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BETTER MATH TEACHING Network

The Better Math Teaching Network:
Lessons Learned From a 5-Year Instructionally Focused NIC

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Report Summary

The Better Math Teaching Network (BMTN) is a networked improvement community (NIC) of researchers and high school teachers from New England who use improvement science principles to deepen student engagement in algebra content. The BMTN began as a pilot during the 2015–16 school year and concluded in fall 2021.

Key learnings from the network include the following:

- The Plan-Do-Study-Act (PDSA) approach to the testing of instructional routines proved to be a durable structure for teachers to reflect upon and improve their instruction.
- The tested routines most commonly focused on improving students' mathematical justifications and problem-solving skills.
- Network-developed rubrics and learning activities helped teachers improve opportunities for their students to deeply engage with math content.
- Network learning activities enhanced teacher learning and supported the spread of promising ideas within the network.
- Over time, teachers and researchers spread learnings to educators outside the network through multiple modes and channels of communication.

Teachers reported that participating in this NIC was a powerful form of professional development because the work was directly connected to their classrooms, they had opportunities to collaborate with other teachers about instruction, and they felt accountable for using PDSA testing to improve their instruction. These teacher reports suggest that instructionally focused NICs may be useful professional development models for other educators.

BMTN is a collection of high school math teachers and researchers who work together to identify, test, and improve instructional routines designed to deepen student engagement with Algebra I content. Researchers, or network leaders, developed the structures and procedures of the network and piloted the network with teachers during the 2015–16 school year. BMTN began operating as a network in summer 2016 and continued for 5 years. Teachers were invited to participate through announcements made through professional organizations and networks. BMTN included teachers from across New England who were working primarily in rural and urban contexts and predominantly with students from low-income households. As shown in Exhibit 1, the network began with 20 teachers and added new teachers in Years 2 and 3, reaching a peak of 52 teachers in Year 3.

Exhibit 1 • **BMTN Teacher Participants, by Year**

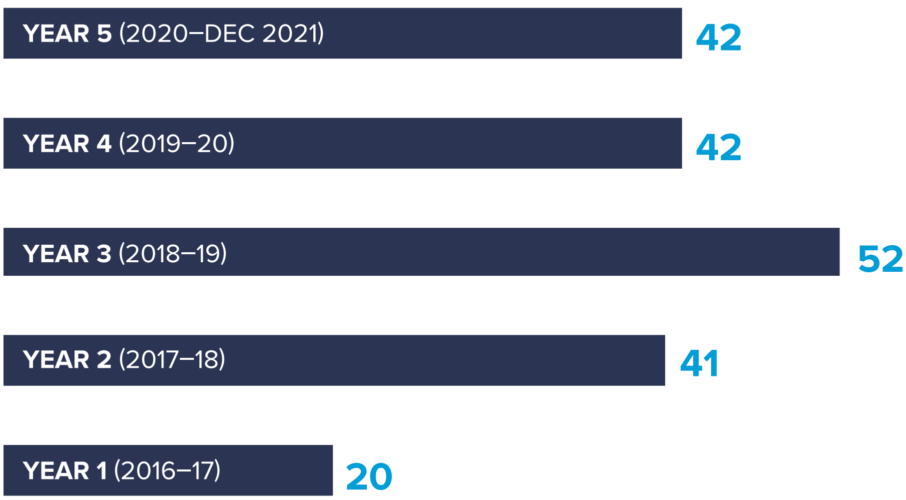

Exhibit 2 • **Proportion of BMTN Teachers, by Years of Participation**

Across the 5-year project, a total of **60 teachers participated in the network for at least 1 year.** Retention was very high, with 53 of the 60 teachers **(88%) participating for 2 or more years**. As shown in Exhibit 2, **75% of teachers participated in the network for at least 3 years,** and **20% of teachers** participated **for all 5 years of the network.** The average number of years of participation was 3.3 years.

In each of the first 4 years of the network, teachers participated in roughly 100 hours of virtual and in-person activities in Boston, Massachusetts, which is a significant time commitment and does not include time teachers outside of the Boston Metro area spent traveling to and from in-person meetings.

