
Organizing for Improvement: Reflections on the Power of Networks

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I'm so honored to be here and to have this opportunity to talk with you about some of my reflections about the power of improvement networks for driving change in education. I've been a long-time observer and admirer of the work of the MTE-Partnership, and so it's particularly meaningful for me today to be speaking with this group. And I'm now very intrigued to learn even more about the ASCN group, so thank you to both. I also want to thank Gary and Howard for this invitation.

I've organized my talk around four reflections on Networked Improvement Communities (NIC). NICs are a structured form of network that are organized to address a very specific problem of practice. The original concept was introduced by Tony Bryk, Lewis Gomez, and Alicia Grunou from the Carnegie Foundation for the Advancement of Teaching, and there's been incredible interest in this NIC concept in the field of education. Over a thousand people recently came together at Carnegie's national summit on improvement, and this community interest is growing rapidly. I've had the great fortune to be in the work from the beginning, and the opportunity to observe and study a number of these emerging improvement networks. Reflecting on this work, I'm going to argue today that first, NICs are a highly promising approach for solving complex problems of practice in education. Next, I'll argue that NICs provide a technical and a social structure for fostering the development of what we're increasingly calling a "scientific and professional learning community." Then I'll argue that the technical work of NICs is more than a series of individual Plan-Do-Study-Act inquiry cycles, kind of correcting what I think is a bit of a misconception about the work that's out in the field. And finally, I'm going to argue that networks need to nurture social connections, norms, and identities, when growing scientific and professional learning communities.

Before I dive into that main argument, I'll tell you a bit about my work with networks that motivated these reflections. First, I come to these reflections from the perspective of a developmental evaluator. For the past seven years, I've been engaging in the developmental evaluation of NICs, so I've been tracking their development, studying their health, and engaging in rapid analytic and feedback cycles to network leaders to help them shape their ongoing networks. I started to do that work with Carnegie's first NIC, the Carnegie Math Pathways Project, and then continued with their second network, the Building of Teaching Effectiveness Network. Currently, I'm leading a developmental evaluation team for two of what I call "second-generation" NICs, and these are networks that are started by organizations other than the Carnegie Foundation. The first is the Tennessee Early Literacy Network (TELN) and the second is the Better Math Teaching Network. I'm going to refer to these, what I'm learning in these developmental evaluations about these two networks in my talk today, so just a little bit of background about both. TELN was launched by the Tennessee Department of Education, who was looking for a way to reshape the relationship that the state department had with school districts, thinking about new ways that states could support school districts to support statewide instructional improvement. Tennessee Department of Ed and its regional offices are working with district and school teams to improve the proportion of students who are proficient in literacy by Grade 3. The second network, the Better Math Teaching Network, was launched by Kirk Walters and Toni Smith at the American Institutes of Research, with support from the Nellie May Education Foundation, and it seeks to improve student engagement in Algebra 1 in New England through student-centered

math teaching and learning strategies. It is a network of high school mathematics teachers and then in parallel there's a network of leaders who will work with those teachers to scale up the innovations that they develop.

I also come to this work as a scholar of educational organizations. I started my interests, as Howard mentioned, in networks by studying math teachers' professional networks. Who do they go to for advice about their mathematics teaching, and how do they gain access to resources for improvement through those networks? I'm still doing that work, but now I've added this strand of research on improvement networks that are interorganizational networks, networks that bring organizations together. And I'm trying to develop theory about how these networks--these improvement communities develop and how their structure shapes their capacity to achieve their aims. Through this line of research, I've worked with Tony Bryk and colleagues at Carnegie to posit a theory about the key components of a NIC as an organization.

Finally, I've come to these reflections from the perspective of a network leader. I'm currently a principal investigator for an IES-funded project called the Tennessee Math Coaching Project. My co-investigators are Mary Kay Stein and Rip Correnti from the LRDC; Victoria Bill from the Institute for Learning, which is a professional development organization also in our center at LRDC; and then Nate Schwartz and Vicki Kirk from the Tennessee Department of Ed. For the last two years, we've been testing and refining a model for mathematics instructional coaching that can be a resource for districts throughout the state. This work is a deep collaboration. All three organizations are prime investigators in the project. And we've iteratively refined our coaching model in collaboration with a network of coaches that are stretched throughout the state of Tennessee. And so I'll also use this work in examples in my talk.

On to my argument. My first reflection is that NICs are, in fact, a highly promising approach for solving complex problems of practice in education. I don't want to dwell here too long, because I think the MTE-Partnership group, in particular, has kind of bought into this way of organizing, but I do want to say that I've been examining various research practice partnership models and networks in education and it's made me increasingly confident over time that this is a really productive strategy to address complex problems. This is an insight that Howard and Gary and colleagues had when they heard about the NIC concept and thought it provided a strong model for the MTE-Partnership work. And in a recent article that we wrote for Phi Delta Kappan and that I wrote with Louis Gomez, Tony Bryk, Paul LeMahieu and others from Carnegie, we argue that NICs are the right type of network to form if you want to address complex systems problems and you need to organize for collective action. You need to get multiple organizations of different types together that have different types of expertise, but also different working traditions, all moving in the same direction, working together to solve a problem. We argue that NICs are the right type of networks for certain types of problems. In this paper, we distinguish tame problems versus wicked problems. Tame problems can be clearly stated and exhaustively formulated before the start. But wicked problems have multiple causes and the path to solving them can't be stated from the beginning. A tame problem can be solved by picking the right solution and then working on implementation, but wicked problems don't have known solutions. Progress is made through disciplined inquiry rather than applying straightforward and known applications. And the MTE-Partnership is really trying to address a wicked problem: improving math teaching and learning at scale. And starting at higher education and moving all the way into K-12 education, is a very complex problem. In this article, we spotlight the work of MTE-Partnership as an example of the right network for this type of problem, because we believe that MTE-Partnership is an important model for the field of how to use this NIC concept.

For my second argument, and this is a reflection, my second reflection is that NICs provide both a social and a technical structure for fostering the development of a scientific and professional learning community. Catalyzing and operating a NIC is ultimately in the service of creating a learning organization, or a learning

community, which accelerates the capacity to improve practice and address these complex problems. So, let's unpack that. Here's a simplified version of the NIC model (see Figure 1).



Figure 1. The NIC equation.

Very simplified. If only it was this easy, right? At the far left, you've got the technical work we talk a lot about. That's the improvement work, specifying driver diagrams, engaging in inquiry cycles, all of that. Very important. But NICs also have a social side. The model has something to say about how we organize people and organizations to accomplish the technical work. And we've started recently talking about the outcome of all this effort of putting that technical work and social structure in place as a scientific and professional learning community. This type of community draws on the concepts of professional learning community and communities of practice, something we're pretty familiar with in the education field. But to that concept, we add the characteristics of a scientific community, like the communities many of us are a part of as we conduct our research.

So, what does it mean to be a professional learning community? We think about these as communities with a commitment to a common problem of practice that have open and productive information and communication exchanges that engage in social learning. And members align their professional practices over time as their shared practical knowledge grows. Scientific communities are consistent with those dimensions of professional learning community, but they're also distinctive in some critical ways. Work is guided by a common theory. The work leverages what is known from prior research. There's this accumulation and building of knowledge. The learning happens as members of the community engage in disciplined inquiry using the scientific methods. And the community has mechanisms to ensure that accumulating knowledge is shared broadly in the field. If you pause for a minute to reflect on that, think about: In what ways does the work in your network or your research action cluster, or even the MTE-Partnership more broadly, embody this notion of scientific and professional learning community?

I think this concept of scientific professional learning community helps us to ground the NIC work in theory and research that resonates with the education practice and research communities, and may be a productive way to reflect on what we're trying to do. I'll be curious to see if you agree with that, and maybe it's something we can pick up in discussion at the end. Now, I'm going to return to the NIC equation and share some reflections I've had on the technical improvement work of these NICs.

