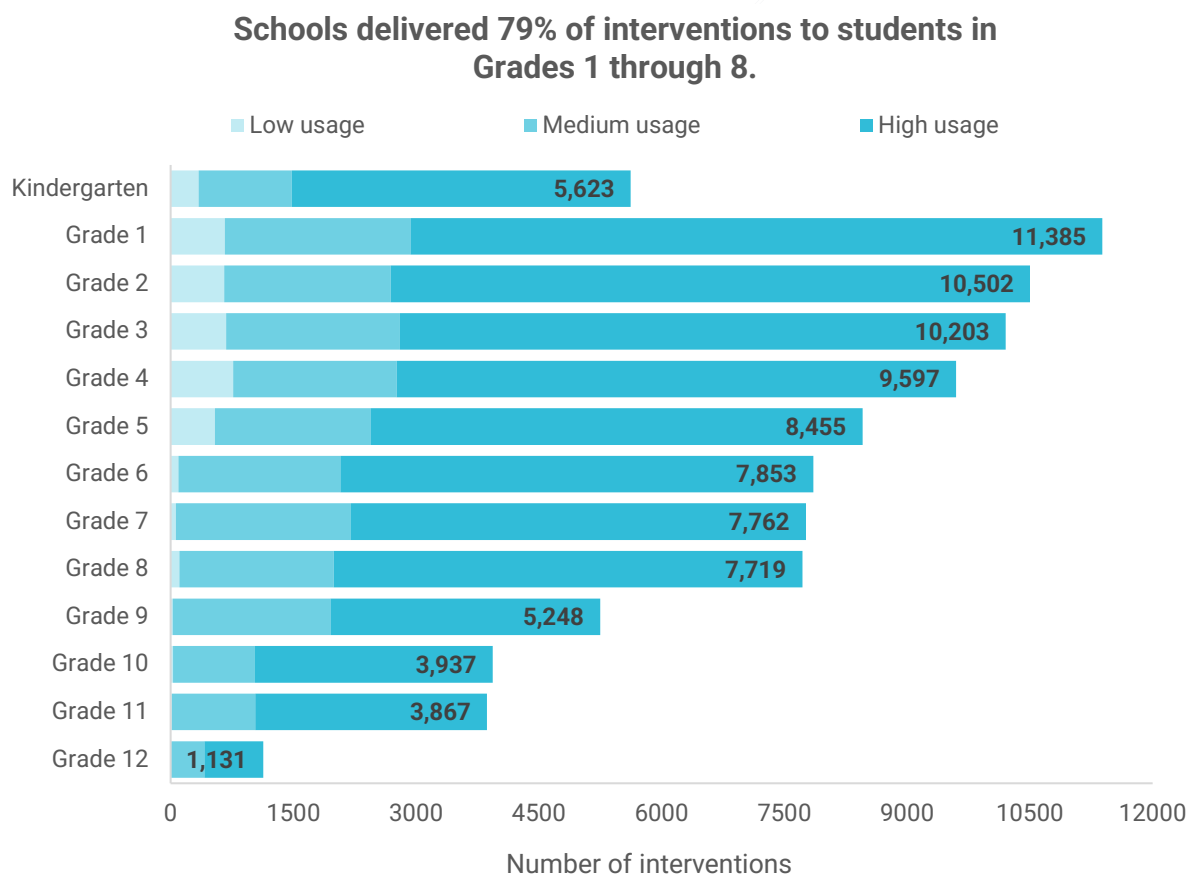
Figure 2. Number of tiered interventions by grade level and usage group (n = 95,551)

1

Educators most frequently created and tracked ELA and math intervention plans on the Panorama Student Success platform (see Figure 3). Schools with high usage tracked more interventions. Collectively, ELA, math, and attendance interventions accounted for 76% of the intervention data tracked by study schools during the 2022-23 school year. The count of interventions by focus area and grade band is available in Appendix C.

Educators most frequently tracked ELA, math, and attendance interventions.

■ Low usage　　■ Medium usage　　■ High usage
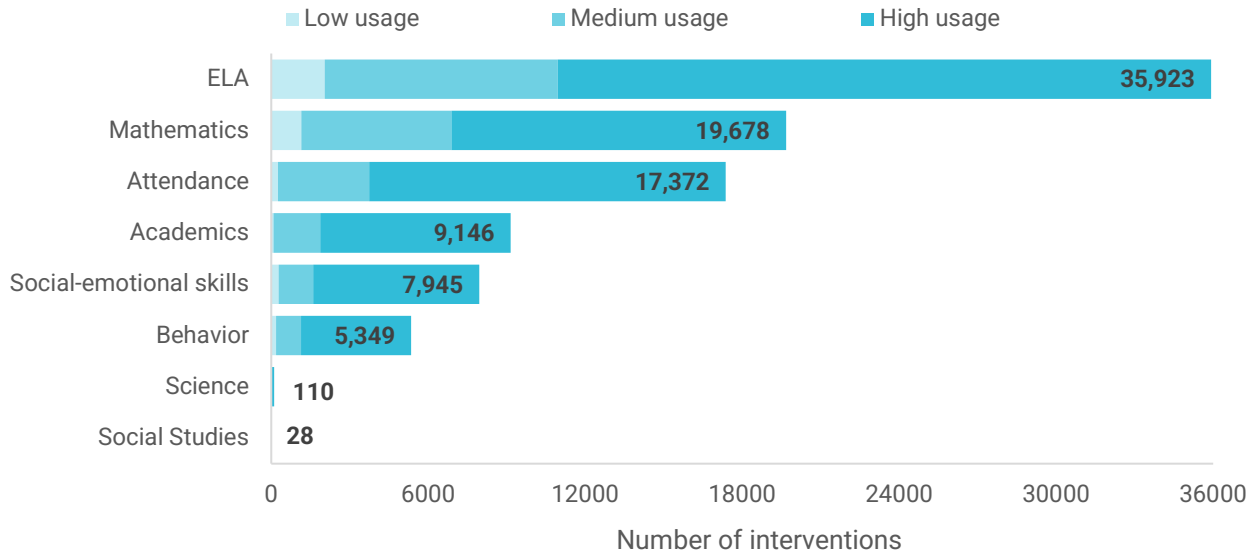
Figure 3. Number of interventions by focus area and usage group (n = 95,551)

Schools used Panorama Student Success most frequently to document and track Tier II interventions across all focus areas (see Figure 4 and Figure 5). Tier III interventions were the next most common, representing 23% of the data. A small percentage of interventions (2%) were not associated with a typical MTSS tier. The count of interventions by tier, focus area, and grade band are reported in Appendix C.

Tier II supports accounted for more than half of the intervention plans tracked on the platform.

