Paper Title Exploring Data and Measurement Use in an Improvement Network

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Session Title Improving Educational Organizations: Trust, Identity, Measurement, and Mattering (Table 9)

Session Type Roundtable Presentation

Presentation Date 4/16/2023

Presentation Location Chicago, IL

Descriptors Data use, Measurement, Organization Theory/Change

Methodology Mixed Method

Unit SIG-Organizational Theory

DOI https://doi.org/10.3102/2016577

Session Title:
Exploring Data and Measurement Use in an Improvement Network

Abstract (120 words)
Improvement networks are a relatively recent phenomenon in US education that bring together improvement science and networks, creating inter-organizational networks of educators working together to improve specific educational problems. A shared emphasis of these networks is the use of data and measurement to support the improvement process. This study extends the field's understanding of data and measurement use beyond technical aims, exploring pressures for and use of data to navigate the social and political dimensions in a complex change effort.

Objectives

This study contributes to the field's understanding of how improvement networks use data and measurement to navigate social and political dynamics, alongside technical functions, during organizational improvement processes. We move beyond technical accounts of data use to highlight how data supports change in complex organizational, social, and political systems.

Specifically, we conducted a mixed methods case study analyzing how and why data and measurement are used in an improvement network, which brought 14 secondary schools in an urban school district into structured collaboration aimed at improving literacy teaching and student learning. The study's data and methods include analysis of network data artifacts, such as data representations and analyses, generated in the ongoing work of the network (n=814) and semi-structured interviews with network hub leaders (n=8) focused on the pressures driving network data and measurement use, as well as leaders' intentions.

Our preliminary findings indicate a strong correlation between pressures for and aims of data artifact creation, as well as a significant disconnect between why artifacts are created and how they are actually used. We explore how these correlations and disconnects recommend changes to the use of data and measurement in improvement networks in order to utilize resources and navigate their complex environments more effectively. To reach these aims, we address the following research question: ***how and why are data and measurement used in improvement networks?***

Conceptual Frame

Within any improvement initiative, data and measurement may be used to support justification, planning, implementing, and transitioning. How, for what purpose, and at what level measures are defined significantly impact the program's real and perceived efficacy and impact (Hannan et al., 2015; Ittner & Larcker, 1998; Pentland et al., 2016). Improvement literature defines different types of measures, how each is used, and how they fit together (Bennett, 2018; Bennett & Provost, 2015). Another focus of the literature is the emphasis on data and measurement use to support instructional improvement initiatives, with a particular emphasis on measures that are timely, minimally burdensome, and strongly related to the problem of practice (Bryk et al., 2013; Yeager et al., 2013).

However, there has been insufficient attention to how data and measurement can be used to navigate networks' social and political contexts. In response to this gap, our conceptual model, illustrated in Figure 1, assumes variation in how different stakeholders perceive and exert pressures around data and measurement use (Bryk et al., 2011; Datnow, 2005; Russell et al., 2017). These pressures subsequently influence stakeholders' aims for network data and measurement (Gutiérrez & Jurow, 2016), the types of data artifacts the network produces (*Hub Domains and Processes*, 2020), and the ends to which those artifacts are used within the network (Takahashi et al., 2020).

Of note, this study intentionally uses *artifact* as a more general term for data and measurement products in the form of discrete documents, extending beyond the more general definitions of data sources common in education, e.g., assessment, school climate, behavioral, (Gummer & Mandinach Wested, 2015; Mandinach & Gummer, 2016).

The following sections explain the elements of this framework in further detail.

Stakeholders. In the stakeholder dimension, we consider coalitions and tensions (Kellogg, 2009; Nuamah, 2020) among members of the network hub leadership team in the 2020-2021 school year. We analyze how these leaders used data and measurement in their work with teachers, school teams, district leaders, and the network hub. We further examine how leaders' data use is mediated by their institutional understanding and perceived agency to create, maintain, and disrupt institutional norms (Bridwell-Mitchell, 2015; Lawrence et al., 2011). In doing so, we explicitly consider individual pressures and aims as potentially in tension with those of the network (Lawrence et al., 2011; Meyer & Rowan, 2016; Zietsma & Lawrence, 2010), which is not uncommon in education (Coburn, 2004).

