Evaluation of the Networks for School Improvement Initiative—

School-Level Implementation of Continuous Improvement

Appendices A through G

Interim Report, April 2024

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Appendix A. Glossary

This glossary provides definitions of key terms pertaining to networks and continuous improvement (CI) as they are typically used in the Networks for School Improvement (NSI) initiative.

Aim statement. An aim statement articulates the goal for an improvement effort. An aim states what the network participants are trying to accomplish. An aim statement should clearly specify how much, for whom, and by when.[1] Aim statements can be generated at various organizational levels (e.g., team-specific or network-wide).

Artifact. An artifact is a document that an intermediary, network, or CI team generates during continuous improvement work. For example, documents may include root cause diagrams or templates that teams used to plan inquiry cycles.

Change idea. A change idea is a specific practice or intervention that a CI team tests during inquiry cycles. Change ideas are typically designed to meet the goal outlined in the aim statement, focusing on the drivers that guide the network's theory of improvement.[2]

Change idea topics. The evaluation classified the topics that change ideas focused on using the following taxonomy:

- **Curricular changes.** Changes to the material taught in the classroom, including developing teacher content knowledge and tailoring curricula to student needs
- **Shifts to pedagogic practices.** Changes to the way students and teachers engage with the academic material in the classroom, including individual and small-group supports provided within the classroom instruction context.
- **Changes in classroom culture.** Behavior management in the classroom context, establishing positive culture and maintaining high expectations.
- **Social-emotional learning.** The development of personal and interpersonal skills outside of academic content, such as self-awareness, self-management, responsible decision-making, relationship skills, and social awareness.
- **Academic advising and tutoring.** Outside of a classroom instruction context, providing individualized or small-group support to students to improve their academic skills and grades, support timely progression through middle- and high-school, and facilitate the transition to post-secondary education.).

[1] https://www.carnegiefoundation.org/resources/learning-to-improve-glossary/

[2] For the purposes of continuous improvement artifact coding, a change idea is defined as a specific change in practice that can be tested over a short time frame.

- **Adult–student relationships and school culture.** Building relationships with students through mentoring, and/or community-building efforts. The primary focus of the relationship development is often on non-academic content but could extend to academic material outside of classroom instruction.
- **Family connections.** Changes that focus on family involvement unrelated to college application and enrollment, such as communicating with families about student progress or getting families involved in school governance.
- **Identifying students in need of academic support.** Use of data to identify students who are struggling academically or otherwise need extra support; monitoring improving GPA, course completion, and other academic indicators; building cross-functional teams that share data.
- **College access and affordability.** Assisting students with the college application and enrollment process, including Free Application for Federal Student Aid (FAFSA) completion.
- **College-going culture.** Promotion of a college-going mindset.
- **School systems and policies.** Redesigning policies, practices, and materials for equity.
- **Other.** Only use if the change idea does not relate to any of the above topics. Examples include building CI team capacity or opportunities for educator self-reflection and development.

Cohort. A cohort is a group of NSI grants that the Bill & Melinda Gates Foundation awarded around the same time. The foundation awarded the NSI grants in three cohorts: Cohort 1 grants were awarded in 2018, Cohort 1B and 2 grants were awarded in 2019, and Cohort 3 grants were awarded in 2020.

Continuous improvement (CI). CI is a process in which practitioners engage in iterative cycles of inquiry by defining local problems of practice, testing potential change ideas, studying the results, and improving upon those change ideas.

Continuous improvement team (CI team). A group of educators that engage in CI (e.g., conduct root cause analysis and disciplined inquiry cycles) to address a local problem of practice.

Drivers. Drivers are factors that influence or produce more-equitable student outcomes. The primary drivers are the major factors thought to lead to improvement. The secondary drivers are the interventions focused on the primary drivers.[3] Drivers are often shown as part of a diagram that shows the relationship between the change ideas, drivers, and aim.

Educational equity. Educational equity means providing students with resources, experiences and environments—allocated based on circumstances and needs—so that students have equal access to opportunities for success. One of the major goals of the NSI initiative is to promote educational equity

[3] Bryk, A. S., Gomez, L., & Grunow, A. (2011). *Getting ideas into action: Building networked improvement communities in education.* Carnegie Foundation for the Advancement of Teaching. https://www.carnegiefoundation.org/resources/publications/getting-ideas-action-building-networked-improvement-communities-education/

for Black students, Latino students, and students experiencing poverty. Intermediaries, and the CI teams they support, were charged with applying an equity lens to all CI processes, such as the setting of aims and the development of change ideas. The equity framework used for the NSI evaluation consists of four dimensions of equity:

- **Access.** Providing access to teachers who are attentive to student needs (e.g., addressing teacher mindsets), access to supplies (e.g., equipment, software, materials in multiple languages) for effective learning, access to classroom environments that encourage student participation (e.g., perhaps using pedagogical tools that consider how students learn differently), and access to support/opportunity (e.g., tutoring, after school programs for outside learning).
- **Achievement.** Enabling students to achieve traditional outcomes, including grades, test scores, course taking, graduation, and postsecondary attendance; and documenting outcomes and disaggregating data to identify gaps.
- **Identity.** Resources and interventions that are attentive to a student's or teacher's background, which can include personal characteristics, family and community histories, and their membership in social groups based on race, ethnicity, gender, class, status, ability, sexual orientation, religion, language, and many others. Identity situates education as a cultural practice in which learners are able to see themselves and others favorably.
- **Agency.** Resources and interventions that provide students from nondominant backgrounds increased opportunity to use their voices and express agency to challenge contemporary inequalities within and beyond schools walls with the goal of engendering structural change.

Entry point. The foundation categorized the NSI into three entry points based on their aim statements and change ideas.[4] The entry points are instructional, early warning and response, and well-matched postsecondary. The foundation defines the entry points as follows:

- "**Instructional NSI** work with math or English-language-arts teams within schools, often including instructional coaches, special-education teachers, and English learner/multilingual teachers, to improve the quality of instruction within classrooms."
- "**Early Warning and Response (EWR) NSI** work with grade-level or cross-functional teams within schools to create more supportive school environments, where young people are connected to adults, each other, and the school community."
- "**Well-Matched Postsecondary (WMPS) NSI** work with school-based teams of counselors, service providers, district and school leaders, teachers, and other staff on evidence-based strategies and processes that support postsecondary application, enrollment, and persistence."

Intermediary. An intermediary is an organization that received an NSI grant and is responsible for the facilitation and support of one or more networks and their activities. When multiple organizations work

[4] Bill & Melinda Gates Foundation personal correspondence. (June 2021).

collectively to organize or support the network and its participants, we refer to the collective group as the intermediary.

Inquiry cycles. Inquiry cycles are repeated, iterative tests of change conducted by network participants. Inquiry cycles may be broken into four phases—Plan-Do-Study-Act (PDSA)—that entail the following:

- Selecting a change idea and developing a plan that determines how it will be tested (Plan)
- Implementing the change idea and collecting relevant data (Do)
- Assessing the results based on the collected data (Study)
- Using the results to determine whether to adapt, abandon, or adopt the change idea (Act).

Some intermediaries use other conceptualizations of inquiry cycles—for example, Partners for School Innovation bases its work on Results-Oriented Cycles of Inquiry (ROCI). Cycles may have three or five phases, rather than four, or the separate phases may not be clearly defined. For more detail on how the study team defines and conceives of inquiry cycles, see Artifact Coding in Appendix C.

During each cycle, outcomes are compared with predictions, and discrepancies between the two become a major source of learning.

Knowledge management system (KMS). A KMS is a digital platform used to organize, maintain, and share the knowledge, learning, and experiences of NSI participants.

Network. A network is a group that includes a facilitating organization and multiple schools that work together to share knowledge and practice.

Network for School Improvement (NSI). An NSI is a network funded by the Bill & Melinda Gates Foundation. An NSI is a group of intermediary staff and CI teams that work together to share knowledge and practice to produce more-equitable student outcomes. An NSI may contain sub-networks of practitioners based on a variety of factors (e.g., school district, year in which schools entered the network).

On-track threshold. A threshold set by the Bill & Melinda Gates Foundation for each outcome used to measure whether a student is on-track to graduate high school and enroll in college. For example, students earning a grade point average (GPA) of 3.0 or higher are considered to be on track with respect to their GPA.

Outcome area. Each intermediary focused its grant on improving student outcomes in one or more of the following areas:

- **8th or 9th grade on track.** The proportion of 8th- or 9th-grade students who meet a set of academic and behavioral outcomes related to high school graduation and college enrollment.

- **College-ready on track.** The proportion of 11th- and 12th-grade students who are on track academically to enroll in a college with a graduation rate of at least 50 percent.
- **Well-matched postsecondary enrollment.** The proportion of 12th-grade students who complete the steps needed to enroll in a college with a graduation rate of at least 50 percent.

Problem of practice. A problem of practice is a current strategy or practice that network participants have identified as leading to inequitable student outcomes. Network participants address a problem of practice by conducting disciplined inquiry cycles.

Root cause. A root cause is an underlying reason for an educational challenge. Network participants identify root causes to help them understand the systems that produce inequitable outcomes for Black students, Latino students, and students experiencing poverty within their local setting.

Theory of improvement. A theory of improvement includes a set of interrelated hypotheses about how changes in certain practices or policies could lead to improved student outcomes.[5] A theory of improvement guides the work of the network and evolves as educators conduct and learn from inquiry cycles.

[5] https://www.carnegiefoundation.org/resources/learning-to-improve-glossary/

Appendix B. Initiative Characteristics

The Bill & Melinda Gates Foundation funded 34 NSI in total.