■ Low usage　　■ Medium usage　　■ High usage
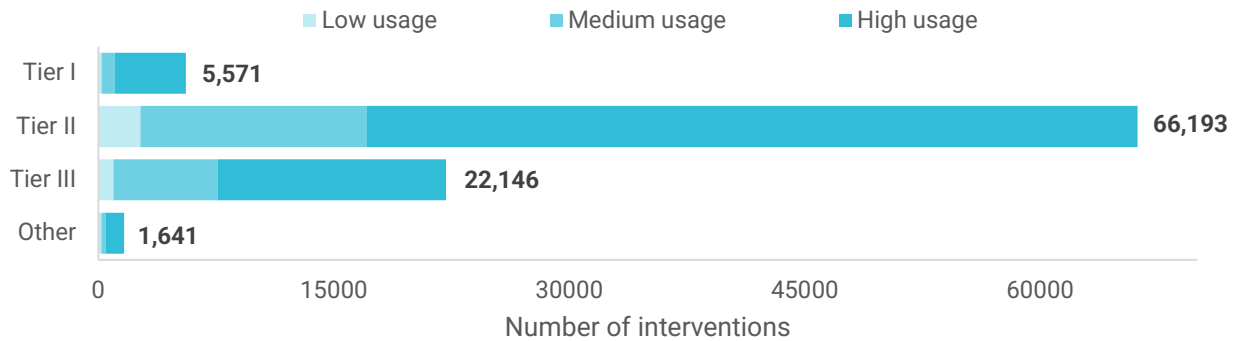
Figure 4. Number of interventions by MTSS tier and monthly usage group (n = 95,551)

1

Schools used the Panorama Student Success platform most frequently to track implementation of Tier II supports.

■ Tier I   ■ Tier II   ■ Tier III

Focus area	Tier I	Tier II	Tier III
Mathematics	2%	70%	28%
ELA	7%	66%	28%
Behavior	4%	74%	22%
Attendance	8%	71%	20%
Social-emotional skills	6%	75%	19%
Academics	8%	82%	10%
Science	1%	98%	1%
Social Studies	4%	96%	

Percentage of interventions
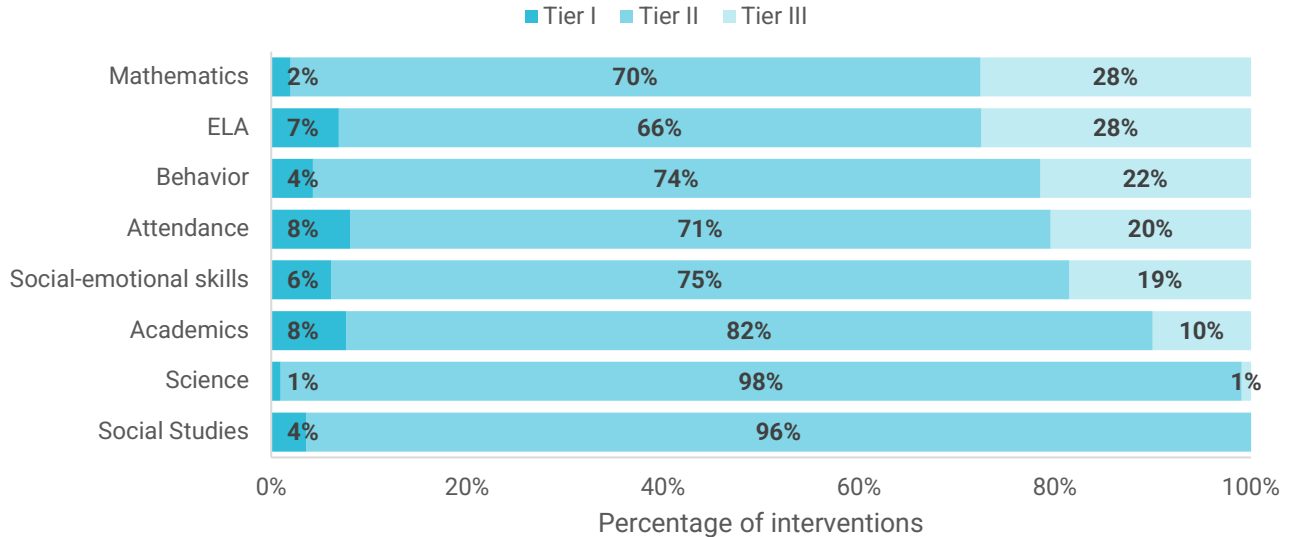
Figure 5. Percentage of interventions by MTSS tier and focus area (n = 95,551)

When educators created an intervention plan on the Panorama Student Success platform, they could choose to identify a goal and later confirm whether the student achieved that goal. This applied to 80% of the intervention plans. The remaining 20% of plans did not include explicit goals, and educators opted to monitor student progress using a note-taking feature. Of the interventions with identified goals, more than half (60%) met the intended goal, while the remaining 40% did not.

Across all focus areas, the majority of interventions with outcomes tracked on the platform met stated goals.

■ Met goal   ■ Did not meet goal

Focus area	Met goal	Did not meet goal
Social-emotional skills	81%	19%
Social Studies	74%	26%
Academics	64%	36%
Science	62%	38%
Attendance	60%	40%
Behavior	58%	42%
ELA	58%	42%
Mathematics	56%	44%

Percentage of interventions
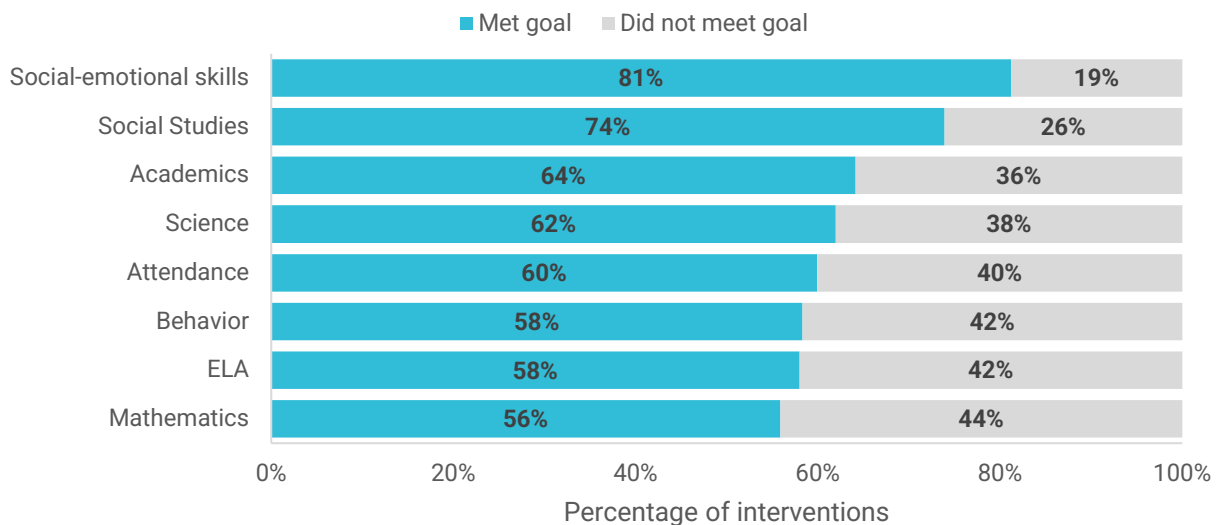
Figure 6. Percentage of interventions with tracked outcomes that met goal by focus area (n = 76,557)

2 How many students who scored in the 20th percentile or lower on beginning-of-year NWEA MAP assessments received tiered math or reading supports tracked on the Panorama Student Success platform?