Pressures. Within the focal network, there were distinct pressures that shaped design, implementation, and sustainability of a data and measurement use system. In response to the multiple levels (e.g., individual, school, district, network) present within the focal network (DiMaggio & Powell, 1983), we categorize pressures as either techno-rational or socio-political (Ansari & Euske, 1987). This enabled us to delineate among the sources of various pressures and analyze variation in how stakeholders navigate different types.

Aims. Similarly, each stakeholder group has its own aims guiding the design and use of the measurement system. In this study, we focus on the aims of *Accountability*, *Improvement*, and *Research* (Solberg et al., 1997). In the context of improvement efforts in education, data is often used to support program activities, suggesting the addition of *Support* as an aim (Bryk et al., 2015; Cobb et al., 2019).

Types. Artifacts are classified according to the key area of work to which they are aligned. These areas of work draw from the Carnegie Foundation's conceptualization of network hub domains and processes (*Hub Domains and Processes*, 2020), including: *Managing the Environment*, *Managing the Hub Organization*, *Cultivation a Strong Network Community*, *Site-Level Improvement Routines*, *Building Capacity*, and *Orchestrating Learning*.

Context

This study takes place in an improvement network, which is patterned after a Networked Improvement Community (NIC) model of organizing for improvement. Originally introduced by scholars at the Carnegie Foundation for the Advancement of Teaching (Bryk et al., 2011, 2013; Gomez et al., 2013), NICs are create inter-organizational networks of educators using improvement science to collaboratively solve specific educational problems. Improvement science is a particular problem-solving approach focused on identifying changes that address our best understanding of the problem we are trying to solve - and using data and evidence to reflect on whether the changes we introduced are, indeed, improvements (*Associates in Process Improvement (API)*, n.d.).

Focal Improvement Network. This study's focal improvement network works with seven pairs of middle school-high school feeder patterns. The network is led by a hub team, comprised of people from a professional development organization and two university-based research and outreach centers, working in collaboration with the city's school district. The network's goal is to collaboratively leverage continuous improvement to identify and eliminate low achievement and inequities in achievement by African American, Latino, low-income, emergent multilingual learners, and students with special needs in critical literacy skills needed for success in college, career, and community.

Data & Methods

This mixed methods case study uses analysis of the network hub artifacts and interviews with steering committee members. The chosen method is case study for sense-making with participants, generation of recommendations for future improvement work in education, and generalization to theory (Freeman et al., 2007; Yin, 2017). This approach enabled us to test and subsequently propose refinements to the synthesized theory suggested by the conceptual framework.

Artifacts (n=814). This study analyzed the focal network's 2020-2021 shared network hub artifact inventory related to data use. Shared artifacts – e.g., attendance data, memos, planning documents – accessible to all network hub members from the 2020-2021 school year were used to understand pressures for and aims of artifact creation and use, as well as the actual pressures for and uses of data.

Semi-Structured Interviews (n=8). We conducted semi-structured interviews with the focal network's 2020-2021 hub team in order to understand the use of the artifacts created. All eight members of the hub's steering committee were interviewed to explore why measures are developed and how they are used, attending particularly to different roles and contexts. Contexts include: support for district leaders, support for school teams, support for teachers, support for the network hub. Each interview was approximately 60 minutes in length and conducted virtually with audio recording and transcription enabled. (See *Table 1. Interview Protocol* for more detail)

Coding. We leveraged two distinct codebooks derived from the conceptual frame, ultimately integrating our data sets based on artifact category.

1. To code network artifacts, we leveraged a codebook focused on artifact type, creation pressure, and creation aim to help us understand how and why artifacts are created;
2. To code the semi-structured interviews, we leveraged a codebook focused on pressure for and aims of artifact use to help us understand how artifacts are actually used.

Quantitative Analysis. In order to understand the relationship between perceived pressures for data and measurement, the types of data artifacts produced, and stakeholders' intentions around how those artifacts would be used, we first tested for correlations amongst the dimensions of *Aims of Data & Measurement Creation*, *Pressures for Data & Measurement Creation*, and *Type of Network Hub Artifacts* based on the artifact inventory. After we established strong correlations among the above variables of interest, we used chi-squared tests to evaluate variation in data artifact aim and type by perceived pressure. Finally, we used multinomial logistic regression to further explore the association between the *Aims of Data & Measurement Creation* and *Pressures for Data & Measurement Creation*, controlling for *Artifact Type*.

