Student-Centered Assessment Network: Looking Back and Looking Ahead

September 2021

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Preface and Acknowledgments

This report presents an overview of the history, collective learning, and concluding products of a networked improvement community (NIC) that operated and evolved between 2017 and 2021: the Student-Centered Assessment Network (SCAN). SCAN comprised a group of teachers from three Rhode Island high schools; a coordinating team of researchers, instructional coaches, and communication professionals from the American Institutes for Research (AIR); and other partners and advisers.

In this report, we recount how this network originated, the growth and evolution of the network as teachers, researchers, and instructional coaches worked together to sharpen our shared vision for what SCAN was aiming to accomplish and what our organizing principles and work processes would be.

The AIR project team—as authors of this report but recognizing that we are sharing the story of a larger group's joint work—expresses appreciation and thanks to the many individuals who have been dedicated members of SCAN and others who offered constructive feedback and expertise as additional partners or advisers to SCAN.

In particular, we appreciate the collaboration we enjoyed with Rhode Island educators during the life of this project. We also thank the principals and other administrators from the three high schools and school districts that invited SCAN into their classrooms, most notably Michael Hobin of Westerly High School, Shani Wallace of East Providence High School, and Robert McCarthy of Central Falls High School.

We thank the Nellie Mae Education Foundation: first and foremost, Nina Culbertson, program director of learning, research, and evaluation. Ms. Culbertson encouraged SCAN's efforts, consistently asked the probing questions that make a project better, and viewed this network as an entity that was growing and learning across time (and thus did not need to tackle every challenge all at once but would be wise to pursue inquiry and growth in stages, with one academic year or season building on the activities and lessons learned from the previous year or season). In addition to her advocacy and guidance, in its first years the project also benefitted from the wisdom and involvement of her Foundation colleagues, Eve Goldberg and Khaled Khlifi.

We appreciate colleagues from the Carnegie Foundation for the Advancement of Teaching. In the first several years of SCAN's planning, launch, and development, the AIR project team engaged Carnegie's Dr. Paul LeMahieu and colleagues for formal improvement reviews. During these reviews, Dr. LeMahieu and colleagues examined SCAN's foundational documents, strategic plans, and early data; they then provided reactions and wise counsel—conversations and feedback that proved highly valuable to a NIC in its early years. In addition, the general field leadership that the Carnegie Foundation provides for improvement science and NICs provided strong guidance and orienting principles to SCAN (and hundreds of other NICs across the globe). Carnegie's Summit on Improvement in Education has become an important annual event for the SCAN team, as we seek to learn from and share with like-minded colleagues who join

Executive Summary

The first section of this report recounts the origins of the Student-Centered Assessment Network (SCAN), a networked improvement community that ran between 2017 and 2021. SCAN comprised teachers from three Rhode Island high schools; a coordinating team of researchers, instructional coaches, and communications professionals from the American Institutes for Research (AIR); and other partners and advisers. The three schools were East Providence High School, Westerly High School, and Central Falls High School.

> For more on SCAN, watch the video summary of the story of SCAN.

Next, the report reviews design decisions, lessons learned during the network's pilot year, and the set of foundational definitions and a network aim that guided SCAN's work. Definitions of student agency and engagement are presented, as well as a six-part characterization of student-centered formative assessment (SCFA). The network's formal aim was that, by the end of the 2019–20 school year, all students of SCAN teachers would have the opportunity to be active and successful participants in their own learning. In particular, these students would (a) be active participants in analyzing their own performance data; (b) demonstrate agency over their learning via regular practices of examine, plan, reflect, adjust, and achieve; and (c) have choice in selecting among strategies intended to improve their learning.

The report describes the growth and development of SCAN such that the network ultimately involved the following:

- Fifty-nine teachers (with a maximum of 48 active in any one school year between 2017–18 and 2019–20)

- Nine content areas (expanding from four in 2017–18)

- More than 225 individual Plan-Do-Study-Act (PDSA) inquiry cycles to investigate dozens of distinct SCFA change ideas or instructional routines

Eleven of these change ideas or instructional routines are identified as "high-leverage change ideas" because they had been investigated across multiple PDSA cycles (often by multiple teachers and in a few instances across multiple schools) and used well-conceptualized measurement, generating high-quality data and showing evidence of success in boosting student engagement, agency, and/or learning outcomes.

> A list of our high-leverage change ideas and other tools are on our website.

Next, the report presents interview quotes and responses to open-ended survey items from SCAN teachers, as well as responses from a principal and two students. The teacher testimonials and responses attest to the energy and enthusiasm most teachers expressed about the benefits of membership in a network of this type. Teachers described their increasing comfort with using data and measurement to improve

processes and outcomes for themselves and their students, as well as the benefits of being a member of an intentional network for professional exploration and growth. The teacher quotes show appreciation for the ways that roles and relationships among teachers and students can shift in powerful ways when SCFA becomes a focus in the classroom.

After the qualitative data, the report presents a sampling of quantitative survey data. The featured graphs illustrate the high value that SCAN teachers saw in three "pillars" of the network:

- The people and collaborative aspect of SCAN

- The continuous improvement methods, most centrally the PDSA cycles and the measurement inherent in these

- The SCFA teaching and learning strategies developed and routinized through SCAN

Further, data are presented on teachers' descriptions of and to what extent their teaching could be characterized as student centered, comparing the time periods before they joined SCAN with the time period since joining SCAN. An increased focus on student-centered teaching and learning is apparent. Finally, data are presented on teachers' uses of formative assessment as part of their classroom practice: (a) before joining SCAN, (b) during the portion of the 2019–20 school year prior to school going to virtual learning because of the COVID-19 pandemic, and (c) during March and April 2020 when schools went virtual because of the pandemic. The data show a clear increase in teachers' self-reported use of formative assessment once they joined SCAN, as well as difficulties maintaining these uses in the early weeks of schools' adapting to the pandemic and remote learning processes. The report offers context and brief commentary about these findings.