There are lots of different organizations that are trying to launch or run NICs and get very focused on PDSA cycles, which are short-cycle improvement cycles where individuals or small groups come up with an idea, test it out, collect some data, and learn from it. But I want to argue that systematic and intentional improvement work is much more than a series of PDSA cycles. Here's that visual that I flashed earlier.

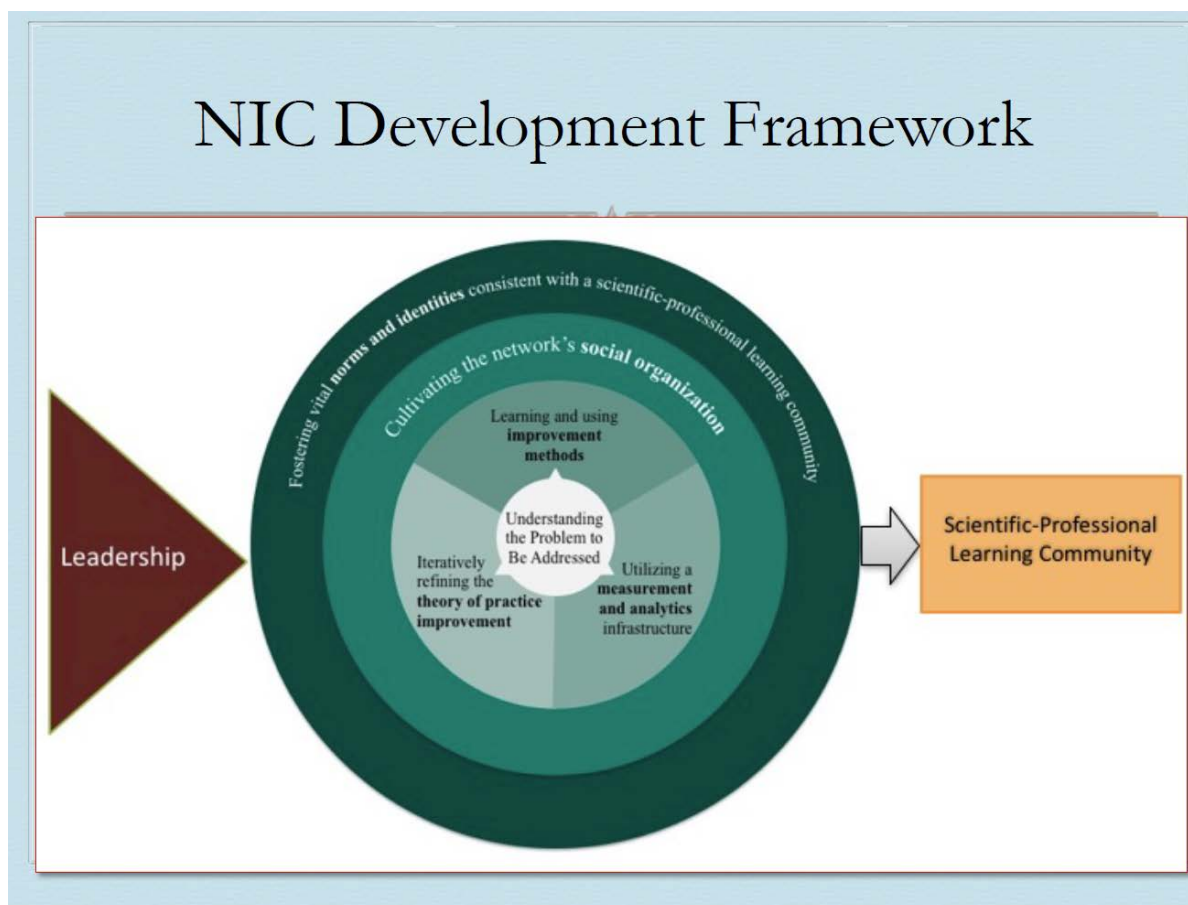


Figure 2. NIC development framework.

It's the visual of our NIC development framework (see Figure 2). And it aims to identify the key organizational dimensions of an NIC. Briefly, on the left you see the red wedge is leadership. It's driving the social and technical work that's described in the bulls-eye, and it's all in service of developing a scientific and professional learning community. I'm going to zero in on the center of the bulls-eye, that part of the framework. It's the inner circle and those three surrounding triangles. We call this the NIC technical core, the technical work of the NIC. The key components of that are: understanding the problem to be addressed, specifying and iteratively refining a working theory of improvement, learning and using improvement research methods, and utilizing a measurement and analytics infrastructure. I emphasize that the technical work, the improvement work of a NIC, is more than just a series of PDSA cycles. It includes ongoing reflection on the problem of practice and reflection with data and what we're learning through our improvement work. It's guided by a working theory of improvement. Process mapping is a key part of this technical work; it illuminates the key system elements that we might target for improvement. And then this notion of Plan-Do-Study-Act cycles or inquiry cycles are also important in testing changes and for adaptive integration.

My colleagues at Carnegie and I are increasingly convinced that improvement work really must begin with a deep understanding of the problem that you're trying to solve. But this should extend beyond the initial development of a network. You might have engaged in an activity like this where you were brainstorming the causes of a problem, putting them on post-it notes. This is from the Tennessee Early Literacy Network, where district teams were, you know, coming up with ideas about what's the root of the early literacy problem in our

schools? And then network leaders engage in a process where they organize those root causes into a fishbone diagram where the different spines are different causes, broader categories of the types of the problem. And this often happens at the beginning of these improvement networks, but sometimes gets forgotten. It's sometimes an early step that we kind of leave behind as we get into trying to solve the problem. But there are other systematic ways to develop a deeper understanding of the problem. In the Tennessee Early Literacy Network, that included deep examination of data on literacy achievement trends. And even though this is a relatively new network that started in November and was then officially launched with the school and district teams, we're still investigating the problem itself, trying to understand what the data says about what's going well in what parts of the system, where are the real problems, how can we understand the variation and performance in a system?

Another key component of this idea of understanding the problem is getting the user perspective. And in TELN, we've used an interesting technique called the journey maps to understand how students and teachers are experiencing their systems. In particular, I'll talk about the student journey maps. The district leads in this network identified individual students who had gotten to third grade and were not proficient readers. And they picked a third-grader. They reviewed student records, the support services they had received, their attendance patterns, anything about their families. They talked to the student's teachers, both current and prior. They interviewed the student themselves, and tried to understand experiences with literacy instruction and with school more broadly. And then they wrote up what they learned. Then district leads posted these in a blog space, which enabled social learning where people learned from the different cases of students.

This is a nice complement to the kind of macro-level data that we often have in systems. We can see this school has higher literacy rates than this one. This is about getting at it from the ground, from the user perspective. You might think about how you might get the user perspective in your work. What does it feel like to be a mentor teacher or a student teacher? What is the first year of a beginning math teacher's life feel like? Or what's it like to be a veteran teacher who's had a career of traditional math teaching approaches and now is being asked to teach rich, open-ended practices? There's a lot to learn about the problem by getting to that, toggling between the macro trends and the individual user. And this is something that we think should be revisited at different time points in the life cycle of an improvement community. It's critical to build routines to continue to learn about the problem. Some of this comes naturally as you start to intervene in your systems and test promising solutions. You naturally learn through the way that systems respond. And then that learning feeds back into continuing to update things like your fishbone diagrams or those public representations of the problem that help bind your community together and build a shared understanding of what you're doing.

A second critical component of the NIC technical work is the work related to a working theory of improvement. I think most of you are familiar with the driver diagram concept. And we think of driver diagrams as a specification of the working theory of improvement. And what's critical is making sure that these are living theories that guide improvement work and networks. Again, I'll illustrate this using the working theory of improvement from the Tennessee Early Literacy Network. Here's the aim of that network (see Figure 3).