Exhibit B1. Intermediary Name, Network Name, Cohort, Entry Point, Outcome Area, Research Sample, and Short Name for the NSI Included in the Initiative

Intermediary name (short)	Intermediary name (full)	Network name	Cohort	Entry point	Outcome area	RQ1 analysis	RQ2 analysis	RQ3 analysis
Access ASU-2	**Access ASU**	Arizona Meta Network (AZ Meta Network)	2	Well-Matched Postsecondary	Well-Matched Postsecondary	X	X	X
AIR FNSI-1B	**American Institutes for Research**	Florida Network for School Improvement (FNSI)	1B	Instructional	College-Ready On Track			X
AIR Long Beach-3	**American Institutes for Research**	Long Beach Network for School Improvement (LBNSI)	3	Instructional	8th Grade On Track	X	X	X
Baltimore-1	**Baltimore City Public Schools**	Baltimore Secondary Literacy Improvement Community Network (BSLIC)	1	Instructional	8th Grade On Track; 9th Grade On Track	X	X	X
Baltimore-3	**Baltimore City Public Schools**	9th Grade On Track to Graduate (OTG) Improvement Network	3	Early Warning and Response	9th Grade On Track	X	X	X
Bank Street-2	**Bank Street College of Education**	Yonkers Public Schools Network for School Improvement (YPS NSI)	2	Instructional	8th Grade On Track			
Bank Street-3	**Bank Street College of Education**	Brooklyn South Network for School Improvement (BKS NSI)	3	Instructional	8th Grade On Track	X	X	
BARR-1B	**BARR Center**	BARR Network for School Improvement (BARR)	1B	Early Warning and Response	College-Ready On Track	X	X	X
City Year-2	**City Year**	City Year Network for School Improvement (City Year NSI)	2	Early Warning and Response	8th Grade On Track			X

Intermediary name (short)	Intermediary name (full)	Network name	Cohort	Entry point	Outcome area	RQ1 analysis	RQ2 analysis	RQ3 analysis
CORE-1	**CORE**	Breakthrough Success Community (BTSC) Cohort 1	1	Early Warning and Response	9th Grade On Track	X	X	X
CORE-3	**CORE**	Breakthrough Success Community (BTSC) Cohort 3	3	Early Warning and Response	9th Grade On Track	X	X	X
Denver-1B	**Denver Public Schools**	College-Ready On Track Network (NIC)	1B	Instructional	College-Ready On Track	X	X	X
Ed Partners-1	**California Education Partners**	On Track Improvement Collaborative	1	Early Warning and Response	8th Grade On Track; 9th Grade On Track			
Eskolta-2	**Eskolta School Research and Design**	Eskolta Network	2	Instructional	College-Ready On Track			
HTH-1	**High Tech High Graduate School of Education**	CARPE College Access Network (CARPE)	1	Well-Matched Postsecondary	Well-Matched Postsecondary	X	X	X
HTH-3	**High Tech High Graduate School of Education**	CARE Network	3	Instructional	8th Grade On Track	X	X	X
IFL-1	**Institute for Learning**	Dallas ISD/IFL Network for School Improvement (Dallas ISD/IFL NSI)	1	Instructional	8th Grade On Track; 9th Grade On Track			
KIPP-2	**KIPP Foundation**	Academics and Counseling Excellence Network (ACE Network)	2	Well-Matched Postsecondary	College-Ready On Track; Well-Matched Postsecondary			
NCS-1	**UChicago Network for College Success**	Chicago School Partner Network or Network for College Success (NCS)	1	Early Warning and Response	9th Grade On Track	X	X	X

Intermediary name (short)	Intermediary name (full)	Network name	Cohort	Entry point	Outcome area	RQ1 analysis	RQ2 analysis	RQ3 analysis
NCS-3	**UChicago Network for College Success**	Freshman Success for Equity Improvement Network (FS4EIN)	3	Early Warning and Response	9th Grade On Track	X	X	X
New Visions-1	**New Visions for Public Schools**	College Readiness Network for School Improvement (CR NSI)	1	Early Warning and Response	9th Grade On Track	X	X	X
New Visions-3	**New Visions for Public Schools**	Instructional Network for School Improvement (INSI)	3	Instructional	9th Grade On Track	X	X	X
NTN-1B	**New Tech Network**	NTN College Access Network	1B	Well-Matched Postsecondary	Well-Matched Postsecondary	X	X	X
NYC DOE-2	**New York City Department of Education**	Networked Improvement Community for Multilingual Learners (CL ML NIC)	2	Instructional	8th Grade On Track			X
Partners ESA-2	**Partners in School Innovation**	East Side Alliance Transformation Network (ESA Transformation Network)	2	Instructional	8th Grade On Track	X	X	
Partners MGIT-2	**Partners in School Innovation**	Middle Grade Improvement Team Network	2	Instructional	8th Grade On Track	X	X	X
Partners MGS1-2	**Partners in School Innovation**	Middle Grades Success Network	2	Instructional	8th Grade On Track	X	X	X
Partners OTSN-2	**Partners in School Innovation**	On Track for Success Network	2	Instructional	8th Grade On Track	X	X	X
Promise-1B	**The Commit Partnership**	Promise Network for School Improvement (Promise Network)	1B	Well-Matched Postsecondary	Well-Matched Postsecondary	X	X	X
RISE-2	**Connecticut RISE Network**	Connecticut RISE Network (RISE or RISE Network)	2	Early Warning and Response	9th Grade On Track	X	X	

Intermediary name (short)	Intermediary name (full)	Network name	Cohort	Entry point	Outcome area	RQ1 analysis	RQ2 analysis	RQ3 analysis
Teaching Matters-3	**Teaching Matters**	Teaching Matters Network for School Improvement (Teaching Matters NSI)	3	Instructional	8th Grade On Track	X	X	X
Teach Plus-3	**Teach Plus**	Teacher-Led Network for School Improvement in Chicago	3	Instructional	8th Grade On Track	X	X	X
Tulare County-3	**Tulare County Office of Education**	Central Valley Networked Improvement Community: College-Ready (CVNIC: College-Ready)	3	Instructional	College-Ready On Track	X	X	X
TxNSI-2	**Texas Network for School Improvement**	Texas Network for School Improvement (TXNSI)	2	Instructional	8th Grade On Track			

Note. RQ = research question.

Exhibit B2. Definition of NSI Outcomes

Outcome	Description	Threshold for a student to be on track
8th grade on-track		
Grade point average (GPA) for core courses (math, English language arts [ELA], science, and social studies)	8th grade GPA based on core courses (4-point scale)	GPA for core courses at least 3.0
Math and ELA course grades	The proportion of math and ELA courses for which students earned at least a C	Received no Ds or Fs in Math and ELA courses
Math test scores	Score on the state standardized math assessment	Scoring at least proficient on the state math assessment and earning at least a 3.0 GPA in math
ELA test scores	Score on the state standardized ELA assessment	Scoring at least proficient on the state ELA assessment and earning at least a 3.0 GPA in ELA
Attendance rate	Percentage of days a student attended school	Attended at least 96% of school days
Received no suspensions	Whether a student received no out-of-school suspensions	Received no out-of-school suspensions
9th grade on-track		
GPA for all courses	9th grade GPA based on all courses (4 point scale)	GPA for all courses at least 3.0
Share of core courses passed	The proportion of core courses for which a student earned at least a C	One or fewer course failures in the core subject areas
Earned at least 5 credits	Whether a student earned at least 5 credits	Earned at least 5 credits
Attendance rate	Percentage of days a student attended school	Attended at least 96% of school days
Received no suspensions	Whether a student received no out-of-school suspensions	Received no out-of-school suspensions
College-ready on-track		
High school advanced course taking	Whether an 11th or 12th grade students completes at least one advanced course (Advanced Placement, International Baccalaureate, or dual enrollment)	N/A
High school math proficiency	Whether an 11th or 12th grade student scored at the proficient level on a high school state assessment in math	

Outcome	Description	Threshold for a student to be on track
High school ELA proficiency	Whether an 11th or 12th grade student scored at the proficient level on a high school state assessment in ELA	
High school grade point average	Whether an 11th or 12th grade student earned a GPA of 3.0 or higher.	
On-time high school graduation	Whether a student graduated high school in four years with a regular high school diploma.	
Postsecondary enrollment rate	Whether a 12th grade student enrolled in any postsecondary institution in the fall following their 12th grade year	
Postsecondary enrollment rate for institutions with a graduation rate of at least 50%	Whether a 12th grade student enrolled in a postsecondary institution with a graduation rate at least 50% in the fall following their 12th grade year	
Well-matched postsecondary enrollment		
Exam rate	Whether a 12th grade student took the SAT and/or ACT.	N/A
FAFSA completion rate	Whether a 12th grade student completed a FAFSA form by December of the school year	
Secured postsecondary plan	Whether a 12th grade student completed the FAFSA, submitted applications to at least three colleges, and completed at least one college entrance exam.	
Postsecondary enrollment rate	Whether a 12th grade students enrolled in any postsecondary institution in the fall following their 12th grade year	
Postsecondary enrollment rate for institutions with a graduation rate of at least 50%	Whether a 12th grade student enrolled in a postsecondary institution with a graduation rate at least 50% in the fall following their 12th grade year	

Note. The foundation did not define on-track thresholds for the college-ready on-track and well-matched postsecondary NSI.

Appendix C. Evaluation Sample Characteristics

The study sample includes the schools associated with 25 NSI. We collected data from all cohorts in 2020–21. Beginning in 2021–22, the study team collected data for NSI in Grant Year 3 or 5. Exhibit C1 shows the number of NSI included in the evaluation and the timing of the grants by cohort. In some NSI, all schools began participating in the first year of the grant; in other NSI, some schools began participating in later years. This appendix details the data collection activities by data source in each school year.

Exhibit C1. Number of NSI and Year of Grant, by Cohort

Cohort	Number of NSI	2018–19	2019–20	2020–21	2021–22	2022–23
1	5	1	2	3	4	5
1B/2	10		1	2	3	4
3	10			1	2	3

Note. Data for the years shaded in green and yellow serve as the focus of this report. Most of the results presented are based on 2021–22 data for Cohort 1B/2 and 2022–23 data for Cohorts 1 and 3.

Exhibit C2. Number of NSI in Evaluation, by Cohort

Cohort	NSI launch year	Number of NSI
Cohort 1	2018–2019	5
Cohort 1B/2	2019–2020	10
Cohort 3	2020–2021	10

Exhibit C3. Number of NSI in Evaluation, by Entry Point

Entry Point	Number of NSI
Instructional	13
Early warning and response	8
Well-matched postsecondary	4

Exhibit C4. Number of NSI in Evaluation, by Outcome Area

Outcome Area	Number of NSI
8th grade on-track	10
9th grade on-track	9
College-ready on-track	3
Well-matched postsecondary enrollment	4

Note. Baltimore-1 is present in both 8th grade on-track and 9th grade on-track.