The report's two concluding sections describe

- a set of presentations made by SCAN representatives at the Carnegie Foundation's Summit on Improvement in Education in three successive years and

- a sustainability tool that SCAN developed to assist its participating schools and teachers in planning for routines, resources, and structures to support the continuing use of SCFA practices, improvement science efforts, and network ties developed during SCAN's funded period.

Origins: An Idea, an Invitation, a Network

The Nellie Mae Education Foundation issued a call for proposals in fall 2016, seeking an organization or team to facilitate the development of a research and development network focused on developing highly effective, student-centered formative assessment (SCFA) practices in high schools. The Foundation described its commitment to building an emerging knowledge base about student-centered approaches to formative assessment through a rigorous process that integrates research and practice through the iterative development and testing of new solutions.

AIR eagerly pursued this opportunity, and our project team was thrilled to be awarded a planning grant to begin the work.

After investigating where we might find eager partners and a set of schools ready to join us in this work, the AIR team arrived at a focus on small but mighty Rhode Island. By early spring 2017, we were recruiting for what we called a Core Leadership Team, to help with the co-construction and planning of this new networked improvement community (NIC). Appendix A features a series of SCAN recruitment and description materials developed between spring 2017 and spring 2019, including the brochure that sought members of the Core Leadership Team.

Although all the educators participating in the Core Leadership Team's planning activities saw value in what this network was seeking to do or be, ultimately by fall 2017 two schools responded to AIR's invitation to move forward with pilot activities during the 2017–18 school year: Westerly High School and East Providence High School. They became the first two schools affiliated with the network, by that point known by its newly crafted nickname, SCAN (Student-Centered Assessment Network).

Invitation to a Learning and Improvement Network for New England High Schools

As principals and a few teachers serving as point people made the SCAN opportunity known to faculty within Westerly High School and East Providence High School, they communicated an invitation to join a learning and improvement network for Rhode Island high schools.

With 23 teachers from those two schools having participated in 2017–18, Central Falls High School then joined for the 2018–19 school year, with just a few of the pilot year teachers departing and others joining, resulting in 48 teachers from three schools actively participating as of fall 2018. Demographics of the three participating schools are displayed in Exhibit 1.

A Call for Participation in the Student-Centered Assessment Network: Focus on Formative Assessment

The opportunity: American Institutes for Research (AIR) has received a grant from the Nellie Mae Education Foundation to recruit Rhode Island educators as partners and to co-develop a networked improvement community (NIC) focused on formative assessment in high schools. A NIC is a form of partnership between practitioners and researchers proving to be powerful in propelling innovation and improvement in schools and other organizations. We seek educators who recognize this initiative as an opportunity to grow in their practice and to help students thrive.

A call for partners: AIR seeks between 24 and 32 high school educators from three or four high schools to join the Student-Centered Assessment Network (SCAN) during the 2017–18 school year. SCAN members will participate in a series of in-person and virtual meetings to refine the planning begun by a smaller planning group last spring and summer. By the second semester, SCAN members will implement and test a few "change ideas" involving [...] strategies or practices around formative assessment [...] will assist in planning PDSA cycles

Exhibit 1. Demographics of the Participating Schools

School	Total enrollment	Percentage White	Percentage Black	Percentage Hispanic	Percentage low income[a]
Central Falls High School	816	11%	15%	62%	96%
East Providence High School	1,460	69.5%	12%	1%	44.5%
Westerly High School	769	79.5%	< 1%	1%	33%

Note. Data can be accessed from https://nces.ed.gov/ccd/schoolsearch/.
[a]The percentage of students from low-income backgrounds equates to the percentage of students eligible for free or reduced-price lunch.

In the remainder of this report, we share an overview of the activities and accomplishments of the Rhode Island teachers and the AIR project team—known within SCAN as the hub team—during 2019–20 and into 2020–21.

Our final convening of SCAN teachers occurred in November 2020, in the midst of the COVID-19 pandemic but with teachers' generally high enthusiasm for what they and their students had pursued for several years despite the undeniable challenges of connecting, teaching, and learning during a pandemic. Teachers affirmed the value of making formative feedback and the examination of data central to classroom routines, as well as the importance of establishing students as active partners and co-owners in their learning.

Network members' hope as 4 years of communal work and the formal funded period conclude is that the best of what SCAN has been—a commitment to the routines and discipline of improvement science, the development and refinement of a set of SCFA routines, and the power of sharing ideas and learning within networks—will be sustained and shared with others. Indeed, this pursuit of sustainability and continuing growth is a part of the story we have to share.

Design Decisions, Bets Placed, and Lessons Learned

Before we jump into describing the activities and results at the conclusion of SCAN's funded period, it is informative to look back on how we thought of the network and what it had accomplished approximately 1 year after its launch. In early 2020, the Foundation published *The Student-Centered Assessment Network: Testing Change Ideas in Real Time*. That publication drew on annual reports submitted to the Foundation by both the AIR team and the University of Pittsburgh's Partners for Network Improvement (PNI) developmental evaluation team after the 2017–18 school year. It presents a basic description of the who, where, and what of the network, as well as teachers' views of the utility and challenges of committing to SCFA; the utility and challenges of improvement science (namely, Plan-Do-Study-Act [PDSA] cycles, and the accompanying measurement and data interpretation priorities); and early impacts on students of the teaching and learning routines that teachers were investigating.
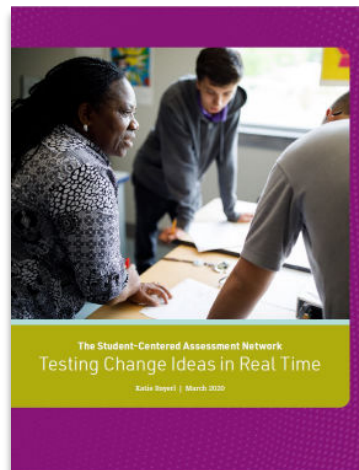
The publication also presents design decisions and "bets placed" that characterized SCAN and, in some cases, differentiated it from other NICs in recent years—including other NICs focused on classroom instruction.

