The Network Health Project

Understanding Variation in Improvement Networks

Improvement Networks in Education:
Practical Work Series

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Over the past few decades, school systems have faced growing pressure to both expand and improve educational opportunities. Many educators and school leaders have become frustrated with reform efforts that rely on external programs and policies. In response, many districts are now turning to inter-organizational improvement networks—groups of schools and educators working together—to build local capacity for problem solving, innovation, and systemic improvement.

One recent example is the Gates Foundation's 2018 launch of the Networks for School Improvement (NSI) initiative, which funded intermediaries to organize networks of 10+ middle and high schools. These networks focused on boosting student outcomes. Over 40 NSIs formed in 23 states, involving more than 600 schools and 150,000 students (see Figure 1).

We studied the networks in this initiative to better understand how they varied in design and implementation. Our work is grounded in the Networked Improvement Community (NIC) concept and is guided by the Improvement Network Health and Development (INHD) Framework (see Russell et al, 2025).
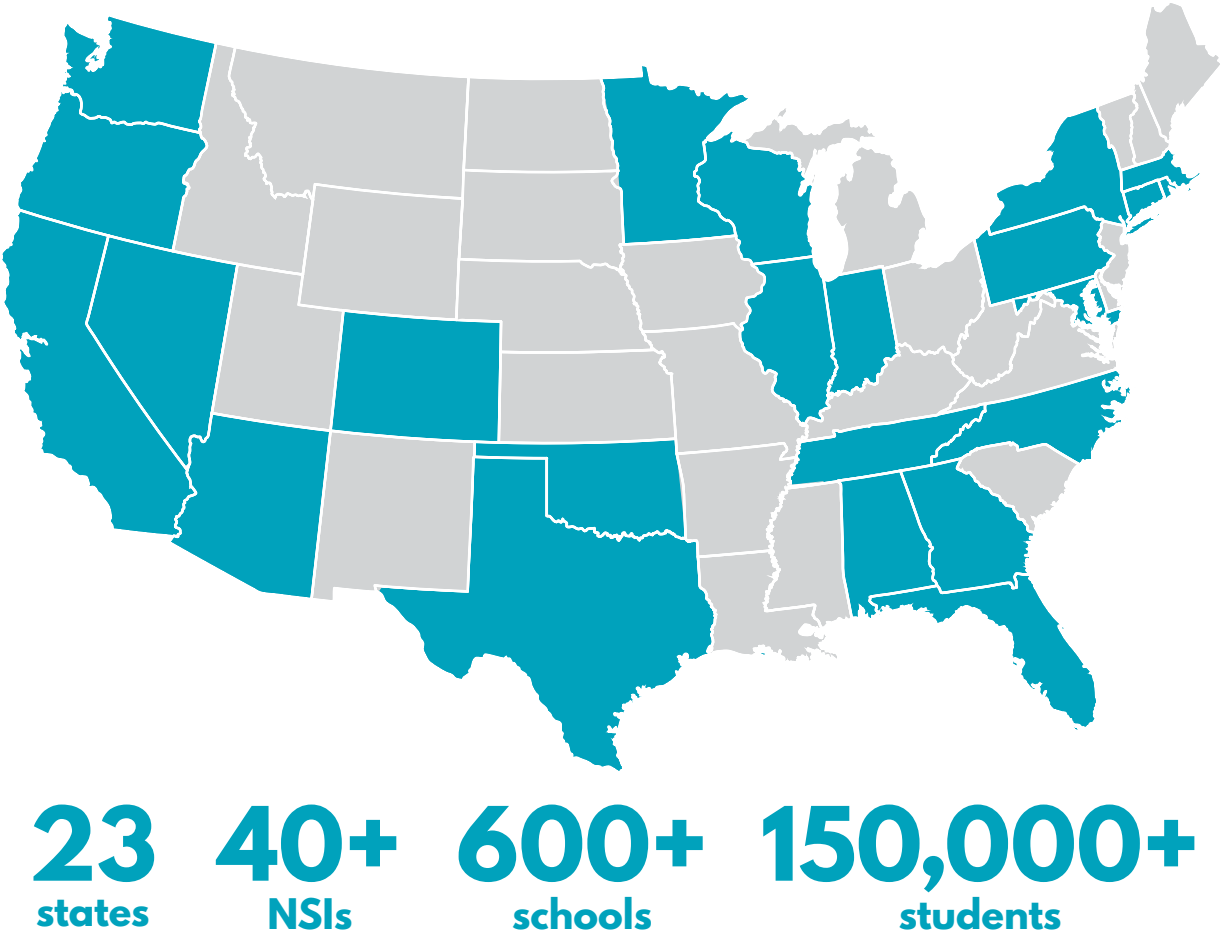

23 states   **40+** NSIs   **600+** schools   **150,000+** students

Figure 1: Coverage of the Gates Foundation's Networks for School Improvement (NSI) initiative.