To put the time commitment in perspective, a recent nationally representative survey indicated that only 5% of teachers spend 64 or more hours on professional development focused on teaching their subject (math, English language arts, or science). About 60% of survey respondents reported spending 16 or fewer hours (Doan et al., 2021). Thus, **the high percentage of teachers who participated in multiple years of intensive network activities is noteworthy.**

Network Overview

Network Aim

To center the work, BMTN established a concrete aim during its first year. The aim focused on increasing the number of New England students who made connections, developed justifications, and solved problems with depth in algebra during the course of the network, which was originally planned to end in 2019. Exhibit 3 shows the aim; the network definitions of the three opportunities for **deep engagement with algebra (DEA)**—connect, justify, and solve; and a description of ***with depth***, or ***deep engagement.***

Exhibit 3 • **BMTN Aim**

2,019 in 2019

By 2019, the number of students who connect, justify, and solve *with depth* in algebra will increase by 2,019.

Make connections among mathematical algorithms, concepts, and application to real-world contexts where appropriate.

Communicate and justify mathematical thinking, as well as critique the reasoning of others.

Make sense of and solve challenging math problems that extend beyond rote application of algorithms.

***With depth* means relying on math relationships as opposed to memorized rules or procedures.**

This aim and accompanying definitions align with recommendations for student learning offered by the National Council of Teachers of Mathematics and the Common Core Standards for Mathematical Practice, which are part of many states' current math standards (e.g., Ji et al., 2021; National Council of Teachers of Mathematics, 2000; 2014; National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010). The recommendations emphasize engagement in the mathematical processes (e.g., creating mathematical justifications, problem solving), as well as understanding specific math concepts (e.g., linear functions).

Network Improvement Processes Aligned With the Aim

The network identified math instruction as a key driver for making progress on reaching the aim and used PDSA cycles to test and refine change ideas, or instructional routines, designed to improve the depth of student engagement with each DEA. Exhibit 4 shows an example of an instructional routine focused on **Justify.**

Exhibit 4 • **Sample BMTN Instructional Routine**

1. **Provide students with a task** that requires them to state a conjecture, test it, and write a justification for why it was correct or incorrect.
2. **Provide a sentence starter** for students to state a conjecture. For example: I think the graph of $y = 3x + 4$ will be a __________ because _________.
3. **Give 10 minutes of private reasoning time** to do the task (write a conjecture, test the conjecture, write a justification based on testing).
4. **Give 6 minutes for trading papers** with a partner and giving feedback to each other (something they understand or are confused about and a question they have).
5. **Return papers to their owners** and allow 10 minutes for students to revise their justification based on the feedback they received from their partners.

Each PDSA trial consisted of a *plan* phase in which teachers planned the instructional routine they wanted to test, as well as the data they would use to inform improvements. Then, in the ***do*** phase, teachers tried the routine in class and noted surprises or challenges experienced. Next, teachers *studied* the data they collected to inform improvements. Finally, in the ***act*** phase, teachers used their analysis of the data to decide whether to modify the routine for the next trial, test a modified version of the routine, or expand use of the routine to other classes. During the course of the year, teachers completed four cycles of approximately two to three PDSA trials each cycle.

As teachers tested and refined instructional routines, they participated in network activities designed to promote sharing of lessons learned; generation of new ideas; and a deeper understanding of math content, student learning, and math instruction. These activities included five whole-network meetings (84 hours) and four small-group meetings (6 hours) each year (see Exhibit 5). Teachers completed individual work between meetings and summarized their work each year (10 hours). As noted earlier, the whole-network meetings were held in person at a hotel in or close to Boston and included all network members. The small-group meetings were held virtually using video conferencing technology and included three to four teachers who were focusing their improvement work on the same DEA and, to the extent possible, were testing similar change ideas.