The first of these design decisions was to build a critical mass within a small set of schools. SCAN recruited 10–12 teachers from each participating school to allow for informal, in-person conversations and collaboration to flourish at each site. The intention and hope was that this core group of teachers would support each other's learning in the short term and build capacity for schoolwide expansion in future years.

A second design decision was to include all (or many) disciplines within a high school. By engaging teachers from several content areas, SCAN aimed to identify and refine SCFA strategies that spanned subject areas—to investigate general principles of effective pedagogy more than seeking to focus on subject-specific aspects of teaching and learning.

A third design decision was termed "jump right in." The AIR team—as it introduced teachers to PDSA cycles and the methods of improvement science—prioritized getting started over perfection. Teachers had a chance to try out an inquiry cycle at the same time they built foundational knowledge about improvement science. In spring 2018, specifically, the AIR team provided only limited feedback about the formative assessment ideas that teachers were trying out, understanding that teachers would have time to build the sophistication of their attempts through subsequent cycles.

A fourth design decision was to make room for risks. SCAN teachers had permission to "fail fast," treating their inquiry cycles as an opportunity for learning. School teams met without administrators present to ensure a safe space for risk taking. Although the AIR team kept school leaders informed of the concepts being explored, we did not discuss individual teachers or share student data.

A fifth element of SCAN's design was to build investment up front. SCAN launched with school-based meetings that required minimal logistical effort from teachers. In addition, the AIR team designed the first inquiry cycle as an opportunity for teachers to try out a new formative assessment idea of their own choosing, in any one of their classes or sections, to build teacher buy-in.

A final element of SCAN's design was to scaffold engagement and accountability. The AIR team created a template—the "Contract with Self" —to help teachers plan their first PDSA cycle, a structured weekly log to support reflection, and a protocol to guide the data debrief at the end of the cycle. AIR's instructional coach sent weekly emails to remind teachers to complete logs and reiterate agreed-on timelines for teachers to complete their cycles.

Explicitly naming and discussing these bets placed was helpful to the AIR team and the SCAN teachers as they became part of the shared narrative about what we were trying to accomplish and why.

SCAN's pilot year, without a doubt, featured growing pains and highlighted areas in which the network needed additional structures, tools, and routines. Many of these are summarized in *The Student-Centered Assessment Network: Testing Change Ideas in Real Time.* We direct readers' attention to them because they are part of a complete and accurate recounting of SCAN's development and also can likely be useful to other networks during their planning and launch stages.

Refining Foundational Definitions; Co-constructing a Network

Going into its second year, among the augmentations and improvements SCAN needed to thrive were greater clarity and shared understanding of the network's guiding concepts and principles. Teachers expressed these needs in conversation with the AIR team and in interviews and surveys with the network's formative evaluation partner, the University of Pittsburgh's Partners for Network Improvement (PNI).

These may seem like very basic considerations for a NIC—matters that one would expect to have been addressed fully in the initiative's first months. But student-centered teaching and learning—especially when pursued in combination with formative assessment—proved to be a constellation of ideas that required considerable discussion and co-creation if dozens of teachers, instructional coaches, and applied researchers were to hold a shared understanding.

Through multiple work sessions and iterations, SCAN teachers and the AIR team had some important breakthroughs in the summer and fall 2018 as we clarified for ourselves that SCAN sought to help teachers incorporate SCFA practices to support more effective instruction, increase student agency and engagement, and improve student learning. The vision was that SCFA would not only inform teachers about their students' academic and developmental progress but also more directly involve students in tracking their own learning.

In our adaptation of Albert Bandura's work, SCAN defined "agency" as students' feeling they can take action to affect their learning outcomes. Students displaying a high degree of agency can—and will—envision an outcome, plan for an outcome, enact that plan, reflect on progress, adjust accordingly, and continue to pursue their goals.

We define "engagement" as the nature of students' interaction with—and psychological investment in—school. This engagement derives from both internal factors and the school context and has three dimensions:

- **Emotional dimension**: a sense of belonging and connectedness to school and people in the school
- **Cognitive dimension**: the investment in learning mastery, including ability to self-regulate, set goals, and use strategies in learning
- **Behavioral dimension**: adhering to norms, giving effort and attention to academic tasks, and—at its highest level—to student-initiated participation

The network's strategy for increasing agency, engagement, and student learning was committing to investigation and the increased use of high-quality SCFA. Network members arrived at a shared understanding of SCFA as assessment for learning that

- is **frequent**, intentionally, regularly incorporated, and relatively low stakes;

- uses **measurement** of valued outcomes (e.g., achievement, engagement, agency), allowing for focus on variation;

- is **collaborative**, where students and teachers examine results together in light of jointly understood learning objectives;

- is **embedded** in teaching and learning, used to adjust and improve instruction, and part of a process of ongoing improvement of learning;

- is **reflective** for students, making them active partners in planning to improve their learning; and

- is **open** to sharing and collaboration among teaching colleagues.

With increased conceptual clarity and shared understandings among network members, SCAN revisited its driver diagram in fall 2018. A driver diagram is a central tool of improvement science, specifying a central aim as well as the elements of a theory of improvement and a mapping of change ideas or routines suitable for testing via PDSA cycles onto a set of primary and secondary drivers.

The fall 2018 version of SCAN's driver diagram is in Appendix B and includes the Aim Statement (a revision of the one drafted in summer 2017) that would guide the network through 2020.[1] This aim statement is as follows:

> *By the end of the 2019–20 school year, all students of SCAN members will have the opportunity to be active and successful participants in their own learning. In particular, students will*
>
> - *be active participants in analyzing their own performance data;*
>
> - *demonstrate agency over their learning via regular practices of examine, plan, reflect, adjust, and achieve;*
>
> - *have choice in selecting among strategies intended to improve their learning.*

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[1] Appendix B also includes SCAN's principles of SCFA, with a cross-walk to indicators that guided the NIC's measurement efforts.