Improvement Network Health and Development (INHD) Framework

Networked Improvement Communities (NICs) create opportunities for educators to engage in rigorous testing of practice changes, work collaboratively with colleagues within and across organizations, and accumulate practical insights that can yield substantive improvement in the educational processes that shape student learning and development (Barron et al., 2024; Bryk et al., 2011, 2015; Hannan et al., 2015; Russell et al., 2017, 2025; Yamada et al., 2018).

Drawing on theory and prior research, we developed the INHD Framework to describe a high-functioning NIC, what we refer to as a healthy improvement network.

The framework posits six domains that, when functioning effectively together, constitute a healthy improvement network. (see Figure 2):

1. **Strong hub leadership**
   Hubs are the teams that lead and manage networks. Strong hubs build trust, coordinate collaborative activity, and manage learning processes.

2. **Clear roles and active engagement**
   Everyone in the network understands their role and takes part in improvement work.

3. **Continuous improvement processes**
   Teams use systematic routines—such as regular inquiry cycles—to test and refine their practices.

4. **Robust connections within teams**
   Improvement teams (within each organization that makes up the network) engage in effective collaboration processes.

5. **Effective connections across teams**
   Improvement teams share promising practice changes (based on systematic testing) with other teams, supporting cross-organizational learning.

6. **A supportive network culture**
   There is a shared sense of purpose, mutual trust, and openness to learning from data.

Improvement networks exist within broader state, district, and school contexts which may support or inhibit the work.

As shown in Figure 2, productive activity in the six domains is expected to lead to two outcomes: (1) increased educator capacity and commitment to collaborative problem solving; and ultimately, (2) progress toward the network's improvement aim.
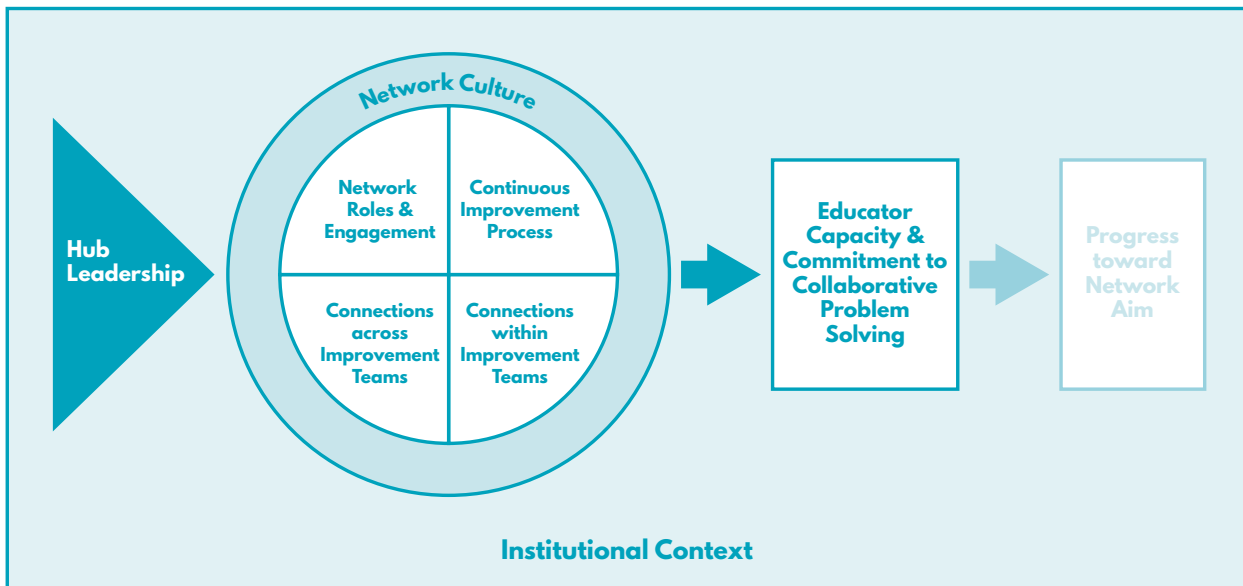
Figure 2: : Improvement Network Health and Development (INHD) Framework