Preliminary Findings

We find correlations between pressures for artifact creation and aims of artifact creation, differing pressures for artifact creation and use, and disuse of many network hub artifacts, indicating an opportunity for more intentional artifact creation to better navigate the resource-constrained nature of improvement efforts.

Aims of artifact creation are strongly correlated with the type of pressure for artifact creation. The network created artifacts of different types in response to varying pressures they experienced in the improvement context. For example, social-political pressures were associated with artifacts with the aim of accountability. As shown in Table 3, the relationship between the pressures for artifact creation and the aims of artifact creation is strong. Table 6 further demonstrates the strong relationship between stakeholders' perceptions of pressure and artifact aims, even after controlling for type of data artifact. On average, the relative log odds of stakeholders ascribing to accountability, research, and support aims considerably decreased compared to their relative log odds of ascribing to an improvement aim when they perceived techno-rational pressure, regardless of artifact type.

Few artifacts are created based on socio-political pressures, but many are used based on socio-political pressures. Techno-rational pressures are associated with the creation of most artifacts, but socio-political pressures are associated with the majority of artifact use. Only 4% of shared network hub artifacts were created based on socio-political pressures (see Table 2). However, preliminary interview data indicates that socio-political pressures are the predominant pressure for artifact use, suggesting a need for intentional artifact creation for socio-political purposes (e.g., stakeholder management, communications strategy, reporting).

Most shared network hub artifacts are not used after creation. The network creates hundreds of artifacts each year, but very few are used. Preliminary interview analysis indicates that the majority of these artifacts are not used long after creation, if at all, with a strong emphasis on the use of a small number of accountability-focused artifacts (e.g., accountability data, on-track measurement). There is significant effort associated with the creation of this

network hub's shared artifacts, suggesting that increased up-front planning for artifact creation could reduce associated effort and allow resources to be reallocated to other higher-impact improvement activities.

Significance

This study sheds lights on how data and measurement can be used to navigate social and political dynamics in a complex systems-change effort. This perspective extends the current work in the field, which largely focuses on rational-technical accounts, specifically with regard to how improvement science methods can be used to provide a structure for complex change (Hannan et al., 2015).

Our results have implications for improvement network planning, artifact creation and management, and associated resource allocation.

1. Through intentional artifact creation for socio-political purposes, networks could:
    a. Increase likelihood that artifacts are used as intended
    b. Reduce effort associated with artifact modification or retrofitting for new aims
2. Through a reduction in the quantity of artifacts generated, networks could:
    a. Reduce effort associated with artifact creation
    b. Reallocate resources to other higher-value activities
3. Through a rationalization and reorganization of existing artifacts, networks could:
    a. Foster creation of a shared knowledge base, accessible to new network members as part of a streamlined onboarding process
    b. Reduce effort associated with locating relevant artifacts