An Emerging Set of Change Ideas (SCFA Teaching and Learning Routines)

As reported to SCAN members by the PNI developmental evaluation team at the network's final convening in November 2020, between spring 2018 and fall 2020, SCAN ultimately involved the following:

- Fifty-nine teachers (with a maximum of 48 active in any one school year)
- Nine content areas (expanding from four in 2017–18)
- More than 225 individual PDSA cycles
- Many dozens of distinct change ideas articulated and investigated by SCAN teachers

From among the many change ideas investigated by SCAN teachers, by 2019–20, a subset of these change ideas emerged as most fully developed and most fully investigated. Specifically, the AIR team worked with SCAN teachers to review their contracts with self, weekly logs, and data debrief records to identify 11 change ideas that had been investigated across multiple PDSA cycles (often by multiple teachers and in a few instances across multiple schools) and used well-conceptualized measurement, generating high-quality data and showing evidence of success in boosting student engagement, agency, and/or learning outcomes.

For all 11 change ideas—called "high-leverage change ideas" by SCAN members—the AIR team and the teachers who developed and tested them created summaries and accompanying resources to allow other teachers and schools to use and refine them further. These summaries and resources can be accessed at https://www.SCANetwork.org/tools-and-guides.

The shorthand names of these 11 change ideas—in some instances self-explanatory and in other instances intriguing enough to make one want to read more—are as follows:

- Categorizing Mistakes With Highlighting
- Correcting Highlighted Errors
- Short-Answer Questions: Highlighting for Success
- Destressing Stimulus-Based Multiple Choice Questions
- Google Quiz Practice
- Student Quizlet Creation
- Unit Growth Self-Assessments
- Reflecting on Work Habits
- Student Agendas

- Developing Agency for Long-Term Project Completion

- Writing Into the Day and Finding Our Writing Identities

Although 11 change ideas are featured in this high-leverage category presently, the AIR team and SCAN teachers are hopeful that additional ones will join the set—with that feat being accomplished through the planning, testing, measuring, and evaluating of future PDSA cycles.

Value Perceived in the Methods of Improvement Science, SCFA Practice, and the Network Itself: Highlights of Testimonials and Open-Ended Responses From Teachers and Principals

Across the years of SCAN's operation, teachers expressed appreciation for the NIC's way of working. Teachers expressed enthusiasm and noted benefits derived from engaging with data and the discipline of PDSA inquiry cycles, deepening their understanding of and commitment to SCFA, and having new opportunities to engage with colleagues—within their departments, across departments, and (at least to some degree) across schools.

Here we present selected responses that teachers offered on open-ended survey items and in interviews when responding to PNI's queries in 2019 and 2020. Admittedly, we are featuring some of the more positive and enthusiastic responses here, but these are generally reflective of most teachers' reflections on their SCAN experiences. And although other comments pointed out wishes or needs for how to make the network more complete and effective, even those comments were consistently framed within an appreciation of what can occur when a network of teachers comes together around a shared goal of improving teaching and learning routines and outcomes. For example, one survey respondent reported wanting "more samples of forms or ideas of student self-awareness," implying a heightened interest in shared resources, although only a few tools were in circulation as the network concluded. Another teacher reported wanting "more support from mentors," or school-based teacher-leaders who agreed to serve as a sustainable resource for network members but whose training and transition to network leadership were cut short by the pandemic.

Teachers expressed energy and enthusiasm about membership in the network for high-level, overarching reasons.

> *"After 22 years in the teaching field, SCAN has reenergized me to improve my instructional practices within a supportive environment." (teacher response to open-ended question on PNI survey, June 2019)*
>
> *"Working with SCAN has made me a better teacher." (teacher response to open-ended question on PNI survey, June 2020)*

As teachers articulated details of the benefits of participating in SCAN, many described increasing comfort with data and measurement and the importance of having a network for professional exploration and growth.

> "*I am (now) more comfortable having conversations about data and how to use it with my formative assessment.*" (teacher response in PNI interview, June 2020)
>
> "*Being a part of this network gives me new ideas, people to share with and a community of learners to engage with.*" (teacher response to open-ended question about benefits of engaging SCAN, PNI survey, June 2019)

> "*Collaborating with other teachers within my school that I don't otherwise get to collaborate with. This has helped me realize that despite teaching different subjects, we experience some of the same issues within the classroom.*" (teacher response to open-ended question about benefits of engaging SCAN, PNI survey, June 2019)

Teachers also recognized and appreciated that, with the focus on SCFA, roles and relationships among teachers and students shifted in potentially powerful ways.

> "*I examine my practices with my students and determine what the best way is to impact their learning about their own learning. I want my students to develop better habits of work and to see how these will impact their own growth and learning.*" (teacher response to open-ended question about benefits of engaging SCAN, PNI survey, June 2019)
>
> "*For me, one of the gains (of SCAN) is having a better understanding of why formative assessment is really important for students.*" (teacher response in PNI interview, June 2019)

Principals from the three schools also attested to the benefits of having a set of their teachers involved with SCAN, developing new capacity for continuous improvement methods and PDSA cycles, and emerging as leaders on SCFA within their schools. One principal wrote to the AIR team, expressing the following:

> "*Our SCAN teachers have served as leaders and models to our entire faculty regarding adjusting outcomes, assessments, and instruction based on student feedback. Student reflection became a core tenet of our school during the pandemic. Having a core group of faculty well versed in reflection as an instructional focus allowed us to transition smoothly from recommendations for teachers to best practices that became part of every classroom.*" (Principal, personal communication, March 2021).