Researchers examined the extent to which students at risk for academic challenges received interventions tracked on the Panorama Student Success platform. Using percentile rankings reported by NWEA, students performing at or below the 20th percentile on beginning-of-year math and reading MAP assessments were identified.

Among students who completed an NWEA MAP math assessment at the beginning of the year, 17% (*n* = 11,587) scored at or below the 20th percentile for their grade. Data indicated that 13% of students in that group (*n* = 1,294) received some form of tiered support in math that was tracked on the Panorama Student Success platform.[3]

For reading performance, 15% of students (*n* = 8,076) performed at or below the 20th percentile for their grade and 20% of that group (*n* = 1,405) received tiered reading supports that were tracked on the platform.[4]

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[3] Researchers do not assume that the remaining 10,293 did not receive any form of math support during the school year, only that any supports received were not captured on the Panorama Student Success platform.

[4] Researchers do not assume that the remaining 6,671 did not receive any reading support during the school year, only that any supports received were not tracked on the Panorama Student Success platform.

Student Outcomes

The following section details the impact of Panorama Student Success usage on student outcomes. Researchers analyzed a series of multilevel models that nested students in schools while controlling for fall NWEA MAP achievement, grade level, Ethnicity (i.e., Hispanic/not Hispanic), and special education status. Analyses comparing students with and without tracked interventions also included propensity score weights.

Statistically significant findings are reported at the $p < .05$ level, which indicates a 95% probability that observed differences in student outcomes are not due to chance. Hedge's g effect sizes are translated into percentile point differences using the WWC Improvement Index (WWC, 2022). Significant findings are marked green (positive results) in figures. Findings that are not statistically significant are marked grey.

3

Did schools with higher usage of Panorama Student Success demonstrate higher academic performance?

Researchers estimated multilevel models to examine the relationship between different levels of Panorama usage and K-12 end-of-year NWEA MAP performance. Several significant findings emerged (see Appendix D for full model results).

Math outcomes. Results showed that students in schools with medium and high Panorama Student Success usage had better K-12 end-of-year NWEA MAP math performance compared to schools with low usage (see Figure 7). Compared to K-12 students in low usage schools, enrollment in a medium usage school was associated with a statistically significant, small effect, ($g = 0.07$), which translates to a 3-percentile point difference. In other words, if a student enrolled in a low usage school performed at the 50th percentile, they would have been expected to perform at the 53rd percentile if enrolled in a medium usage school. Enrollment in a high usage school was also associated with a statistically significant, small effect, ($g = 0.06$), which translates to a 2-percentile point difference.

K-12 students enrolled in schools with medium or high Panorama Student Success usage performed significantly better on end-of-year math assessments compared to low usage schools.
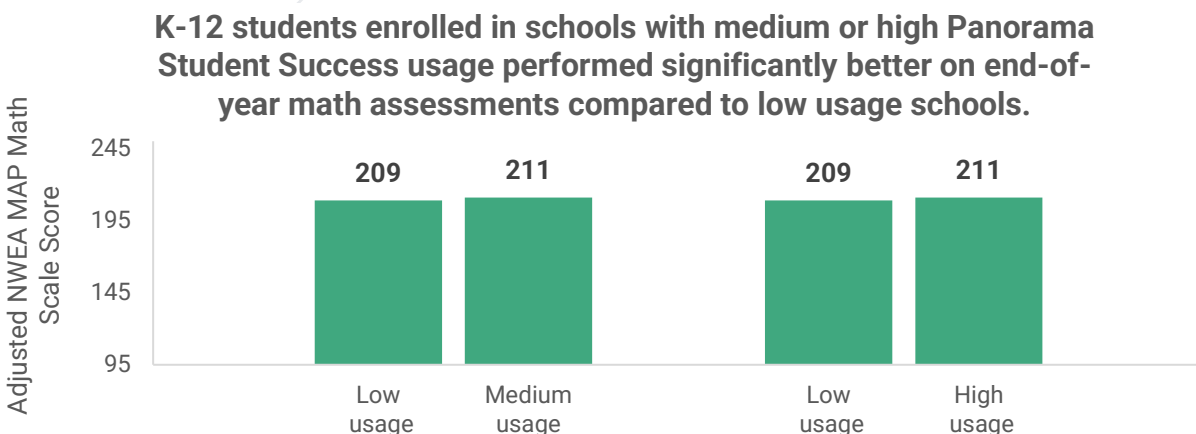
Figure 7. Influence of school usage on end-of-year NWEA MAP math performance (Low vs. medium: g = 0.07; p < .001; Low vs. high: g = 0.06, p < .01; n = 36,616)

3

Exploratory analyses further investigated the effect of usage on math performance by grade band (see Appendix D for full model results). Compared to low usage schools, K-2 student enrollment in a high usage school was associated with a 4-percentile point difference in end-of-year NWEA math performance (g = 0.11, p < .01). For students in grades 6-12, enrollment in a medium usage school predicted a 6-percentile point difference in math performance compared to low usage schools (g = 0.14, p < .05).

Reading outcomes. Compared to schools with low usage, K-12 students in schools with high Panorama Student Success platform usage performed better on end-of-year NWEA MAP reading assessments (see Figure 8). Compared to K-12 students in low usage schools, enrollment in a high usage school was associated with a statistically significant, small effect, (g = 0.08) which translates to a 3-percentile point difference. End-of-year reading scores did not significantly differ between low and medium usage schools.

K-12 students enrolled in schools with high Panorama Student Success usage performed significantly better on end-of-year reading assessments than those in schools with low usage.
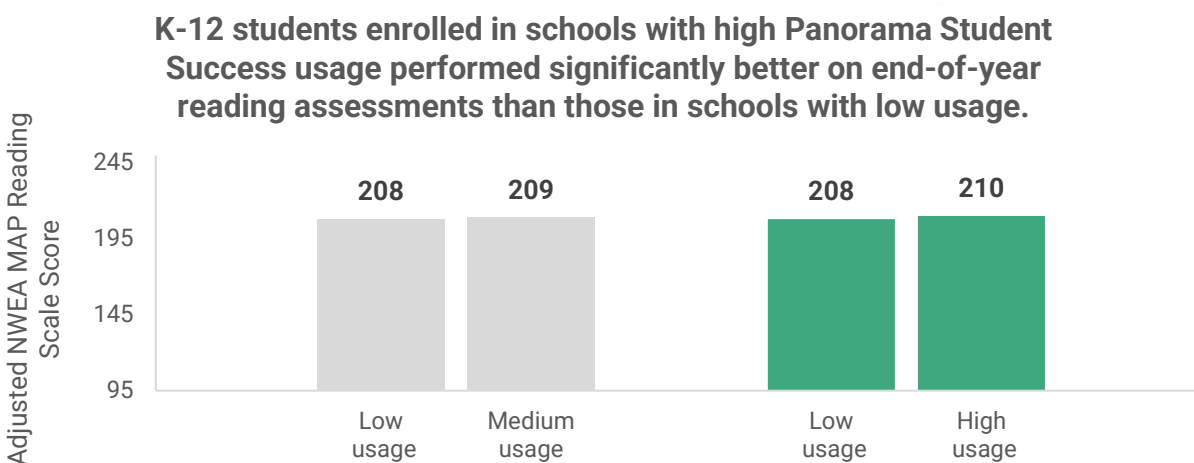
Figure 8. Influence of school usage on end-of-year NWEA MAP reading performance (Low vs. medium: nonsignificant; Low vs. high: g = 0.08, p <.05; n = 28,741)

Subsequent exploratory analyses investigated the effect of usage on reading performance by grade band (see Appendix D for full model results). Compared to low usage schools, grade 6-12 student enrollment in a medium usage school was associated with a 8-percentile point difference in end-of-year NWEA reading performance (g = 0.19, p < .01). Furthermore, enrollment in a high usage school predicted a 8-percentile point difference in reading performance compared to low usage schools (g = 0.20, p < .05).