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Appendix

Figure 1.
Conceptual Framework

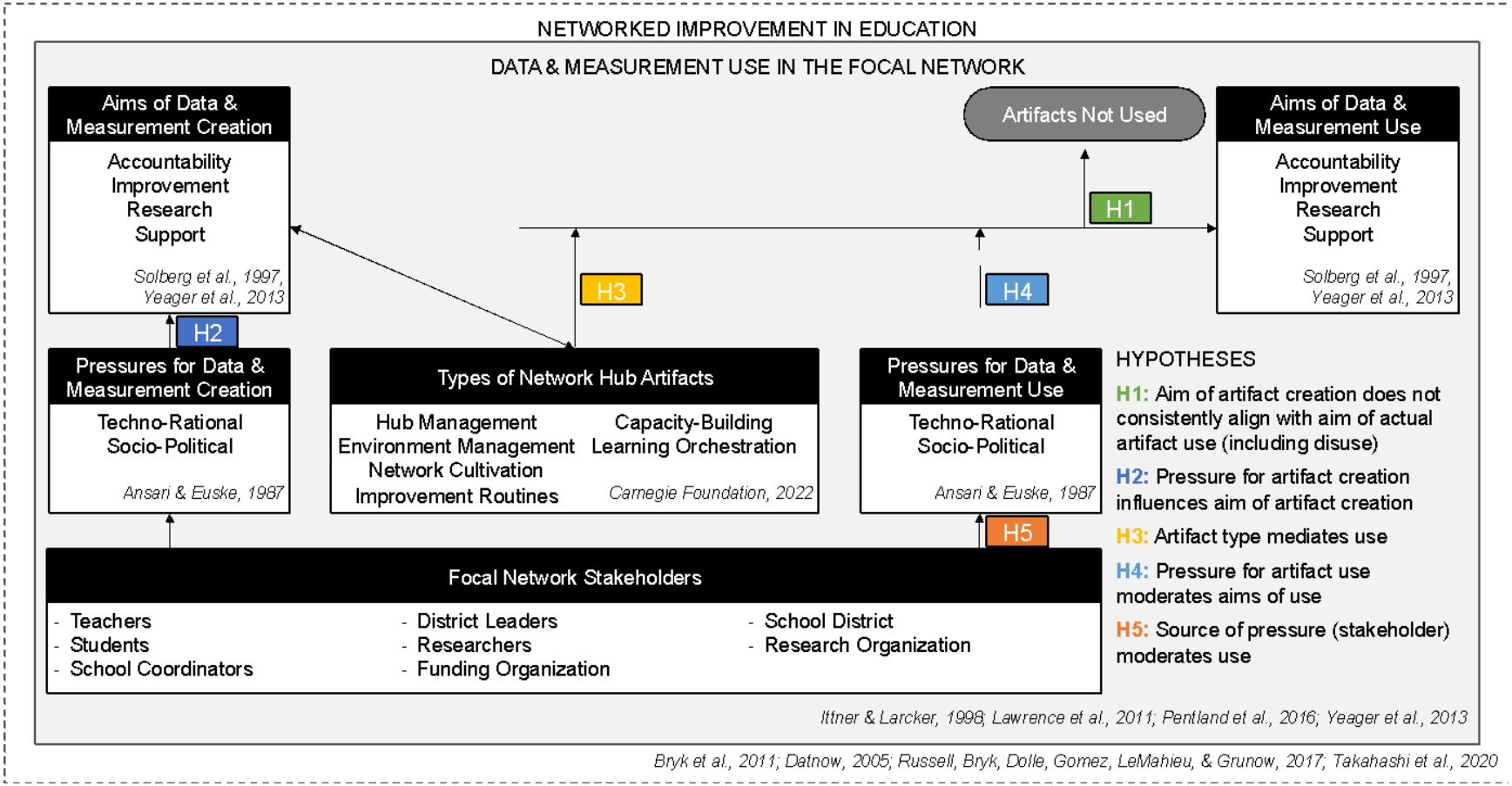

Figure 2.
Joint display of inventory and interview data to be used for analysis of each of the study's hypotheses

Hypothesis	Inventory Data	Interview Data
H1: Aim of artifact creation does not consistently align with outcome of artifact use (including disuse)	• Artifacts created but not mentioned • Creation aim (verified via member check)	• Interview mentions of aspirational artifact use • Interview mentions of actual artifact use
H2: Pressure for artifact creation influences aim of artifact creation	• Pressure for creation (verified via member check) • Creation aim (verified via member check)	• Selective cases / exemplars of mentions (intersections of pressure and aim)
H3: Artifact type mediates use	• Artifact type (verified via member check) • Creation aim (verified via member check)	• Actual aim (as coded)
H4: Pressure for artifact use moderates outcomes of use	• Creation aim (verified via member check)	• Pressure for use (as coded) • Actual aim (as coded)
H5: Source of pressure (stakeholder) moderates use	• Creation aim (verified via member check)	• Stakeholder (use context per protocol) • Actual aim (as coded)

Table 1.
Interview Protocol

What is the specific purpose of the interviews?
The purpose of the interviews is to explore the current role of data and measurement within the focal network in order to understand (1) the primary uses of data and measurement, (2) the primary pressures for use of data and measurement, and (3) how uses of data and measurement differ by stakeholder type.
What information am we interested in exploring?
we am interested in exploring the data and measurement used, the ways in which they're used, and how they've been developed – with specific attention to how people in different roles answer these questions.
Who needs this information, and what are they going to do with it?
The research team needs this information in order to develop a system of measures with which to track progress and value, which in turn will be communicated to improvement network stakeholders (e.g., teachers, instructional coaches, executive directors) and the Gates Foundation.