They are trying, by 2022, to have 80 percent of students in the participating districts proficient in third-grade literacy. And through that specification of the problem, they identified four drivers. They specified primary drivers, and the theory is if we improve those primary drivers, we're likely to achieve our aims. It's a theory that we're testing as the work unfolds, but it provides a way to coordinate the work. Now, the TELN network leaders targeted one of the drivers to get started with the improvement work of the network. They identified support for struggling students as a great place to start. As we're launching these improvement networks, we can't really do it all at once. It's a tricky thing to tackle the whole of a problem all at once, and TELN zeroed in on support for struggling students very strategically. It was likely a place where we could get a quick win, which helps to build the motivation and engagement of the people working on the problem. And, you were probably going to get traction

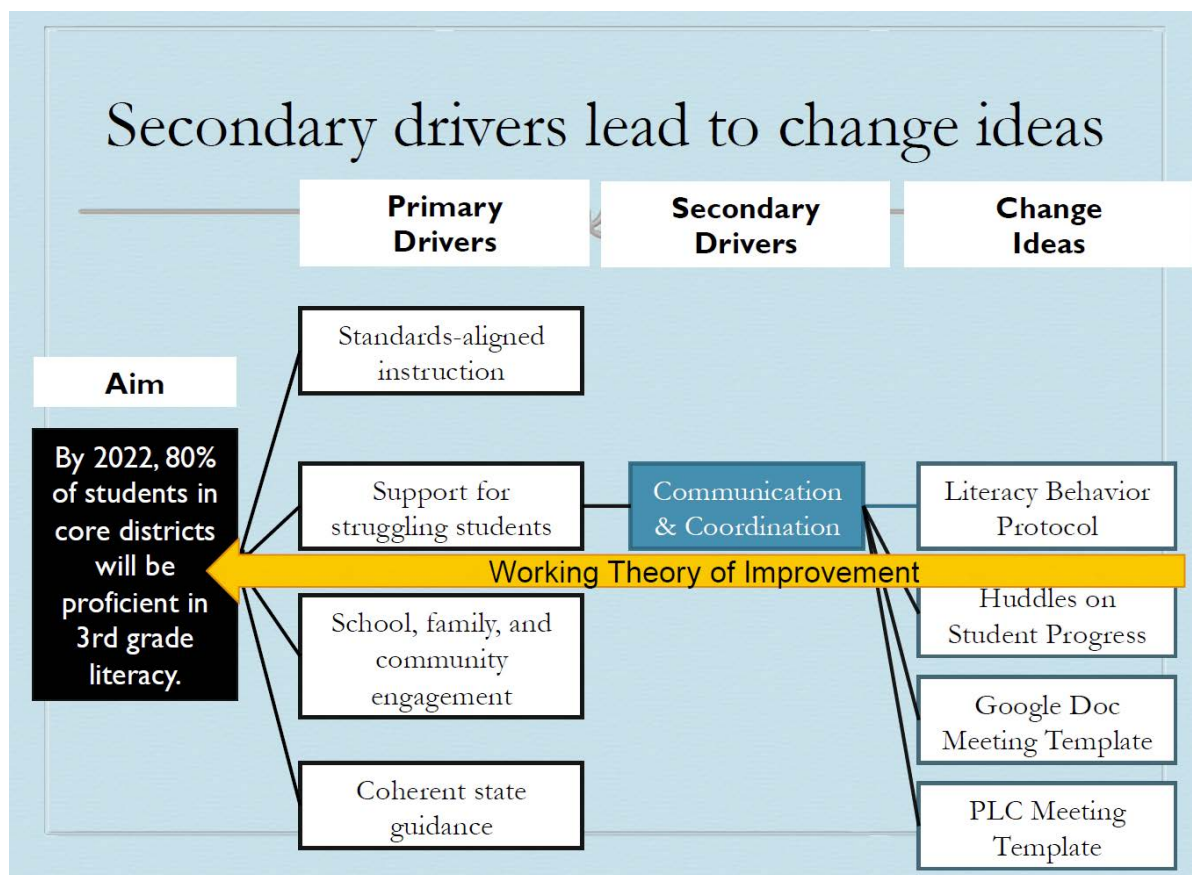


Figure 3. Driver diagram.

on those supports for struggling students. Think about the RTI systems in schools, that's the kind of supports for struggling students. We're probably going to get quicker wins there than standards-aligned instruction; getting teachers all using strong teaching practices is probably a longer-term driver to address.

They started with supports for struggling students and focused on a secondary driver, communication and coordination, because this is where lots of inefficiency, confusion, frustration, kind of falling through the cracks issues, arise, when providing extra supports for students. And then the network hub identified three potential change ideas that school teams could test in order to improve communication and coordination. These came from research, from peoples' practical knowledge. If you follow a line all the way through, you see a working theory of improvement that these system changes are expected to improve communication and coordination, which we theorize will improve supports for struggling students, which in turn will contribute toward the aim.

The driver diagram then should serve a kind of disciplining function for the network's work. It should be a way to generate these change ideas. It should be a way to provide coherence for the diverse work teams that are working on different components of the problem. And it's a working theory of improvement because it should be revisited and updated as you learn about the systems that produce the problem and the change ideas that are proving to be most visible. This idea of a working theory of improvement is critical to fostering these scientific and professional learning communities.

In the network that I helped to catalyze through the Tennessee Math Coaching Project, we utilized a different representation. We did not use a driver diagram. This math coaching model (see Figure 4) is our theory.

TN + IFL Math Coaching Model

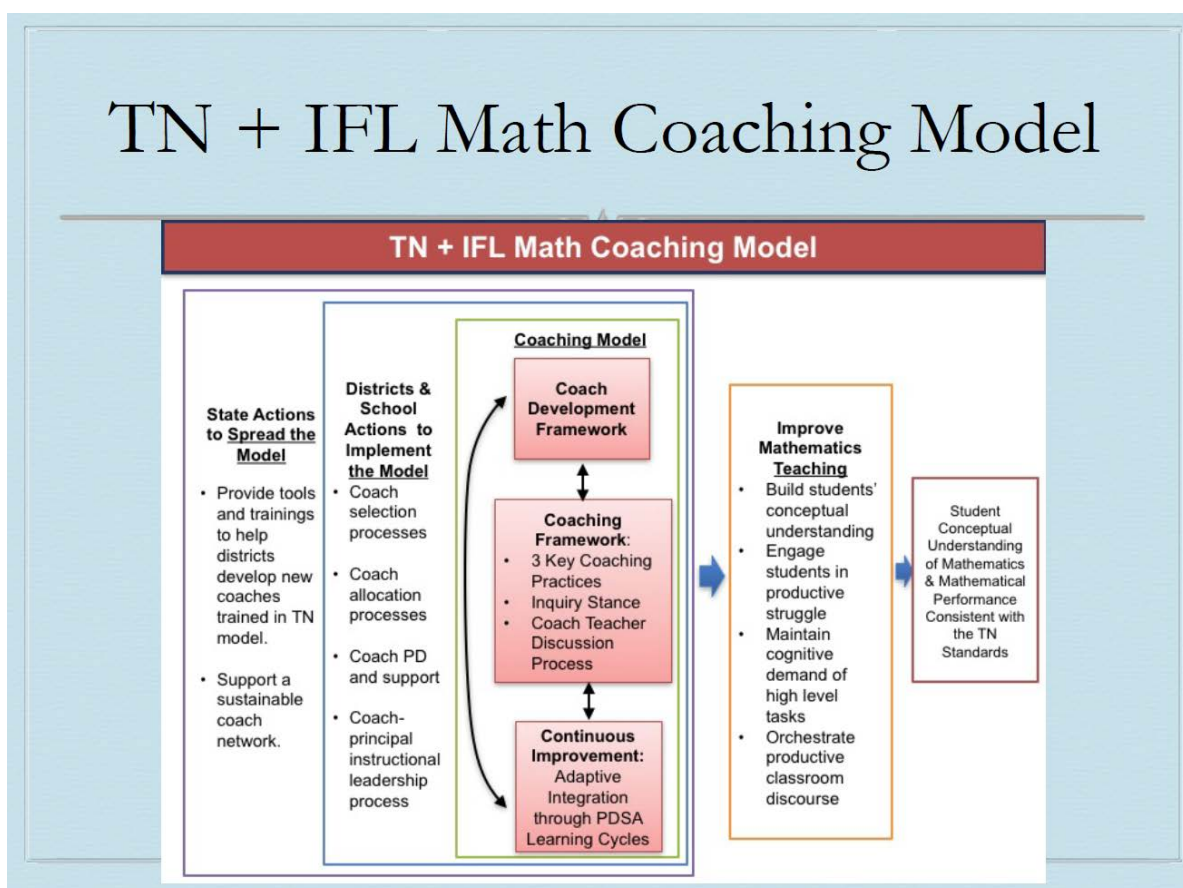


Figure 4. Math coaching model.