Exhibit C5. Participation in Evaluation Data Collection, by NSI and School Year

NSI	Intermediary interviews			Continuous improvement artifacts			NSI school leader surveys			Case study interviews		
	2020–21	2021–22	2022–23	2020–21	2021–22	2022–23	2020–21	2021–22	2022–23	2020–21	2021–22	2022–23
Access ASU-2	●	●		●	●		●	●		●		
AIR Long Beach-3	●		●	●		●	●		●			
Baltimore-1	●		●	●		●	●		●	●	●	●
Baltimore-3	●		●	●		●	●		●	●		
Bank Street-3	●		●	●		●	●		●	●		
BARR-1B	●	●		●	●		●	●				
CORE-1	●		●	●		●	●		●			
CORE-3[a]	●	●	●		●	●		●	●			
Denver-1B	●	●		●	●		●	●				
HTH-1	●		●	●		●	●		●			
HTH-3	●		●	●		●	●		●			
NCS-1	●		●	●		●	●		●			
NCS-3	●		●	●		●	●		●			
New Visions-1	●		●	●		●	●		●			
New Visions-3[b]	●	●	●		●	●		●	●	●	●	●
NTN-1B	●	●		●	●		●	●		●	●	●
Partners ESA-2	●	●		●	●		●	●				

NSI	Intermediary interviews			Continuous improvement artifacts			NSI school leader surveys			Case study interviews		
	2020–21	2021–22	2022–23	2020–21	2021–22	2022–23	2020–21	2021–22	2022–23	2020–21	2021–22	2022–23
Partners MGIT-2[c]		●			●			●				
Partners MGS1-2	●	●		●	●		●	●				
Partners OTSN-2	●	●		●	●		●	●				
Promise-1B	●	●		●	●		●	●				
RISE-2	●	●		●	●		●	●		●	●	●
Teach Plus-3	●		●	●		●	●		●			
Teaching Matters-3	●		●	●		●	●		●			
Tulare County-3[b]	●	●	●		●	●		●	●		●	●

[a] Schools in CORE-3 did not begin participating until after the 2020–21 school year, so we collected data for them in the 2021–22 school year.

[b] Schools in New Visions-3 and Tulare County-3 started midway through the 2020–21 school year, so we collected school-level data from them in the 2021–22 school year.

[c] Schools in Partners MGIT-2 did not begin participating until January 2022, so we did not collect data from them until the 2021–22 school year.

Exhibit C6. Schools and Districts in the Evaluation Sample, by NSI and School Year

NSI	Number of schools served in 2020–21	Number of schools served in 2021–22	Number of schools served in 2022–23	Unduplicated number of schools served from 2020–21 to 2022–23	Unduplicated number of districts served from 2020–21 to 2022–23
Access ASU-2	24	24	24	24	3
AIR Long Beach-3	10	10	10	10	1
Baltimore-1	25	25	25	26	1
Baltimore-3	12	12	12	12	1
Bank Street-3	11	11	11	11	1
BARR-1B	31	31	31	31	20
CORE-1	28	24	23	28	9
CORE-3		11	11	11	3
Denver-1B	10	22	19	27	1
HTH-1	18	31	27	32	15
HTH-3	16	16	13	22	8
NCS-1	18	18	13	19	1
NCS-3	11	11	11	11	1
New Visions-1	43	43	62	64	11
New Visions-3	18	16	14	18	3
NTN-1B	25	49	49	49	2
Partners ESA-2	8	7	9	11	4
Partners MGIT-2		8	8	8	1
Partners MGS1-2	10	8	7	10	1

NSI	Number of schools served in 2020–21	Number of schools served in 2021–22	Number of schools served in 2022–23	Unduplicated number of schools served from 2020–21 to 2022–23	Unduplicated number of districts served from 2020–21 to 2022–23
Partners OTSN-2	13	13	14	14	1
Promise-1B	57	57	57	57	11
RISE-2	10	9	9	10	8
Teach Plus-3	15	15	14	15	1
Teaching Matters-3	16	16	16	17	4
Tulare County-3		14	14	14	10

Exhibit C7. Number of Schools That Provided Data and Response Rates in 2020–2021, By NSI

NSI	Number of schools served in 2020–21	Continuous improvement artifacts				NSI school leader survey	
		Number of schools that provided Phase 2	Response rate	Number of schools that provided Phase 3	Response rate	Number of schools that provided data	Response rate
Access ASU-2	24	16	67%	24	100%	13	54%
AIR Long Beach-3	10	5	50%	10	100%	10	100%
Baltimore-1[ab]	25	0	0%	25	100%	12	48%
Baltimore-3[b]	12	11	92%	12	100%	3	25%
Bank Street-3[a]	11	0	0%	11	100%	7	64%
BARR-1B	31	9	29%	27	87%	21	68%
CORE-1	28	12	43%	27	96%	23	82%
CORE-3[c]							
Denver-1B	10	8	80%	10	100%	4	40%
HTH-1	18	18	100%	18	100%	9	50%
HTH-3	16	12	75%	15	94%	9	56%
NCS-1	18	12	67%	18	100%	10	56%
NCS-3[ab]	11	0	0%	11	100%	4	36%
New Visions-1	43	9	21%	9	21%	26	60%
New Visions-3[d]	18						
NTN-1B[e]	25	1	4%	25	100%	18	72%
Partners ESA-2	8	7	88%	8	100%	8	100%

NSI	Number of schools served in 2020–21	Continuous improvement artifacts				NSI school leader survey	
		Number of schools that provided Phase 2	Response rate	Number of schools that provided Phase 3	Response rate	Number of schools that provided data	Response rate
Partners MGIT-2[f]							
Partners MGS1-2	10	8	80%	10	100%	1	10%
Partners OTSN-2[a]	13	0	0%	13	100%	9	69%
Promise-1B[b]	57	35	61%	55	96%	9	16%
RISE-2[e]	10	2	20%	10	100%	7	70%
Teach Plus-3[g]	15	0	0%	0	0%	12	80%
Teaching Matters-3	16	6	38%	12	75%	12	75%
Tulare County-3[d]							

Note. See Appendix D for a discussion of Phase 2 and Phase 3 artifacts.

[a] Although we received artifacts from Baltimore-1, Bank Street-3, NCS-3, and Partners OTSN-2, coders determined that none were related to individual inquiry cycles conducted by school teams. So, we report zero schools provided Phase 2 artifacts for these NSI.

[b] We did not include school leader survey responses from Baltimore-1, Baltimore-3, NCS-3, Partners MGS1-2, or Promise-1B in our analyses because they did not achieve specified response rates.

[c] Schools in CORE-3 did not begin participating until after the 2020–21 school year, so we collected data for them in 2021–22 school year.

[d] Schools in New Visions-3 and Tulare County-3 started midway through the 2020–21 school year, so we collected school-level data for them in the 2021–22 school year.

[e] Although we received artifacts from NTN-1B and RISE-2, coders determined that artifacts showed evidence of individual inquiry cycles in fewer than three schools. To protect the anonymity of participants, we did not include the data in the report.

[f] Schools in Partners MGIT-2 did not begin participating until January 2022, so we did not collect data from them until the 2021–22 school year.

[g] Although we received artifacts from Teach Plus-3, coders determined that none of the artifacts related to CI work conducted by school teams. So, we report zero schools provided Phase 2 or Phase 3 artifacts.

Exhibit C8. Number of Schools That Provided Data and Response Rates in 2021–22, By NSI

NSI	Number of schools served 2021–22	Continuous improvement artifacts				NSI school leader survey	
		Number of schools that provided Phase 2	Response rate	Number of schools that provided Phase 3	Response rate	Number of schools that provided data	Response rate
Access ASU-2	24	24	100%	24	100%	19	79%
AIR-Long Beach-3	10						
Baltimore-1	25						
Baltimore-3	12						
Bank Street-3	11						
BARR-1B	31	18	58%	28	90%	25	81%
CORE-1	24						
CORE-3[a]	11	2	18%	11	100%	8	73%
Denver-1B	22	16	73%	22	100%	19	86%
HTH-1	31						
HTH-3	16						
NCS-1	18						
NCS-3	11						
New Visions-1	43						
New Visions-3[a]	16	9	63%	16	100%	10	63%
NTN-1B	49	45	86%	49	100%	37	76%
Partners ESA-2	7	7	100%	7	100%	7	100%

NSI	Number of schools served 2021–22	Continuous improvement artifacts				NSI school leader survey	
		Number of schools that provided Phase 2	Response rate	Number of schools that provided Phase 3	Response rate	Number of schools that provided data	Response rate
Partners MGIT-2[b]	8	0	0%	8	100%	4	50%
Partners MGS1-2	8	4	50%	8	100%	5	63%
Partners OTSN-2	13	2	15%	13	100%	7	54%
Promise-1B[b]	57	0	0%	43	75%	23	40%
RISE-2	9	7	78%	9	100%	7	78%
Teach Plus-3	15						
Teaching Matters-3	16						
Tulare County-3[a]	14	13	93%	14	100%	11	79%

Note. See Appendix D for a discussion of Phase 2 and Phase 3 artifacts.

[a] We collected and analyzed data from CORE-3, New Visions-3, and Tulare County-3 in 2021–22 when they were in their second grant year because we did not collect data from them in 2020–21.

[b] Although we received artifacts from Partners MGIT-2 and Promise-1B, coders determined that none of the artifacts related to individual inquiry cycles conducted by school teams. So, we report zero schools provided Phase 2 artifacts.

Exhibit C9. Number of Schools That Provided Data and Response Rates in 2022–23, By NSI

NSI	Number of schools served 2022–23	Continuous improvement artifacts				NSI school leader survey	
		Number of schools that provided Phase 2	Response rate	Number of schools that provided Phase 3	Response rate	Number of schools that provided data	Response rate
Access ASU-2	24						
AIR Long Beach-3	10	10	100%	10	100%	8	80%
Baltimore-1	25	11	44%	25	100%	16	64%
Baltimore-3	12	10	83%	12	100%	9	75%
Bank Street-3[a]	11	0	0%	11	100%	8	73%
BARR-1B	31						
CORE-1	23	9	39%	23	100%	16	70%
CORE-3	11	4	36%	6	55%	11	100%
Denver-1B	19						
HTH-1	27	25	93%	27	100%	24	89%
HTH-3	13	9	69%	13	100%	11	85%
NCS-1	13	8	62%	13	100%	13	100%
NCS-3	11	5	45%	11	100%	11	100%
New Visions-1[a]	9	0	0%	9	100%	9	100%
New Visions-3	14	13	93%	14	100%	12	86%
NTN-1B	49						
Partners ESA-2	9						

NSI	Number of schools served 2022–23	Continuous improvement artifacts				NSI school leader survey	
		Number of schools that provided Phase 2	Response rate	Number of schools that provided Phase 3	Response rate	Number of schools that provided data	Response rate
Partners MGIT-2	8						
Partners MGS1-2	7						
Partners OTSN-2	14						
Promise-1B	57						
RISE-2	9						
Teach Plus-3	14	14	100%	14	100%	13	93%
Teaching Matters-3	16	12	75%	16	100%	12	75%
Tulare County-3	14	13	93%	14	100%	11	79%

Note. See Appendix D for a discussion of Phase 2 and Phase 3 artifacts.