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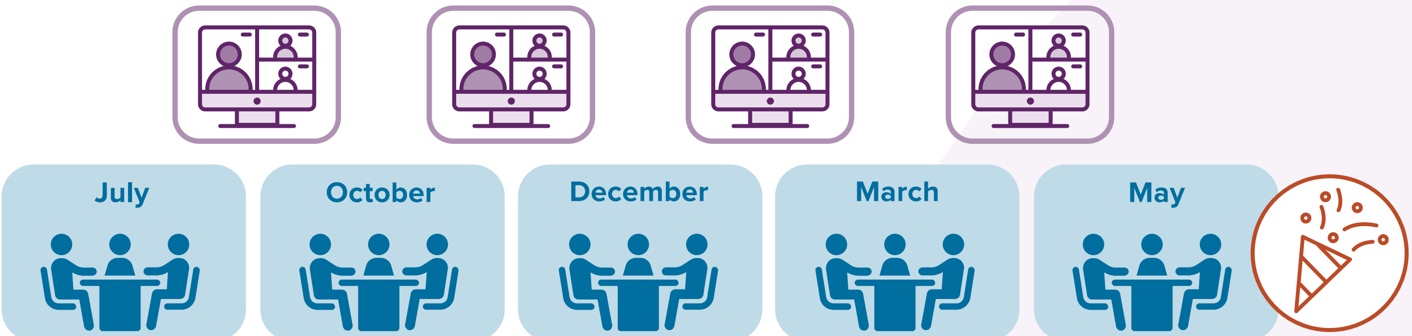
Network Overview

Exhibit 5 • **Annual BMTN Activities**



5 in-person meetings and **4 small-group meetings** per year, anchored by a **week-long summer institute.**

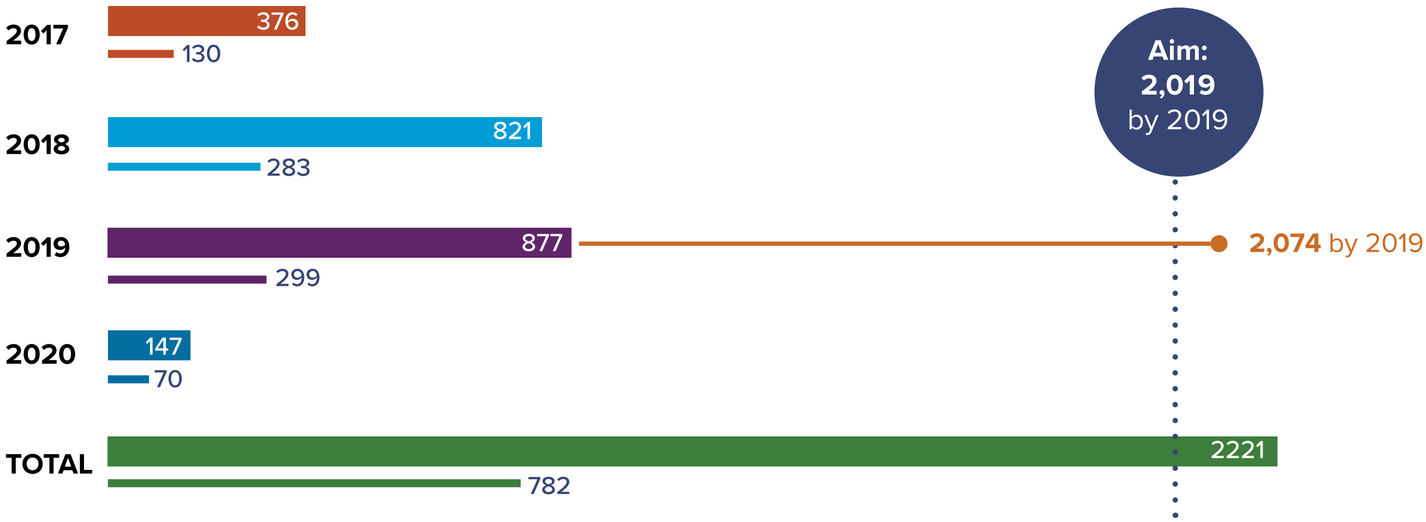
End of year celebration. Teachers present refined routines.