We specify on the right our goals, our student conceptual understanding and math performance consistent with the Tennessee standards, which are similar to the Common Core standards. We take a stance on the type of mathematical teaching that we think will contribute to our aim, building student conceptual understanding, engaging students in productive struggle, maintaining the cognitive demand of high-level tasks, and so on. In the center, we specify our mathematics coaching model in the green box, and that specifies a way of training coaches. We have key coaching activities that we've identified through continuous improvement research, and we have a stance toward the adaptive integration of the model into diverse local contexts. And then the outer boxes, we specified the elements of school, district, and state contexts that support this type of coaching. So regardless of the representation, it's important to have a public visualization that represents your working theory of improvement, so it coordinates the work that you're doing in your network.

Another key component of improvement work that I think is underutilized as we talk about NICs is the process map. The improvement science approach, the kind of method that NICs leverage, is really good for identifying and improving high-leverage processes and routines. But we don't often think about processes or routines in education. Teaching is often viewed as a dynamic art, not a set of routine processes. However, if we analyze practice, we see repetitive routines that can be targeted for improvement work. One I like to think of is Peg Smith's work on the structures and routines of a lesson, of how teachers can engage students in high-level tasks where students have some individual time, work in groups, then there's public representations of solution strategies. That has an embedded routine. In our coaching work, a key routine is the coaching cycle. And this is a common way of thinking about a coaching cycle. There's a pre-observation planning conference, then the coach

observes the teacher teaching a lesson. And then they have a feedback conference. And then that all repeats in the next cycle. As we got into Tennessee and started working with coaches, we saw that many of them were not doing that first step. They were doing an observation and then providing some feedback in a follow-up conference. We also found that these cycles didn't really build on each other. They didn't connect to another cycle. They weren't specifying a goal for the next cycle of coaching work. It looked more like observation, conference, and then maybe again another observation, conference. For two years we engaged in iterative improvement cycles, elaborating components of this coaching cycle to provide guidance for coaches. We identify key coaching practices inside the phases of the process. For example, during the pre-lesson planning conference, coaches engage in what we call "deep and specific discussion of the instructional triangle: mathematics goals and pedagogy and student learning." And we refined this even further, identifying key aspects of high-depth discussions, which we call "rigor factors," like thinking ahead of time about likely student solution paths for a task. These rigor factors in our analytic work predicted teaching improvement. When coaches and teachers were having these deep discussions and really doing these things well, they were more likely to see teaching gains. Additionally, we've explored other aspects of the process, such as getting specific about the amount of time coaches should expect to carve out for each phase of the process and what it takes to be done with quality. We didn't use individual PDSA cycles to refine the model. Rather, it was a more centralized endeavor where the network hub reviewed video tapes and other artifacts of coaching practice, started to generate some learnings, shared it with coaches. They tried out some of the practices more broadly that we identified, and it went in that way, data-based improvement cycles using many traditional research methods such as content analysis and relational statistical analyses. And that helped us iteratively refine this process.

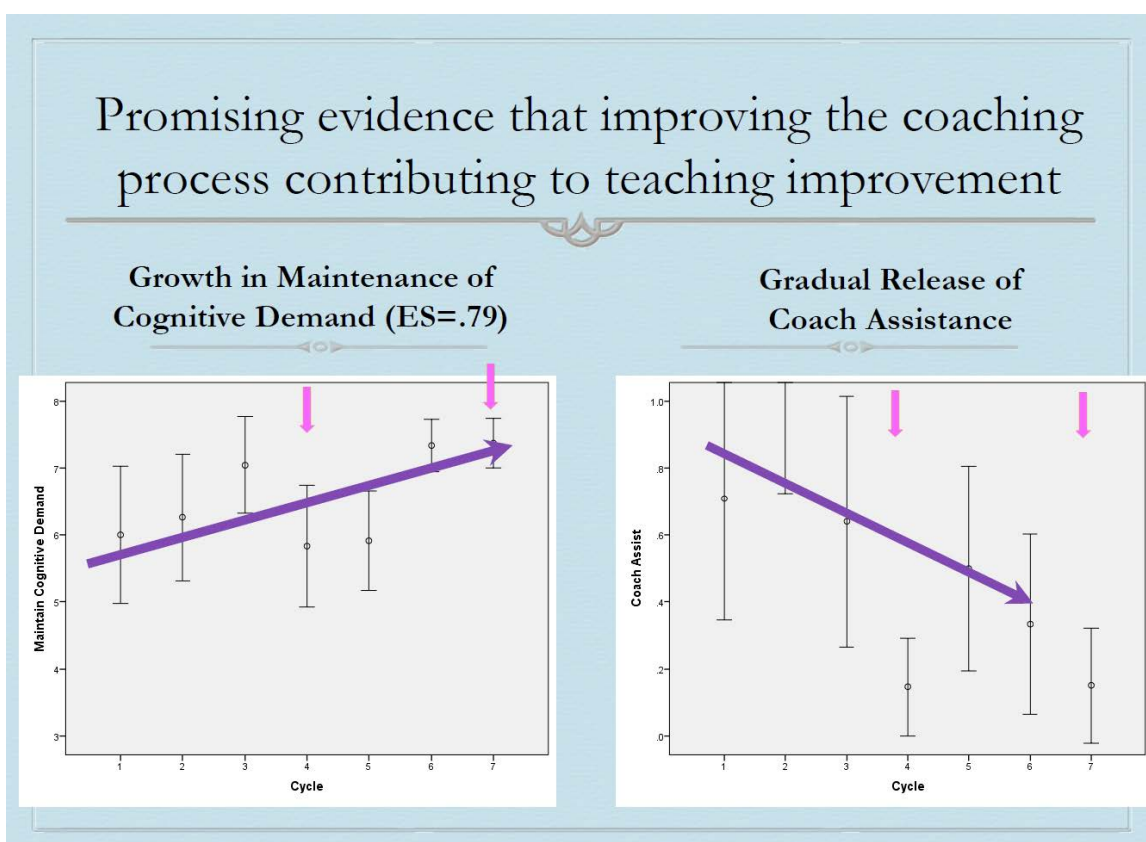


Figure 5. Coaching process contributes to teaching improvement.

As a mini-detour, our ongoing analytic work suggests that our work to improve the coaching process is contributing to improved teaching. In our network, we see from left to right on the left graph in Figure 5 that the average score on our teaching measure, which is maintenance of cognitive demand, improved greatly across the two years, and you also see the error bars are much smaller on the right. We're seeing both improvement and reduction in variability in teaching. And that's happening as coaches were also gradually releasing responsibility for instruction to teachers. In the beginning, there was lots of coach intervention during the lesson, and over time, teachers were doing it fairly independently. We're excited about that. We're in a quasi-experimental phase of our study now and keep your fingers crossed. We also have evidence, though, that those rigor factors in coaching are predicting gains in teaching. And I won't go too deeply into that, but it's again testing our working theories and finding some strong evidence.