Although PNI and the AIR team collected much more data from teachers than from students, student survey data collected during the 2018–19 school year showed that most students in the classrooms of SCAN teachers reported high levels of caring and support from their teachers, opportunities to exercise agency and choice as learners, various indicators of engagement, and agreement that they were capable of improving performance and achieving learning goals. Furthermore, we asked one SCAN teacher in March 2021 to inquire with students from the previous year whether they had noticed teachers and students inventing or using new ways to keep track of students' progress and understanding during curricular units. Two students responded as follows:

> *"I really liked that in English we tracked our own progress. We kept track of what we did during each class and sort of assigned our own homework. It didn't feel like homework that way."*
>
> *"I noticed by setting goals and reflecting on them in our portfolio I could see what I actually learned."*

These same students were asked whether they had noticed teachers and students inventing or using new ways to invite students to be co-owners or co-pilots on the learning journey. The students replied as follows:

> *"We had so many choices in English. Most of the time we were told what the goal was and we could pick how to show it. One time, I made a video reflection, but my friend wrote an essay. I remember, the goal was to reflect, so it didn't matter how we did it."*
>
> *"We filled out a lot of Google forms to tell our teacher what we were thinking and what we wanted."*

Finally, these students were asked what student-centered teaching and learning meant to them. They replied as follows:

> *"It means choice. I get to choose some of the ways I learn or show my learning."*
>
> *"Choice! That is sometimes the best part but sometimes so hard to decide."*

Value Perceived in the Methods of Improvement Science, SCFA Practice, and the Network Itself: Highlights of Teacher Survey Data From Spring 2020

We will leave a full reporting of the survey and interview data collected from SCAN teachers for a forthcoming summative report from PNI. Here briefly, though, we highlight a few important themes emerging from survey data collected in April 2020, from a survey instrument jointly crafted by the PNI and AIR teams and administered by PNI. These themes generally reinforce the themes communicated by teachers' interview quotes and open-ended responses, summarized in the previous section.

First, SCAN teachers saw value in all three of the "pillars" of the network:

- The people and collaborative aspect of SCAN

- The continuous improvement methods, most centrally PDSA cycles and the measurement inherent in these

- The SCFA teaching and learning strategies developed and routinized through SCAN

Exhibit 2 shows teacher responses in April 2020 to a survey question that asked them to reflect on how influential each aspect of the network had been on any changes to their professional practice. For all three aspects, the majority of teachers responded at levels 8, 9, or 10 on a 10-point Likert-type scale ranging from 1 (*not really influential*) to 10 (*significantly influential*).

Exhibit 2. Teacher Responses: "As you reflect on the different ways in which your practice has been influenced as a result of your participation in SCAN, please identify how much of each network element has influence these changes."
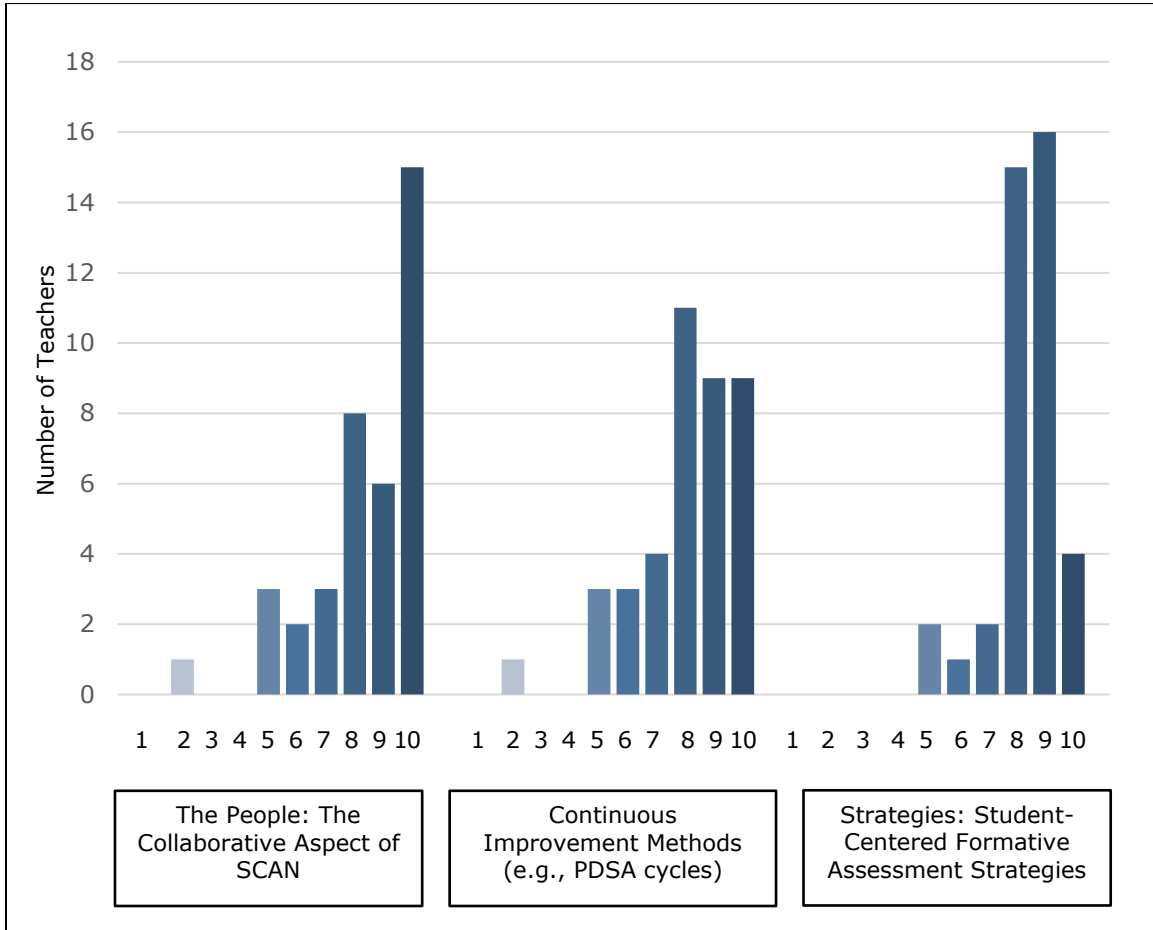
Note. N = 40; 1 = not really influential; 10 = significantly influential. Data from PNI survey results from SCAN teachers, April 2020.