Improvement Network Health and Development Study

The **Network Health Project** generates formative feedback to network leaders from the perspective of the educators participating in their respective improvement networks and engages in longitudinal, mixed methods inquiry about the development of these networks more generally. Our supports for network leaders include:

- The **INHD Framework** (describing critical dimensions of network health and development).

- The administration of an annual survey to all NSI members.

- Tools and routines for providing feedback to network leaders and foundation staff on network status and trends in network development.

Through this formative evaluation role, we also explore research questions aimed at contributing to the capacity of the educational field to organize networked improvement. The findings presented in this brief are the result of quantitative analysis of annual survey data that capture network member perceptions of the development of their network and qualitative analysis of programmatic documents generated by network leaders (e.g., annual progress reports detailing network activities).

More information about the study's methodology is available in a **companion journal article** published in *The Peabody Journal of Education*.

Variation in Network Health and Development

Our analysis of survey data from 34* improvement networks indicates some networks flourished and others struggled to get off the ground.

- **Well-developed networks:** Six networks showed strong, positive ratings in most areas. Their members reported high levels of trust in hub leadership, clear roles for members, and effective sharing of ideas across the network.

- **Least-developed networks:** Five networks received weaker ratings, with many members reporting challenges in areas like leadership, connecting within and across teams, and aligning the network's work with their school's priorities.

- **Mixed result networks:** The remaining 23 networks showed mixed results—strong in some areas and weaker in others.

Seeing variation in network health and development, we explored the question: **What can we learn from these contrasting cases of network development?**
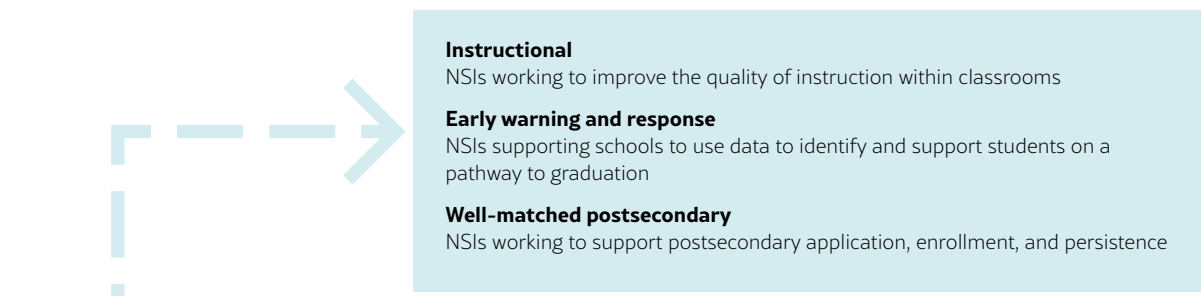
Characteristics Differentiating Well–Developed and Least–Developed Networks

We found differences in several basic network characteristics between the two clusters. See Table 1.

- **Coordinating instructional improvement networks may be more challenging.** Four out of five networks in the least-developed cluster are focused on instructional improvement; the fifth network aimed to improve pathways to postsecondary education. (Of note, three of the six well-developed networks are also focused on instruction.)

- **Some contexts make it harder to launch a network.** Four out of the five least-developed networks operate in single large urban districts. In general, members in the least-developed networks were more likely to perceive misalignment between their school's priorities and the work of the network.

- **Network development takes time.** Well-developed networks tended to have been in operation longer than less-developed networks. The majority of the well-developed networks (four of six) operated for at least five years as compared to only one of the less-developed networks. This suggests that building a strong, collaborative learning community takes time.

- **Stability in leadership & membership supports development.** Networks with stable hub leadership and more consistent network membership tended to perform better. High turnover—both in the hub and among network members—was more common in less-developed networks.

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* This report is based on 2023 survey data of the 34 NSIs operating at that time.

- **Varying types of organizations can effectively lead networks.** NSI hubs are housed in various organizations, such as institutions of higher education (IHE), non-governmental organizations (NGOs), and school districts. We see each type of hub organization in both the well-developed and least developed clusters.