Network Impact

The network leaders measured the impact of the network on students and teachers. To measure progress toward the aim, each spring, teachers administered a 14-item student survey in which students reported the frequency of having opportunities to deeply engage in algebra aligned with each DEA. For example, students reported the frequency (from ***Never*** to ***Almost every class***) with which they "examined why the steps to solving a math problem or procedure work" as one of the five survey items under **Connect;** "argued or defended their approach to solving math problems" as one of the five items under **Justify;** and "kept working on math problems even when they were stuck" as one of the four items under **Solve.**

To quantify depth of engagement, the network leaders converted the survey responses to the following numeric scales: Never (1), Rarely (2), Sometimes (3), Often (4), and Almost every class (5). The network leaders then averaged responses by DEA and overall, with averages of 3 - 4 (i.e., Sometimes or higher) considered moderate evidence of deep engagement and averages of 4 or higher (i.e., Often or higher) considered strong evidence of deep engagement in algebra. The results of the student survey, by year and overall, are included in Exhibit 6. The network added an increasing number of students who reported deep engagement in algebra in Years 1–3. By the end of 2019, the cumulative number of students reached 2,074, exceeding the aim of 2,019 students. Because the network was extended an additional year, which was unfortunately disrupted by COVID-19, another 147 students were added in spring 2020, reaching 2,221 students in total.

Exhibit 6 • **Number of Students Deeply Engaged in Algebra, by Evidence Level and Network Year**



The network leaders also measured the impact of the network on the teachers' instructional practices. As noted in the [Year 3 lessons learned](#) report, teachers reported the extent to which they provided the same opportunities for deep engagement that were in the student survey. That is, teachers reported how frequently they provided opportunities to connect, justify, and solve with depth. For each DEA and overall, teachers reported providing frequent opportunities for deep student engagement. Their levels were similar to or greater than the levels reported by students, providing further evidence that these instructional practices were reaching the classrooms. The project's developmental evaluator, which has published independent analyses of network activities during the course of the network, also found that participating in the network had an impact on instruction. For example, the developmental evaluators reported that about 8 in 10 teachers across Years 2–4 attributed changes in their instruction to the BMTN "to a great extent."

1 For more details about the survey, including reliabilities and sources, see the BMTN Year 3 lessons learned report.

Key Learnings

This section describes key learnings about the structures and processes that supported the work in the BMTN. The learnings were generated from analyses of teacher participation in network activities, the continuous improvement processes the network leaders engaged in to improve the network activities and depth of the PDSA work, teacher surveys and written reflections, and the teacher interviews.

PDSA testing of routines provided a structure for teachers to reflect on and improve instruction over time.

The network's focus on testing and refining instructional routines, as opposed to individual math lessons, offered opportunities for teachers to make instructional improvements throughout the school year. Teachers used the PDSA process to reflect upon and refine those routines. They reported that the focus on routines and the PDSA process had an impact on their instruction. At the beginning of each year, teachers analyzed the routines they used in instruction and identified ways to modify those routines or replace them altogether to provide more opportunities for deep engagement with one of the DEAs. Examples of change ideas associated with each DEA are shown in Exhibit 7.

Teachers then used PDSA testing to refine those routines. The following three PDSA learning questions guided teachers in making improvements to the routines:

- Can the routine be implemented as planned?
- To what extent do students participate in the routine's activities?
- To what extent do students demonstrate deep engagement with the math content?

To answer the first learning question, teachers kept notes about the extent to which they implemented the routine as planned. To address the second learning question, teachers tracked the percentage of students who participated in the routine activities by keeping a checklist of students who contributed to discussions or by collecting student work. Finally, to answer the third learning question, teachers collected student work at the end of the lesson and looked for evidence that students relied on math relationships, as opposed to rules or procedures, in their responses to open-ended questions.