ID	Question	Role(s)	Drop?
BACKGROUND			
01	Where are you based? *How long have you been here? Where did you live before?*	All	Y
02	How long have you worked in the field of education? *What brought you to education? Where did you work previously?*	All	Y
FOCAL IMPROVEMENT NETWORK			
03	What is your role in the improvement network work? *Have you always had this role within the improvement network?*	All	
04	How long have you worked on the improvement network? *What brought you to the improvement network? Did particular people influence your participation?*	All	Y
05	Who are the main people you interact with in the improvement network? *What roles are they in? Are the interactions personal or professional? At what frequency do they occur? Can you provide examples of these interactions?*	All	

RESEARCH QUESTION

Work with District Leaders		PL	
06	How do you use data and measurement in your work with district leaders in the improvement network? *What data and evidence do you draw on? Where does the data come from? Do you use the same data regularly? Is it shared with other people? Are there any other sources that you use?*	PL	
07	What kinds of data sources / measurements do you use to make decisions with district leaders? *Can you tell me about a recent decision you helped a district leader make and how you used data/evidence to do so? What types of decisions are made based on data? Is the data widely accepted as accurate? Are there defined thresholds? What other factors are considered?*	PL	
08	How do you measure success in your work with district leaders in the improvement network? *What metrics help you think about district leader success? Are there specific metrics that you use? Are there clear definitions? Where does the data come from?*	PL	Y
09	How do you measure progress on your work with district leaders in the improvement network? *What metrics help you think about the progress of district leaders on this project? Are there specific metrics that you use? Are there clear definitions? Where does the data come from?*	PL	Y
10	You mentioned using [measurement] – how did you come up with that? What tools, if any, do you use to support? How is this measure practical? How is it aligned with the improvement work? How is it embedded in the daily workflow? *Who defined them? The school district? Research team? Your department? You? Who else uses these measurements? What other measurements did you consider? How often do you update the measurements? Where does the data come from? How long do the updates take?*	PL	
11	How do you report on the work you do with district leaders in the improvement network? *Do you share these measurements with anyone? What data products and visualizations are you using regularly? Where is that data coming from? What database do you need to produce for Gates? What data products do you need to produce for cluster leads? The district? Are there other stakeholders you have to report to? Do you use a tool? At what frequency are these reports generated? How much time does it take to report?*	PL	

Work with School Teams		IC	
12	How do you use data and measurement in your work with schools and teachers in the improvement network? *What data and evidence do you draw on? Where does the data come from? Do you use the same data regularly? Is it shared with other people? Are there any other sources that you use?*	IC	
13	What kinds of data sources / measurements do you use to make decisions with schools and teachers? *Can you tell me about a recent decision you helped a school or teacher make and how you used data/evidence to do so? What types of decisions are made based on data? Is the data widely accepted as accurate? Are there defined thresholds? What other factors are considered?*	IC	
14	How do you measure success in your work with schools and teachers in the improvement network? *What metrics help you think about school and teacher success? Are there specific metrics that you use? Are there clear definitions? Where does the data come from?*	IC	Y
15	How do you measure progress on your work with schools and teachers in the improvement network? *What metrics help you think about the progress of schools and teachers in this project? Are there specific metrics that you use? Are there clear definitions? Where does the data come from?*	IC	Y
16	You mentioned using [measurement] – how did you come up with that? What tools, if any, do you use to support? How is this measure practical? How is it aligned with the improvement work? How is it embedded in the daily workflow? *Who defined them? The school district? Research team? Your department? You? Who else uses these measurements? What other measurements did you consider? How often do you update the measurements? Where does the data come from? How long do the updates take?*	IC	
17	How do you report on the work you do with the schools and teachers in the improvement network? *Do you share these measurements with anyone? What data products and visualizations are you using regularly? Where is that data coming from? What database do you need to produce for Gates? What data products do you need to produce for cluster leads? The district? Are there other stakeholders you have to report to? Do you use a tool? At what frequency are these reports generated? How much time does it take to report?*	IC	