While the core process improvement related to elaborating the coaching cycle did not include coaches running individual PDSA cycles, we taught coaches to use their own disciplined inquiry cycles to overcome the implementation challenges they encountered when trying to use our coaching model in diverse local contexts. One of our coaches, Holly Pillow, is a coach in two elementary schools in her small rural district in Tennessee. She's the only coach at the elementary level, and she finds herself in a district where administrators are really stretched then, both at the school and district level. So as a coach, rather than having enough time to work one-on-one and in small groups with teachers, she found she was getting pulled out all the time to run the testing program, to step in for absent teachers, etc. So Holly did a series of PDSA cycles to learn how to protect time for coaching. In the first, she introduced a new routine where she created a shared calendar and said where she was going to be, who she was going to be working with, and then at first she found nobody looked at it. But through a series of cycles, she found a way to reliably get administrators to respect that her primary role was to work with teachers and to look at that calendar before asking her to do an alternate task.

To summarize my reflections on the technical components of NICs, PDSAs can be an important tool but we need to think strategically about how they are used and take a broader perspective on the diversity of approaches that can contribute to continuous practice improvement. I'll transition to talking about the social structure or the social architecture of an NIC. My reflection about the social side is that networks need to nurture social connection, norms, and identities when growing and sustaining a professional learning community. We tend to focus in on the technical side of improvement, but NICs are organizations composed of people and the human and social side of what we're trying to do is complex. We've been trying to study and learn more about this social side. I'll talk about social connections, norms, and identities through our NIC development framework, and I invite you to reflect on your work and networks as I'm talking through these dimensions.

I'm blurring out the technical core now and focusing first on this first outer ring, cultivating the network's social organization, and we think there are four key components of that that are shown in yellow. The first is: it's important to consider the membership that you are building in your network to ensure that you're drawing the diverse pools of expertise and authority necessary to drive practical improvement. In the Tennessee Early Literacy Network, we see traditional authority structures represented in the inclusion of the state Department of Education, regional offices which are the arms of the state, then districts and schools within districts. But the network is also being strategic about bringing in expertise by hiring new positions for the hub in the Tennessee Department of Ed and contracting with the Carnegie Foundation for the Advancement of Teaching to build expertise in areas such as improvement science, analytic capacity, literacy, and literacy teaching. Another strategy they used besides hiring and contracting with partners is bringing in an expert convening on literacy to make sure that their working theory of improvement really reflected the best research knowledge in the field.

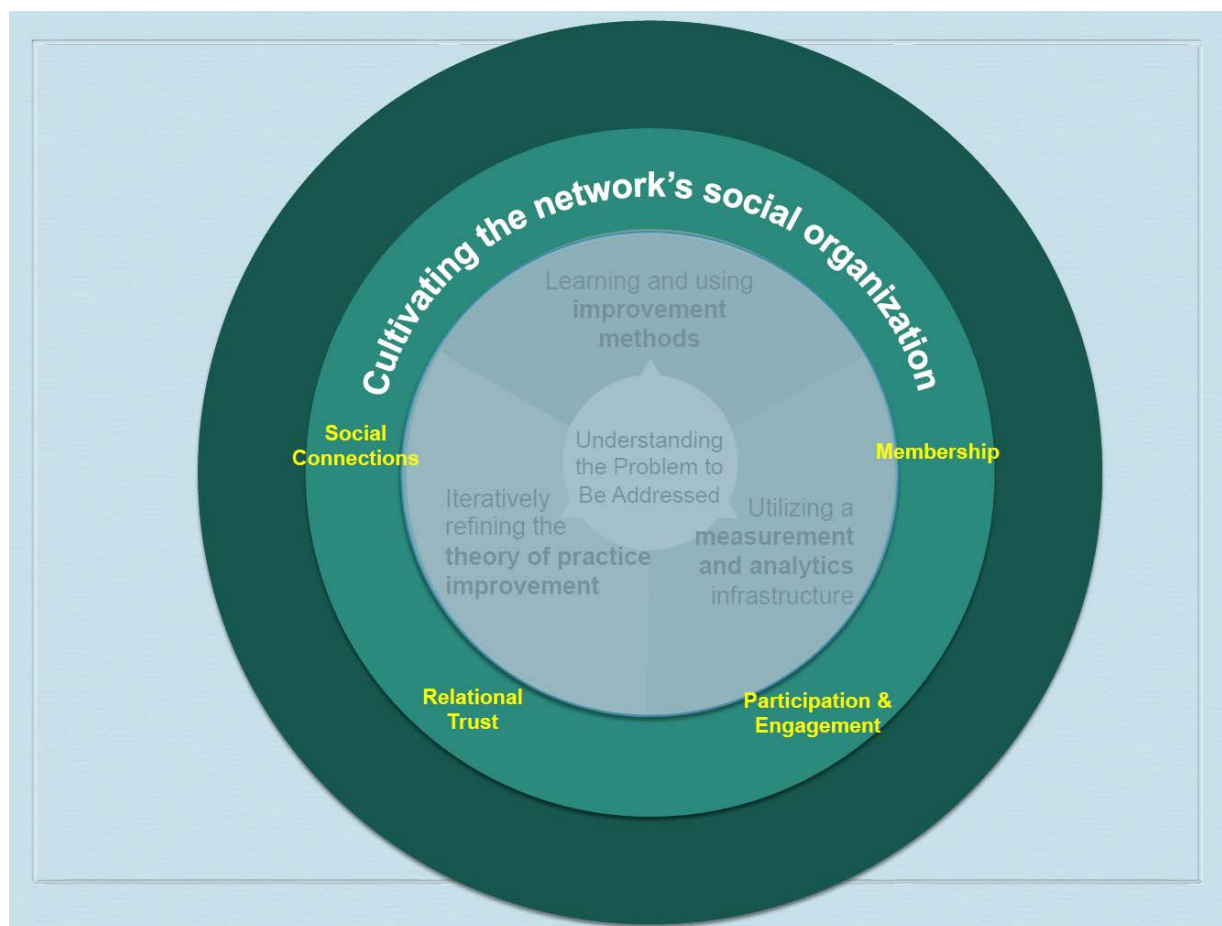


Figure 6. NIC social organization.

A second component of the NIC social organization is the participation and engagement structures. Once you have your membership, what are you going to do with them? How are you going to engage people in improvement work? And we believe that a functional NIC has participation structures in place that present a range of types of participation and allow for different levels of engagement. We can't expect that everyone is going to devote their whole life to our networks, because one of the challenges is, these are voluntary organizations. People have other day jobs and so we're trying to get them to do something on the side, but think about it as core to their work. For example, in the Better Math Teaching Network, the network of algebra teachers in New England I'm working with that's trying to improve student engagement, the network has generated a series of participation structures to promote teacher engagement. There are quarterly face-to-face meetings where teachers have an opportunity to learn new content, to learn improvement science methods, to build communities face-to-face; we do think face-to-face is very important. But then they meet in virtual groups where they're working with other teachers and they're addressing one driver or one component of the working theory of improvement. And they're meeting bi-weekly to plan and reflect on their inquiry cycles. And then the network is trying to provide opportunities and a structure for more informal interactions through things like listservs and a curated Google Drive system where teachers can post resources and raise questions, so multiple points of entry or participation for network members.

A third component of this social organization is the social connection, so we've got the people, we've got them doing things, and now we're hoping to build social connections in the network, working together in

productive collaborative ways. We think that in a mature NIC, we should see strong connections among members working on particular strands of work, like affinity groups working around a primary or secondary driver. In addition, we think that we optimally want to build, albeit probably not as strong, weaker connections that span different organizations so that everyone has an opportunity at some level to learn what others are learning. In our TELN developmental evaluation, we've been tracking the emergence of social connections using social network analysis. These network maps represent the commenting behavior of network members in a network blog where members engage in virtual discussion to try to build this shared understanding of the problem of practice. This is also where they were posting those journey maps that I mentioned earlier. We tracked who was commenting on whose posts, and the dots represent network members, and they're color-coded to show--the blue are from the hub or at this point the initiation team, the pink and yellow are the two different regions of the state involved in the work, so they're--at this time, these were district leads involved in the network.