Exhibit 7 • **Sample Instructional Routines Aligned to DEAs**

Instructional routine	DEAs
Using carefully planned questions to **support students in making connections** during mathematical explorations	Connect
Supplying a small-group protocol to **support students in providing feedback** on and improving the quality of their mathematical justifications	Justify
Providing a problem-solving template to **support students in completing the steps** needed to solve nonroutine problems	Solve

Key Learnings

When teachers met virtually in small groups, they shared the data from their PDSA trials and discussed ideas for next steps. Network leaders facilitated the meetings, ensuring equal time to discuss each group member's work, posing questions, and summarizing learning. In the small groups, teachers spent at least two thirds of the meeting time looking closely at the examples of student work collected to answer the third PDSA learning question. The conversation focused on ways of improving either the instructional routine or the quality of the mathematical tasks, problems, or examples that were used with the routine to increase opportunities for students to deeply engage with the content.

At the end of the year, teachers produced a summary of their work. This Change Idea Summary included a description of the initial routine; a list of key learnings gleaned through PDSA testing of the routine; and a final, refined routine.

Teachers reported finding the PDSA structure and focus on instructional routines useful in supporting their reflection and improvement. Of the 24 teachers interviewed, 24 teachers noted that the focus on routines and 11 teachers noted that use of PDSA cycles more specifically contributed to instructional improvement. Exhibit 8 shows quotes from teachers, which illustrate the value they placed on the work.

Exhibit 8 • **Sample Teacher Quotes Illustrating the Value of the PDSA Process and Focus on Instructional Routines**

> The fact that the network focused on routines to increase engagement and the idea of improvement science actually using good data and data teachers care about, was extremely useful to actually **improve my practice and make me think about my practice** instead of the [typical data you look at in school].
>
> Given the choice, I usually stayed away from data because, when I heard the word 'data,' I just thought it was all about assessment and test scores. And I didn't really understand how data could be used in a different way to improve instruction. **The network helped me learn how to use data in a different way.**

The tested routines tended to focus on improving students' mathematical justifications and skills in problem solving.

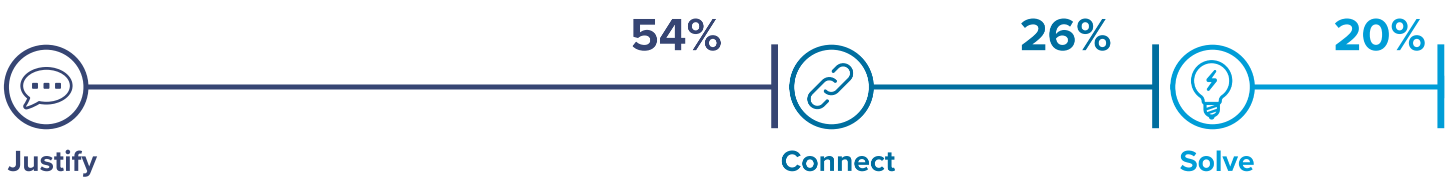
As previously described, the majority of teachers spent multiple years participating in the network. Analysis of the final revised routines submitted in the *Change Idea Summaries* indicated that teachers tended to focus on **Justify** in their first year in the network and typically switched to a different DEA in their second year and switched then again in their third year.

Of the 54 finalized routines teachers submitted at the end of their first year, 29 teachers focused on **Justify,** 14 teachers focused on **Connect,** and 11 teachers focused on **Solve** (see Exhibit 9).

Most teachers focused their improvement work on a different DEA in their second year in the network, with the largest number of teachers changing the focus from **Justify** to **Solve** in their second year of the network. A total of 69% of teachers focused on a different DEA in their second year of the network, with 35% of those teachers changing from **Justify** to **Solve.**

Teachers who participated for 3 or more years also tended to focus on different DEAs in Years 2 and 3. Of the 20 teachers who submitted finalized routines in their second and third years in the network, 11 teachers changed DEAs, with the most common change being **Justify** to **Solve** (4 teachers).

Exhibit 9 • **Percentage of Teachers' Final Routines in the First Year Focused on Each DEA**



Note. The numbers in this table represent focal DEAs for the routines described in submitted Change Idea Summaries.