Work with Teachers		SC, IC	
18	How do you use data and measurement in your work with teachers in the improvement network? *What data and evidence do you draw on? Where does the data come from? Do you use the same data regularly? Is it shared with other people? Are there any other sources that you use?*	SC, IC	
19	What kinds of data sources / measurements do you use to make decisions with teachers? *Can you tell me about a recent decision you helped a teacher make and how you used data/evidence to do so? What types of decisions are made based on data? Is the data widely accepted as accurate? Are there defined thresholds? What other factors are considered?*	SC, IC	
20	How do you measure success in your work with teachers in the improvement network? *What metrics help you think about teacher success? Are there specific metrics that you use? Are there clear definitions? Where does the data come from?*	SC, IC	Y
21	How do you measure progress on your work with district leaders in the improvement network? *What metrics help you think about the progress of teachers on this project? Are there specific metrics that you use? Are there clear definitions? Where does the data come from?*	SC, IC	Y
22	You mentioned using [measurement] – how did you come up with that? What tools, if any, do you use to support? How is this measure practical? How is it aligned with the improvement work? How is it embedded in the daily workflow? *Who defined them? The school district? Research team? Your department? You? Who else uses these measurements? What other measurements did you consider? How often do you update the measurements? Where does the data come from? How long do the updates take?*	SC, IC	
23	How do you report on the work you do with teachers in the improvement network? *Do you share these measurements with anyone? What data products and visualizations are you using regularly? Where is that data coming from? What database do you need to produce for Gates? What data products do you need to produce for cluster leads? The district? Are there other stakeholders you have to report to? Do you use a tool? At what frequency are these reports generated? How much time does it take to report?*	SC, IC	

	Work in Classrooms / with Tests of Change	T	
24	How do you use data and measurement in your classroom work / work with tests of change in the improvement network? *What data and evidence do you draw on? Where does the data come from? Do you use the same data regularly? Is it shared with other people? Are there any other sources that you use?*	T	
25	What kinds of data sources / measurements do you use to make decisions about tests of change? *Can you tell me about a recent test of change and how you made the decision to adopt/adapt/abandon? What other types of decisions are made based on data? Is the data widely accepted as accurate? Are there defined thresholds? What other factors are considered?*	T	
26	How do you measure success in your classroom work in the improvement network? *What metrics help you think about success in this project? Are there specific metrics that you use? Are there clear definitions? Where does the data come from?*	T	Y
27	How do you measure progress on your classroom work in the improvement network? *What metrics help you think about your progress on this project? Are there specific metrics that you use? Are there clear definitions? Where does the data come from?*	T	Y
28	You mentioned using [measurement] – how did you come up with that? What tools, if any, do you use to support? How is this measure practical? How is it aligned with the improvement work? How is it embedded in the daily workflow? *Who defined them? The school district? Research team? Your department? You? Who else uses these measurements? What other measurements did you consider? How often do you update the measurements? Where does the data come from? How long do the updates take?*	T	
29	How do you report on the work you do with the improvement network? *Do you share these measurements with anyone? What data products and visualizations are you using regularly? Where is that data coming from? What database do you need to produce for Gates? What data products do you need to produce for cluster leads? The district? Are there other stakeholders you have to report to? Do you use a tool? At what frequency are these reports generated? How much time does it take to report?*	T	

	Work with the Network Hub	All	
30	How do you use data and measurement in your work with the network hub? *What data and evidence do you draw on? Where does the data come from? Do you use the same data regularly? Is it shared with other people? Are there any other sources that you use?*	All	
31	What kinds of data sources / measurements do you use to make decisions with the network hub? *Can you tell me about a recent decision you helped the network make and how you used data/evidence to do so? What types of decisions are made based on data? Is the data widely accepted as accurate? Are there defined thresholds? What other factors are considered?*	All	
32	How do you measure success in work with the network hub? *What metrics help you think about success for the network hub? Are there specific metrics that you use? Are there clear definitions? Where does the data come from?*	All	Y
33	How do you measure progress in work with the network hub in the NSI? *What metrics help you think about your progress on this project? Are there specific metrics that you use? Are there clear definitions? Where does the data come from?*	All	Y
34	You mentioned using [measurement] – how did you come up with that? What tools, if any, do you use to support? How is this measure practical? How is it aligned with the improvement work? How is it embedded in the daily workflow? *Who defined them? The school district? Research team? Your department? You? Who else uses these measurements? What other measurements did you consider? How often do you update the measurements? Where does the data come from? How long do the updates take?*	All	
35	How do you report on the work you do with the NSI? *Do you share these measurements with anyone? What data products and visualizations are you using regularly? Where is that data coming from? What database do you need to produce for Gates? What data products do you need to produce for cluster leads? The district? Are there other stakeholders you have to report to? Do you use a tool? At what frequency are these reports generated? How much time does it take to report?*	All	