Instructional
NSIs working to improve the quality of instruction within classrooms

Early warning and response
NSIs supporting schools to use data to identify and support students on a pathway to graduation

Well-matched postsecondary
NSIs working to support postsecondary application, enrollment, and persistence

	Improvement Goal	Launch Date	~Members in 2023	Districts	Member Stability (%>1 year)	Average Tenure (Years) of 2023 Members	Hub Stability
W1	Early Warning	2018	50	Multiple	88%	2.65	Stable
W2	Post-Sec Match	2019	300	Single	63%	1.89	Stable
W3	Post-Sec Match	2018	200	Multiple	76%	2.33	Stable
W4	Instructional	2020	60	Multiple	36%	1.66	Some Turnover
W5	Instructional	2018	70	Single	68%	2.28	Early Turnover (then Stable)
W6	Instructional	2021	65	Single	90%	2.68	Some Turnover
L1	Post-Sec Match	2020	120	Multiple	57%	1.94	Some Turnover
L2	Instructional	2020	40	Single	65%	2.13	Some Turnover
L3	Instructional	2021	130	Single	80%	2.36	High Turnover
L4	Instructional	2019	120	Single	15%	1.2	High Turnover
L5	Instructional	2022	60	Single	39%	1.39	Stable

Table 1: *Structural characteristics of well-developed and least-developed networks.*

Practices Differentiating Well-Developed and Least-Developed Networks

Our analysis of program documentation detailing network activities generated evidence that the well-developed networks in our sample exemplified greater attention to the integration of both the technical and social processes of continuous improvement (see call out box on). This suggests members in these NSIs may have experienced deeper supports for collaborative inquiry processes.

Three themes differentiated practices in the well-developed networks from those in the least-developed networks:

1. Technical supports for improvement were more sophisticated.

2. Social learning processes were better designed, implemented, and supported.

3. Standardized processes were balanced with individual agency.

Technical and Social Support for Improvement

In order for network members to learn to engage in continuous improvement, they must learn the language, tools, and routines of continuous improvement methodology. This includes **technical aspects** of the work such as:

- standardized tools and routines for testing practice changes (e.g., PDSA cycles).
- regular data collection, analysis, and use (e.g., practical measures).

Networked improvement is collaborative. The **social processes** that support continuous improvement include:

- iterating productive meeting protocols to strengthen collaborative work.
- building regular opportunities for cross-team learning (e.g., whole-network meetings with intentionally designed cross-team interactions, role-alike meetings, and affinity groups).

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Well-developed networks have more sophisticated technical supports for improvement

The technical supports that hub leaders built in the well-developed networks were different in three distinct ways from those in the least-developed networks:

- The well-developed networks **maintained a specific and iteratively refined working theory of improvement** to guide their collective efforts.

- The well-developed networks invested in the development and use of **measures and/or data tracking platforms aligned to their working theory that enabled improvement teams to efficiently access evidence needed to engage in rigorous testing of practice changes**. For example, one network developed a college access dashboard that collected data from school portals (student FAFSA completion and other steps in the college access process) and a senior exit survey (measuring student perceptions of progress towards a college ready culture, school-level supports, and belonging).

- The well-developed networks introduced **systematic methods to consolidate learning from testing cycles**. For example, one network built a routine called "cycle reviews" to identify learning at the school level and leverage that learning to spread practice changes throughout the network. In four of the six well-developed networks, hub leaders built "change packages" which included an articulated theory of change, aligned change ideas, and measures for assessing the impact of change ideas.

A **"change package"** in improvement science is a collection of evidence-based strategies, tools, and actionable steps designed to guide the implementation of a specific improvement initiative within a system.

> *" I value having a voice and being treated as a professional.*
>
> — well-developed network member

2 Well-developed networks had greater capacities for social learning

The well-developed networks also displayed evidence of **more attention to the social processes that support networked improvement** than those in the least-developed cluster. One of the well-developed networks created affinity groups focused on specific components of their literacy achievement problem: improvement leads from multiple schools met weekly with their affinity groups to reflect on data collected through testing of practice changes in their respective schools. Other well-developed networks invested in the **ongoing refinement of the collaborative routines within school-based teams**. Progress reports indicate many of the NSIs in both clusters faced challenges convening network members, particularly in the COVID-19 context. However, some NSIs had better strategies to mitigate these challenges.