Next, April 2020 teacher survey data show a marked shift in how teachers described their use of student-centered teaching and learning routines when comparing time periods before they joined SCAN with the time period since joining SCAN. Exhibits 3 and 4 show these two distributions.

Exhibit 3. Teacher Responses Regarding Student-Centered Teaching

Before you joined SCAN, how much of your teaching would you characterize as student-centered?
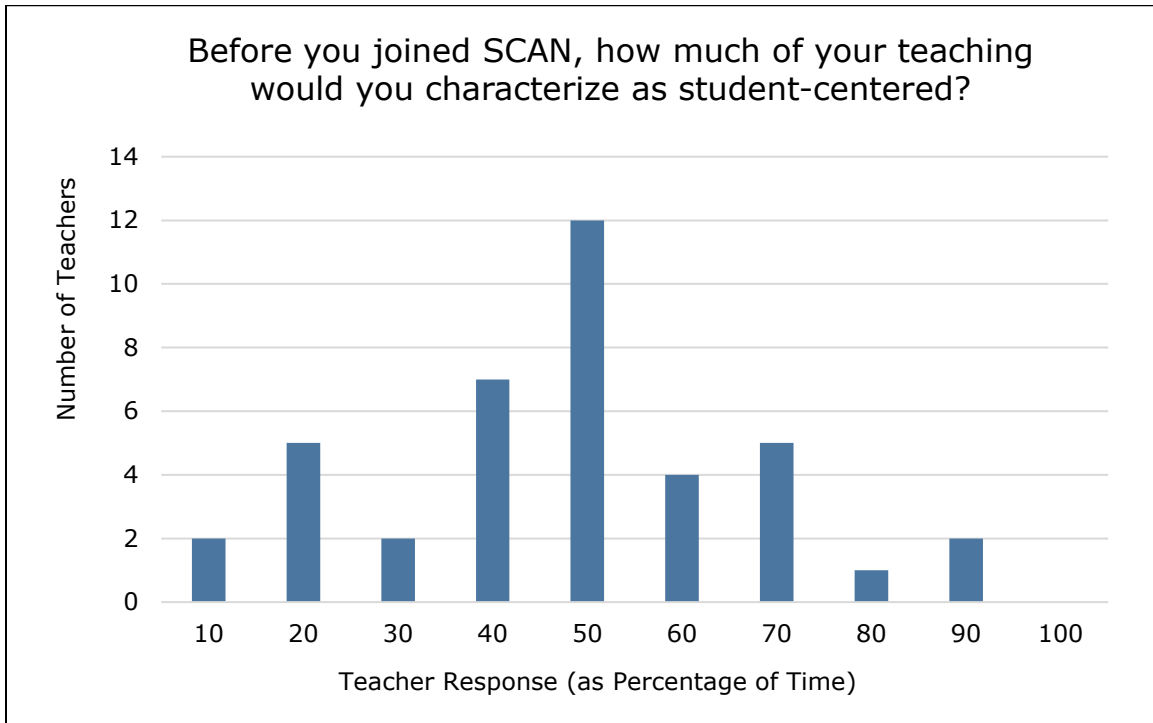
Note. *N* = 40. Data are from PNI survey results from SCAN teachers, April 2020.