WRAP-UP		All
36	What kind of challenges have you experienced in supporting improvement network in using data and measurement to drive improvement work? *Can you tell me about a time when you ran into difficulty in trying to use data or measurement?*	All
37	When it comes to data and measurement, what works? What doesn't? For whom and under what conditions? *Can you give an example of what has worked well? Can you tell me about a time when data or measurement added value? Detracted value?*	All
38	If you could start from a blank slate, what data would you collect? *What would you include? Who would maintain the data? Why would you make these changes? What would be better about this new blank slate?*	All
39	If you could start from a blank slate, what measurements would you track? *What would you include? Test scores? Culture? Grades? Graduation rates? Financial measures? Schedule? Quality? Effectiveness? Why they would you make these changes? What would be better about this new blank slate?*	All

KEY	ROLE
IC	Instructional Coach
PL	Project Leadership
SC	School Coordinator
T	Teacher

Table 2.
Observed sample size and proportion of artifacts coded for each of the theoretical framework values for artifact type, pressure for artifact creation, and aim of artifact creation in the 2020-2021 school year of the focal network

Dimension	N	Prop
Artifact Type		
Hub Management	814	15.8
Environment Management	814	4.8
Network Cultivation	814	10.3
Improvement Routines	814	16.3
Capacity-Building	814	16.1
Learning Orchestration	814	36.6
Pressure for Artifact Creation		
Socio-Political	814	3.9
Techno-Rational	814	96.1
Aim of Artifact Creation		
Accountability	814	3.8
Improvement	814	78.6
Research	814	13.9
Support	814	14.5

Table 3.
Preliminary Findings: Aim of shared network hub creation versus pressure for artifact creation

Aim	Techno-rational	Socio-political
Accountability***	71%	29%
Improvement***	1%	99%
Research	6%	94%
Support	36%	64%

Note: * p<.05; ** p<.01; *** p<.001

Table 4.
Preliminary Findings: Artifact type versus pressure for shared network hub artifact creation

Aim	Techno-rational	Socio-political
Hub Management	3%	97%
Environment Management***	4%	96%
Network Cultivation	41%	59%
Improvement Routines*	1%	99%
Capacity-Building*	0%	100%
Learning Orchestration	3%	97%

Note: * p<.05; ** p<.01; *** p<.001

Table 5.
Preliminary Findings: Aim of shared network hub artifact creation versus artifact type

Type	Acct	Impr	Research	Support
Hub Management	9.3 **	249.2 ***	37.6 ***	120.7 ***
Environment Management	81.3 ***	5.1 *	2.6	1.5
Network Cultivation	0.5	7.8 **	10.4 **	2.9
Improvement Routines	4.0 *	22.3 ***	20.4 ***	14.8 ***
Capacity-Building	3.9 *	36.6 ***	152.8 ***	18.8 ***
Learning Orchestration	7.8 **	8.8 **	61.8 ***	0.2

Note: * p<.05; ** p<.01; *** p<.001

Table 6.

Preliminary multinomial logistic regression coefficients for pressure and type model covariates based on 2020-2021 network hub artifact inventory.

	Accountability (3.8%)				Improvement (78.6%)	Research (13.9%)				Support (14.5%)			
	Coef.	S.E.	z	P>|z|	Base outcome	Coef.	S.E.	z	P>|z|	Coef.	S.E.	z	P>|z|
Pressure	-10.423 ***	1.834	-5.68	0.000		-7.347 ***	1.526	-4.75	0.000	-3.204 **	1.004	-3.19	0.001
Artifact Type													
Env Mgmt	-6.768 ***	1.868	-3.62	0.000		-7.597 ***	1.856	-4.09	0.000	-3.438 ***	0.850	-4.05	0.000
Network Cult	-7.226 ***	2.052	-3.52	0.000		-21.688	2106.255	-0.01	0.992	-3.043 ***	0.466	-6.53	0.000
Impr Rout	-4.788 **	1.626	-2.94	0.003		-4.272 ***	0.779	-5.48	0.000	-3.794 ***	0.508	-7.46	0.000
Cap-Building	-3.253 **	1.081	-3.19	0.001		-19.663	1635.508	-0.01	0.990	-4.732 ***	0.747	-6.33	0.000
Learning Orch	-6.749 ***	1.601	-4.22	0.000		-5.689 ***	1.046	-5.44	0.000	-2.447 ***	0.283	-8.64	0.000
cons	9.024 ***	1.833	4.92	0.000		7.358 ***	1.564	4.70	0.000	3.777 ***	1.029	3.67	0.000

Note: * $p<.05$; ** $p<.01$; *** $p<.001$.