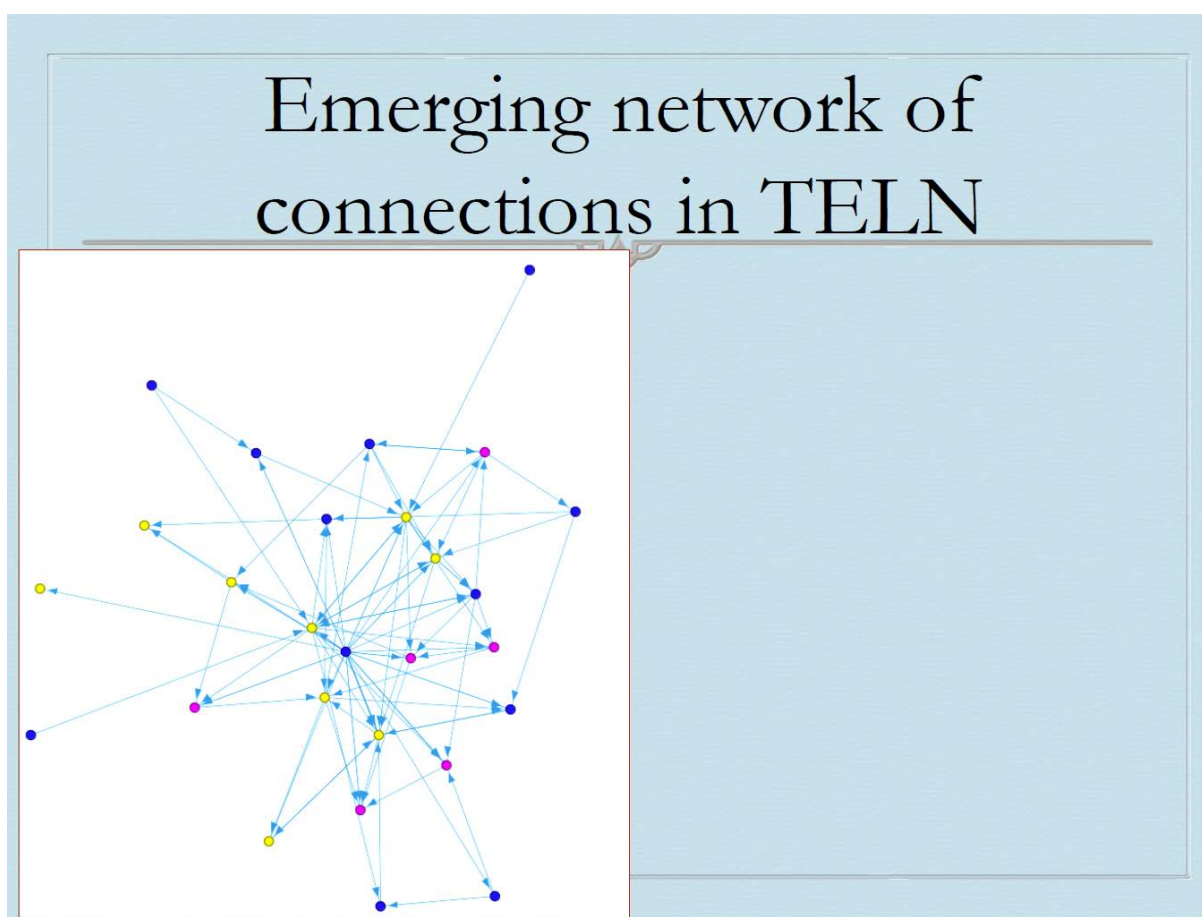


Figure 7. Emerging network connections.

In this early stage, (see Figure 7), many of the connections are between network members and one particular person at the center of the network map, who happened to be a staff member at Carnegie who was kind of facilitating the blog. So not surprising that a lot of the commenting was back to that central person. You also notice that the pink dots tend to comment on pink dots and the yellow dots tend to comment on yellow dots, meaning that there was not much cross-regional exchange at this point. It was heavily mediated by the network hub. For example, I might comment on somebody I know, but not some new person in the network. Approximately three

months later, we repeated these analyses and started seeing changes in network connections that were aligning with our theory. We saw increased connections overall across the regions (see Figure 8).

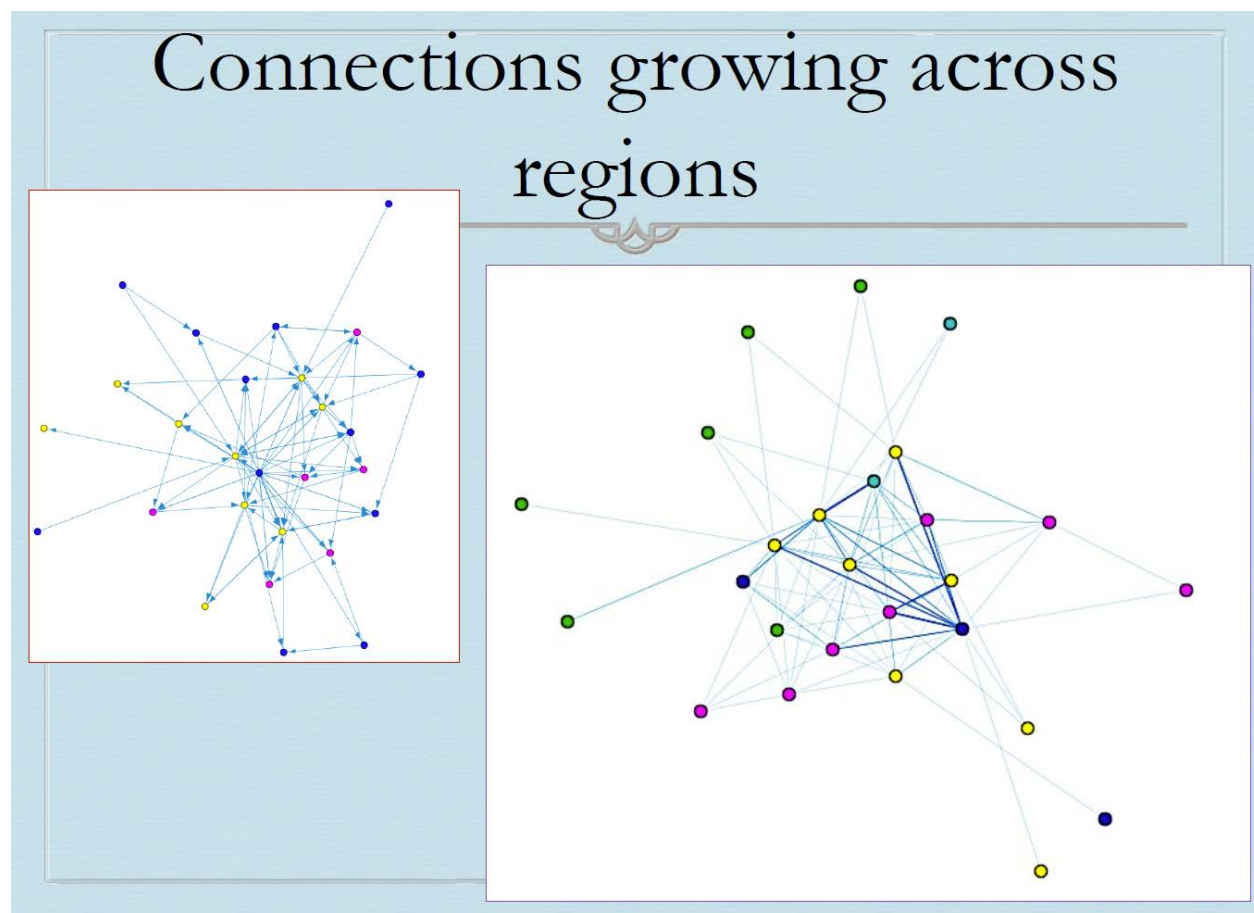


Figure 8. Connections grow across regions.