Network resources supported teachers in focusing on improving opportunities for students to deeply engage with math content.

As teachers began testing instructional routines, they tended to focus improvements on the first two PDSA learning questions: Will the routine be implemented as planned? To what extent will students participate in the routine activities? Specifically, teachers identified ways to improve the routine to fit within the lesson time allotted and engage more students in the activities. A network definition of *deep engagement,* common rubrics to analyze student work, and the questions posed by network leaders during PDSA meetings supported teachers to also consider improvements that addressed the third PDSA learning question: To what extent do students demonstrate *deep engagement* with the math content?

To develop a shared understanding of deep engagement, the network leaders provided network members with examples of student work and asked them to categorize the examples by the extent to which they showed evidence of deep engagement with math content. Teachers were asked to consider the extent to which the examples provided evidence that students were relying on math relationships, rather than on memorized rules or procedures, to make connections, justify their thinking, or solve problems. Based on the categorizations, the network leaders proposed definitions of *deep engagement* and initial rubrics to use when evaluating the extent to which student responses evidenced deep engagement with respect to each of the three DEAs. Teachers then offered feedback about the definitions and rubrics, and the network leaders made revisions to address the feedback. Teachers subsequently began using the definitions and rubrics in their PDSA testing, with additional revisions made over time in response to continued teacher feedback. Exhibit 10 shows the rubric for **Justify.**

Exhibit 10 • **Rubric to Evaluate Student Justifications**

Justification Characteristic	1	2	3	4
Logically connected responses	No evidence of logical reasoning.	Response is somewhat logical and coherent, with several gaps in reasoning.	Response is mostly logical and coherent, with some or few gaps in reasoning.	Response is logical and coherent throughout, with no gaps in reasoning.
Precise use of mathematical language, notation, and representations	Response includes no or minimal math language or notation.	Response includes math language or notation, but the language or notation is not used accurately. If representations appear, they are not referenced, well defined or accurate.	Response includes math language or notation, and the language or notation is mostly used accurately. If representations appear, they are referenced and mostly well defined and accurate.	Response includes math language or notation and the language or notation used accurately. If representations appear, they are referenced and well defined and accurate.
Math relationships (spelling does not matter)	Answer only.	Response does not draw on math relationships. Instead, response uses just rules or procedures.	Response draws mostly on rules or procedures but includes some reference to math relationships.	Response draws on math relationships.

Note. Notation = variables, units, symbols. Representations = graphs, symbolic representations of relationships (e.g., equations), tables, pictures.

Full network events and activities enhanced teacher learning and supported the spread of promising ideas within the network.

The whole-network meetings and associated whole-network activities provided opportunities for teachers to learn from each other, share ideas, and build upon those ideas in future testing.

The sequence of whole-group meetings started with a 4.5-day, annual summer meeting, in which new teachers learned about the work, new and returning teachers discussed learning from the previous year, and both groups worked together to plan for the upcoming year. As teachers identified an instructional routine to refine and began the plan phase of PDSA testing, they were encouraged to try a routine that had been refined in the previous year "as is" or with modifications that were responsive to the teachers' contexts.

Teachers met again as a whole group in late fall and early spring. These 2-day meetings were designed to consolidate and draw upon learning from the PDSA testing completed to that point. During the meetings, teachers met with other teachers who were working on the same DEA to share change ideas, hear what is working and what is not working, and enhance their own change ideas to incorporate features that were working. Often, the discussions focused on the challenges associated with implementing particular change ideas and questions about how best to support deep student engagement. The groups then shared out to the full network, and network leaders facilitated a discussion to summarize learning within and across DEAs. Teachers then applied that learning to their upcoming PDSA plans.

The 2-day final meeting in the sequence consisted of teacher presentations and a celebration of the year's work. Teachers presented the information included in their *Change Idea Summaries.* These summaries were then included in a *Change Idea Summary Book,* which the network leaders distributed to the network the following summer. This *Change Idea Summary Book* was a mechanism of spread for change ideas within the network as teachers used the book to generate ideas for the subsequent year of PDSA testing.