Exhibit 4. Teacher Responses Regarding Student-Centered Teaching

How much of your teaching now (as a member of SCAN) would you characterize as student-centered?
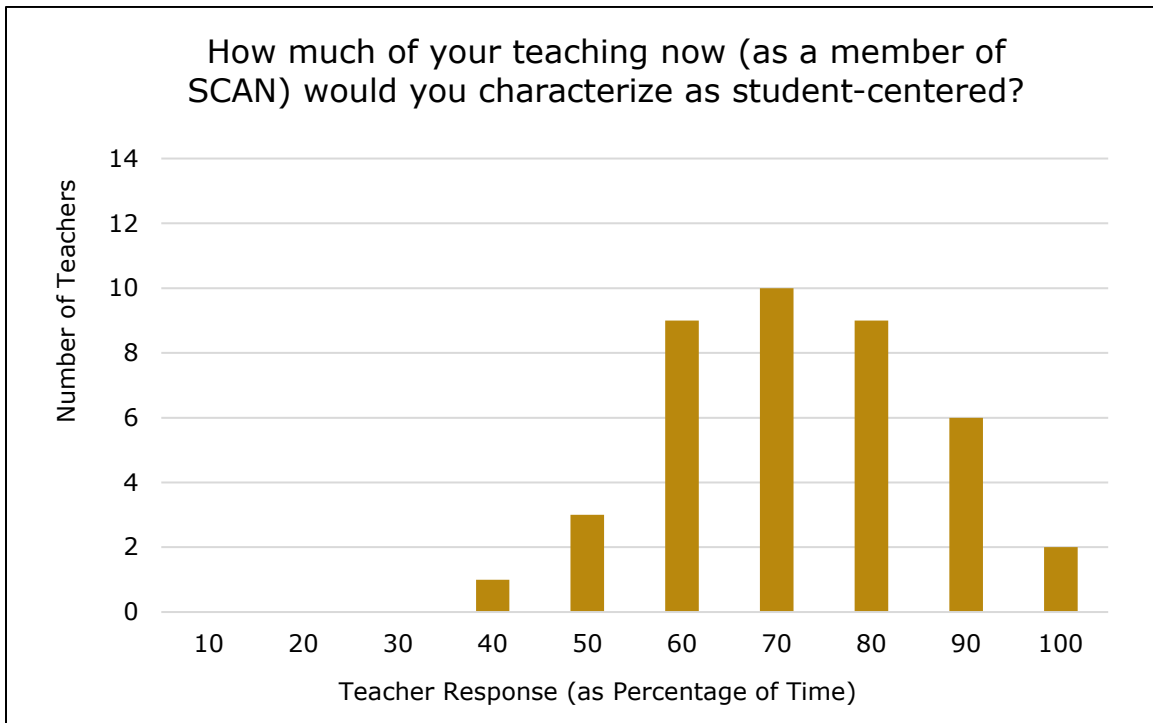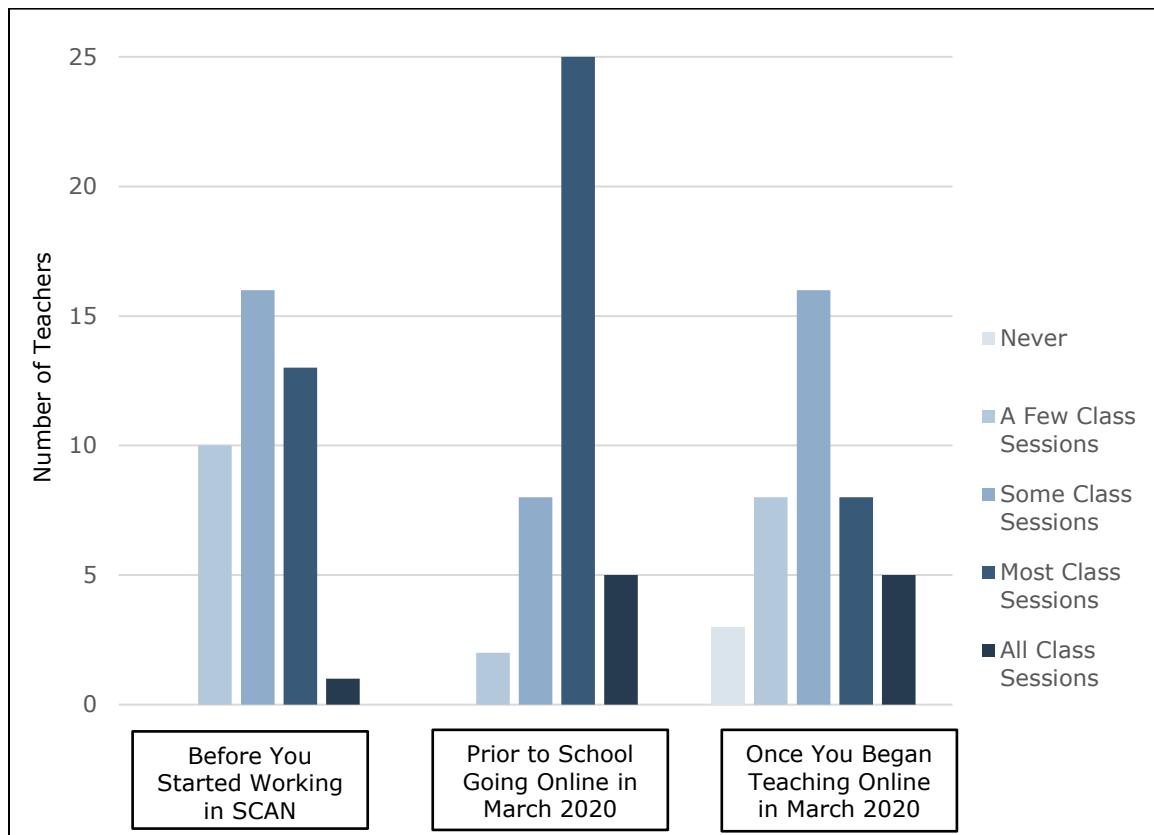
Note. *N* = 40. Data are from PNI survey results from SCAN teachers, April 2020.

For responses about the use of student-centered techniques before joining SCAN (see Exhibit 3), both the mode and median for responses from 40 teachers were 50% of the time (50% of their practice), with nine teachers giving responses of 10%, 20%, or 30% of the time; only three teachers gave responses of 80% of the time or more.

For responses about the use of student-centered techniques since joining SCAN (see Exhibit 4), both the mode and median for responses from the 40 teachers were 70% of the time (70% of their practice). For this framing of the question, no teachers gave responses of 30% of the time or less; 17 teachers gave responses of 80% of the time or more.

Finally, we turn back to the fact that SCAN's overarching aim involved combining student-centered teaching and learning with high-quality formative assessment—thus arriving at the focus on student-centered formative assessment. Whereas Exhibits 3 and 4 present teachers' self-reports about student-centered techniques, Exhibit 5 presents responses to a trio of questions about teachers' frequency of using formative assessment as a part of classroom practice.

Exhibit 5. Teacher Responses to Three Questions About Formative Assessment: "How often did you use formative assessment in your classroom practice?"

Note. N = 40. Data are from PNI survey results from SCAN teachers, April 2020.

The trio of questions presented in Exhibit 5 allow us to compare patterns of responses for the following:

- The time period before a teacher started working with SCAN

- The portion of the 2019–20 school year prior to school going to online, virtual learning because of the COVID-19 pandemic

- Portions of March and April 2020 when school went virtual because of the COVID-19 pandemic

An encouraging finding—given SCAN's aim—is that there was a clear increase in teachers' self-reported use of formative assessment once they joined SCAN, as illustrated by the change in responses from the first data series in Exhibit 5 to the second data series.

Fully three fourths of the 40 responding teachers reported using formative assessment as a part of most class sessions or all class sessions during the period they were SCAN members but prior to school going virtual in March 2020. These responses contrast with the 65% of responses of "a few class sessions" or "some class sessions" when teachers were asked to think about the time period before they started working with SCAN.

A less encouraging finding is that teachers could not maintain this use of formative assessment once they began teaching virtually in March 2020. The third data series in Exhibit 5 depicts this shift back to less frequent use of formative assessment.