4

Did students whose math and reading interventions were tracked on Panorama Student Success have greater academic performance compared to students whose interventions were not tracked on the platform?

Researchers analyzed multilevel models and included propensity score weights examining the impact of tracking interventions among students who scored in the 20th percentile or lower at the beginning of the year. While any of these students could have received support based on their beginning-of-year scores, this set of analyses tested the effect of a student receiving an intervention that was tracked on the Panorama Student Success platform.

Math outcomes. Results showed a positive, statistically significant impact of tracking interventions on the Panorama Student Success platform on math performance in grades 6-12. Specifically, tracking grade 6-12 math interventions had a significant, small effect ($g = 0.14$) compared to a control sample of similar students. In other words, if a comparison student who performed at the 20th percentile received math interventions that were tracked on the platform, they would have been expected to perform at the 26th percentile, translating to a 6-percentile point improvement (see Figure 9).

6-12 students at risk of math challenges had higher end of year math scores when educators tracked their interventions in the platform.
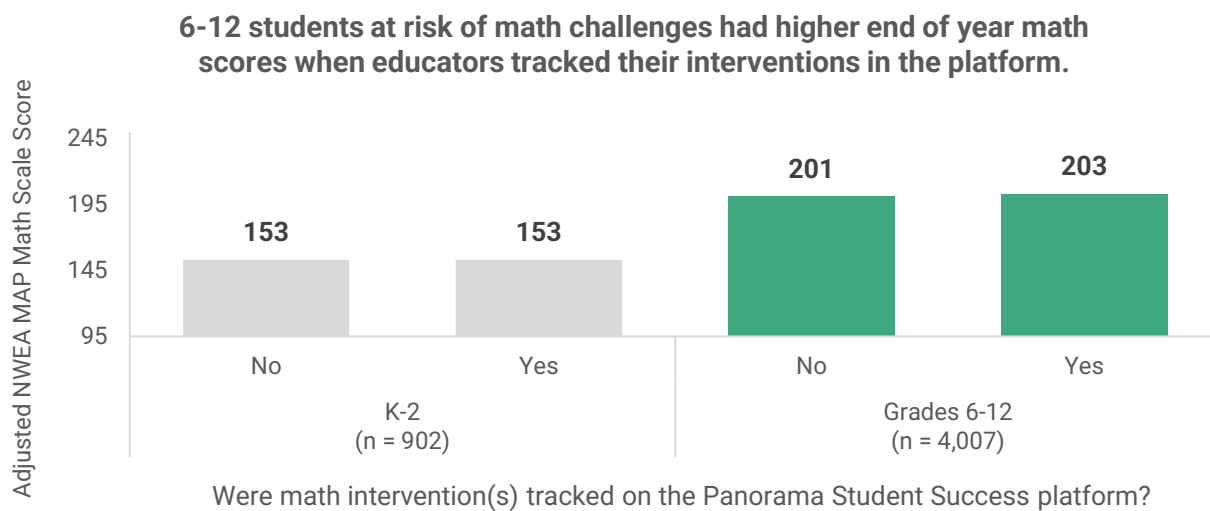
Figure 9. Adjusted NWEA MAP math end-of-year 2023 scale scores for students at risk for academic challenges whose interventions were not and were tracked on the Panorama Student Success platform (Grades 6-12; g = 0.14; p < .05).

Students in grades 3 through 5 were not included in these analyses due to lack of baseline equivalence. Results for students in grades K-2 were not significant. Subsequent exploratory analyses investigated the effect of intervention tracking on secondary math performance by grade band (see Appendix D for full model results). Students in grades 6-8 with tracked interventions performed an average of 6-percentile points better on their end-of-year NWEA math assessment compared to those without tracked interventions ($g = 0.14$, $p < .001$). Since the majority of 9-12 students in the sample had math interventions tracked on the platform, researchers could not estimate the difference between students without tracked interventions.

4

Reading outcomes. There was a positive, statistically significant impact of tracking reading interventions on the Panorama Student Success platform on reading performance in grades 3-5 (see Figure 10). Specifically, grade 3-5 students whose interventions were tracked on the platform had significantly higher NWEA MAP reading performance (Hedge's g = 0.09) than a control group of similar students without tracked reading interventions, which translates to a 4-percentile point improvement.

Grade 3-5 students at risk of reading challenges had higher end of year reading scores when educators tracked their interventions in the platform.

Adjusted NWEA MAP Reading Scale Score

	No	Yes	No	Yes	No	Yes
	153	154	177	179	195	193

K-2 (n = 317) | Grades 3-5 (n = 1,837) | Grades 6-12 (n = 2,157)

Were reading intervention(s) tracked on the Panorama Student Success platform?
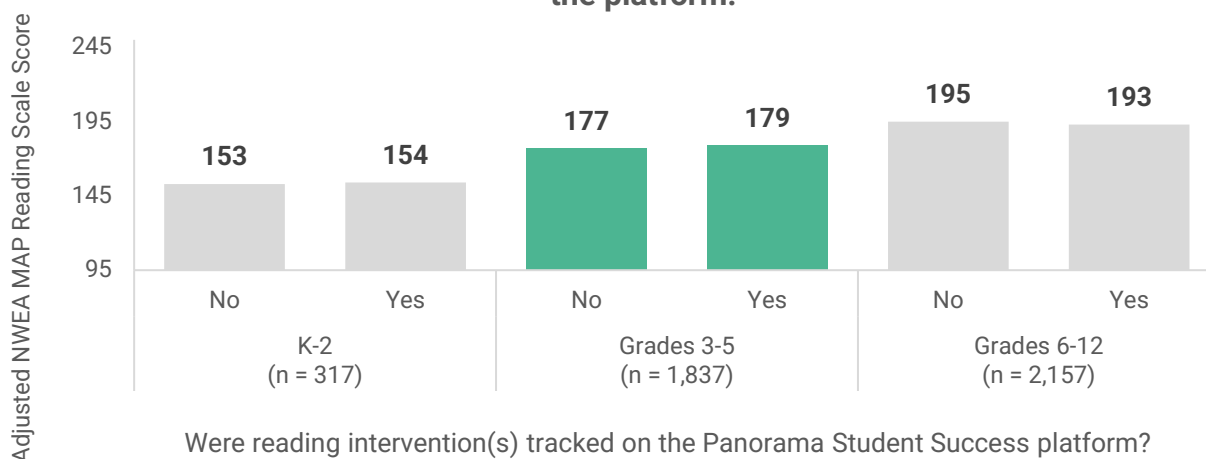
Figure 10. Adjusted NWEA MAP reading end-of-year 2023 scale scores for students at risk for academic challenges whose interventions were not and were tracked on the Panorama Student Success platform (Grades 3-5; g = 0.09; p < .05).