As teachers tested change ideas, they learned the value of using math tasks that emphasize math relationships with the change ideas for supporting deep engagement. To capture and share these tasks with other teachers, network leaders created a library of tasks. The tasks in the library were organized by topic (e.g., linear functions, algebraic equations) and type of task (e.g., longer mathematical explorations, short tasks). The task library provided a mechanism for spreading rich tasks that could be used with promising change ideas.

Teachers reported that opportunities to network and share ideas and resources among BMTN members were valuable for improving their practices. A total of 20 of the 24 teachers interviewed indicated that the networking opportunities played the greatest role in changing their instruction. Specifically, teachers noted that networking with other teachers gave them different perspectives on student learning (5 teachers) and access to new ideas, strategies, curricular materials, and tasks (15 teachers).

Over time, teachers and network leaders spread the work to other teachers outside the network.

Just as the work spread within the network, the work began to spread outside the network. External spread occurred through various structures and included network resources, PDSA processes, and change ideas.

The spread of ideas outside the network occurred through the network website, conference presentations, network sharing in participants' schools and districts, and professional learning communities led by the American Institutes for Research (AIR). The network hosts the BMTN website (https://www.bettermathteachingnetwork.org/), where educators can view resources for analyzing instruction, a set of refined instructional routines that were tested by network members and included in the *Change Idea Summary Book,* and the task library. In addition, BMTN teachers began to share the work with other teachers in their districts and schools informally through conversation and formally through their school's math department meetings or district-based professional development. As shown in Exhibit 11, teachers also presented at local and national conferences. Finally, in a New England district, AIR led a series of professional learning communities designed to engage teachers in PDSA testing of one of the network's change ideas.

The content that was spread included opportunities for other educators to learn about the network resources, the PDSA process, and change ideas. In most cases, teachers led professional learning opportunities or delivered conference presentations with an audience of math teachers in mind. In other cases, teachers led or presented to groups of teachers who were not math teachers. In that case, presenting teachers focused on the PDSA process.

Exhibit 11 • **Conferences Where BMTN Members Presented**

- **National Council of Teachers of Mathematics National Conference**
- **National Council of Teachers of Mathematics Regional Conference**
- **Association of Teachers of Mathematics in New England**
- **New England Secondary Schools Consortium**
- **Association of Teachers of Mathematics in Maine**
- **Summit on Improvement in Education**
- **Spotlight on Quality in Continuous Improvement**
- **U.S. Department of Education's Regional Educational Laboratory – Southwest Bridge Event**
- **Society for Research on Educational Effectiveness Conference**
- **Coalition on Adult Basic Education Conference**
- **Association of Computer Technology Educators Conference**
- **EdWeek Webinar Series**

NICs as Models of Professional Development

The lessons learned described in the previous section offer suggestions for creating an active, productive, sustained NIC focused on math instruction. Analysis of the interview data indicated that NICs may be a useful form of professional development. Specifically, many teachers noted that participation in the BMTN was unlike other professional learning experiences in that the work was directly connected to their classrooms, included opportunities to share and brainstorm new ideas with other teachers, and created a sense of accountability for addressing challenges and making incremental improvements.

As described in the previous sections, each teacher's improvement work was guided by their own goals. Teachers chose the DEA and instructional routine on which they wanted to focus each year. Of the 24 teachers interviewed, 14 teachers noted the value of working on something that was directly connected to their classrooms, and 9 teachers noted the value of choosing their improvement projects. These opportunities do not often exist in other professional learning structures (e.g., Doan et al., 2021). Exhibit 12 includes sample quotes that illustrate teachers' valuing of the work as connected to their classrooms.