To be clear, this survey was administered in April 2020, when schools were still in the early weeks of adapting to a pandemic and a remote learning process that was jarring and stressful throughout Rhode Island and the nation as a whole. Anecdotally, it has been pleasing to hear many SCAN teachers report that as spring 2020 continued—and certainly by fall 2020—they were returning to their routines of building student reflections into their interactions with students. Importantly—and understandably, given the realities of the pandemic and the stresses of disrupted home and school routines— these student self-reflections and uses of formative feedback focused on mental health and well-being at least as often as they focused on academic goal setting and progress.

One perspective on this sequence of events is that many SCAN teachers and their students were able to use a set of routines and practices—or aspects of these practices— that they had been using before the pandemic and adapt them to address their most pressing needs during the pandemic. For example, some teachers reported in their final interviews that their work in SCAN helped give them both tools and dispositions to be more attuned to students' needs once the pandemic interrupted schooling:

"A group of us got together and developed a survey to look at student performance and identify issues that exist in the era of COVID and [came] up with ways to address those problems."

"We've definitely adapted different ways for them to continue doing [student-centered PDSA activities]. You know, even just like the breakout rooms, like still allowing for the kids to be looking through a problem together, and then reporting back to the group and sharing out. . . . It's really cool. And it's just a great way, and I can adapt [my lesson] in a million different ways to do that [as a] student-centered activity."

Teachers largely reported that COVID-19 was, not surprisingly, a disruption to teaching and learning but also noted that they often made efforts to maintain these student-centered dispositions, even in a virtual environment.

Telling the Story of SCAN Through a Series of Carnegie Summit Presentations

The SCAN team has enjoyed the opportunity to engage with other researchers, instructional coaching and professional development experts, and educators at the Carnegie Foundation's Summit on Improvement in Education in three successive years.

In 2019, SCAN representatives participated in two different sessions, presenting alongside colleagues from PNI in both instances and from the Better Math Teaching Network—another AIR-led NIC supported by the Nellie Mae Education Foundation—in one instance. These two sessions were titled as follows:

- Improving the Core: Features and Challenges of Instructionally Focused Networked Improvement Communities

- Harnessing the Power of Developmental Evaluation and Network Health Assessments to Support Networked Improvement Communities

Between 2020 and 2021, SCAN representatives prepared three posters. These posters are in Appendix C. They tell the story of the particular stages of development for SCAN, including challenges or goals addressed and data used to understand outcomes. The themes of these three posters are as follows:

- We Let 1,000 Flowers Bloom Intentionally but Now Are Pruning Our Garden: Constructivists in Improvement Land

- Equity Maps: Charting a NIC's Journey From Aspiration to Equitable Practice

- From PDSA to Pandemic: A Network of Support and Sustainability for Rhode Island Teachers

A Roadmap to Sustainability

If the COVID pandemic had not introduced extreme organizational stresses for SCAN's participating schools and communities, the network's intention had been to hold a series of sustainability-focused meetings with teachers, principals, and other school-level administrators during the 2020–21 school year to plan for the sustainability of SCAN's tools and routines. As events played out, it became clear that this series of meetings was one thing too many for the very difficult 2020–21 school year. As a substitute, the AIR team agreed with SCAN's participating teachers and principals that a resource document and outlines for a series of sustainability-themed meetings would be shared with schools to be used by them at an appropriate time—intended to be late in the 2020–21 school year or near the beginning of the 2021–22 school year.[2]

The sustainability resource document was presented as a tool that school-based teams could use to begin planning the use of routines, resources, and structures to support and sustain SCFA networks in their schools or districts. That is, it is a tool for sustaining frequent measurement of student progress that both students and teachers used collaboratively to track growth. Further, it supports teachers using regular cycles of inquiry—most formally, PDSA cycles—in their classrooms to study their own work and share findings more easily with colleagues.

This tool's design assumes that individual teachers could continue the work they had been doing as a SCAN member, but the most effective practices are more likely to be adapted and sustained within communities. Through teacher-led learning communities and sustainability routines, the tool supports schools in using improvement science to refine instruction, spread tested SCFA practices into more classrooms, and create a team structure to support and sustain those efforts. Learning communities help teachers sustain their efforts by supporting collaboration, focusing attention on teaching and learning, and collectively examining data. Sustainability routines address (a) routines in teachers' individual classrooms, (b) cultural elements (i.e., attitudes, beliefs, and assumptions) among network members, and (c) structures (e.g., teams, meetings, tools, or resources) that can support ongoing efforts.

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[2] The sustainability document can be viewed at https://www.SCANetwork.org/tools-and-guides.

Appendix A. SCAN Recruitment and Publicity Materials

- [Invitation to a Learning and Improvement Network for New England High Schools / Core Leadership Team](#) (Spring 2017)

- [Invitation to a Learning and Improvement Network for Rhode Island High Schools / SCAN Pilot Year](#) (Fall 2017)

- [Join the Student-Centered Assessment Network: A Networked Improvement Community Focused on Formative Assessment](#) (Fall 2018)

- [Student-Centered Assessment Network: Focused on Formative Assessment](#) (Spring 2019)

Appendix B. SCAN Driver Diagram and Principles of SCFA (With Cross-Walk to Indicators)

- SCAN Driver Diagram
- Principles of SCFA (With Cross-Walk to Indicators)

Appendix C. SCAN Posters From Carnegie Foundation's Summit on Improvement in Education (2020 and 2021)

- 2020 Poster: [We Let 1,000 Flowers Bloom Intentionally But Now Are Pruning Our Garden: Constructivists in Improvement Land](#)

- 2020 Poster: [Equity Maps: Charting a NIC's Journey From Aspiration to Equitable Practice](#)

- 2021 Poster: [From PDSA to Pandemic: A Network of Support and Sustainability for Rhode Island Teachers](#)

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