Results for students in grades K-2 and 6-12 were not significant. Subsequent exploratory analyses investigating the effect of intervention tracking on reading performance by secondary grade band did not find significant results (see Appendix D for full model results).

Conclusions

Given positive outcome findings, this study provides results to satisfy ESSA evidence requirements for Level II (Moderate Evidence). Specifically, this quasi-experimental study met the following criteria for Level II:

✓   Proper design and implementation

✓   Baseline equivalence for treatment and comparison groups

✓   Statistical controls through covariates

✓   At least 350 students in the analysis sample

✓   Representative, multi-site study

✓   At least one statistically significant, positive finding

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Appendix A. Panorama Student Success Logic Model

PANORAMA EDUCATION

Purpose Statement: Districts often struggle to maintain timely data to make informed decisions concerning implementation of Multi-Tiered System of Supports (MTSS) and Response to Intervention (RTI) to support and improve student outcomes. Panorama Student Success is a dynamic platform that gives educators and administrators immediate access to data in one place for supporting students and adults. The platform identifies students who may benefit from additional support and workflows for planning, implementing, and progress monitoring targeted supports and interventions. As a result, educators and administrators are empowered to manage and evaluate MTSS systems and practices through the use of data-based decision-making best practices.

Inputs
What we invest:

Comprehensive data platform providing a whole-child view of student needs and progress
- Unified monitoring of student grades, attendance, assessments, SEL, and behavior data
- Syncs with SIS and other data systems to provide nightly updates
- Evaluate and improve Tier 1/universal programming, systems, and practices
- Triangulation of data sources to support identification of students with Tier 2 and 3 needs

Accommodates local MTSS/RTI approaches and inputs, including:
- Blended academic, behavioral, and SEL initiatives
- State and local policies
- Family input
- Leadership, teaming, and collaboration structures (e.g., student support teams)
- Resources and staffing

Additional products to support MTSS/RTI implementation
- Panorama's Playbook: Professional learning library of evidence-based instructional resources and interventions
- Panorama for Positive Behavior: Tools for integrating positive behavior supports within MTSS
- Training and resources to support implementation and platform use

Supports districts in complying with the Family Education Rights and Privacy Act (FERPA), Protection of Pupil Rights Amendment (PPRA), and Children's Online Privacy Protection Act (COPPA)

Participants
Who we reach:

K-12 Students

Educators

School Teams & Staff

School & District Administrators

Activities
What participants do:

Students:

Complete assessments, SEL Surveys, and check-ins on well-being and academic needs

Educators, Teams, & Administrators:

Manage and evaluate MTSS systems and practices in one place
- Monitor integrated assessment, academic, attendance, behavior, and SEL data for students on single platform
- View and filter district and school data with intuitive reports including MTSS and intervention summaries
- Monitor MTSS and intervention implementation
- Evaluate the impact of core programming, universal supports, and tiered interventions
- Use data to inform decisions for improving systems and practices, allocating resources, and supporting educator capacity

Use data-based decision-making practices facilitated by the platform
- Monitor progress and needs for all students
- Identify students who may benefit most from targeted supports and interventions
- Define and analyze student academic challenges based on a whole-child view of academic, attendance, behavior, and SEL data
- Plan, implement, and progress monitor targeted supports and intervention plans for individuals and groups of students
- Set realistic intervention learning goals based on full understanding of students strengths and needs
- Adapt, intensify, or fade intervention plans based on student progress and evolving understanding of needs

Outputs
Products of activities:

Number of student assessments, surveys, and check-ins completed

Number/percentage of students that receive Tier 1, 2, and 3 supports

Number/percentage of students identified as on track and at risk

Number of interventions implemented by content area, strategy and goal

Number/percentage of intervention plans implemented and monitored according to the intervention plan

Number/percentage of intervention plans that meet learning targets

Frequency and approach to intervention progress monitoring

Number of reports downloaded/accessed by educators and administrators

Number of Teacher, Staff, and Family-School surveys completed

Outcomes

Short-term

All students consistently receive instruction and interventions that meet their unique needs

Students in need of additional supports are easily identified

Educators and teams use data to identify student needs and track progress

Administrators have increased visibility of whole-child data and intervention progress

Intermediate

Students receive instruction and interventions that help them meet proficiency standards

Students who do not progress are given revised or intensified intervention plans

Educators and teams use platform to track student progress and adapt instruction and intervention plans when needed

Administrators use data to make informed decisions to better support teachers and students

Long-term

Students make academic gains

Students perform better on interim screening and end-of-year summative assessments

Students develop the academic skills needed to thrive through graduation and beyond

Educators and teams consistently deliver the student supports necessary to improve academic outcomes

Administrators use data to strengthen team capacity and create a safe, equitable, school community

Administrators use data to support strategic plan and drive system-wide growth

LEARN PLATFORM

Appendix B. Additional Information on Study Design, Measures and Analyses

Study Design

Panorama Education uploaded de-identified platform data from 2022—23 school year through a secure FTP link. Researchers identified schools that used the NWEA MAP assessment to maximize the number of schools and students available for combined analyses.

Descriptive analyses. Researchers characterized usage of the Panorama Student Success platform using descriptive statistics and cluster analyses. Data reflecting the number of unique visitors and visitor event averages were limited to users associated with one unique school and who did not use ad blocker software. As such, analyses might have underestimated both platform usage and the associations between usage and student outcomes.

Correlational analyses. Research question three used regression analyses to examine the association between school-level usage and student end-of-year performance on NWEA MAP math and reading assessments while controlling for beginning-of-year scores and student grade level. Multilevel models were used to nest students in schools.

Quasi-experimental analysis. Research question four used quasi-experimental analyses with propensity score weights to align with ESSA Level II evidence standards. To allow comparisons of NWEA MAP math and reading performance among students whose supports were tracked on the Panorama Student Success platform (i.e., treatment group) and students whose supports were not tracked (i.e., comparison group), the study included a treatment and comparison group of students and classrooms. While most students included in the analyses likely received support based on their beginning-of-year scores, impact analyses specifically tested the effect of a student receiving an intervention that was tracked on the Panorama Student Success platform.

Participants and Setting

The sample included 606 schools who used the Panorama Student Success tool during the 2022–23 school year and administered at least one math and/or reading NWEA MAP assessment at both the beginning and end of the year. Outcome analyses included students that had both beginning and end-of-year NWEAP MAP math or reading scores (n = 81,195). See Table B1 for demographic details and information about the extent of missing data for student demographics.