[a] Although we received artifacts from Bank Street-3 and New Visions-1, coders determined that none of the artifacts related to individual inquiry cycles conducted by school teams. So, we report zero schools provided Phase 2 artifacts.

Exhibit C10. Number of Schools With Climate Data, By NSI

NSI	Number of schools served	Number of schools that provided climate survey data	Percentage of schools
AIR Long Beach-3	10	7	70%
Bank Street-3	11	11	100%
CORE-1[a]	10	7	70%
NCS-1	18	16	89%
NCS-3	11	10	91%
New Visions-1	63	36	57%
New Visions-3	16	16	100%
Partners MGS1-2	10	9	90%
Partners OTSN-2	13	11	85%
Teach Plus-3	15	12	80%
Teaching Matters-3	17	16	94%

[a] For CORE-1, the number of schools served includes only schools in Long Beach Unified and Fresno Unified (districts for which we have climate data).

Exhibit C11. Characteristics of Schools in NSI Evaluation

NSI	Number of schools	Majority school type	Majority region	Median total school enrollment	Percentage of schools by grade level[a]			Percentage of schools by locale			
					Elementary[c]	Middle[c]	High[c]	Urban	Suburban	Town	Rural
Access ASU-2	24	Regular	West	2,217	0%	0%	100%	75%	25%	0%	0%
AIR Long Beach-3	10	Regular	West	952	40%	60%	0%	100%	0%	0%	0%
Baltimore-1	25	Regular	South	481	60%	12%	20%	100%	0%	0%	0%
Baltimore-3	12	Regular	South	784	0%	0%	75%	100%	0%	0%	0%
Bank Street-3	11	Regular	Northeast	286	18%	82%	0%	100%	0%	0%	0%
BARR-1B	31[b]	Regular	Midwest	1,644	0%	0%	97%	24%	64%	6%	6%
CORE-1	28	Regular	West	1,779	0%	0%	96%	85%	11%	4%	0%
CORE-3	0	Regular	West	690	0%	0%	100%	64%	36%	0%	0%
Denver-1B	10	Regular	West	524	0%	0%	65%	92%	0%	0%	8%
HTH-1	18	Regular	West	1,804	0%	0%	90%	42%	58%	0%	0%
HTH-3	16	Regular	West	1037	27%	73%	0%	50%	45%	0%	5%
NCS-1	18	Regular	Midwest	818	0%	0%	94%	100%	0%	0%	0%
NCS-3	11	Regular	Midwest	738	0%	0%	100%	100%	0%	0%	0%
New Visions-1	43	Regular	Northeast	410	0%	0%	78%	100%	0%	0%	0%
New Visions-3	18	Regular	Northeast	409	0%	0%	89%	100%	0%	0%	0%
NTN-1B	25	Regular	South	1,144	0%	0%	96%	47%	27%	6%	20%
Partners ESA-2	8	Regular	West	551	20%	80%	0%	100%	0%	0%	0%
Partners MGIT-2	0	Regular	West	493	0%	88%	0%	100%	0%	0%	0%

NSI	Number of schools	Majority school type	Majority region	Median total school enrollment	Percentage of schools by grade level[a]			Percentage of schools by locale			
					Elementary[c]	Middle[c]	High[c]	Urban	Suburban	Town	Rural
Partners MGS1-2	10	Regular	Northeast	394	90%	10%	0%	100%	0%	0%	0%
Partners OTSN-2	13	Regular	Northeast	415	100%	0%	0%	100%	0%	0%	0%
Promise-1B	57	Regular	South	1,899	0%	0%	100%	65%	33%	0%	2%
RISE-2	10	Regular	Northeast	1,274	0%	0%	100%	60%	40%	0%	0%
Teach Plus-3	15	Regular	Midwest	328	100%	0%	0%	100%	0%	0%	0%
Teaching Matters-3	16	Regular	Northeast	322	24%	65%	0%	100%	0%	0%	0%
Tulare County-3	13[b]	Regular	West	1,178	0%	0%	100%	29%	7%	36%	29%

Source. NSI school list maintained by Mathematica Policy Research. Numbers are based on all schools participating in an NSI in 2020–21, 2021–22, or 2022–23. Data are based on the Common Core of Data, 2020–21.

[a] Not all grade-level categories by NSI sum to 100 percent because some schools' grade levels were classified as "other," which is not shown.

[b] The *n* for the summary information in this exhibit is lower than the *n* of schools in the analysis because some schools are too new to have data in the National Center for Education Statistics Common Core of Data, the source of information for the NSI school list maintained by Mathematica Policy Research.

[c] Grade levels are categorized using the National Center for Education Statistics definition of instructional levels. The four instructional levels are elementary (lowest grade of prekindergarten to 3; highest grade up to 8), middle (lowest grade 4 to 7; highest grade 4 to 9), high (lowest grade 7 to 12; highest grade 12), and other (all other configurations, including prekindergarten, kindergarten, or 1 to 12).

Exhibit C12. Demographic Characteristics of Schools in NSI Evaluation

NSI	Number of schools	Average percentage of students				
		Eligible for free or reduced-price lunch	Black	Latino or Hispanic	White	Asian
Access ASU-2	24	67%	8%	70%	15%	2%
AIR-Long Beach-3	10	64%	13%	58%	13%	9%
Baltimore-1	25	71%	75%	18%	5%	1%
Baltimore-3	12	67%	79%	10%	9%	1%
Bank Street-3	11	85%	79%	14%	2%	2%
BARR-1B	31[a]	63%	19%	43%	29%	4%
CORE-1	28	79%	13%	66%	8%	9%
CORE-3	0	86%	2%	78%	5%	13%
Denver-1B	10	75%	14%	65%	15%	3%
HTH-1	18	66%	7%	72%	12%	4%
HTH-3	16	79%	6%	71%	11%	6%
NCS-1	18	90%	44%	50%	3%	2%
NCS-3	11	85%	43%	43%	9%	4%
NTN-1B	25	64%	5%	76%	15%	1%
New Visions-1	43	80%	35%	48%	7%	7%
New Visions-3	18	86%	31%	52%	4%	9%
Partners ESA-2	8	46%	2%	59%	6%	28%
Partners MGIT-2	0	96%	27%	69%	2%	1%
Partners MGS1-2	10	99%	60%	28%	5%	3%
Partners OTSN-2	13	99%	43%	19%	20%	11%
Promise-1B	54	76%	24%	64%	7%	3%
RISE-2	10	63%	22%	744%	27%	5%
Teach Plus-3	15	92%	60%	38%	1%	0%
Teaching Matters-3	16	92%	32%	61%	2%	2%
Tulare County-3	13[a]	74%	1%	75%	18%	3%

Source. NSI school list maintained by Mathematica Policy Research. Numbers are based on all schools participating in an NSI in 2020–21, 2021–22, or 2022–23. Data are based on the Common Core of Data, 2020–21.

[a] The *n* for the summary information in this exhibit is lower than the *n* of schools in the analysis because some schools are too new to have data in the National Center for Education Statistics Common Core of Data.

Appendix D. Description of Data Collection and Response Rates

This appendix describes the data collection process and response rates for each of the data sources used in the study.

Continuous Improvement (CI) Artifacts

The study team gathered artifacts that CI teams generated during their work, along with resources provided by intermediaries to support CI, to learn about the implementation of CI in Network for School Improvement (NSI) schools. An artifact is any documentation created by the intermediary, NSI, school, or CI team at any phase of the CI process. For example, artifacts include training materials provided by the NSI, root cause analyses and descriptions of the interventions tested (created by the intermediary or school), CI team meeting notes, CI templates created by the intermediary, documents created during inquiry cycles, internal reports, and data collections or visualizations.

Artifact Data Collection

The team collected artifacts for the 2020–21, 2021–22, and 2022–23 school years.

For the 2020–21 school year, we collected artifacts separately for the fall and spring. Beginning in late January 2021, the study team contacted representatives from each NSI in Cohorts 1, 1B, and 2. We requested all artifacts created by these intermediaries, as well as the districts, schools, or CI teams they support, that documented CI processes at the network, district, or school level in the fall. To better define this request, we created a short document describing examples of possible artifacts (Exhibit D1); however, we did not limit our request to only the artifact types listed.

Exhibit D1. Possible Artifact Types

Intermediary plans and tools	Training materials	School CI records
• Intermediary data collection plan • Template(s) used to collect data from districts and schools • Tools to monitor school-level CI progress • Within-grantee evaluation or progress reports (e.g., internal monitoring or evaluation) • Other resources provided by an intermediary to guide the CI process	• Training schedules • Agendas • Attendance lists • Frameworks used • Activity rubrics and templates • Products created from CI trainings • Other resources developed by an intermediary to support the CI process	• CI meeting schedules • CI meeting agendas • CI meeting attendance lists • Meeting notes and action items • Materials generated during inquiry cycles • Evaluation or progress reports • Other materials created by a network school during the CI process

Note. This exhibit was included in the fall 2020 Artifact Collection Overview handout. CI = continuous improvement.

We asked each intermediary to upload all artifacts to our secure project website or to provide the study team with the locations in which the artifacts were stored so that we could download them. To collect artifacts for the remainder of the school year, the team contacted these NSI again in July 2021.

Because the initial artifact collection contained many network-level documents without reference to the actions of school teams, and we found such documents to be of limited usefulness in our initial analyses, we subsequently asked intermediaries to provide artifacts only relating specifically to CI activity at the school level. For the 2021–22 school year, we also requested artifacts twice. In November 2021, we asked for artifacts relating to up to two CI cycles. Then, in June 2022, we asked for any remaining artifacts.

For the 2022–23 school year, we requested artifacts for the full school year once, in May 2023.[6]

Exhibit D2 shows the number of artifacts coded from 2020–21 to 2022–23 for each NSI.