Exhibit 12 • **Sample Teacher Quotes Illustrating the Value of Work Connected to the Classroom**

I felt like compared to other professional development opportunities, being a part of this network actually felt **sustained and so applicable to what I was doing in my classroom.**

I've found that it has given me more concrete things to be looking at in terms of teaching. When I go to other professional development, it's very vague, it's umbrella statements and nothing that I can really go into my classroom and actually do. So, in terms of math education, it was **one of the first opportunities that I had to see very streamlined and very specific goal-oriented practices to include in my classroom.**

Teachers don't get a lot of opportunities to necessarily be the ones deciding the professional development that they're doing and implementing. And so I think it was really great to have the teachers be the ones saying, 'Here's what we think we should change, and here's how we're going to try to change it. Here's what worked. Here's what didn't.' So **having the teachers as the researchers was a really different twist in development than I think we're used to.**

We always felt like we had a hand in this, that it wasn't just somebody trying to get us to do stuff. We came up with our change ideas. **We were doing the work; no one was doing it for us. And I feel like that's empowering.**

NICs as Models of Professional Development

The majority of teachers interviewed (81%) commented on the value of the networking opportunities for professional learning. Professional development typically does not include these opportunities. Exhibit 13 includes sample quotes from teachers who noted the value of collaboration.

Exhibit 13 • **Sample Teacher Quotes Illustrating the Value of Collaboration**

“

I would say that **BMTN is far superior to other professional development that I’ve been involved in.** I haven’t been to a conference or a professional development where I work with such a like-minded group of professionals that really push me to think critically about my teaching, how to make significant impacts on my planning, and how to have the most change in student learning.

It’s colleague to colleague really sharing and working together to find a solution. It’s not the ‘sage on the stage.’ It really involves all of us working towards a similar goal. **The sharing of ideas, the working together, the honesty from teacher to teacher that has been there has been super important to me.**

There was this community of learners that was thinking about the same thing, bringing it into our classrooms, bringing what we were learning back together, and being okay if we weren’t getting the results that we wanted—knowing that it was part of the process and that you could then try something new or modify what you were doing. This made it a really **unique way to investigate . . . what your students were doing and thinking about how we had an impact on learning** through those PDSA cycles and the conversations we had in our small groups.

”

Finally, 9 of the 24 teachers interviewed commented about the value of accountability within the network for doing the work to make instructional improvements. Exhibit 14 shows sample quotes from teachers that illustrate the value of the network holding teachers accountable for their improvement work.

Exhibit 14 • **Sample Teacher Quotes Illustrating the Value of Accountability**

> So having to be accountable to the small-group meetings kept my cycles more into my planning, and **I was a little more diligent about it because of that.**
>
> I think you're more likely to follow through with those changes and instructions when you're **accountable to both yourself through the data collection and others in your network.**

Next Steps for NICs

This report and the preceding lessons-learned reports point to NICs as potentially powerful models of professional development. Indeed, the BMTN incorporated many of the features researchers have long identified as critical features of effective professional development: content focused, job embedded, and collaborative (e.g., Garet et al., 2001; Wei et al., 2009). As administrators, instructional leaders, and teachers are designing professional development programs to accelerate learning for students amid the COVID-19 pandemic, they might consider a NIC or incorporating features of NICs.

More broadly, some math education researchers have recently argued that, to significantly improve student outcomes at scale, reformers should view teaching as one of several components that are part of a larger system. Unless this broader system is understood, then it is unlikely that teaching and learning will be significantly improved at scale. Drawing from their experience studying teaching systems in Japan, Hiebert and Stigler (2017) argue that "just as teaching is a system, improving teaching is a system." They note that, at the ground level, the broader system of improvement should include shared learning goals, common curricula, common assessments that produce usable feedback for teachers, and professional development that enculturates teachers into the habits of continuously improving teaching. The BMTN had two of these four features—shared learning goals and a culture of improving teaching—but teachers used different curricula and assessments. Although creating a system described by Hiebert and Stigler at a national scale may seem difficult to imagine, a district or a collection of districts creating such a system by building from the lessons of BMTN is possible to imagine. That is, a district or network of districts with these four features could demonstrate that it is possible to create a system that enables the continuous improvement of teaching in this country. If such an effort is successful, other districts and collaborations of districts might follow suit.

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