Table B1. Student demographics

	N	Percentage	Percent missing
Race/Ethnicity			10%
Asian	7,135	10%	
Black	11,625	16%	
Latinx	31,572	43%	
Multiracial	2,415	3%	
Native American	5,357	7%	
Pacific Islander	303	0.4%	
White	37,589	52%	
Female	39,873	49%	0%
Subgroup membership			
English learner	12,875	20%	23%
Special education	10,641	14%	8%
504 status	5,949	9%	14%
Free/reduced-price lunch	9,107	40%	72%

Measures

Researchers used internal Panorama Student Success usage and implementation data as the primary data source for the study. NWEA MAP standardized math and reading assessments served as the primary achievement outcome. Student performance on MAP assessments were analyzed to evaluate the impact of Panorama Student Success usage and implementation.

Propensity Score Weighting. To help make the student groups (i.e., students received an intervention that was tracked on the platform and students who did not) as comparable as possible, propensity score weights were calculated for each student. To calculate propensity scores, researchers conducted binary logistic regression with student group as the dependent variable and grade level and NWEA beginning-of-year scores as covariates. The probability was saved as a new variable. Weights were calculated by dividing one by the probability (one/probability). Students for whom a weight could not be calculated were dropped from the final analytic sample. All analyses for research question four included these weights

Baseline Equivalence

To ensure the validity of findings for research question four and adhere to ESSA Level II standards, researchers tested for baseline equivalence of student NWEA MAP assessment scores between treatment and comparisons groups. To help make the student groups (i.e., students who received an intervention that was tracked on the platform and students who did not) as comparable as possible, propensity score weights were calculated for each student.

Baseline Standardized Assessment Scores. Multilevel models testing comparison and treatment means measured the relative size of the baseline differences between the groups. Researchers then calculated Hedge's g, an effect size statistic, to characterize group differences. The Hedge's g statistic is a measure of the size of the differences between the groups in standard deviations. The results of baseline equivalence analyses are included in Table B1.

For grades K-12 in reading and grades K-2 and 6-12 in math, the effect size difference between the treatment and comparison groups' baseline scores ranged from -0.22 to 0.13, meaning that differences were substantive and included in analyses as covariates, but that the groups could be considered equivalent (What Works Clearinghouse, 2014). The difference in beginning-of-year math performance for students in grades 3 through 5 was large enough that the two groups could not be considered equivalent, and thus were not included in analyses (What Works Clearinghouse, 2014).

Table B2. Baseline equivalence of beginning-of-year NWEA MAP assessments scores by subject and grade level

Baseline NWEA MAP Assessment	Comparison Mean	Treatment Mean	Hedge's g	Equivalent for analyses?
Math				
K—2	139 (n = 1,025)	140 (n = 104)	-0.19	✓
3—5	178 (n = 3,108)	180 (n = 845)	0.29	✗
6—12	199 (n = 5,960)	197 (n = 453)	-0.10	✓
Reading				
K—2	141 (n = 315)	139 (n = 197)	0.01	✓
3—5	171 (n = 1,827)	173 (n = 722)	0.13	✓
6—12	192 (n = 4,405)	189 (n = 424)	-0.22	✓

Data Analysis

Researchers used descriptive statistics to describe usage of Panorama Student Success and MTSS. Multilevel regression analyses investigated the association between platform usage and end-of-year NWEA MAP assessment scores. The analyses included student-level covariates to control for potential selection bias. In addition, researchers calculated standardized effect sizes to determine the difference between treatment and comparison students' NWEA MAP math and reading scores.

Appendix C: Additional Usage and Implementation Results

Table C1. Monthly school-level usage of Panorama Student Success

Month	Number of unique visitors			Number of events across all visits per unique visitor		
	Mean	*Median*	*Range*	*Mean*	*Median*	*Range*
July 2022	0	0	0 – 8	5	0	0 - 519
August 2022	5	1	0 - 106	16	5	0 - 867
September 2022	8	3	0 – 65	31	13	0 – 1,495
October 2022	10	5	0 – 85	36	15	0 – 1,589
November 2022	9	3	0 - 101	29	15	0 - 495
December 2022	8	2	0 – 76	23	10	0 - 844
January 2023	9	4	0 – 72	30	15	0 - 500
February 2023	9	5	0 – 84	28	14	0 - 863
March 2023	9	4	0 – 74	32	14	0 - 729
April 2023	7	3	0 – 58	28	31	0 - 789
May 2023	8	3	0 – 58	27	14	0 - 536
June 2023	5	1	0 – 56	17	5	0 - 320

Table C2. Interventions by focus area and grade band

Grade band	K-2		Grade 3-5		Grade 6-8		Grade 9-12	
Intervention focus area	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Academics	586	2%	608	2%	3,443	15%	4,168	29%
Attendance	2,780	10%	3,082	11%	4,155	18%	5,911	42%
Behavior	1,612	6%	1,420	5%	1,723	7%	521	4%
ELA	16,835	61%	12,217	43%	5,568	24%	1,096	8%
Mathematics	3,818	14%	8,220	29%	5,724	25%	1,869	13%
Social-emotional skills	1,879	7%	2,673	9%	2,669	11%	567	4%
Science	0	0%	35	0%	35	0%	40	0%
Social Studies	0	0%	0	0%	17	0%	11	0%

Table C3. K-2 interventions by tier and focus area

Intervention tier	Tier I		Tier II		Tier III		Other	
Intervention focus area	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Academics	15	3%	372	64%	108	18%	91	16%
Attendance	193	7%	2,015	72%	567	20%	5	0.18%
Behavior	72	5%	1,128	70%	383	24%	29	2%
ELA	1,824	11%	10,495	62%	4,392	26%	124	1%
Mathematics	97	3%	2,435	64%	1,201	31%	85	2%
Social-emotional skills	118	6%	1,445	77%	300	16%	16	1%

Table C4. Grade 3-5 interventions by tier and focus area

Intervention tier	Tier I		Tier II		Tier III		Other	
Intervention focus area	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Academics	34	6%	296	49%	78	13%	200	33%
Attendance	235	8%	2,252	73%	576	19%	19	1%
Behavior	58	4%	1,020	72%	316	22%	26	2%
ELA	449	4%	7,805	64%	3,831	31%	132	1%
Mathematics	93	1%	5,822	71%	2,149	26%	156	2%
Social-emotional skills	178	7%	2,164	81%	316	12%	15	1%
Science	0	0	29	83%	0	0	6	17%

Table C5. Grade 6-8 interventions by tier and focus area

Intervention tier	Tier I		Tier II		Tier III		Other	
Intervention focus area	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Academics	196	6%	2,801	81%	253	7%	193	6%
Attendance	292	7%	2,982	72%	871	21%	10	0.2%
Behavior	49	3%	1,321	77%	343	20%	10	1%
ELA	153	3%	4,273	77%	1,118	20%	24	0.4%
Mathematics	46	1%	4,438	78%	1,194	21%	46	1%
Social-emotional skills	135	5%	1,894	71%	630	24%	10	0.4%
Science	0	0	35	100%	0	0	0	0
Social studies	0	0	17	100%	0	0	0	0