Exhibit D2. Number of Artifacts Coded From 2020–21 to 2022–23, by NSI

NSI	Number of artifacts coded for 2020–21 [a]	Number of artifacts coded for 2021–22 [a]	Number of artifacts coded for 2022–23
Access ASU-2	149	34	n/a
AIR-Long Beach-3	24	n/a	336
Baltimore-1	124	n/a	632
Baltimore-3	318	n/a	388
Bank Street-3	56	n/a	28
BARR-1B	87	106	n/a
CORE-1	57	n/a	29
CORE-3	n/a	17	87
Denver-1B	163	190	n/a
HTH-1	281	n/a	312
HTH-3	142	n/a	255
NCS-1	83	n/a	43
NCS-3	n/a	n/a	36
NTN-1B	388	594	n/a
New Visions-1	92	n/a	7
New Visions-3	27	117	129
Partners ESA-2	194	177	n/a
Partners MGIT-2	131	40	n/a
Partners MGS1-2	134	51	n/a

[6] We initially collected artifact data twice a year, so we could report results to NSI on fall implementation relatively quickly. But it proved more efficient and less burdensome to collect artifacts once a year.

NSI	Number of artifacts coded for 2020–21 [a]	Number of artifacts coded for 2021–22 [a]	Number of artifacts coded for 2022–23
Partners OTSN-2	n/a	26	n/a
Promise-1B	105	10	n/a
RISE-2	54	35	n/a
Teach Plus-3	n/a	n/a	9
Teaching Matters-3	41	n/a	48
Tulare County-3	96	72	32
Total	2597	1435	**2,371**

[a] The number of artifacts coded for 2020–21 and 2021–22 will be included in an updated version of this report.
Note. n/a = NSI was not in the sample for that year.

Artifact Coding

Artifacts were coded by a team of research staff (referred to as "coders" or "the coding team"). The coders were provided with a copy of the coding protocol and a 90-minute training in its use. Coders were then certified, based on coding a predetermined set of artifacts. Their results were compared with a set of codes created by team leadership. To be certified, coders needed to meet a 70 percent threshold of agreement with the leadership-created codes.

Artifact coding took place in three phases:

- Phase 1: Artifact description
- Phase 2: Inquiry cycles
- Phase 3: Core parameters of CI

In the artifact description phase, each individual artifact was coded for basic descriptive information, including the intermediary, network, school, and CI team[7] to which the artifact pertained, the type of artifact, and the aspects of CI which the artifact described. We divided the aspects of CI into two categories: inquiry cycles (Phase 2) and core parameters (Phase 3). The inquiry cycle category was further divided into plan/do/study/act, and the core parameters category was divided into features of CI other than cycles (e.g., root cause analysis).

The primary purpose of the artifact description phase was to sort artifacts into the groups used for inquiry cycle and core parameter coding. For example, all artifacts related to the plan phase of the first inquiry cycle conducted by a CI team were grouped together.

[7] Baltimore-1 did not have CI teams. Instead, each school had one or more fellows who worked on CI cycles independently. For the purposes of artifact coding, we considered each of these fellows to be a distinct team.

Most schools had only one CI team, but about 10 percent of schools had two or more teams. For inquiry cycle coding (Phase 2), each team's cycles were coded separately. For core parameter coding (Phase 3), we coded one team per school. If a school had more than one team, coders chose a team to code based on the following criteria. If only one team had evidence of cycles, coders completed Phase 3 coding for that team. If more than one team had evidence of cycles, or no teams showed evidence of cycles, coders selected the team with the most detailed evidence of CI activities for Phase 3 coding.

In the inquiry cycle and core parameter phases, the coders determined whether or not the artifacts as a group contained clear evidence of specific features or aspects of CI. The absence of such evidence does not necessarily imply that the feature or aspect did not occur in the team's CI activities – it just indicates that the feature or aspect was not recorded in the artifacts.

The study team understands that not every NSI follows the Plan-Do-Study-Act model for inquiry cycles. In order to compare inquiry cycles across NSI, the coding team used the following definitions to sort artifacts into cycle phases, even if the specific language describing the phase differed:

Plan:	Developing a plan that identifies an intervention and determines how that intervention will be tested
Do:	Implementing the plan
Study:	Assessing the results
Act:	Reflecting on the results and adjusting the plan by adopting the intervention, adapting it, or abandoning it

If CI team artifacts documented activities related to the above inquiry-cycle tasks, they were coded according to their respective phases, whether or not the CI teams divided their processes into these same four phases or explicitly named the phases of their inquiry cycles in the same way. A single artifact might have been coded with respect to multiple phases, depending on the information it contained.

Artifacts for the 2020–21 school year were coded in two batches: fall 2020 artifacts between April and July 2021, and spring 2021 artifacts between September 2021 and March 2022. After this coding was complete, we refined and updated the coding protocol, although it followed the same basic structure. The changes primarily improved skip logic, provided more detailed answer options, and incorporated the equity framework we developed with the RQ1 and RQ3 teams. Artifacts for the 2021–22 school year were coded between April 2022 and February 2023, and artifacts for the 2022–23 school year were coded between June and August 2023. We count an artifact as coded if it was provided by the intermediary and was determined to be relevant to the coding during the artifact description phase of the coding process.

Response Rate

For response rates by NSI, see Exhibits C7, C8, and C9.

NSI School Leader Survey

NSI School Leader Survey Design

The study team designed a web-based NSI school leader survey to gather information on the school context in which the initiative was being implemented. Although the survey was designed with school principals in mind, questions were worded so that any school-based administrator (e.g., assistant principal, dean, teacher leader) could respond. Most items were closed-ended.

The survey contains four or five sections, depending on the year of administration:

1. Schools' response to the COVID-19 pandemic (School Years 2021 and 2022 only)
2. Schools' approaches to equity
3. Time and opportunities provided to educators to plan and collaborate with one another
4. Participation in the NSI
5. Leaders' professional background and their schools' characteristics

Retired school administrators who work at the American Institutes for Research® (AIR®) and have experience coaching school leaders reviewed the survey at two points during the design process to ensure that principals would interpret items as intended.[8]

NSI School Leader Survey Data Collection

The study team administered the survey to school leaders annually. For the first administration (School Year 2020–21), the study team administered the survey in May. In subsequent school years, the study team worked with intermediary staff to identify survey windows in January through April. The intended sample was leaders from all schools that participated in the initiative, including the preidentified comparison schools.[9] The study team worked with staff from intermediaries to identify appropriate survey administration windows for each NSI, as well as to identify the respondent for each school. Intermediary staff helped promote the survey before launch and also assisted with follow-up to improve response rates.

Surveys were programmed and administered using Voxco survey software. Voxco allowed for complex skip logic (e.g., respondents saw only relevant questions based on their previous answers) as well as

[8] These reviewers were not otherwise associated with the NSI evaluation, and they were also not involved in AIR's work implementing NSI-funded networks in Florida and California.

[9] Evaluators at Mathematica Policy Research constructed this pool of comparison schools to estimate the impact of participation in an NSI on student achievement outcomes. The comparison schools included all of the schools randomly assigned to serve as comparisons for Cohort 3 schools, as well as schools identified through Mahalanobis distance matching as comparisons for schools that had eighth grade on-track or ninth grade on-track outcomes.

multiple opportunities for piped text (e.g., we piped in the name of the school's specific network as well as the grade on which the school's network focused). The emails that school leaders received about the survey also incorporated this piped-in text.

Each school leader received an email invitation to participate in the survey that referenced previous communication sent by intermediary staff. We then sent weekly, or twice-weekly, automated email reminders to encourage staff to participate. When email messages were unsuccessful, study team staff called schools to remind leaders about the survey.

Each respondent who completed the survey received a $50 gift card in appreciation of their participation.[10]

Response Rate

For response rates by NSI, see Exhibits C7, C8, and C9.

Intermediary Interviews

Intermediary Interview Design

The study team designed the intermediary interviews to collect information about each NSI, including the NSI's approach to supporting CI team activities. The intermediary interviews addressed the design, launch, and ongoing implementation of each NSI's CI school or district teams. Interview topics included the following:

1. Intermediaries' approaches to developing a theory of practice improvement
2. Intermediaries' approaches to identifying and selecting change ideas
3. Data and measurement used in CI processes
4. CI team membership
5. Knowledge management

Using both a pre-interview form for intermediary staff to complete and a structured protocol, the study team completed interviews with key intermediary staff during the spring, focusing primarily on the CI activities from the current school year.

Intermediary Interview Data Collection

The interviews were conducted with intermediary staff who are familiar with districts' or schools' CI work and regularly interact with CI teams, such as the CI lead, CI coach, and CI data specialist or lead. The protocol and pre-interview form incorporated relevant information from existing data (e.g., intermediaries' applications, annual reports, information provided to the foundation and collected by other research or support partner teams) and prior interview data, as appropriate. Pre-interview forms

[10] This incentive was not provided in districts where direct payment to research participants was not allowed. In addition, the amount offered was sometimes less if district research offices placed a limit on incentive payments at less than $50.

asked close-ended (categorical or numerical) questions about CI teams' activities; the interviews asked open-ended questions about key CI team processes and decisions.

The study team reviewed the form data before conducting interviews and customized each interview protocol to reflect intermediaries' responses. For example, a study team member would ask different probing interview questions to an intermediary who indicated on their form that conducting a root cause analysis was not part of the network's CI process compared with an intermediary who indicated that conducting a root cause analysis was part of their CI process. Each interview was conducted via Zoom, lasted between 60 and 120 minutes, and was recorded after obtaining interviewees' oral consent. The interviews included between two and eight intermediary staff, participating as a group.

In 2020–21, the team conducted interviews with 24 NSI between May and June 2021; we did not interview Partners MGIT-2 that year because the NSI had not yet been launched. In 2021–22, the study team conducted interviews with 13 NSI between June and July 2023. In 2022–23, the team conducted interviews with 15 NSI between April and May 2023. See Exhibit C5 for the sample by year.

In general, the study team conducted one interview per NSI. Thus, intermediaries with two NSI generally completed two interviews. For example, the Network for College Success received two grants and operates two NSI, so they participated in two interviews. One exception occurred during the 2020–21 school year interviews: High Tech High, which operates two NSI, participated in one interview. The study team asked the CI leads the same questions during the single interview, and the responses were identified by NSI.

Each interview was transcribed and stored on the study team's secure SharePoint site (along with a running record of all documents for each NSI available to the evaluation team).

Response Rate

The team administered pre-interview forms to intermediaries and conducted interviews with intermediaries during the 2020–21, 2021–22, and 2022–23 school years. The response rate for the pre-interview forms and interviews was 100 percent in all three years.