The well-developed networks had **intentionally designed coaching systems**: hub staff designated as "improvement coaches" provided job-embedded supports to educators. For example, coaches supported schools in scaffolded improvement projects. Although the hubs of many of the least-developed networks had designated coaches, each struggled due to issues such as coach turnover, capacity, or late implementation of coaching.

> *" I valued working with a group of people who are committed to elevating teacher voice and learning from the many different contexts in which teaching is done. I appreciate all of the effort that goes into learning how change can happen in real classrooms instead of it being mandated from above.*
>
> — well-developed network member

3 Well-developed networks balanced standardized processes with individual agency

Members of a healthy improvement network are working together to solve a shared problem. **Working in such a community requires some standardization of work; these shared routines, tools, and/or structures both support and constrain individual actions.** For example, one well-developed network iteratively refined their "framework for collaborative, continuous improvement" and tools used by coaches to put the framework into use. Hub leaders specifically noted that the model aimed to reduce variability among coaches by standardizing the support coaches provided to their improvement teams. Yet, at the same time, these **school-based teams were able to exert agency in the continuous improvement process** by setting their own annual improvement priorities and selecting practice changes to test that aligned to these aims.

One of the well-developed networks referred to moving toward **"tighter team cycles of inquiry"** to advance quality disciplined inquiries, while at the same time allowing teams to select from an improvement menu that included possible practice changes.

Attention to both structured collective activity and individual agency was also represented in the way well-developed networks designed for social interaction. For example, hub leaders in one well-developed network created opportunity for choice within a defined structure during convenings. Network members opted in to affinity groups organized around different aspects of their network's theory of improvement. In the least developed networks, our findings suggest that network hubs may have either provided too much structure, contributing to limited participant buy-in or commitment, or too little structure, contributing an idiosyncratic character to the work.

Conclusion

First, our findings suggest that catalyzing a vital improvement network in education requires intentionally designed technical processes embedded in a social organization that coordinates the collective action of professionals. There is evidence that both clusters of networks were taking action to structure the technical processes and social connections we theorize will support networked improvement. However, we found that the well-developed networks had achieved a deeper level of technical and social supports. Key components of this support include aligning continuous improvement work with an articulated theory of improvement and providing effective job embedded supports, such as coaching, for learning how to utilize continuous improvement approaches. These emerging findings begin to give a more nuanced descriptive portrait of the domains of effort we describe in the INHD Framework (Russell et al., 2025) and are consistent with prior research on the importance of coherence in school change efforts (Cobb et al., 2020; Fullan & Quinn, 2016; Honig & Hatch, 2004) and the power of coaching to support continuous improvement (Russell et al., 2020; Woulfin et al., 2023).

Second, our findings suggest that when hub leaders are managing interdependent social and technical processes, challenges emerge in balancing the structure needed to socialize educators into new modes of collaborative problem solving and the agency necessary to foster educator motivation and commitment.

Third, an unexpected finding was that members in well-developed networks did not consistently experience more frequent and positive interactions within their school improvement teams than peers in the least developed networks. This suggests that within-team connections may be harder for network hubs to influence because these teams are deeply embedded in school and district contexts and exist largely outside of their direct zone of control.

As more improvement networks emerge in the education landscape, hub leaders can learn from the successes and challenges of early adopters. Learnings from the NSI initiative provide practical knowledge to support the development of well-functioning networks that support educators in local innovation and improvement.

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The Network Health Project
Improvement Networks in Education: Practical Work Series

This brief is one in a series from [The Network Health Project](#). We aim to provide evidence-based information to support the initiation, development, and sustainability of improvement networks. As improvement networks grow in the education landscape, these briefs can support leaders of improvement networks, district leaders, philanthropists, and advocates as they design, support, and spread innovation and improvement in education.

We are a cross-institutional team of improvement scholars and practitioners who have studied and supported improvement networks for over 15 years.

- University of Pittsburgh's Learning Research Development Center
- Vanderbilt University's Peabody College
- Carnegie Foundation for the Advancement of Teaching
- University of Michigan

Briefs in this series will address a broad range of information about improvement networks, including topics such as:

- The Improvement Network Health and Development Framework
- Hub leadership practice
- How educators benefit from network participation