Table C6. Grade 9-12 interventions by tier and focus area

Intervention tier	Tier I		Tier II		Tier III		Other	
Intervention focus area	N	%	N	%	N	%	N	%
Academics	389	9%	3,250	78%	354	9%	175	4%
Attendance	566	10%	4,127	70%	1,196	20%	22	0.4%
Behavior	30	6%	406	78%	83	16%	2	0.4%
ELA	25	2%	612	56%	459	42%	0	0
Mathematics	143	8%	914	49%	802	43%	10	1%
Social-emotional skills	24	4%	330	58%	207	37%	5	1%
Science	1	2%	38	95%	1	2%	0	0
Social studies	1	9%	10	91%	0	0	0	0

Appendix D: Student Outcome Analysis Model Results

Table D1. Multilevel model testing association between usage and K−12 NWEA MAP Math (90 schools; n = 36,616)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Low vs. Medium usage	1.69	0.48	3.53	<.001	[0.75, 2.63]	0.07*
Low vs. High usage	1.44	0.47	3.03	.002	[0.51, 2.36]	0.06*
Beginning-of-year pretest	0.91	0.00	305.02	<.001	[0.91, 0.93]	
Grade level	-1.00	0.05	-21.38	<.001	[-1.08, 0.90]	
Ethnicity	-0.03	0.10	-0.34	0.73	[-0.23, 0.16]	
Special education status	-1.93	0.13	-14.82	<.001	[-2.18, -1.67]	

Table D2. Multilevel model testing association between usage and K−2 NWEA MAP Math (52 schools; n = 4,977)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Low vs. Medium usage	0.05	0.89	0.06	0.95	[-1.69, 1.80]	0.00
Low vs. High usage	1.92	0.71	2.70	.007	[0.53, 3.31]	0.11*
Beginning-of-year pretest	0.85	0.01	86.69	<.001	[0.83, 0.87]	
Grade level	2.98	0.29	10.39	<.001	[2.42, 3.54]	
Ethnicity	-0.16	0.25	-0.65	0.52	[0.65, 0.33]	
Special education status	-2.33	0.31	-7.50	<.001	[-2.94, -1.72]	

Table D3. Multilevel model testing association between usage and Grade 3−5 NWEA MAP Math (66 schools; n = 15,547)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Low vs. Medium usage	0.61	0.62	0.99	0.32	[-0.60, 1.81]	0.03
Low vs. High usage	0.67	0.51	1.30	0.20	[-0.34, 1.67]	0.03
Beginning-of-year pretest	0.91	0.00	200.10	<.001	[0.90, 0.92]	
Grade level	-1.19	0.08	-14.73	<.001	[-1.35, -1.03]	
Ethnicity	0.16	0.13	1.23	0.22	[-0.10, 0.42]	
Special education status	-2.19	0.16	-13.53	<.001	[-2.51, -1.87]	

Table D4. Multilevel model testing association between usage and Grade 6—12 NWEA MAP Math (30 schools; n = 16,092)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Low vs. Medium usage	2.40	1.08	2.22	0.03	[0.28, 4.53]	0.14*
Low vs. High usage	0.79	1.91	0.42	0.68	[-2.94, 4.53]	0.04
Beginning-of-year pretest	0.88	0.91	168.19	<.001	[0.87, 0.90]	
Grade level	-2.12	0.10	-21.21	<.001	[-2.32, -1.93]	
Ethnicity	-0.25	0.17	-1.47	0.14	[-0.57, 0.08]	
Special education status	-2.38	0.25	-9.43	<.001	[42.57, 48.52]	

Table D5. Multilevel model testing association between usage and Grade 6—8 NWEA MAP Math (29 schools; n = 15,768)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Low vs. Medium usage	3.62	0.65	5.61	<.001	[2.36, 4.89]	0.21*
Low vs. High usage	3.08	1.17	2.62	<.01	[0.77, 5.38]	0.18*
Beginning-of-year pretest	0.92	0.01	181.39	<.001	[0.96, 0.93]	
Grade level	-1.88	0.09	-20.49	<.001	[-2.06, -1.70]	
Ethnicity	-0.36	0.16	-2.22	0.03	[-0.68, -0.04]	
Special education status	-1.94	0.22	-8.79	<.001	[-2.37, -1.51]	

Table D6. Multilevel model testing association between usage and Grade 9—12 NWEA MAP Math (8 schools; n = 3,728)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Low vs. Medium usage	0.72	3.15	-0.23	0.82	[-6.90, 5.46]	-0.04
Low vs. High usage	--	--	--	--	--	--
Beginning-of-year pretest	0.81	0.01	68.67	<.001	[0.78, 0.83]	
Grade level	-2.20	0.27	-8.19	<.001	[-2.72, -1.67]	
Ethnicity	0.28	0.41	0.67	0.50	[-0.53, 1.08]	
Special education status	-3.94	0.80	-4.90	<.001	[-5.52, -2.37]	

Table D7. Multilevel model testing association between usage and K—12 NWEA MAP Reading (77 schools; n = 28,741)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Low vs. Medium usage	0.74	0.89	0.84	0.40	[-1.00, 2.49]	0.03
Low vs. High usage	2.01	0.88	2.29	0.02	[0.29, 3.74]	0.08*
Beginning-of-year pretest	0.81	0.00	207.06	<.001	[0.80, 0.82]	
Grade level	0.03	0.07	0.43	0.67	[-0.10, 0.16]	
Ethnicity	-1.01	0.14	-7.24	<.001	[-1.29, -0.74]	
Special education status	-2.65	0.18	-14.72	<.001	[-3.01, -2.30]	

Table D8. Multilevel model testing association between usage and K—2 NWEA MAP Reading (25 schools; n = 2,330)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Low vs. Medium usage	-1.39	1.08	-1.29	0.20	[-3.49, 0.72]	-0.08
Low vs. High usage	-0.76	0.87	-0.87	0.39	[-2.47, 0.96]	-0.05
Beginning-of-year pretest	0.79	0.01	57.15	<.001	[0.77, 0.82]	
Grade level	1.72	0.44	3.92	<.001	[0.86, 2.58]	
Ethnicity	-1.63	0.42	-3.89	<.001	[-2.44, -0.81]	
Special education status	-3.52	0.49	-7.16	<.001	[-4.48, -2.55]	

Table D9. Multilevel model testing association between usage and Grade 3—5 NWEA MAP Reading (52 schools; n = 11,383)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Low vs. Medium usage	-0.90	0.54	-1.71	0.09	[-1.94, 0.13]	-0.05
Low vs. High usage	0.21	0.52	0.40	0.69	[-0.82, 1.24]	0.01
Beginning-of-year pretest	0.77	0.01	144.59	<.001	[0.76, 0.78]	
Grade level	-0.02	0.10	-0.18	0.85	[-0.22, 0.18]	
Ethnicity	-1.17	-.19	-6.13	<.001	[-1.54, -0.80]	
Special education status	-3.88	0.23	-16.99	<.001	[-4.32, -3.43]	