Climate Surveys

Climate Survey Data Collection

To obtain data about perceptions of school climate, we drew on climate surveys routinely administered to students, teachers, and other stakeholders in districts in which NSI schools are located. Our evaluation partners at Mathematica Policy Research collected respondent- and school-level data about school climate from participating districts.

We limited the sample of districts that administered climate surveys to those meeting the following conditions:

1. The survey must have been administered in the first year of a school's participation in the network (which ranges from 2018–19 through 2022–23).

2. The survey must have been administered to at least three schools in a district.
3. To make it possible to pool schools using different surveys in a common analysis, the surveys needed to contain similar items and constructs. We used the University of Chicago Consortium's *5 Essentials for School Improvement* framework (which is used in Chicago Public Schools) as a base to which we compared other districts' surveys. See Appendix E for more detail on the items and constructs in each survey.

Exhibit D3 shows the districts and NSI from which we collected the data.

Exhibit D3. Districts From Which Climate Data Were Obtained and NSI With Schools in Each District

District	NSI
Chicago Public Schools	Network for College Success-1, Network for College Success-3, Teach Plus-3
Fresno Unified School District	CORE-1
Long Beach Unified School District	AIR-LB, CORE-3
New York City Department of Education	New Visions-1, New Visions-3, Teaching Matters-3, Bank Street-3
Philadelphia Schools	Partners MGS1-2, Partners OTSN-2

Note. Data were also collected for Baltimore. However, data were not available at the item level to facilitate a crosswalk to the *5 Essentials for School Improvement* framework. NSI = Network for School Improvement.

Response Rate

For response rates by NSI, see Exhibit C10.

Case Study Interviews

Case Study Interview Design

Case study interviews were conducted to get an in-depth understanding of how CI processes occur within schools. The protocols for the NSI school case study interviews were designed to collect data related to CI implementation in 2020–21 in five areas:

1. Context, including teacher collaboration and family involvement
2. The CI team, including team selection, resources available, and the collaborative process
3. The implementation of school inquiry cycles
4. The adoption of tested change ideas, their focus on equity, and the diffusion of the change ideas to staff beyond the CI team
5. The effect of the COVID-19 pandemic on CI processes

After consideration of and reflection on the 2020–21 results, the team decided to focus the protocols more specifically on inquiry cycles to gain a deeper understanding of cycles in schools. The protocols for the 2021–22 and 2022–23 NSI school case study interviews were designed to collect data related to implementation of inquiry cycles in three different areas:

1. Decision-making about what change ideas to test
2. What the planning and implementation of change ideas looks like in practice at schools
3. The measurement and action taken upon implementation of change ideas

Two separate interviews were conducted with staff at each school who were familiar with the CI work.

Case Study Interview Sample Selection

The study team conducted case studies in the same NSI included in the case studies conducted by RAND, the organization conducting the evaluation focused on network implementation. The goal was to maximize learning by selecting NSI (and subsequently schools participating in those NSI) that were different from each other in strategic ways, based on characteristics theorized to affect implementation (see list of constructs below). The selection of the sample involved six steps:

Step 1: Identifying constructs. The study team identified the following six constructs theorized to affect implementation of the CI process and on which the NSI were expected to differ in their approach, based on data from the intermediary interviews:

1. Commitment to CI
2. Diversity, equity, and inclusion integration
3. Intended role of school leaders
4. Prescriptiveness of intermediary guidance
5. School involvement in developing change ideas
6. Structure of intermediary

Step 2: Maximizing learning about the constructs of interest. The study team selected two constructs per NSI to examine more closely. The selection process prioritized having equal representation of each construct across the set of NSI as well as having representation of various approaches to the constructs. For example, the study team assigned the construct *school involvement in developing change ideas* to NSI to ensure there was representation of NSI that expected high, medium, and low involvement by schools in selecting their change ideas.

Step 3: Selecting the number of schools to study per NSI. In 2020–21, the study team determined the number of schools per NSI to include in the sample in part based on the number of schools in the NSI (choosing more schools in larger NSI) and in part to achieve a balance of constructs and approaches to each construct. The planned sample size for 2020–21 was 19 schools from seven NSI.

The research team chose to interview two schools each from five NSI in 2021–2022 and 2022–2023, for a total of 10 schools in the sample. See step 6 below for further explanation.

Step 4: Identifying schools for the sample. In 2020–21, the study team scheduled brief phone calls with each intermediary to discuss variation across their schools in the two selected constructs of interest. For each construct, the intermediary was asked to think of schools that varied in their

implementation of the construct. For example, if an NSI's construct was *intended role of school leader*, the intermediary was asked to identify multiple schools in which the school leader was actively engaged in the CI process and multiple schools in which the leader was less involved.

Step 5: Selecting the schools in the sample. Using the list of schools provided by the intermediary, the study team purposively selected a sample of schools that represented variation across four variables: urbanicity, school size, student demographics, and student outcomes.

Step 6: Identifying a subset of NSI in the sample. From the seven NSI that were studied in 2020–21, five were selected to represent each cohort (1, 1B, 2, and 3) for 2021–22 and 2022–23. Two of the NSI were from Cohort 3 to enable the team to maximize the number of schools that could be studied from the time that they began doing CI work. We intended the schools originally studied in each of the five selected NSI to remain the same for continuity and to understand sustainability. In three instances, the team substituted a different school because of an intermediary request.

Case Study Interview Data Collection

The study team conducted the interviews using Zoom in the spring of 2020–21, 2021–22, and 2022–23. Although most interviews were conducted in the spring, some interviews occurred in the summer or subsequent fall as scheduling allowed. The team conducted two interviews per school, each with a different individual. The study team recorded and transcribed each interview.

Response Rate

In 2020–21, staff from 16 of the 19 sampled schools, representing all seven of the sampled NSI, participated in interviews. In 2021–22, staff from all 10 sampled schools across five NSI took part in interviews. In 2022–23, staff from nine of the 10 sampled schools across five NSI participated in interviews. One school was unresponsive to the research team's request to be interviewed.

Appendix E. Analysis Methods

This appendix begins by describing the sample and analyses for each of the data sources used in the study. Then we discuss the approach used to examine variation across schools and NSI. Finally, we discuss the analysis of the relationship between enabling conditions and the implementation of continuous improvement (CI).

CI Artifacts

The report addresses the following questions about the implementation of CI:

1. To what extent do schools implement CI activities?
2. To what extent do these activities reflect the core parameters and other evidence-based practices of CI?
3. What change ideas do schools select for testing and implementation as part of CI?
4. To what extent do CI teams explicitly focus on improving outcomes for Black students, Latino students, or students experiencing poverty?
5. Does the level of implementation of key features of CI differ by cohort, entry point, calendar year, or years in the NSI?
6. What enabling conditions support schools' implementation of CI?

This section describes the analysis approach to address the first four of these questions; the approach for the fifth and sixth questions are described in the Variation in Key Features of CI and the Analyses of the Relationship Between Enabling Conditions and Key Features of CI sections below.

Overall, to address Questions 1 to 4, we describe the average level of implementation across all NSI with available data, equally weighting the NSI. For some analyses, we report separately by entry point (instructional, early warning and response, and well-matched postsecondary), equally weighting the NSI within each entry point. We also report some results separately by cohort (1, 1B/2, and 3), equally weighting the NSI within cohort.

Sample

The analyses for Questions 1 to 4 are based on the most recent year for which data are available for each NSI: 2022–23 for Cohorts 1 and 3, and 2021–22 for Cohort 1B/2.

As described in Appendix D, the artifacts were coded in three phases. The coding resulted in two separate sources of data: Phase 2 data (for which the cycle is the unit of analysis) and Phase 3 data (for which the school is the unit of analysis).

The analysis of artifacts is limited to NSI for which at least three participating schools had artifacts coded in Phase 2 or 3. Exhibits C7, C8, and C9 compare the number of schools participating with the number of schools with artifacts by year and NSI, and we note which NSI were excluded from the analyses for each year.

Some analyses are restricted to schools meeting specific conditions. For example, analyses of the Plan phase are based on schools with at least one inquiry cycle having at least one Plan phase. Schools that did not meet the requirement were excluded. If an NSI had no schools for a conditional analysis, it was excluded.

Analysis

The goal of the analysis is to describe the implementation of CI at the school level and to capture variation between and within NSI. We also seek to assess whether the average level of implementation differs by NSI entry point and cohort.

The approach we take differs for Phase 2 data, which are at the cycle level, and Phase 3 data, which are at the school level. For Phase 2 data, we aggregate the cycle data to determine the number of cycles per school. We also compute the percentage of cycles with specific features that took place in each school. Phase 3 data are at the school level, so the analysis is straightforward.

As described in Appendix D, about 90 percent of NSI schools had a single CI team. For these schools, all Phase 2 and 3 artifacts pertain to the single team. About 10 percent of schools had two or more teams. For schools with more than one team, Phase 2 data were collected for each team, and Phase 3 data were collected for the single team with cycles; or, if there were no teams with cycles, or more than one such team, the team with the most detailed Phase 3 data was selected.

The following sections describe the main analysis methods for Phase 2 and 3 data in more detail.

Analyses of Phase 2 data—counts of cycles within schools

Phase 2 data were based on the cycle as the unit of analysis. We computed three school-level measures based on counts of cycle-level data: the number of cycles initiated, the number completed, and the percentage completed. To determine the number of cycles initiated and completed at the school level, we computed the number of cycles for each CI team in the school, and then calculated the equally weighted average count of cycles for CI teams. Thus, the results should be interpreted as the number of cycles on average per school team.

Analyses of the number of cycles initiated and completed were restricted to schools that had at least one team that initiated at least one cycle. We truncated these school cycle averages to 10 for cycles initiated and completed, to be consistent across years, because in 2022–23, coders coded a maximum of 10 cycles per team. A few schools in 2020–21 and 2021–22 (less than 2 percent) had many more cycles, and we did not want those to unduly influence the overall results.

To determine the percentage of cycles that were complete, we divided the total number of cycles completed by the number of cycles initiated. For schools with more than one CI team, we computed the equally weighted average percentage of cycles completed among all CI teams in a school. (The number of cycles per team was not truncated for this calculation.

Analyses of Phase 2 data—percent of cycles with particular features

We analyzed data at the cycle level within each school to determine the percentage of cycles that involved specific activities and processes. To generate school-level percentages, all cycles within a school were equally weighted, or schools with more than one CI team, the study team weighted each CI team in proportion to the number of cycles each CI team conducted (i.e., each cycle was weighted equally within a school, regardless of how many CI teams were present).