Educators were interacting with and looking to colleagues in other regions to deepen their understanding of the literacy problem. We saw emerging leadership, so more blue dots became more central, more members of the hub. And in addition, we saw several people from the regions, these district leads, now starting to occupy more central positions, meaning they are taking on some emerging leadership. And overall, there's just many more connections in the network. This is one way in our developmental evaluations that we're trying to look at how social connections are emerging in networks.

To conclude, I'm going to take you through a few of my reflections on the norms and identities that people need to develop in NICs.

Again, this is the outer circle in our framework, and again, there are four components of that. We think it's critical that participating members in NIC start to exemplify what we call an "evidence-based culture." This includes members feeling safe sharing data about their practice, their successes and what's not going well, and engaging in critical conversations, and members actively seeking out others in the network who are having successes through data or evidence. And finally, promising or successful change ideas are being drawn from what the field knows, from research evidence. One of the things that we noticed early on is that as we are empowering educators to be agents of change and agents of learning, sometimes we're seeing a disconnect between what we

already know as a field, so they are generating ideas that we may have figured out to some extent in the research community, and it's about bringing those two ideas together so that people are not figuring out stuff that we kind of, in some ways, already know.

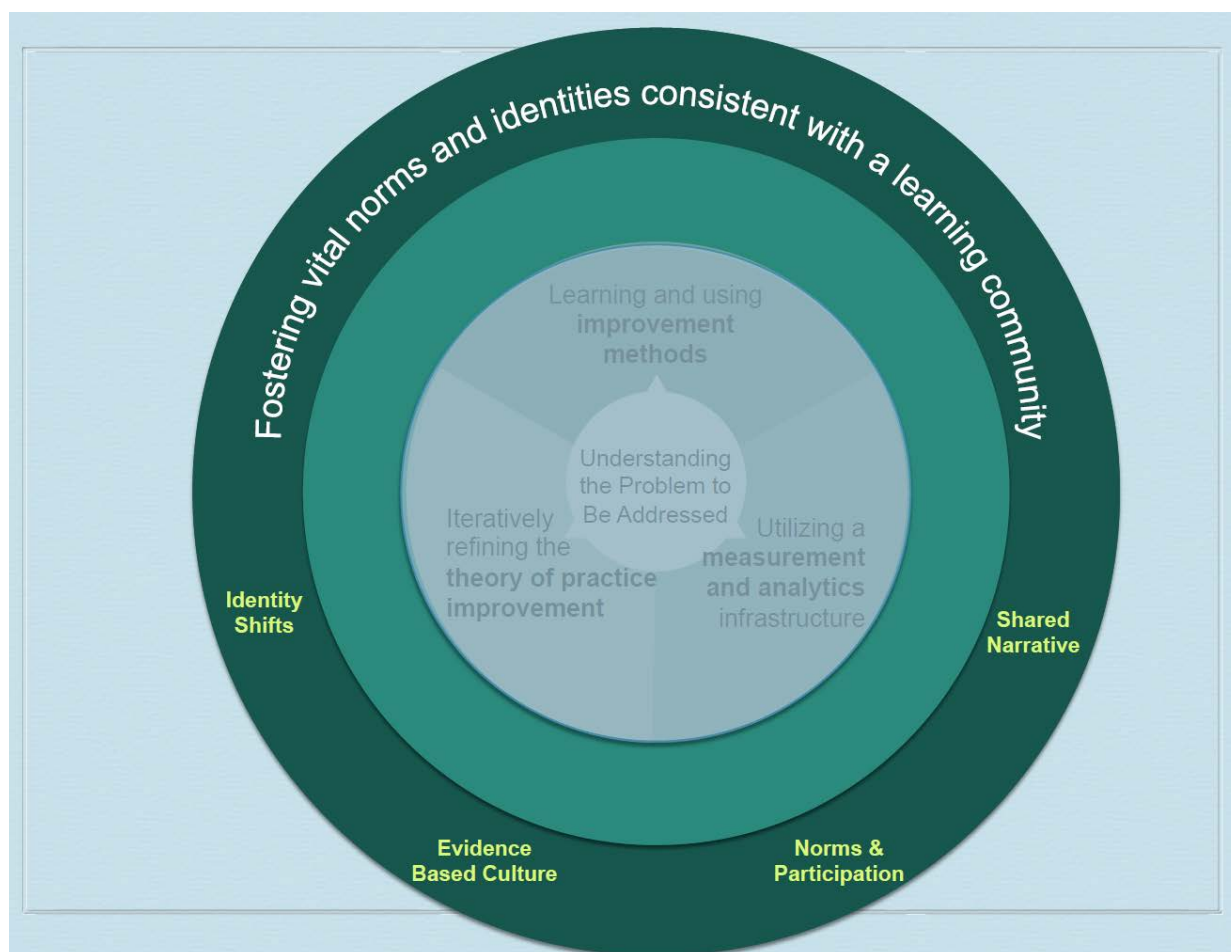


Figure 9. Learning community norms and identities.

We've developed a survey and we're trying to track the emergence of an evidence-based culture through it. In Figure 10, you can see a couple items from the survey, and the two different colored bars represent the two different networks that have engaged in the survey so far. One of the things that's interesting is that for one of the items, we looked to existing research to inform our improvement work. The respondents in the one network were a lot less likely to endorse that idea, and this was a critical insight that's helped the hub think about reshaping some of their engagement strategies, participation structures, so that we can ensure to get some of that research-based evidence into the work.

Next, this notion of identity shifts. We're looking to see that NIC members exhibit a "we" perspective, that they start to think about the collective rather than just to try to improve their own individual practice. So how do we build a commitment to the network that helps to sustain their engagement by identifying with it as a collective? We're also trying to get members of the network to make particular identity shifts. In the case of educators, it's often having them think about themselves as producers of knowledge. For researchers, it's about thinking about having accountability for practice and outcomes, so important identity shifts.