Table D10. Multilevel model testing association between usage and Grade 6—12 NWEA MAP Reading (33 schools; n = 15,028)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Low vs. Medium usage	2.99	0.93	3.23	<.01	[1.17, 4.80]	0.19*
Low vs. High usage	3.49	1.35	2.59	0.01	[0.85, 6.13]	0.20*
Beginning-of-year pretest	0.80	0.01	155.63	<.001	[0.79, 0.81]	
Grade level	-0.25	0.10	-2.51	0.01	[-0.45, -0.06]	
Ethnicity	-0.94	0.19	-5.07	<.001	[-1.30, -0.58]	
Special education status	-1.92	0.25	-7.68	<.001	[-2.41, -1.43]	

Table D11. Multilevel model testing association between usage and Grade 6—8 NWEA MAP Reading (20 schools; n = 11,419)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Low vs. Medium usage	-0.93	1.39	-0.67	0.50	[-3.66, 1.79]	-0.06
Low vs. High usage	0.42	1.68	0.25	0.80	[-2.87, 0.81]	0.03
Beginning-of-year pretest	0.80	0.01	143,07	<.001	[0.78, 0.81]	
Grade level	-0.08	0.10	-0.76	0.45	[-0.28, 0.12]	
Ethnicity	-0.93	0.19	-4.79	<.001	[-1.32, -0.55]	
Special education status	-2.09	0.26	-8.09	<.001	[-2.60, -1.59]	

Table D12. Multilevel model testing association between usage and Grade 9—12 NWEA MAP Reading (13 schools; n = 3,609)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Low vs. Medium usage	3.32	1.34	2.48	0.01	[0.69, 5.94]	0.18*
Low vs. High usage	2.46	2.05	1.20	0.23	[-1.56, 6.49]	0.13
Beginning-of-year pretest	0.82	0.01	68.44	<.001	[0.80, 0.84]	
Grade level	-0.70	0.37	-1.92	0.06	[-1.43, 0.02]	
Ethnicity	-1.06	0.46	-2.33	0.02	[-1.95, -0.17]	
Special education status	-1.54	0.66	-2.34	0.02	[-2.83, -0.25]	

Table D13. Multilevel model testing effect of tracking K—2 student math interventions on NWEA MAP Math (53 schools; n = 948)

Model components	Coefficient	Standard Error	*z*-value	*p*-value	95% CI	Hedge's *g*
Tracked intervention(s) vs. none	-0.59	0.92	-0.64	0.53	[-2.40, 1.22]	-0.04
Beginning-of-year pretest	0.44	0.06	7.57	<.001	[0.33, 0.56]	
Grade level	10.59	1.06	10.01	<.001	[8.52, 12.66]	
Ethnicity	1.15	0.62	1.84	0.07	[-0.07, 2.37]	
Special education status	-4.16	0.68	-6.09	<.001	[-5.50, -2.82]	

Table D14. Multilevel model testing effect of tracking grade 6-12 student math interventions on NWEA MAP Math (36 schools; n = 4,007)

Model components	Coefficient	Standard Error	*z*-value	*p*-value	95% CI	Hedge's *g*
Tracked intervention(s) vs. none	1.69	0.50	3.38	<.01	[0.71, 2.66]	0.14*
Beginning-of-year pretest	0.53	0.02	21.52	<.001	[0.48, 0.58]	
Grade level	0.38	0.23	1.62	0.11	[-0.08, 0.83]	
Ethnicity	0.03	0.35	0.10	0.92	[-0.65, 0.71]	
Special education status	-2.34	0.62	-3.75	<.001	[-3.56, -1.11]	

Table D15. Multilevel model testing effect of tracking grade 6-8 student math interventions on NWEA MAP Math (28 schools; n = 3,094)

Model components	Coefficient	Standard Error	*z*-value	*p*-value	95% CI	Hedge's *g*
Tracked intervention(s) vs. none	1.65	0.02	3.84	<.001	[0.81, 2.49]	0.14*
Beginning-of-year pretest	0.58	0.02	26.06	<.001	[0.53, 0.62]	
Grade level	0.52	0.34	1.53	0.13	[-0.15, 1.19]	
Ethnicity	-0.23	0.37	-0.61	0.54	[-0.96, 0.51]	
Special education status	-1.67	0.61	-2.75	<.01	[-2.85, -0.48]	

Table D16. Multilevel model testing effect of tracking K—2 student reading interventions on NWEA MAP Reading (23 schools; n = 317)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Tracked intervention(s) vs. none	0.95	1.28	0.74	0.46	[-1.45, 3.46]	0.08
Beginning-of-year pretest	0.36	0.11	3.20	<.01	[0.14, 0.57]	
Grade level	11.93	2.42	4.93	<.001	[7.19, 16,67]	
Ethnicity	-2.25	0.85	-2.64	<.01	[-3.92, -0.58]	
Special education status	-3.44	1.36	-2.54	0.01	[-6.10, -0.78]	

Table D17. Multilevel model testing effect of tracking grade 3-5 student reading interventions on NWEA MAP Reading (52 schools; n = 1,837)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Tracked intervention(s) vs. none	1.29	0.03	2.90	<.01	[0.42, 2.16]	0.09*
Beginning-of-year pretest	0.54	0.03	17.49	<.001	[0.42, 2.16]	
Grade level	1.86	0.38	4.86	<.001	[1.11, 2.61]	
Ethnicity	-1.22	0.51	-2.39	0.02	[-2.22, -0.22]	
Special education status	-4.48	0.51	-8.79	<.001	[-5.48, -3.48]	

Table D18. Multilevel model testing effect of tracking grade 6-12 student reading interventions on NWEA MAP Reading (32 schools; n = 2,157)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Tracked intervention(s) vs. none	-1.72	1.71	-1.00	0.32	[-5.08, 1.64]	-0.13
Beginning-of-year pretest	0.47	0.03	17.29	<.001	[0.41, 0.52]	
Grade level	-0.08	0.41	-0.19	0.85	[-0.88, 0.72]	
Ethnicity	-1.76	0.37	-4.79	<.001	[-2.48, -1.04]	
Special education status	-2.32	0.85	-2.74	<.01	[-3.99, -0.67]	

Table D19. Multilevel model testing effect of tracking grade 6-8 student reading interventions on NWEA MAP Reading (19 schools; n = 1,378)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Tracked intervention(s) vs. none	-2.17	1.67	-1.30	0.19	[-5.44, 1.10]	-0.17
Beginning-of-year pretest	0.52	0.02	32.05	<.001	[-5.44, 1.10]	
Grade level	0.64	0.60	1.08	0.28	[-0.53, 1.82]	
Ethnicity	-1.57	0.38	-4.11	<.001	[-2.32, -0.82]	
Special education status	-3.09	0.77	-4.02	<.001	[-4.60, -1.58]	

Table D20. Multilevel model testing effect of tracking grade 9-12 student reading interventions on NWEA MAP Reading (12 schools; n = 418)

Model components	Coefficient	Standard Error	z-value	p-value	95% CI	Hedge's g
Tracked intervention(s) vs. none	-0.09	0.83	-0.11	0.91	[-1.82, 1.54]	-0.01
Beginning-of-year pretest	0.42	0.06	7.30	<.001	[0.30, 0.53]	
Grade level	--	--	--	--	--	
Ethnicity	-1.53	1.14	-1.35	0.18	[-3.75, 0.70]	
Special education status	0.64	1.59	0.40	0.69	[-2.48, 3.75]	