Analyses of Phase 3 data

Phase 3 data were based on one CI team in each school. See above for details regarding how coders selected a team to code in schools with more than one team. All Phase 3 analyses are based on binary variables indicating that the CI team engaged in or implemented a particular CI activity or process.

Computing means for NSI

To compute the average number of cycles initiated or completed across schools within an NSI, the average percentage of cycles with a particular attribute within an NSI, or the percentage of schools implementing an activity or process within an NSI, the study team computed the equally weighted mean for the NSI schools included in the analysis. The overall percentage for a cohort or entry point was computed as the equally weighted mean of the percentages for all NSI included in the analysis for the cohort or entry point.

Analysis of variation

For each measure of CI implementation, we estimated a multilevel model with an intercept only, to assess the variation between NSI and between schools within an NSI (and, for cycle-level data, the variation among NSI, schools, and cycles). The models are analogous to those described in the Variation in Key Features of CI section.

In some cases, for binary measures of implementation, nearly all of the variation was among NSI–indicating that all schools within an NSI engaged the measured activity, or none did. When all or nearly all of the variation was among NSI, rather than showing the average percentage of schools engaging in an activity, we show the number of NSI for which all schools engaged in the activity, none did, or there was a mix.

NSI School Leader Survey

Sample

The sample for the school leader survey was restricted to NSI with at least a 50 percent response rate, so that NSI included in the analysis were not represented by a minority of their schools.

Analysis for Descriptive Results

To compute means for each NSI, as well as cohorts and entry points, the study team used an approach paralleling the approach used for Phase 3 artifact data. The mean for each NSI was computed as the equally weighted mean for the NSI schools. The overall results for a cohort or entry point are based on the equally weighted mean for all NSI included in the analysis (e.g., by cohort or entry point).

Analysis of Variation

For each measure based on the survey, we estimated a multilevel model with an intercept only, to assess the variation among NSI, schools, and, where relevant, years. The models are analogous to those described in the Variation in Key Features of CI section.

Intermediary Interview Data Analysis

The data from interviews were analyzed in two ways. First, intermediaries' responses to the pre-interview form were coded and tabulated on the basis of each question's closed-ended response options. For example, the pre-interview form asked, "Did your intermediary or participating CI teams test change ideas during SY 20XX–XX?" and NSI chose between two responses, "Yes" or "No. Change ideas were not tested in SY 20XX–XX and will be in a future year." Second, interview transcripts were coded to capture information related to broad constructs (e.g., approach to engaging in CI). To analyze broad constructs, the study team employed an emergent coding approach to identify themes, patterns, and categories.

Climate Data Analysis

In order to facilitate analysis across districts that use different school climate survey instruments, the team created a crosswalk of items from each of the district teacher surveys to identify items similar to those found in the *5 Essentials for School Improvement* used in Chicago. (Although the surveys included similar items, the organization of the items into constructs and sub-constructs differed across surveys. Thus, we focused on identifying similar items, and we used the items we identified to create constructs parallel to those in the *5 Essentials for School Improvement*). For the purposes of the analyses in this report, we focused on two essentials: **Collaborative Teachers** and **Effective Leaders**. For both of these measures, we relied exclusively on school-level data summarizing teachers' responses to climate surveys. Exhibit E1 displays the subconstructs contained within each essential and the number of relevant survey items from each district measuring each subconstruct.

Exhibit E1. Number of Survey Items for Each Climate Subconstruct, by District

Essential	Subconstruct	Chicago	Philadelphia	New York City	Long Beach and Fresno
Collaborative Teachers	Collaborative Practices	5	4	1	0
	Collective Responsibilities	6	2	2	1
	Quality Professional Development	5	4	4	0
	School Commitment	4	0	2	0
	Teacher–Teacher Trust	5	1	5	3
Effective Leaders	Instructional Leadership	6	4	6	0
	Program Coherence	5	2	2	0
	Teacher Influence	5	4	3	0
	Teacher–Principal Trust	8	2	8	0

We had item-level data available for New York City, Philadelphia, and the CORE Districts (Fresno and Long Beach). These datasets provided the number and percentage of teachers who responded to each option on a Likert scale (e.g., *strongly agree* or *agree*). Chicago Public Schools provided school-level scale scores for each subconstruct.

In the districts where we had item-level information, we first created a school-level weighted average response for each item. For example, if a response scale consisted of four options (*strongly disagree*, *disagree*, *agree*, and *strongly agree*), we multiplied the number of respondents who selected *strongly agree* by four, we multiplied the number of respondents who selected *agree* by three, and so forth. We added these products together and then divided by the total number of respondents to create an average score. So, an average score of 3.5 would indicate that the teachers in that school provided an average response between *strongly agree* and *agree*. We then averaged each of these item scores to create scores for each subconstruct (e.g., Teacher–Teacher Trust or Program Coherence). We then averaged each of the subconstructs to generate the overall measure score (e.g., Collaborative Teachers or Effective Leaders). We equally weighed subconstructs even if they had different numbers of items. In Chicago, where we did not have item-level data, we averaged each of the subconstruct scale scores within each measure to create overall scores of Collaborative Teachers and Effective Leaders. [11]

We then standardized each subconstruct and measure score within district and within year. This gave us a score for each school that represented the school's position within the districtwide distribution each year. Doing so facilitated cross-year and cross-district comparisons of schools' measures of climate by allowing us to compare schools based on their distance from their district average rather than on their raw scores.

[11] Information about the reliability of the scales is available upon request.

The analyses of school climate in this report are focused on climate as a potential enabling condition supporting the implementation of CI. Thus, we analyzed climate data based on a school's first year of participation in the NSI, considering it a "pre" implementation measure.

Case Study Interview Data Analysis

The study team analyzed data from all the interviews. During analysis, the team diagrammed the CI process that was described by each of the interviewees in order to learn about which components of CI were present (conducting a root-cause analysis, setting an aim, selecting a change idea, preparing to implement the change idea, implementing activities, measuring results, and making decisions about next steps), the order in which the components were implemented, and the implementation of the components. A description of each component was written in a box and the boxes were connected by arrows identifying the order in which the components appeared in a school's implementation. Diagrams were used because each school's CI process was unique in terms of which components were included and the order in which they were conducted. The diagrams (in contrast to counts of each component used), allowed for a more wholistic understanding of each school's process. For instance, if a school selected a change idea without doing a root-cause analysis, identifying an aim, or measuring the results, then the diagram would show these components, but it would not contain boxes for the components not implemented. Visually comparing diagrams that varied in the number and order of components provided for a comprehensive description of the variation in implementation across schools.

Variation in Key Features of CI

To assess the extent to which the implementation of CI varied across NSI and across schools within NSI, and to examine the extent to which implementation is associated with cohort, entry point, and other factors, we estimated multi-level models.

Sample

The overall sample includes schools and NSI with CI artifact data from all of the years for which data were collected. Data were collected for all NSI for 2020–21. Data were collected for Cohort 1B/2 NSI for 2021–22 and for Cohort 1 and 3 NSI for 2022–23. Thus, schools may have either one or two years of data, depending on response rates and when schools began participating in their NSI. The sample was restricted to NSI with at least three schools with artifact data in a year.

Method

The analyses were conducted for each of the 12 CI implementation variables listed in Exhibit E2. We use a different analysis approach for the following types of data:

1. **School-level analyses:** Three-level logit regression with years nested within schools nested within NSI.

2. **School-level analyses based on aggregated cycle data:** Three-level linear regression with years nested within schools nested within NSI. One cycle-based variable is binary: whether a school initiated at least one cycle. This analysis was based on a three-level linear regression with the same nesting structure.

3. **Cycle-level analyses:** Four-level logistic regression with cycles nested within years within schools within NSI.

For each implementation variable, we estimated two models. The first was a null model with an intercept only. This model was used to assess the variation between NSI, between schools within NSI, and between years within schools (as relevant). The second was a model incorporating cohort, entry point, the number of years a school participated, and the calendar year as explanatory variables. (See Exhibit E3 for more detail on each of these variables.) We calculated a joint Wald test for the cohort and entry point variables, separately.

Exhibit E2. Key Features of CI, by Core Parameter

Core parameter construct	Measure	Sample	Analysis
Disciplined inquiry cycles	Number of completed cycles (range 0 to 10+)	All NSI and schools with Phase 2 data.	School level. Three-level linear regression with years nested within schools nested within NSI.
Disciplined inquiry cycles	Percentage of completed cycles	All NSI and schools with Phase 2 data.	School level. Three-level linear regression with years nested within schools nested within NSI.
Disciplined inquiry cycles	Number of initiated cycles (range 1 to 10+)	All NSI and schools with Phase 2 data.	School level. Three-level linear regression with years nested within schools nested within NSI.
Disciplined inquiry cycles	Any cycles initiated (1 = initiated a cycle, 0 = did not initiate any cycles)	All NSI and schools with Phase 3 data.	School level. Three-level logistic regression with years nested within schools nested within NSI.
Data use	Evidence of data use (1 = used data, 0 = did not use data)	All NSI and schools with Phase 3 data.	School level. Three-level logistic regression with years nested within schools nested within NSI.
Data use	Evidence that data were collected and/or analyzed during the cycle (1 = analyzed data during the cycle, 0 = did not analyze data during the cycle)	All NSI and schools with Phase 2 study data.	Cycle level. Four-level logistic regression with cycles nested within years within schools within NSI.
Equity/ disciplined inquiry cycles	Cycles in which teams devoted specific types of attention to equity in the study phase (any of the following): 1. Data are disaggregated 2. Students and/or family members are actively engaged in the process 3. Student and/or family input is taken into account 4. Process includes an equity pause 5. Reflection is through a culturally responsive lens 6. Includes measures of student voice or sense of belonging 7. Analysis includes identification of inequities or structural impediments 8. Other	All NSI and schools with Phase 2 study data.	Cycle-level. Four level logistic regression with cycles nested within years within schools within NSI.