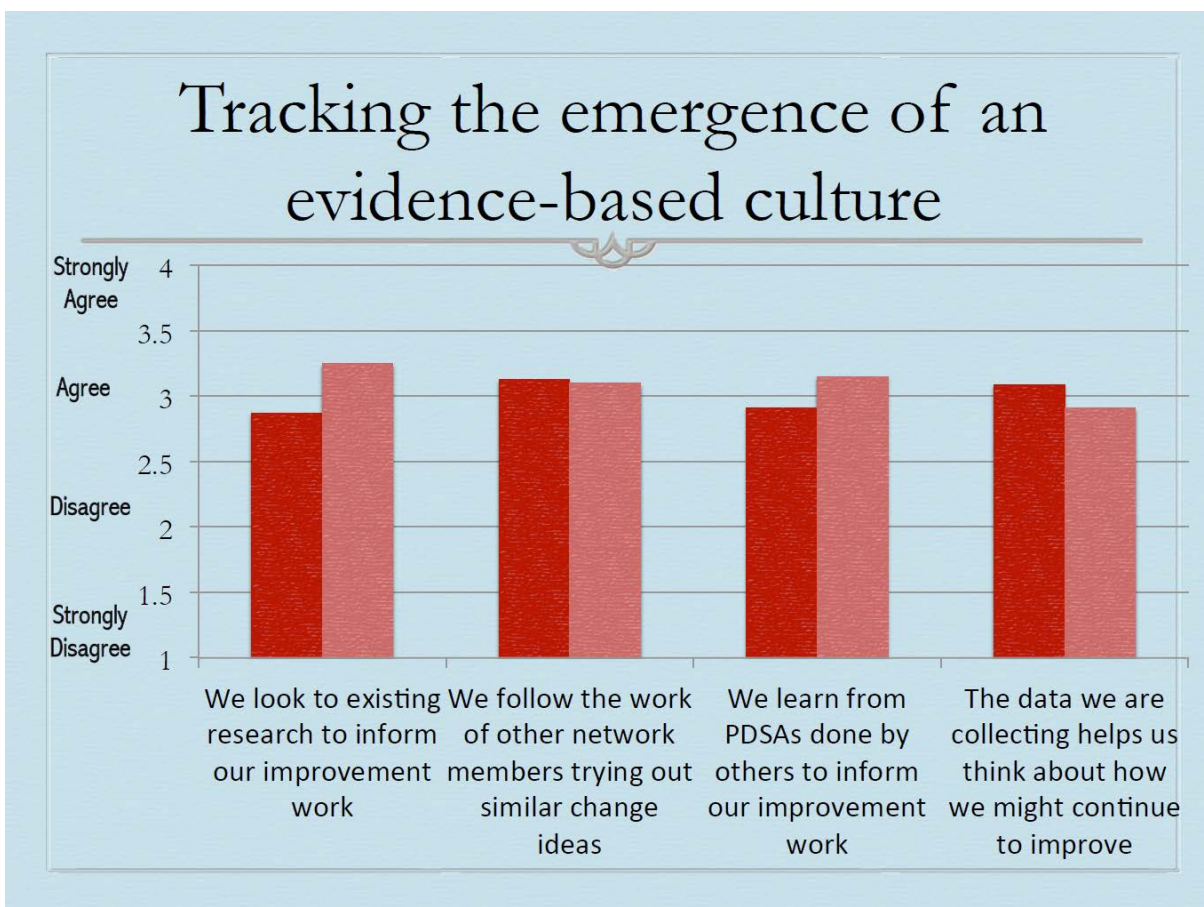


Figure 10. Emergence of an evidence-based culture.

Here's data from another survey item (see Figure 11). In this case, we were asking members of the network to reflect on the extent to which the work in the network is a core part of their work. And here you see we're looking at patterns in the data by role groups and seeing some interesting differences. For example, regional staff were less likely to say that it's a core part of their work. This is an insight that is helping us see the strong relationship between identity and the way that we design participation structures in the networks. These regional staff members didn't have a central role early on and were kind of struggling to find their way, so not surprisingly, they're not feeling as connected. We're also seeing differences between school teams in our two regions, one region expressed lower identification with the collective of the network over all. And that gives us a theme, to examine through other ways, so we'll be planning some follow up interviews, to try and understand more about why there's those differences.

A third component of fostering norms and identities is the development of a shared narrative. A shared narrative of improvement is evident in talk and documentation, and we think of a shared narrative as including personal stories of why people are involved in a network, a collective story about what we're trying to accomplish together, and urgency for attending to the problem. Something else we track in our developmental evaluation work, in the early literacy network we did interviews early on with district leads, and it was interesting to see a converging narrative about what they value in the network.

Finally, our fourth component of this area is norms of participation. And again, this resonates with some of the identity shifts that we are hoping to see, that network members take on this commitment to disciplined

inquiry and their role of knowledge generators, and then there's other ideas about common work and documenting and sharing our knowledge. So that's our NIC development framework. I haven't talked much about leadership. That's for another day, but we see the work of the hub and other distributed network leaders as driving these other domains toward the scientific and professional learning communities.

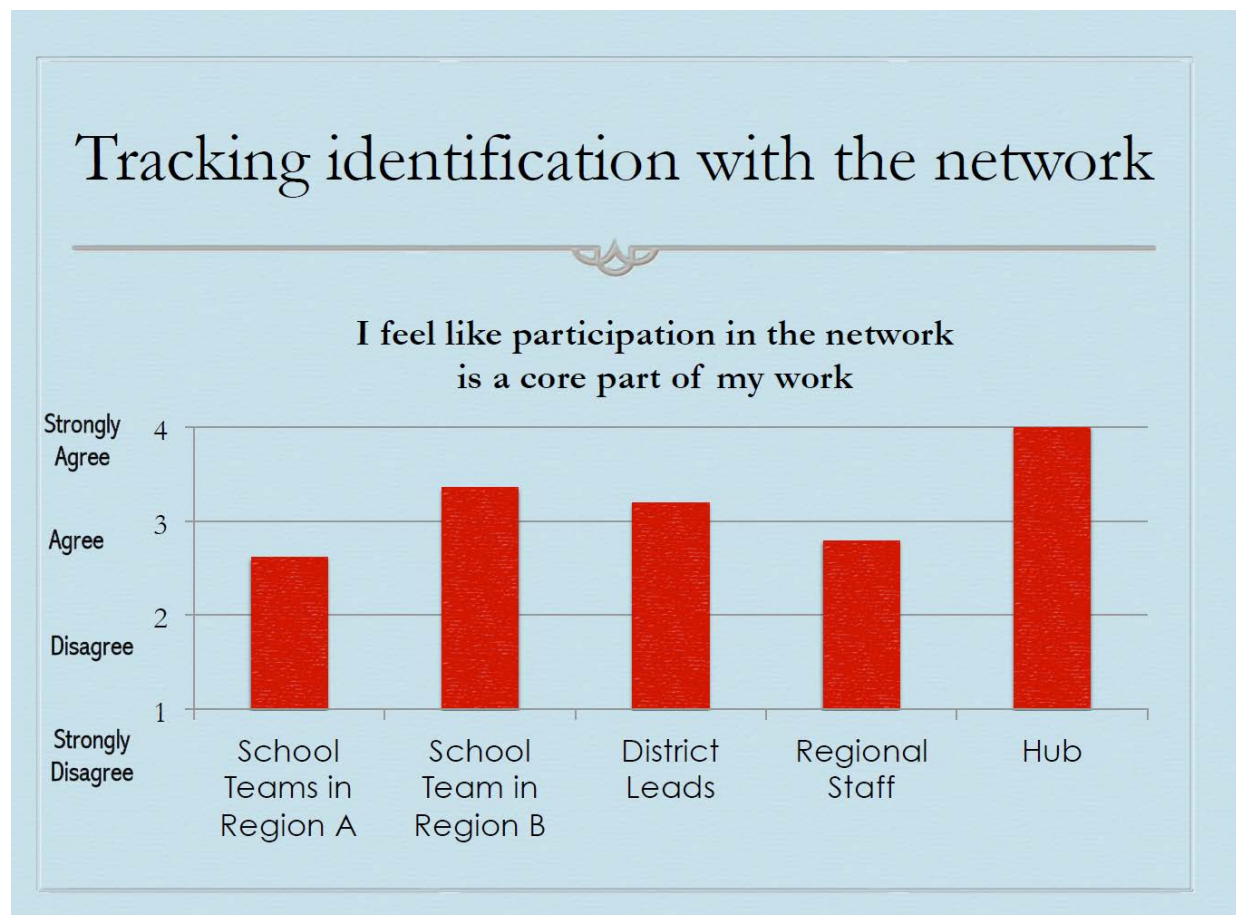


Figure 11. Network identification.

Our work to understand and support NIC development is ongoing and we're generating developmental trajectories of various NICs in the field and trying to test our theory by looking at how these networks unfold. And we're also generating tools for network leaders and developmental evaluators, like surveys to track network health and a self-assessment tool that network leaders can use. I thought over these four reflections, and in conclusion, what are the implications for the MTE-Partnership? In many ways, I think what you're doing is strongly resonant with these reflections. So, my first point is keep doing what you're doing. You may want to utilize, though, this NIC development framework as a tool for reflection on the ongoing work to catalyze your networks. And as you're doing that, remember to keep utilizing a range of improvement methods, such as understanding the problem, a broad sense of inquiry, not just the small improvement cycles. And finally, keep in mind the nurturing social connections, norms, and identities by paying attention to member experiences in the network. It's a key part of sustaining this work.