Core parameter construct	Measure	Sample	Analysis
Evidence of a theory of practice improvement or driver diagram	Evidence of a theory of practice improvement or driver diagram (1 = had a theory of practice improvement or driver diagram, 0 = did not have a theory of practice improvement or driver diagram)	All NSI and schools with Phase 3 data.	School level. Three-level logistic regression with years nested within schools nested within NSI.
Understanding of the problem	Evidence of a root cause analysis (1 = had a root cause analysis, 0 = did not have a root cause analysis)	All NSI and schools with Phase 3 data.	School level. Three-level logistic regression with years nested within schools nested within NSI.
Aim statement/ equity	School gives specific types of attention to equity issues in aim statement (1 = evidence of equity present in the aim statement, 0 = no evidence of equity in the aim statement)	All NSI and schools with Phase 3 aim statement data.	School level. Three-level logistic regression with years nested within schools nested within NSI.
Change idea	Teams selected a change idea to test in the plan phase of cycles (1 = selected an idea to test in the plan phase, 0 = did not select an idea to test in the plan phase)	All NSI and schools with Phase 2 plan data.	Cycle level. Four-level logistic regression with cycles nested within years within schools within NSI.
Change ideas/ theory of practice improvement	Evidence of change ideas that derive from drivers (1 = evidence that change ideas came from drivers, 0 = no evidence that change ideas derived from drivers)	All NSI and schools with Phase 3 theory of practice improvement data.	School level. Three-level logistic regression with years nested within schools nested within NSI.

Exhibit E3. NSI and School Characteristics

Definition	Level	Values
Cohort	NSI	Two indicators for three cohorts. Cohort 1 as the reference variable.
Years in the NSI	School	Numeric.
Entry point	NSI	Two indicators for the three entry points (instructional, well-matched postsecondary, early warning). Early warning as the reference variable.
Calendar year of participation	NSI	Two indicators for three years. 2020–21 as the reference variable.

Analyses of the Relationship Between Enabling Conditions and Key Features of CI

To assess the relationship between enabling conditions and the implementation of CI, we conducted a small set of exploratory analyses. More complete analyses will be conducted for the final report, to appear in November 2025.

Sample

The sample was based on the latest year for which data were collected for each NSI: 2022–23 for Cohorts 1 and 3, and 2021–22 for Cohorts 1B/2. Only NSI with at least a 50 percent school leader survey response rate and at least three schools with artifact data were included, and each analysis was restricted to schools that have survey and portrait data.

Method

We estimated multilevel models similar to those described above for the implementation of CI, including cohort, entry point, and years of school participation as explanatory variables, and adding enabling conditions one at a time. (Because the enabling-conditions analyses were based on a single year of data for each school, the analyses do not include calendar year.) We estimated a separate model for each of the enabling conditions shown in Exhibit E4.

Exhibit E4. Enabling Conditions of CI, by Construct

Construct	Measure	Definition
Equity culture	Community opportunity	School leader "agreed" or "strongly agreed" with the survey item that their school provides opportunities for parents, family, and community members to participate in the development of shared priorities and goals.
Equity culture	Engaging staff in decision-making	School leader "agreed" or "strongly agreed" with the survey item that their school engages all teacher and staff voices in the decision-making process.
Equity culture	School leader involved	School leader indicated they are "very involved" or "very actively involved" with their school's CI team.
Resources/flexibility	Targeted professional development	School leader reported the school provided targeted professional development to facilitate involvement in network.
Resources/flexibility	Targeted coaching	School leader reported the school provided targeted coaching to facilitate involvement in network.
Resources/flexibility	Intermediary support data use	School leader reported the intermediary supported the school in accessing and using relevant data for CI cycles.
Resources/flexibility	Intermediary provide documentation tools	School leader reported the intermediary provided the processes and tools that the school's CI team used to document CI activities.
Planning time	Reduced teacher workloads	School leader reported the school reduced teacher workloads to allow for more planning time to facilitate participation in the NSI.
Planning time	Common planning time	School leader reported the school created a common planning time to facilitate participation in the NSI.
Planning time	Individual planning time	School leader reported that teachers in their school have an average of at least five hours of individual planning time per week.

Appendix F. Results for Analysis of Variation and Relationship Between Enabling Conditions and Implementation of Continuous Improvement

Exhibit F1. Results of Analysis of the Relationship Among Cohort, Entry Point, Calendar Year, and Years in NSI and Level of Implementation

Implementation measure	*n*	Covariates							Wald tests *p* value		
		Cohort (Cohort 1 reference variable)		Entry Point (EWR reference variable)		Year (2020–21 reference variable)		Years in NSI	Cohort	Entry point	Year
		Cohort 1b/2	Cohort 3	Instructional	WMPS	2021–22	2022–23				
Cycles initiated	455	–1.56*	–1.04	1.89**	1.54*	–1.31**	–0.49	0.14	.10	.01	.00
Cycles completed	455	–1.01	–0.73	1.40*	–0.32	–0.38	1.42***	–0.03	.46	.05	.00
Percentage of cycles completed	455	0.02	0.07	0.21	–0.18	–0.22***	0.02	0.01	.89	.05	.00
At least one cycle initiated	472	–0.4	0.82	0.37	1.69	0.05	–0.04	0.37*	.38	.32	.96
Evidence of data use	472	–0.95	–0.36	0.2	3.17**	0.58	–0.47	0.25	.54	.01	.03
Evidence of data use in the study phase	341	–0.45	1.51*	–0.23	0.51*	–1.38**	–1.73*	–0.4	.01	.76	.01
Evidence of equity in the study phase	272	–3.86***	–1.34	–0.50	–0.16	–1.09*	–4.40***	–0.33	.00	.74	.00

Implementation measure	*n*	Covariates							Wald tests *p* value		
		Cohort (Cohort 1 reference variable)		Entry Point (EWR reference variable)		Year (2020–21 reference variable)		Years in NSI	Cohort	Entry point	Year
		Cohort 1b/2	Cohort 3	Instructional	WMPS	2021–22	2022–23				
Evidence of theory of practice improvement or driver diagram	472	2.43	2.77	–2.00	2.44	–4.70***	–0.34	–0.51*	.54	.24	.00
Evidence of a root cause analysis	472	–0.98	1.56	2.76*	1.08	–2.09***	–3.31***	–0.01	.24	.17	.00
Attention to equity in aim statement	472	2.07	0.98	3.06*	0.87	–1.32***	–0.10	0.48**	.44	.09	.00
Evidence of selecting a change idea	333	–0.24	0.31	0.25	0.39	1.33*	0.44	–2.36*	.91	.09	.14
Change idea is derived from drivers	472	0.73	2.33	–1.05	4.61*	–1.99***	0.68	0.17	.36	.02	.00

Note. EWR = early warning and response; WMPS = well-matched postsecondary.
*$p < .05$. **$p < .01$. ***$p < .001$.

Exhibit F2. Results of Analysis of the Relationship Between Levels of Implementation and Equity Culture Enabling Conditions

Implementation measure	Community opportunity		Engaging staff in decision-making		School leader involved	
	Coefficient	*n*	Coefficient	*n*	Coefficient	*n*
Cycles initiated	–0.111	196	0.379	194	0.262	202
Cycles completed	–0.394*	196	–0.236	194	0.098	202
Percentage of cycles completed	–0.082*	196	–0.148**	194	0.003	202
At least one cycle initiated	–0.214	275	0.822*	273	–0.164	286
Evidence of data use	0.113	275	–0.121	273	0.416	286
Evidence of data use in the study phase	–0.547	597	–0.133	588	0.190	628
Evidence of equity in the study phase	–0.650	494	–0.180	485	0.027	518
Evidence of theory of practice improvement or driver diagram	–0.294	275	0.064	273	–0.035	286
Evidence of a root cause analysis	0.117	280	–0.907	278	–0.072	291
Attention to equity in aim statement	0.114	275	0.356	273	0.072	286
Evidence of selecting a change idea	–0.499	428	–0.982	419	–0.140	457
Change idea is derived from drivers	0.024	275	0.803	273	–0.330	286

Note. See Appendix E for full details on the enabling-conditions analyses. The coefficient displayed here is for the enabling condition.
*$p < .05$. **$p < .01$.

Exhibit F3. Results of Analysis of the Relationship Between Levels of Implementation and Resources/Flexibility Enabling Conditions

Implementation measure	Targeted professional development		Targeted coaching		Intermediary support data use		Intermediary provide documentation tools	
	Coefficient	*N*	Coefficient	*n*	Coefficient	*n*	Coefficient	*n*
Cycles initiated	0.097	181	0.251	179	0.393	197	–0.295	198
Cycles completed	–0.066	181	0.327	179	0.328	197	–0.277	198
Percentage of cycles completed	–0.008	181	0.063	179	–0.041	197	0.001	198
At least one cycle initiated	0.061	254	0.098	250	0.731	278	–0.194	278
Evidence of data use	–0.821	254	–0.632	250	1.180	278	–0.311	278
Evidence of data use in the study phase	–0.264	538	–0.527	529	0.519	610	0.526	619
Evidence of equity in the study phase	0.172	454	0.490	450	1.848	502	0.712	511
Evidence of theory of practice improvement or driver diagram	–0.018	254	0.471	250	0.435	278	–1.069*	278
Evidence of a root cause analysis	0.376	258	0.064	253	0.022	283	0.285	283
Attention to equity in aim statement	0.383	254	0.418	250	1.283	278	0.182	278
Evidence of selecting a change idea	–0.478	404	–0.064	402	–1.856	441	0.010	450
Change idea is derived from drivers	0.088	254	–0.195	250	–0.096	278	–0.772	278

*$p < .05$.

Exhibit F4. Results of Analysis of the Relationship Between Levels of Implementation and Resources/Flexibility Enabling Conditions

Implementation measure	Reduced teacher workloads		Common planning time		Individual planning time	
	Coefficient	*n*	Coefficient	*n*	Coefficient	*n*
Cycles initiated	–0.213	180	0.311	182	0.131	210
Cycles completed	–0.351	180	0.134	182	0.036	210
Percentage of cycles completed	0.006	180	–0.023	182	–0.009	210
At least one cycle initiated	0.345	248	–0.124	253	–0.089	301
Evidence of data use	–0.375	248	–0.391	253	0.364	301
Evidence of data use in the study phase	–0.165	566	–0.425	572	0.404	658
Evidence of equity in the study phase	0.279	470	–0.850	478	–0.273	535
Evidence of theory of practice improvement or driver diagram	1.190*	248	–0.062	253	–0.342	301
Evidence of a root cause analysis	1.494*	252	1.244*	258	–0.230	306
Attention to equity in aim statement	–0.702	248	–0.372	253	0.659	301
Evidence of selecting a change idea	–0.466	434	–0.004	430	0.667	468
Change idea is derived from drivers	0.249	248	–0.968	253	–0.533	301

*$p < .05$.

Appendix G. Survey and Interview Protocols

The survey and interview protocols for the Networks for School Improvement (NSI) school leader survey, intermediary interviews, climate surveys, and case study interviews are available upon request.

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23143_11/23